

REGIONE AUTONOMA DELLA SARDEGNA

COMUNI DI

MORES - ITTIREDDU - NUGHEDU SAN NICOLO' - BONORVA



PROGETTO PER LA REALIZZAZIONE DI UN PARCO EOLICO PER LA PRODUZIONE DI ENERGIA ELETTRICA DA FONTE RINNOVABILE - POTENZA DI PICCO 124 MWp
DA REALIZZARSI IN LOCALITA' "SA COSTA"

VALUTAZIONE DI IMPATTO AMBIENTALE

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SHADOW FLICKERING

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1 - INTRODUZIONE

Questo elaborato analizza l'evoluzione dell'ombra derivante dalla futura installazione dell'impianto di produzione di energia da fonte eolica costituita da 18 aerogeneratori modello VESTAS V162, i quali presentano una altezza del mozzo posta a 119 m rispetto al suolo e con diametro rotore di 162 m.

Le turbine eoliche hanno una potenza massima di 6.8 MW, ad eccezione degli aerogeneratori WTG04, WTG05, WTG06 e WTG07, la cui potenza massima è invece di 7.2 MW, per una potenza di picco totale prevista di 124 MWp.

L'impianto è proposto dalla società *VEN.SAR. s.r.l.* ed è da collocarsi in località *Sa Costa*, in un territorio compreso tra i comuni di Mores, Ittireddu, Nughedu San Nicolò e Bonorva.

La dicitura *Shadow Flickering* è il termine comunemente utilizzato in ambito specialistico per descrivere lo sfarfallio dell'ombra proiettata dal passaggio intermittente delle pale delle turbine eoliche quando sussistono le condizioni meteorologiche opportune; infatti la possibilità e la durata di tali effetti dipendono da una serie di condizioni ambientali, tra cui: la posizione del sole, l'ora del giorno, il giorno dell'anno, le condizioni atmosferiche ambientali e la posizione della turbina eolica rispetto ad un recettore sensibile.

Per studiare questo fenomeno è stata eseguita una valutazione tecnica con l'ausilio del software di simulazione specifico per la progettazione degli impianti eolici *WindPRO*. Nello specifico è stato utilizzato il modulo denominato *SHADOW*, che è quello implementato per la valutazione dell'evoluzione dell'ombra e del flickering.

2 - CENNI SUL FENOMENO DELLO SHADOW FLICKERING

Come detto, il fenomeno dello Shadow Flickering consiste in una variazione periodica dell'intensità luminosa osservata, causata dalla proiezione su una certa superficie dell'ombra indotta da oggetti in movimento, nel nostro caso le pale dell'aerogeneratore. Quindi esso dipenderà, oltre che dall'altezza e dal posizionamento dell'aerogeneratore rispetto al recettore,

anche dall'altitudine e dalla posizione del Sole, che ovviamente varierà nel corso della giornata e, allo stesso tempo, nel corso dell'intero anno.

Con particolare riferimento alle turbine eoliche, lo sfarfallio avviene quando il Sole è basso nel cielo e illumina la struttura venendosi a trovare dietro il rotore della turbina. Ciò può indurre la proiezione intermittente dell'ombra delle pale su una struttura, producendo così l'effetto del rapido passaggio dall'ombreggiamento alle condizioni naturali di illuminazione mentre la turbina gira.

In presenza di luce solare diretta, un recettore localizzato nella zona d'ombra indotta dal rotore, sarà investito da un continuo alternarsi di luce ed ombra, causato dalla rotazione delle pale.

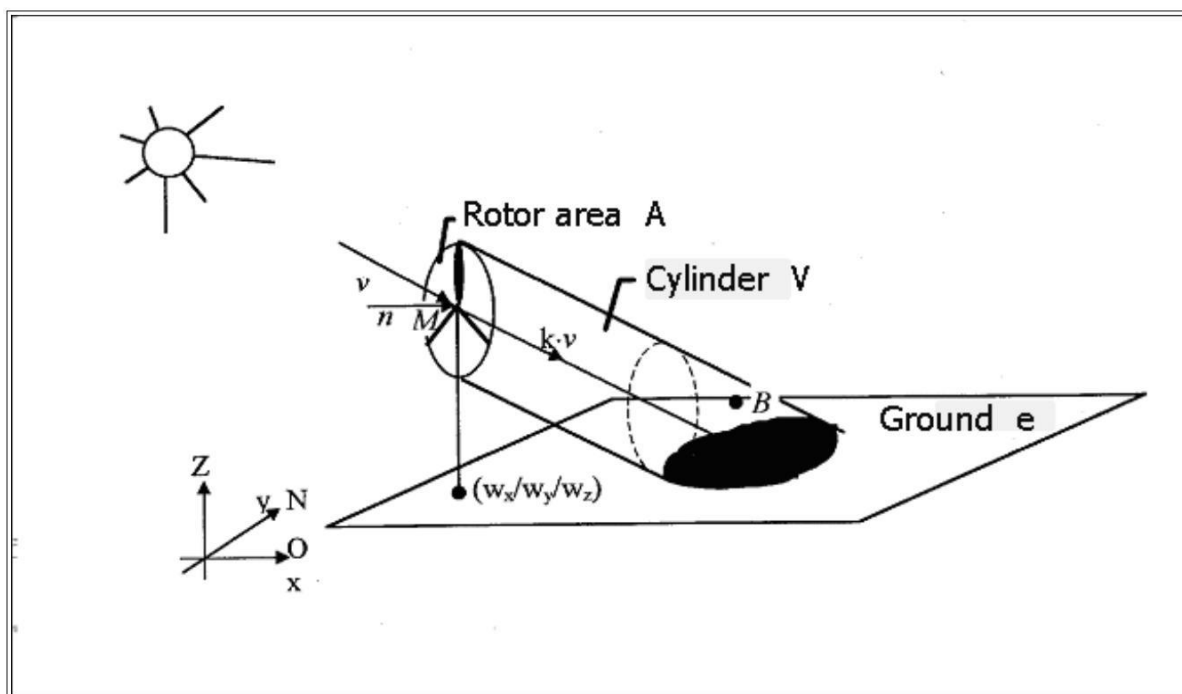


Figura 1 Rappresentazione della proiezione dell'ombra del rotore

Sebbene il fenomeno possa essere percepito anche all'esterno dalle abitazioni, esso risulta evidente e fastidioso in quegli ambienti con finestre rivolte verso gli aerogeneratori e le ombre da essi generate, la cui proiezione intermittente penetra all'interno della casa.

Tuttavia va considerato anche che un edificio può presentare delle aree esterne di frequentazione abituale da parte delle persone, per cui è sempre bene considerare il caso peggiore quando si effettuano i calcoli per la valutazione di questo problema.

La sua intensità viene definita come la differenza di luminosità che si percepisce in presenza ed in assenza di sfarfallio in una data posizione.

Al momento solo la Germania possiede linee-guida dettagliate sui limiti e le condizioni per il calcolo dell'impatto dell'ombra. Queste si trovano in "Hinweise zur Ermittlung und Beurteilung der optischen Immissionen von Windenergieanlagen" (WEA-Shattenwurf-Hinweise).

Secondo le direttive tedesche, il limite di ombra è determinato da due fattori:

- L'angolo del sole sopra l'orizzonte deve essere almeno 3°
- La pala della turbina eolica deve coprire almeno il 20% del sole.

Il massimo ombreggiamento su un vicino secondo tali linee-guida è:

- Massimo 30 ore all'anno di ombra massima astronomica (caso peggiore)
- Massimo 30 minuti al giorno di ombra massima astronomica (caso peggiore)

Altre nazioni, come Svezia e Danimarca, pur non avendo ancora adottato delle linee-guida ufficiali, hanno deciso di limitare l'utilizzo rispettivamente a 8 e 10 ore, tenendo comunque conto delle situazioni meteorologiche.

L'ora del giorno in cui l'impatto dell'ombra è critico e la definizione del recettore d'ombra sono regolati meno rigidamente dalle normative, e andranno spesso valutati caso per caso.

Ad esempio, una fabbrica o un edificio con uffici non verrebbero interessati se l'ombreggiamento avvenisse dopo l'orario di lavoro, mentre sarebbe più accettabile per abitazioni private subirlo durante lo stesso orario, quando la famiglia è comunque fuori.

L'effettiva quantità di ombra come frazione del rischio potenziale calcolato dipenderà fortemente dalla posizione geografica in questione. In zone con un'alta frequenza di cielo coperto il problema sarebbe ovviamente minore, e durante le potenziali ore di ombreggiamento in estate le WTG potrebbero spesso essere ferme per assenza di vento.

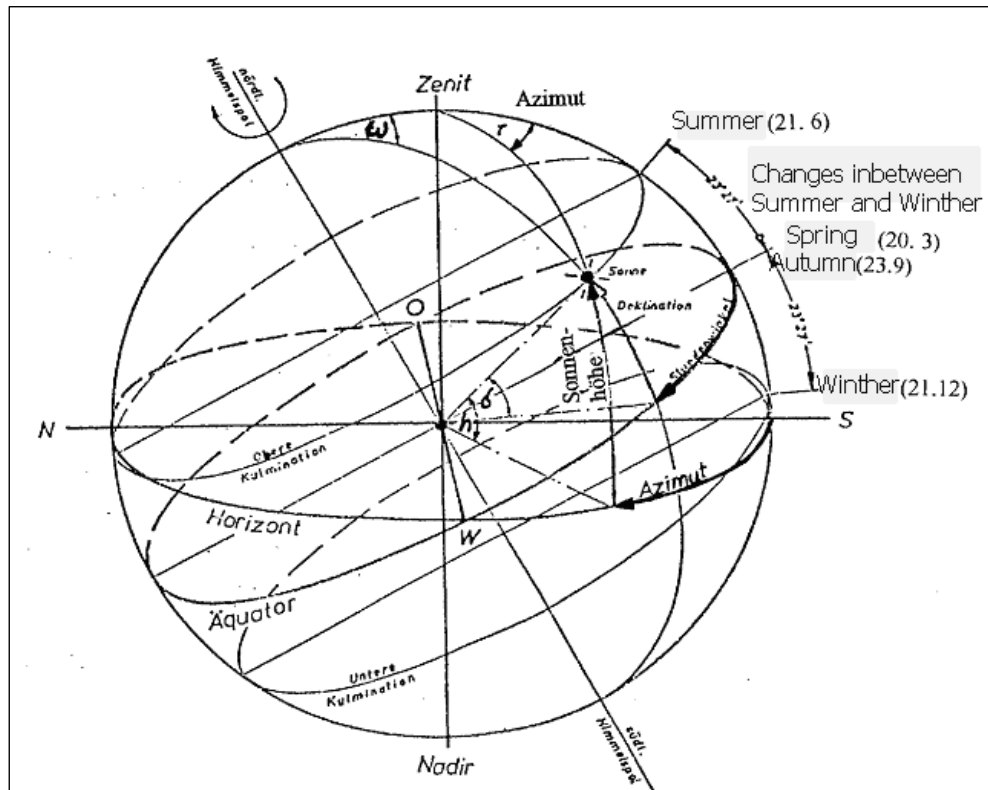


Figura 2 Schema dei moti terrestri e parametri di calcolo

Il fenomeno dello *Shadow Flickering* dipende comunque, oltre che da fattori geografici, astronomici e meteorologici, anche dalla struttura stessa dell'aerogeneratore.

In pratica la forma rastremata delle pale, con spessore crescente verso il mozzo, fa sì che il fenomeno sia tanto più intenso quanto maggiore sarà la porzione di disco solare coperta dalla pala stessa e quanto minore la distanza dal recettore.

Inoltre l'intensità del flickering sarà minima quando l'ombra prodotta è generata all'estremità delle pale.

Maggiori distanze tra generatore e recettore determinano ombre meno nette, in tal caso l'effetto risulterà meno intenso e distinto.

Anche la presenza di schermature locali (per esempio alberi interposti tra il recettore e la sorgente d'ombra) favorisce una diminuzione dell'effetto.

L'ombra delle pale dell'aerogeneratore, essendo prodotta dall'interposizione tra queste e il disco solare, varierà a seconda del posizionamento di quest'ultimo sia durante le ore della

giornata, sia nel corso dei mesi.

La figura successiva riporta l'evoluzione annuale dell'ombra di una turbina (come esempio è stata presa la WTG08 dell'impianto in progetto a cui si riferisce questo elaborato) considerando il caso peggiore, che si manifesta nel momento in cui una pala sia sempre in rotazione intorno al mozzo, e orientate sempre ortogonalmente al sole durante la sua evoluzione giornaliera.

Come si può evincere dal grafico, le ore annue di ombra sono sempre minori con l'aumentare della distanza dalla torre secondo una particolare geometria dettata dalla posizione geografica; da osservare che l'ombra arriva a proiettarsi anche sino ad una distanza di 1000 m, anche se solo per pochi minuti all'anno.

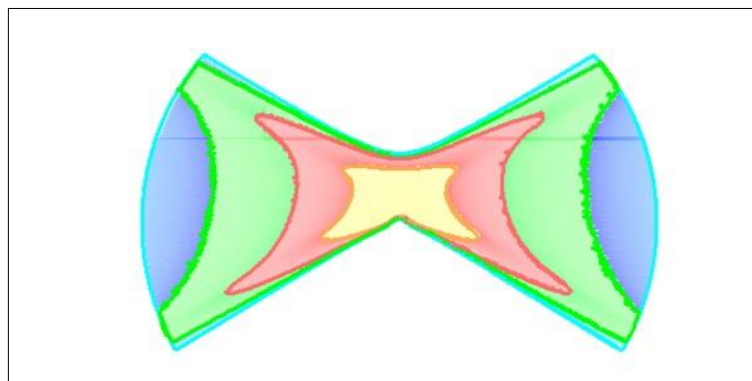


Figura 3 *Evoluzione annuale tipo di un aerogeneratore*

In questo grafico l'area più interna in giallo identifica una situazione con almeno 100 ore di ombra annuali, l'area in rosso rappresenta un valore compreso tra 100 e 30 ore di ombra/anno, l'area in verde è relativa al caso che comprende tra le 30 e le 10 ore di ombreggiamento annuali mentre con il colore azzurro viene rappresentato un valore di presenza dell'ombra minore alle 10 ore annue.

3 - CALCOLO DELLO SHADOW FLICKERING

Per analizzare il potenziale impatto dell'ombra su un dato recettore è stato utilizzato il software WindPRO nella versione 4.0, il quale esegue una simulazione della situazione dell'impianto in progetto.

La posizione del Sole rispetto al disco del rotore e l'ombra risultante vengono calcolate a passi di un minuto per un anno intero. Se il disco del rotore (che nel calcolo si assume solido) genera in qualunque momento un'ombra sulla finestra spaziale che definisce il recettore, ciò verrà registrato come 1 minuto di potenziale impatto d'ombra.

Per effettuare questa simulazione sono necessarie le seguenti informazioni:

- Posizione delle WTG (coordinate x, y, z)
- Altezza del mozzo e diametro del rotore delle WTG (dati disponibili individuando il modello di WTG presente nell'elenco disponibile nel software)
- Posizione del Recettore sensibile d'ombra (coordinate x, y, z)
- Dimensione della "finestra" e sua orientazione, sia direzionale (rispetto al Sud) che angolare (inclinazione rispetto al piano orizzontale)
- Posizione geografica (latitudine e longitudine), fuso orario ed eventuale ora legale della zona dell'impianto.
- Modello di simulazione che contenga le informazioni sull'orbita della Terra e la sua rotazione.
- Modello digitale del terreno.

WindPRO processa questi dati al fine di ottenere la simulazione voluta tramite il modulo denominato SHADOW. In questo modello di calcolo i seguenti parametri definiscono l'angolo di propagazione dell'ombra oltre il disco del rotore:

- Diametro del Sole, D: 1.390.000 km
- Distanza dal Sole, d: 150.000.000 km
- Angolo d'attacco: 0.531°

Teoricamente, questo condurrebbe ad un ombreggiamento fino a 4.8 km di distanza, da un

rotore di 45 m di diametro. In realtà, però, le ombre non raggiungono mai il massimo teorico di lunghezza, a causa delle caratteristiche ottiche dell'atmosfera.

Quando il Sole è molto basso sull'orizzonte e le ombre diventano molto lunghe, esse si dissipano prima di raggiungere il suolo (o il recettore). Quanto lontano dalla WTG un'ombra sia visibile non è ben documentato, ed al momento, come detto, soltanto le linee-guida tedesche impongono dei limiti su questo punto.

Il default in WindPRO è una distanza di 2 km, o quella che dia una copertura del 20% del disco solare (si usa la più breve), e l'angolo minimo è di 3° sopra l'orizzonte. Se si utilizzano le linee-guida tedesche, la distanza massima da ciascuna WTG può essere calcolata usando la formula

$$D_{max} = (5 \cdot w \cdot d) / 1.097.780$$

dove w è l'ampiezza media della pala. Il valore 1.097.780 è derivato dal diametro del Sole, ridotto di un fattore che compensa il fatto che il disco solare sia un cerchio e non un quadrato.

Il software tiene conto anche dell'ostacolo naturale dovuto all'orografia e da eventuali altri ingombri presenti che devono essere inseriti specificatamente (es. Foreste, barriere artificiali o naturali, ecc.) grazie all'opzione denominata ZVI.

Nelle operazioni di calcolo con WindPRO è possibile scegliere se riferirsi ad una situazione reale, denominata *real case*, nella quale si inseriscono dati noti o si fa riferimento a valori basati su statistiche presenti nel programma, che restituiscono una simulazione più veritiera del fenomeno, oppure si può scegliere di eseguire la procedura *worst case*, che considera il caso peggiore possibile in quella determinata configurazione.

Inoltre per i recettori si possono inserire i dati relativi alle finestre esposte (dimensioni, altezza rispetto al suolo, orientazione della finestra sia angolare che direzionale), oppure si può utilizzare la modalità "*green house*", la quale considera il recettore come se fosse una serra, e quindi vulnerabile in tutte le direzioni agli effetti dello shadow flickering. In questo modo è anche possibile considerare eventuali spazi esterni di frequentazione abituale da parte delle persone.

Nel nostro caso si è preferito utilizzare le condizioni più sfavorevoli, ovvero la procedura *worst case* con i recettori in modalità *green house*, e, come ulteriore scelta del peggiore dei

casi, non si sono tenuti in conto eventuali ostacoli che possono interferire nella proiezione delle ombre tra WTG e recettori non utilizzando la funzione ZVI del software.

4 - INDIVIDUAZIONE DEI RECETTORI

Il progetto del Parco Eolico Sa Costa prevede l'installazione di 18 aerogeneratori il cui modello e caratteristiche sono stati precedentemente esposti.

Le coordinate e le quote alla fondazione sono riportate nella seguente tabella:

Aerogeneratori	Potenza aerogeneratore	Coordinate UTM (WGS84-32N)		Quota base (m)
WTG01	6,8MW	494442.919	4484878.619	517
WTG02	6,8MW	493827.642	4484687.960	423
WTG03	6,8MW	492519.207	4483025.042	529
WTG04	7,2MW	492976.195	4482678.178	612
WTG05	7,2MW	493545.352	4482418.803	686
WTG06	7,2MW	492893.594	4482244.015	631
WTG07	7,2MW	492420.471	4482004.276	581
WTG08	6,8MW	490801.732	4481620.700	582
WTG09	6,8MW	492448.079	4483914.113	464
WTG10	6,8MW	492732.159	4483470.386	518
WTG11	6,8MW	492016.258	4483069.629	452
WTG12	6,8MW	492033.769	4482564.561	525
WTG13	6,8MW	490790.850	4482144.189	509
WTG14	6,8MW	490830.217	4483147.469	445
WTG15	6,8MW	490239.563	4483239.792	402
WTG16	6,8MW	490041.275	4482787.506	419
WTG17	6,8MW	489749.785	4483106.359	419
WTG18	6,8MW	489421.756	4482495.095	446

Tabella 1: Coordinate, potenza e quota degli aerogeneratori in progetto

Per l'individuazione dei potenziali recettori sensibili nelle aree direttamente interessate dalla presenza degli aerogeneratori sono stati presi in considerazione i fabbricati presenti ad una distanza di 1100 m da essi, in modo da considerare anche le proprietà che, anche se identificate a distanze superiori ai 1000 m considerati come massimo dal punto di vista legislativo, potrebbero avere delle parti che comunque rientrano in tale limite.

Dal controllo dei dati catastali poi sono stati scartati i fabbricati non aventi destinazione abitativa accertata (categoria catastale "A"). In tal modo sono state identificate 13 strutture come potenziali recettori. Nella tabella seguente per ciascuno di essi vengono riportate le

coordinate e l'altitudine.

Recettore	Coordinate UTM (WGS84-32N)		Quota (m)
R01	490663	4481894	541,339
R02	494252	4485366	453,955
R03	493819	4483507	580,479
R04	493826	4483498	582,583
R05	493648	4481527	546,037
R06	493170	4484624	432,853
R07	492262	4482092	590,794
R08	492431	4482699	553,359
R09	491608	4482398	533,714
R10	491537	4483215	437,706
R11	491507	4484366	378,927
R12	491007	4483642	395,481
R13	489732	4482763	441,769

Tabella 2 Coordinate e quota dei 13 recettori individuati

Il posizionamento dei recettori rispetto agli aerogeneratori è riportato nella figura seguente

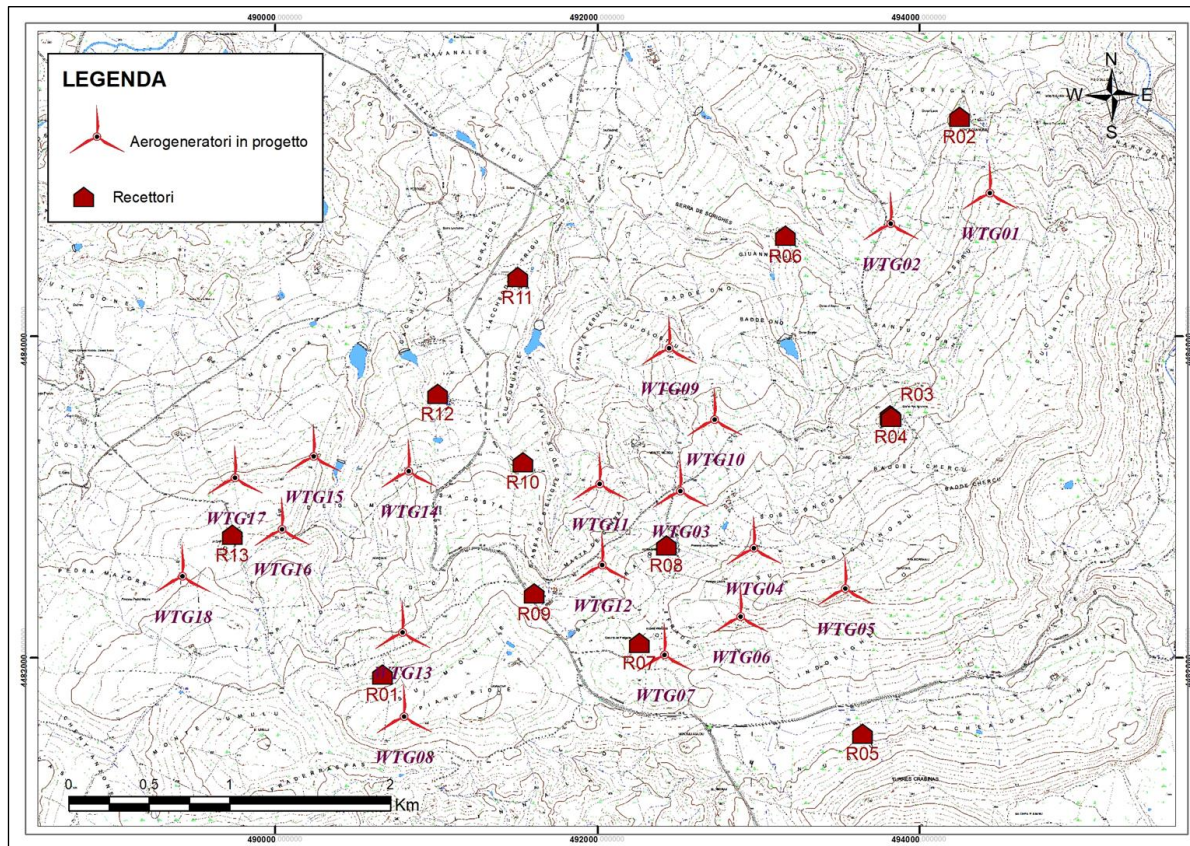


Figura 4 Posizione di WTG e Recettori su base topografica

Tramite il software WindPRO è anche possibile esportare il posizionamento dell'impianto in progetto e dei recettori su stralcio di ortofoto satellitare nel prospetto 3D estratto da Google Earth.

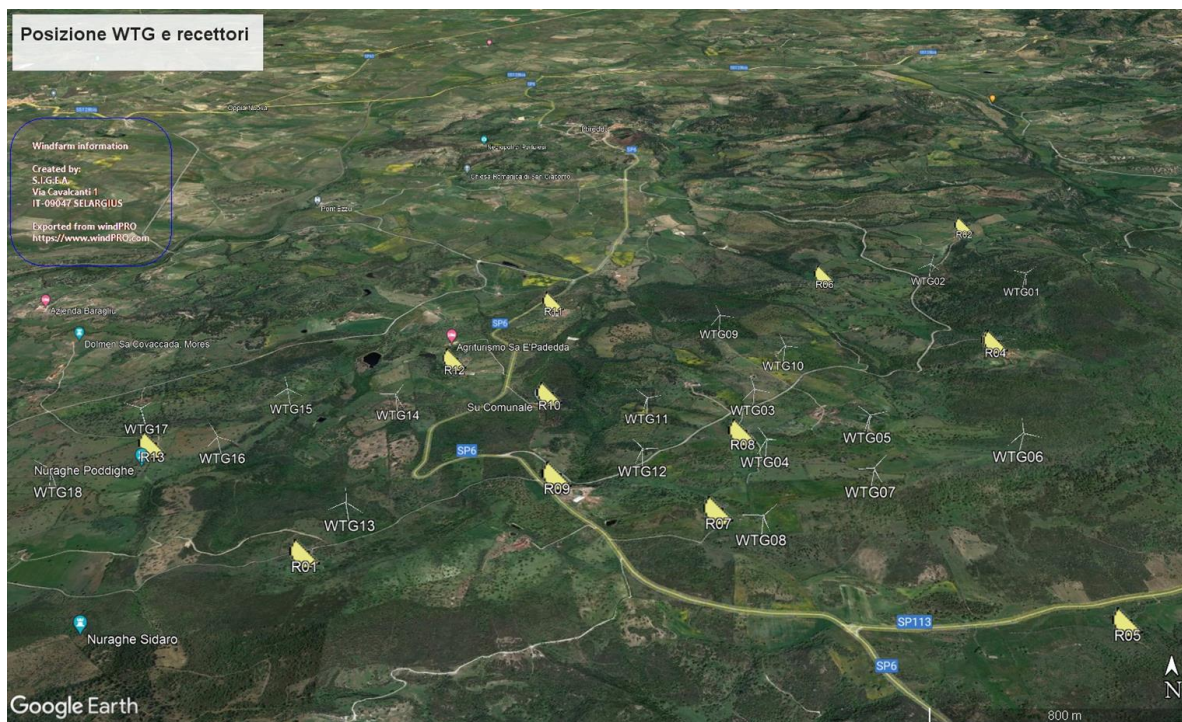


Figura 5 Inquadramento degli aerogeneratori in progetto e dei recettori su ortofoto satellitare in prospettiva 3D estratta da Google Earth

Viene riportata di seguito la matrice delle distanze tra WTG e recettori; in rosso sono state evidenziate le distanze inferiori ai 1000 m e quindi i recettori ad una distanza dal rispettivo aerogeneratore che potrebbero subire gli effetti dello sfarfallio dell'ombra delle pale dell'aerogeneratore.

COORDINATE E MATRICE DISTANZE WTG / RECETTORI (m)															
RECETTORI		R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	
AEROGENERATORI	COORDINATE	490663	494252	493819	493826	493648	493170	492262	492431	491608	491537	491507	491007	489732	
	UTM WGS84 32N	4481894	4485366	4483507	4483498	4481527	4484624	4482092	4482699	4482398	4483215	4484366	4483642	4482763	
WTG01	494443	4484879	4818	524	1507	1513	3446	1299	3540	2967	3769	3350	2982	3653	5166
WTG02	493828	4484688	4223	800	1182	1191	3167	661	3033	2431	3191	2724	2344	3010	4527
WTG03	492519	4483025	2174	2914	1387	1390	1877	1727	968	338	1107	1001	1681	1634	2801
WTG04	492976	4482678	2440	2986	1190	1188	1325	1966	918	546	1395	1540	2246	2198	3247
WTG05	493545	4482419	2931	3032	1122	1115	898	2238	1325	1150	1938	2161	2820	2819	3830
WTG06	492894	4482244	2259	3406	1566	1563	1041	2397	650	649	1295	1669	2536	2349	3205
WTG07	492420	4482004	1762	3830	2054	2052	1318	2726	181	695	903	1499	2533	2164	2794
WTG08	490802	4481621	307	5094	3560	3561	2849	3826	1535	1955	1120	1756	2836	2033	1566
WTG09	492448	4483914	2697	2317	1431	1440	2673	1013	1832	1216	1734	1149	1044	1467	2951
WTG10	492732	4483470	2602	2431	1088	1095	2149	1234	1457	828	1554	1223	1518	1734	3084
WTG11	492016	4483070	1793	3206	1856	1860	2246	1936	1009	556	786	501	1393	1161	2306
WTG12	492034	4482565	1527	3575	2020	2022	1920	2353	525	420	457	819	1878	1489	2311
WTG13	490791	4482144	281	4731	3322	3325	2924	3438	1473	1732	856	1306	2335	1514	1227
WTG14	490830	4483147	1265	4080	3011	3017	3252	2788	1779	1663	1080	710	1394	525	1164
WTG15	490240	4483239	1411	4543	3591	3597	3816	3242	2326	2258	1607	1298	1696	867	697
WTG16	490041	4482788	1089	4939	3847	3852	3822	3629	2328	2392	1615	1556	2155	1290	310
WTG17	489750	4483106	1518	5040	4091	4097	4208	3743	2710	2713	1989	1791	2163	1367	344
WTG18	489422	4482495	1380	5621	4514	4519	4337	4312	2870	3017	2189	2235	2802	1957	410

Tabella 3 Matrice delle distanze tra aerogeneratori e recettori

5 - ANALISI DEI RISULTATI.

Il risultato dell'elaborazione dei dati da parte di WindPRO viene restituito in diversi formati:

- Grafico totale, in cui delle isolinee rappresentano le aree di diversa incidenza dell'ombra, espresse in ore/anno, vengono rappresentati i giorni d'ombra annui e il massimo di minuti per i giorni d'ombra;
- Tabellare: vengono generati i calendari per ciascun recettore, nei quali per ogni giorno dell'anno vengono indicate le ore di luce e l'intervallo di tempo di esposizione all'ombra e l'orario in cui si verifica questo fenomeno, e quelli per ciascun aerogeneratore, in cui sono riportate le stesse caratteristiche;
- Grafico: i calendari, sia per i recettori che per gli aerogeneratori, vengono riportati anche in maniera grafica. In questi per i recettori a seconda del mese e dell'ora si evidenziano gli aerogeneratori che producono gli effetti, mentre per gli aerogeneratori, sempre a seconda di mese e ora, sono riportati i recettori che ne subiscono gli effetti.

Questi elaborati sono accompagnati da un report dove vengono elencati i dati utilizzati nelle operazioni di calcolo e una piccola mappa riassuntiva con il posizionamento dei recettori e degli aerogeneratori e le loro denominazioni (non corrispondenti, in questo caso, a quelle

prefissate).

Utilizzando il grafico totale elaborato dal software è stata poi generata, sempre grazie al programma WindPRO e al suo modulo apposito per la creazione delle mappe, denominato MAP COMPOSER, una Carta delle ombre intermittenti ore/anno, inserita in relazione in coda all'Appendice.

I risultati forniti dal modello di calcolo consentono di valutare approssimativamente sia l'impatto puntuale sul singolo recettore, sia l'impatto distribuito sul territorio (movimento e persistenza dell'ombra). Nello specifico, all'interno degli allegati report di calcolo sono indicati, per il singolo ricettore, i valori totali di interferenza da *shadow flickering* (espressi in h/anno), il numero di giorni in cui si verifica l'interferenza ed infine la durata massima per singolo giorno.

Riportiamo di seguito in Appendice tutti i risultati ottenuti utilizzando lo scenario worst case e i parametri elencati nel report riassuntivo iniziale.

APPENDICE

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
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335244024

SHADOW - Main Result

Assumptions for shadow calculations

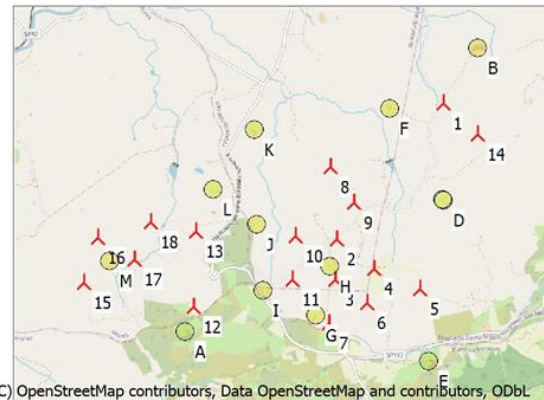
Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

Line-of-sight calculation has been deactivated. This means that sheltering from obstacles, areas or hills are not taken into account.

All coordinates are in
UTM (north)-WGS84 Zone: 32



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Scale 1:75.000
▲ New WTG ● Shadow receptor

WTGs

	Easting	Northing	Z	Row data/Description	WTG type			Shadow data				
					Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM
				[m]								
1	493.828	4.484.688	423,2	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
2	492.519	4.483.025	528,1	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
3	492.508	4.482.534	611,5	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
4	492.976	4.482.668	679,6	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
5	493.545	4.482.419	627,6	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
6	492.894	4.482.244	580,4	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
7	492.420	4.482.004	579,5	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
8	492.448	4.483.914	462,7	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
9	492.732	4.483.470	518,0	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
10	492.016	4.483.070	453,1	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
11	491.976	4.482.540	525,5	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
12	490.765	4.482.200	507,9	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
13	490.798	4.483.129	444,4	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
14	494.255	4.484.309	520,5	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
15	489.422	4.482.495	444,4	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
16	489.589	4.483.048	417,3	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
17	490.041	4.482.787	416,3	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5
18	490.240	4.483.240	409,5	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7.200	7.200	162,0	119,0	2.044	9,5

Shadow receptor-Input

No.	Easting	Northing	Z	Width	Height	Elevation	Slope of	Direction mode	Eye height
				[m]	[m]	a.g.l.	window		(ZVI) a.g.l.
				[m]	[m]	[m]	[°]		[m]
A	490.664	4.481.894	541,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
B	494.252	4.485.366	454,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
C	493.819	4.483.507	580,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
D	493.826	4.483.498	582,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
E	493.648	4.481.527	546,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
F	493.170	4.484.624	432,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
G	492.262	4.482.092	546,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
H	492.431	4.482.699	553,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
I	491.608	4.482.398	533,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
J	491.537	4.483.215	437,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
K	491.507	4.484.366	378,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
L	491.007	4.483.642	395,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
M	489.732	4.482.763	441,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

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SHADOW - Main Result

Calculation Results

Shadow receptor

No.	Shadow, worst case		Max shadow hours per day
	Shadow hours per year [h/year]	Shadow days per year [days/year]	
A	41:52	127	0:28
B	0:00	0	0:00
C	61:40	138	0:58
D	62:59	131	0:58
E	34:27	91	0:30
F	98:52	172	0:57
G	538:23	245	2:50
H	580:45	307	4:08
I	245:07	270	1:37
J	222:03	269	2:11
K	41:54	108	0:36
L	166:55	206	1:33
M	541:38	333	2:19

Total amount of flickering on the shadow receptors caused by each WTG

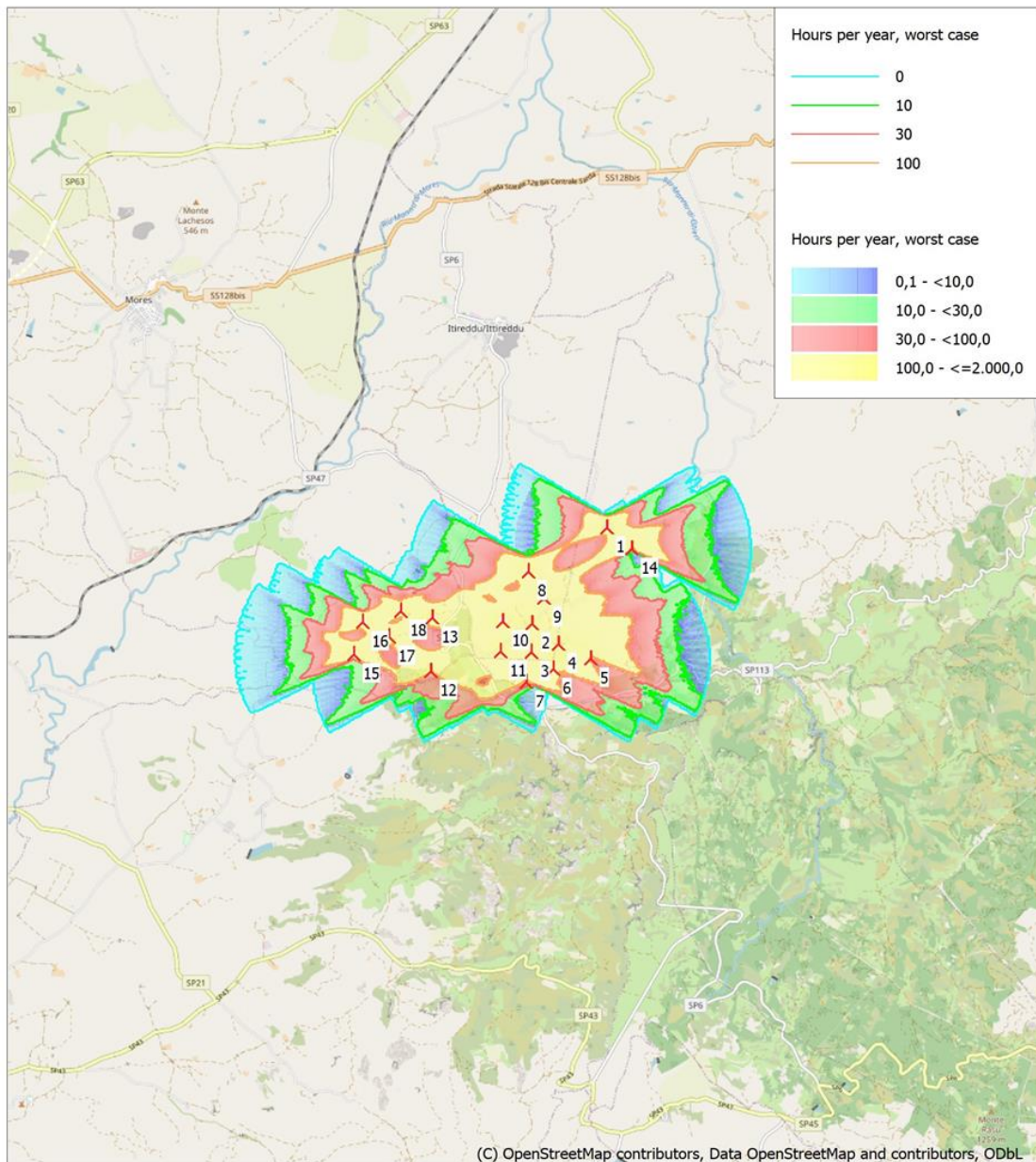
No.	Name	Worst case [h/year]
1	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (4)	58:51
2	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (5)	37:44
3	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (6)	402:01
4	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (7)	131:24
5	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (8)	42:51
6	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (9)	213:39
7	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (10)	504:04
8	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (11)	58:50
9	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (12)	56:42
10	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (13)	109:23
11	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (14)	271:20
12	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (15)	53:09
13	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (16)	98:09
14	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (18)	17:47
15	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (19)	207:13
16	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (20)	13:17
17	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (21)	321:26
18	VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (22)	48:38

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

Project:
MORES_shadows

Licensed user:
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335244024

SHADOW - Map



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

0 1 2 3 4 km

Map: EMD OpenStreetMap , Print scale 1:100.000, Map center UTM (north)-WGS84 Zone: 32 East: 492.390 North: 4.483.650

New WTG

Flicker map level: 513 m above sea level

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

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SHADOW - Calendar per WTG

WTG: 1 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (4)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December				
1	07:48	07:35	07:00	07:10	07:29-07:59/30	06:25	07:14-07:54/40	05:57	05:57	06:21	06:51	07:12-08:06/54	07:20	06:54	07:28	
17:08	17:42	18:15	18:15	19:48	20:20	20:20	20:48	20:59	20:41	19:58	19:09	17:23	16:59			
2	07:48	07:34	06:59	07:09	07:27-08:00/33	06:24	07:15-07:53/38	05:56	05:58	06:22	06:52	07:13-08:05/52	07:21	06:55	07:29	
17:09	17:43	18:16	19:50	20:21	20:21	20:49	20:59	20:40	19:57	19:07	17:21	16:59				
3	07:48	07:33	06:57	07:07	07:25-08:01/36	06:23	07:16-07:51/35	05:56	05:58	06:23	06:53	07:13-08:03/50	07:22	06:56	07:30	
17:10	17:44	18:17	19:51	20:22	20:22	20:50	20:59	20:39	19:55	19:05	17:20	16:58				
4	07:49	07:32	06:56	07:05	07:24-08:03/39	06:21	07:18-07:50/32	05:56	05:59	06:24	06:54	07:14-08:02/48	07:23	06:57	07:31	
17:11	17:46	18:19	19:52	20:23	20:23	20:51	20:59	20:37	19:54	19:04	17:19	16:58				
5	07:49	07:31	06:54	07:04	07:22-08:03/41	06:20	07:20-07:48/28	05:55	06:00	06:25	06:55	07:15-08:01/46	07:24	06:58	07:32	
17:12	17:47	18:20	19:53	20:24	20:24	20:51	20:59	20:36	19:52	19:02	17:18	16:58				
6	07:49	07:30	06:52	07:02	07:20-08:04/44	06:19	07:21-07:45/24	05:55	06:00	06:26	07:32-07:53/21	06:56	07:16-08:00/44	07:25	07:00	07:33
17:12	17:48	18:21	19:54	20:25	20:25	20:52	20:58	20:35	19:50	19:00	17:17	16:58				
7	07:48	07:29	06:51	07:00	07:19-08:05/46	06:18	07:24-07:42/18	05:55	06:01	06:27	07:30-07:55/25	06:57	07:17-07:59/42	07:26	07:01	07:34
17:13	17:49	18:22	19:55	20:26	20:26	20:53	20:58	20:34	19:49	18:59	17:16	16:58				
8	07:48	07:28	06:49	06:59	07:17-08:05/48	06:17	07:28-07:38/10	05:54	06:01	06:28	07:28-07:57/29	06:58	07:18-07:57/39	07:27	07:02	07:35
17:14	17:50	18:23	19:56	20:27	20:27	20:53	20:58	20:33	19:47	18:57	17:15	16:58				
9	07:48	07:27	06:48	06:57	07:16-08:06/50	06:15	06:54	06:02	06:29	07:26-07:59/33	06:59	07:19-07:55/36	07:28	07:03	07:36	
17:15	17:52	18:24	19:57	20:28	20:28	20:54	20:57	20:32	19:45	18:56	17:14	16:58				
10	07:48	07:26	06:46	06:56	07:14-08:06/52	06:14	06:54	06:03	06:30	07:25-08:00/35	07:00	07:20-07:53/33	07:29	07:04	07:36	
17:16	17:53	18:25	19:58	20:29	20:29	20:54	20:57	20:30	19:44	18:54	17:13	16:58				
11	07:48	07:25	06:45	06:54	07:13-08:07/54	06:13	06:54	06:03	06:31	07:23-08:02/39	07:01	07:21-07:51/30	07:21	07:05	07:37	
17:17	17:54	18:26	19:59	20:30	20:30	20:55	20:57	20:29	19:42	18:52	17:12	16:58				
12	07:48	07:24	06:43	06:53	07:11-08:06/55	06:12	06:54	06:04	06:32	07:22-08:03/41	07:02	07:22-07:49/27	07:32	07:07	07:38	
17:19	17:55	18:27	20:00	20:31	20:31	20:55	20:56	20:28	19:40	18:51	17:11	16:58				
13	07:47	07:22	06:41	06:51	07:10-08:06/56	06:11	06:54	06:05	06:33	07:21-08:04/43	07:03	07:23-07:45/22	07:33	07:08	07:39	
17:20	17:56	18:28	20:01	20:32	20:32	20:56	20:56	20:26	19:39	18:49	17:10	16:58				
14	07:47	07:21	06:40	06:49	07:10-08:06/56	06:10	06:54	06:06	06:33	07:20-08:05/45	07:04	07:28-07:40/12	07:34	07:09	07:40	
17:21	17:58	18:30	20:02	20:33	20:33	20:56	20:55	20:25	19:37	18:48	17:09	16:58				
15	07:47	07:20	06:38	06:48	07:09-08:06/57	06:09	06:54	06:06	06:34	07:19-08:06/47	07:05	07:25	07:10	07:40		
17:22	17:59	18:31	20:03	20:34	20:34	20:57	20:55	20:24	19:35	18:46	17:08	16:59				
16	07:46	07:18	06:36	06:46	07:09-08:06/57	06:08	06:54	06:07	06:35	07:18-08:06/48	07:06	07:36	07:11	07:41		
17:23	18:00	18:32	20:04	20:35	20:35	20:57	20:54	20:22	19:34	18:45	17:07	16:59				
17	07:46	07:17	06:35	06:45	07:09-08:05/56	06:07	06:54	06:08	06:36	07:17-08:07/50	07:06	07:37	07:12	07:42		
17:24	18:01	18:33	20:05	20:36	20:36	20:57	20:54	20:21	19:32	18:43	17:06	16:59				
18	07:45	07:16	06:33	06:43	07:09-08:05/56	06:06	06:54	06:09	06:37	07:16-08:07/51	07:07	07:38	07:14	07:42		
17:25	18:02	18:34	20:06	20:37	20:37	20:58	20:53	20:20	19:30	18:42	17:06	17:00				
19	07:45	07:14	06:32	06:42	07:08-08:04/56	06:06	06:54	06:09	06:38	07:16-08:08/52	07:08	07:39	07:15	07:43		
17:26	18:04	18:35	20:07	20:37	20:37	20:58	20:52	20:18	19:29	18:40	17:05	17:00				
20	07:44	07:13	06:30	06:40	07:09-08:04/55	06:05	06:54	06:10	06:39	07:14-08:07/53	07:09	07:40	07:16	07:44		
17:27	18:05	18:36	20:08	20:38	20:38	20:58	20:51	20:17	19:27	18:39	17:04	17:00				
21	07:44	07:12	06:28	06:39	07:09-08:04/55	06:04	06:54	06:11	06:40	07:13-08:08/55	07:10	07:41	07:17	07:44		
17:29	18:06	18:37	20:09	20:39	20:39	20:59	20:51	20:15	19:25	18:37	17:04	17:01				
22	07:43	07:10	06:27	06:37	07:09-08:03/54	06:03	06:54	06:12	06:41	07:13-08:08/55	07:11	07:42	07:18	07:45		
17:30	18:07	18:38	20:10	20:40	20:40	20:59	20:50	20:14	19:24	18:36	17:03	17:01				
23	07:43	07:09	06:25	06:36	07:09-08:02/53	06:02	06:55	06:13	06:42	07:12-08:08/56	07:12	07:43	07:19	07:45		
17:31	18:08	18:39	20:11	20:41	20:41	20:59	20:49	20:12	19:22	18:35	17:02	17:02				
24	07:42	07:08	06:23	06:35	07:09-08:01/52	06:02	06:55	06:14	06:43	07:12-08:08/56	07:13	07:44	07:20	07:46		
17:32	18:10	18:40	20:12	20:42	20:42	20:59	20:48	20:11	19:20	18:33	17:02	17:02				
25	07:41	07:06	06:22	06:33	07:10-08:00/50	06:01	06:55	06:15	06:44	07:12-08:08/56	07:14	07:45	07:22	07:46		
17:33	18:11	18:41	20:13	20:43	20:43	20:59	20:48	20:09	19:19	18:32	17:01	17:03				
26	07:40	07:05	06:20	06:32	07:10-08:00/50	06:00	06:55	06:15	06:45	07:11-08:08/57	07:15	07:46	07:23	07:47		
17:35	18:12	18:42	20:14	20:44	20:44	20:59	20:47	20:08	19:17	18:30	17:01	17:04				
27	07:40	07:03	06:18	06:30	07:10-07:58/48	06:00	06:56	06:16	06:46	07:11-08:08/57	07:16	07:47	07:24	07:47		
17:36	18:13	18:43	20:15	20:45	20:45	20:59	20:46	20:06	19:15	18:29	17:00	17:04				
28	07:39	07:02	06:17	06:29	07:11-07:58/47	05:59	06:56	06:17	06:47	07:11-08:07/56	07:17	07:48	07:25	07:47		
17:37	18:14	18:44	20:16	20:46	20:46	20:59	20:45	20:05	19:14	18:28	17:00	17:05				
29	07:38	07:15	07:38-07:48/10	06:28	07:12-07:57/45	05:58	06:57	06:18	06:48	07:11-08:07/56	07:18	07:50	07:26	07:48		
17:38	18:15	18:45	20:17	20:47	20:47	20:59	20:44	20:03	19:12	18:26	17:00	17:06				
30	07:37	07:13	07:32-07:53/21	06:26	07:13-07:56/43	05:58	06:57	06:19	06:49	07:11-08:07/56	07:19	07:51	07:27	07:48		
17:39	19:46	19:46	20:18	20:47	20:47	20:59	20:43	20:02	19:10	18:25	16:59	17:06				
31	07:36	07:12	07:30-07:56/26	06:25	07:12-07:56/42	05:57	06:57	06:20	06:50	07:11-08:06/55	07:19	07:53	07:29	07:48		
17:41	19:47	19:47	20:19	20:48	20:48	20:59	20:42	20:00	19:08	18:24	17:01	17:07				
Potential sun hours	299	370	398	447	447	451	457	427	375	346	299	290				
Sum of minutes with flicker	0	0	57	1474	225	0	0	1240	535	0	0	0				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)			



Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user: **S.I.G.E.A.**
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 2 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (5)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:48 17:08	07:35 17:42	07:00 18:15	07:10 19:49	06:25 20:20	05:57 20:48	05:58 20:59	06:21 20:41	06:51 19:58	07:20 08:02-08:32/30	06:54 16:52-16:59/7	07:28 17:23
2	07:48 17:09	07:34 17:43	06:59 18:16	07:09 19:50	06:24 20:21	05:57 20:49	05:58 20:59	06:22 20:40	06:52 19:57	07:21 08:03-08:30/27	06:55 16:52-16:58/6	07:29 16:59
3	07:49 17:10	07:33 17:44	06:57 18:18	07:07 19:51	06:23 20:22	05:56 20:50	05:59 20:59	06:23 20:39	06:53 19:55	07:22 08:05-08:28/23	06:56 16:52-16:56/4	07:30 16:59
4	07:49 17:11	07:32 17:46	06:56 18:19	07:05 19:52	06:21 20:23	05:56 20:51	05:59 20:59	06:24 20:38	06:54 19:54	07:23 08:06-08:26/20	06:57 16:54-16:56/2	07:31 16:58
5	07:49 17:12	07:31 17:47	06:54 18:20	07:04 19:53	06:20 20:24	05:55 20:51	06:00 20:59	06:25 20:36	06:55 19:52	07:24 08:09-08:23/14	06:58 16:54-16:55/1	07:32 16:58
6	07:49 17:13	07:30 17:46	06:53 18:21	07:02 19:54	06:19 20:25	05:55 20:52	06:00 20:58	06:26 20:35	06:56 19:50	07:25 08:09-08:23/14	06:59 16:54-16:55/1	07:33 16:58
7	07:49 17:14	07:29 17:24-17:26/2	06:53 18:22	07:01 19:55	06:18 20:26	05:55 20:53	06:01 20:58	06:27 20:34	06:57 19:49	07:26 08:18-08:29/11	07:01 16:54-16:55/1	07:34 16:58
8	07:48 17:15	07:28 17:23-17:28/5	06:49 18:23	07:35-07:44/9	06:59 20:27	05:55 20:53	06:01 20:58	06:28 20:33	06:58 19:47	07:27 08:18-08:29/11	07:02 16:54-16:55/1	07:35 16:58
9	07:48 17:16	17:51 17:23-17:29/6	18:23 18:24	18:23 19:57	20:27 20:28	20:53 20:54	20:58 20:57	20:33 20:32	19:47 19:45	18:57 18:56	17:15 17:14	16:58 16:58
10	07:48 17:17	17:52 17:22-17:30/8	18:24 18:25	18:24 19:58	20:28 20:29	20:54 20:54	20:57 20:57	20:32 20:30	19:45 19:44	18:56 18:54	17:14 17:13	16:58 16:58
11	07:48 17:18	17:53 17:22-17:31/9	18:25 18:26	18:25 19:59	20:29 20:30	20:54 20:55	20:57 20:57	20:31 20:29	19:44 19:42	18:54 18:53	17:13 17:12	16:58 16:58
12	07:48 17:19	17:54 17:22-17:33/11	18:26 18:27	18:26 20:00	20:30 20:31	20:54 20:55	20:57 20:56	20:32 20:28	19:42 19:40	18:53 18:51	17:12 17:11	16:58 16:58
13	07:47 17:20	17:55 17:22-17:34/12	18:27 18:29	18:27 20:01	20:31 20:32	20:55 20:56	20:56 20:56	20:33 20:26	19:40 19:39	18:51 18:49	17:11 17:10	16:58 16:58
14	07:47 17:21	17:56 17:23-17:35/13	18:28 18:30	18:28 20:02	20:32 20:33	20:54 20:56	20:56 20:55	20:34 20:25	19:39 19:37	18:50 18:48	17:10 17:09	16:59 16:59
15	07:47 17:22	17:57 17:22-17:37/15	18:31 18:31	18:31 20:03	20:33 20:34	20:54 20:57	20:56 20:55	20:35 20:24	19:37 19:35	18:49 18:46	17:09 17:08	16:59 16:59
16	07:46 17:23	17:59 17:23-17:38/16	18:32 18:33	18:32 20:04	20:34 20:35	20:54 20:57	20:56 20:54	20:36 20:22	19:35 19:34	18:46 18:45	17:08 17:07	16:59 16:59
17	07:45 17:24	18:00 17:23-17:39/16	18:33 18:33	18:33 20:05	20:35 20:36	20:54 20:57	20:56 20:54	20:37 20:21	19:34 19:32	18:45 18:43	17:07 17:07	16:59 16:59
18	07:45 17:25	18:01 17:24-17:40/16	18:34 18:34	18:34 20:06	20:36 20:37	20:54 20:58	20:56 20:53	20:38 20:20	19:33 19:30	18:44 18:42	17:06 17:06	16:59 16:59
19	07:45 17:26	18:02 17:25-17:41/16	18:35 18:35	18:35 20:07	20:37 20:37	20:54 20:58	20:56 20:52	20:39 20:18	19:32 19:29	18:43 18:40	17:05 17:05	16:59 16:59
20	07:44 17:28	18:03 17:27-17:43/16	18:36 18:36	18:36 20:08	20:38 20:38	20:54 20:58	20:56 20:52	20:40 20:17	19:31 19:27	18:42 18:39	17:04 17:04	16:59 16:59
21	07:44 17:29	18:04 17:28-17:44/15	18:37 18:37	18:37 20:09	20:39 20:39	20:54 20:59	20:56 20:51	20:41 20:15	19:30 19:25	18:41 18:37	17:03 17:03	16:59 16:59
22	07:43 17:30	18:05 17:31-17:42/11	18:38 18:38	18:38 20:10	20:40 20:40	20:54 20:59	20:56 20:51	20:42 20:14	19:29 19:24	18:40 18:36	17:02 17:02	16:59 16:59
23	07:43 17:31	18:06 17:32-17:48/12	18:39 18:39	18:39 20:11	20:41 20:41	20:54 20:59	20:56 20:51	20:43 20:12	19:28 19:22	18:40 18:35	17:01 17:01	16:59 16:59
24	07:42 17:32	18:07 17:33-17:49/12	18:40 18:40	18:40 20:12	20:42 20:42	20:54 20:59	20:56 20:51	20:44 20:11	19:27 19:20	18:39 18:33	17:00 17:00	16:59 16:59
25	07:41 17:33	18:08 17:34-17:50/12	18:41 18:41	18:41 20:13	20:43 20:43	20:54 20:59	20:56 20:51	20:45 20:09	19:26 19:19	18:38 18:32	16:59 16:59	16:59 16:59
26	07:40 17:35	18:09 17:35-17:51/12	18:42 18:42	18:42 20:14	20:44 20:44	20:54 20:59	20:56 20:51	20:46 20:08	19:25 19:17	18:37 18:30	16:59 16:59	16:59 16:59
27	07:40 17:36	18:10 17:36-17:52/12	18:43 18:43	18:43 20:15	20:45 20:45	20:54 20:59	20:56 20:51	20:47 20:06	19:24 19:15	18:36 18:29	16:59 16:59	16:59 16:59
28	07:39 17:37	18:11 17:37-17:53/12	18:44 18:44	18:44 20:16	20:46 20:46	20:54 20:59	20:56 20:51	20:48 20:05	19:23 19:14	18:35 18:28	16:59 16:59	16:59 16:59
29	07:38 17:38	18:12 17:38-17:54/12	18:45 18:45	18:45 20:17	20:47 20:47	20:54 20:59	20:56 20:51	20:49 20:04	19:22 19:13	18:34 18:27	16:59 16:59	16:59 16:59
30	07:37 17:39	18:13 17:39-17:55/12	18:46 18:46	18:46 20:18	20:48 20:48	20:54 20:59	20:56 20:51	20:50 20:01	19:21 19:12	18:33 18:26	16:59 16:59	16:59 16:59
31	07:36 17:41	18:14 17:41-17:57/12	18:47 18:47	18:47 20:19	20:49 20:49	20:54 20:59	20:56 20:51	20:51 20:00	19:20 19:10	18:32 18:25	16:59 16:59	16:59 16:59
	Potential sun hours	299	298	298	298	298	298	298	298	298	298	298
	Sum of minutes with flicker	0	473	654	998	0	0	0	0	547	375	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 3 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (6)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:48 16:15-16:42/27 17:08	07:35 08:40-09:09/29 17:42 10:53-12:01/68	07:00 10:21-12:37/136 18:15	07:10 11:10-13:10/120 19:49	06:25 07:15-07:56/41 20:20	05:57 20:48
2	07:48 16:17-16:43/26 17:09	07:34 08:39-09:09/30 17:43 10:51-12:04/73	06:59 10:19-12:37/138 18:16	07:09 11:10-13:05/115 19:50	06:24 07:15-07:55/40 20:21	05:57 20:49
3	07:48 16:17-16:43/26 17:10	07:33 08:39-09:10/31 17:44 10:49-12:06/77	06:57 10:19-12:38/139 18:18	07:07 11:09-13:00/111 19:51	06:23 07:16-07:55/39 20:22	05:56 20:50
4	07:49 16:17-16:43/26 17:11	07:32 08:39-09:10/31 17:46 10:48-12:08/80	06:56 10:18-12:38/140 18:19	07:05 11:10-12:55/105 19:52	06:21 07:16-07:55/39 20:23	05:56 20:51
5	07:49 16:17-16:43/26 17:12	07:31 08:39-09:10/31 17:47 10:46-12:10/84	06:54 10:18-12:38/140 18:20	07:04 11:10-12:50/100 19:53	06:20 07:17-07:54/37 20:24	05:55 20:51
6	07:49 16:18-16:44/26 17:13	07:30 08:39-09:11/32 17:48 10:45-12:12/87	06:53 10:17-12:38/141 18:21	07:02 11:10-12:44/94 19:54	06:19 07:16-07:53/37 20:25	05:55 20:52
7	07:48 16:19-16:44/25 17:14	07:29 08:39-09:11/32 17:49 10:44-12:14/90	06:51 10:17-12:39/142 18:22	07:01 11:11-12:40/89 19:55	06:18 07:17-07:52/35 20:26	05:55 20:53
8	07:48 16:20-16:45/25 17:15	07:28 08:40-09:11/31 17:51 10:42-12:16/94	06:49 10:16-12:39/143 18:23	06:59 11:11-12:34/83 19:56	06:17 07:17-07:52/35 20:27	05:55 20:53
9	07:48 16:20-16:45/25 17:16	07:27 08:40-09:11/31 17:52 10:41-12:17/96	06:48 10:15-12:38/143 18:24	06:57 11:12-12:30/78 19:57	06:16 07:18-07:51/33 20:28	05:54 20:54
10	07:48 16:21-16:46/25 17:17	07:26 08:40-09:09/29 17:53 10:39-12:18/99	06:46 10:15-12:39/144 18:25	06:56 11:12-12:25/73 19:58	06:14 07:19-07:50/31 20:29	05:54 20:54
11	07:48 16:21-16:45/24 17:18	07:25 08:41-09:09/28 17:54 10:38-12:20/102	06:45 10:14-12:39/145 18:26	06:54 11:13-12:21/68 19:59	06:13 07:20-07:49/29 20:30	05:54 20:55
12	07:48 08:41-08:45/4 17:19 16:22-16:45/23	07:24 08:42-09:09/27 17:55 10:37-12:22/105	06:43 10:14-12:39/145 18:27	06:53 11:13-12:16/63 20:00	06:12 07:21-07:48/27 20:31	05:54 20:55
13	07:47 08:40-08:48/8 17:20 16:24-16:46/22	07:22 08:43-09:08/25 17:57 10:36-12:23/107	06:41 10:13-12:39/146 18:29	06:51 11:14-12:12/58 20:01	06:11 07:22-07:46/24 20:32	05:54 20:56
14	07:47 08:38-08:49/11 17:21 16:24-16:45/21	07:21 08:43-09:06/23 17:58 10:34-12:24/110	06:40 10:13-12:38/145 18:30	06:50 07:38-07:41/3 20:02 11:15-12:08/53	06:10 07:23-07:45/22 20:33	05:54 20:56
15	07:47 08:38-08:51/13 17:22 16:26-16:45/19	07:20 08:45-09:05/20 17:59 10:33-12:25/112	06:38 10:13-12:38/145 18:31	06:48 07:31-07:47/16 20:03 11:16-12:03/47	06:09 07:25-07:43/18 20:34	05:54 20:57
16	07:46 08:37-08:52/15 17:23 16:26-16:44/18	07:19 08:47-09:03/16 18:00 10:32-12:27/115	06:37 10:12-12:38/146 18:32	06:46 07:28-07:50/22 20:04 11:17-12:00/43	06:08 07:27-07:40/13 20:35	05:54 20:57
17	07:46 08:37-08:53/16 17:24 16:28-16:44/16	07:17 08:50-08:59/9 18:01 10:31-12:27/116	06:35 10:11-12:37/146 18:33	06:45 07:27-07:52/25 20:05 11:18-11:55/37	06:07 07:32-07:37/5 20:36	05:54 20:57
18	07:45 08:36-08:54/18 17:25 16:30-16:43/13	07:16 10:30-12:29/119 18:03	06:33 10:12-12:37/145 18:34	06:43 07:24-07:53/29 20:06 11:21-11:51/30	06:07 06:38-06:54/16 20:37	05:54 20:58
19	07:45 08:36-08:55/19 17:26 16:32-16:42/10	07:15 10:29-12:30/121 18:04	06:32 10:11-12:36/145 18:35	06:42 07:23-07:54/31 20:07 11:24-11:46/22	06:06 06:39-06:53/14 20:37	05:54 20:58
20	07:44 08:36-08:55/19 17:28 16:35-16:40/5	07:13 10:28-12:30/122 18:05	06:30 10:10-12:35/145 18:36	06:40 07:21-07:55/34 20:08 11:27-11:39/12	06:05 06:40-06:52/12 20:38	05:54 20:58
21	07:44 08:36-08:56/20 17:29	07:12 10:27-12:32/125 18:06	06:28 10:11-12:35/144 18:37	06:39 07:20-07:56/36 20:09	06:04 06:42-06:52/10 20:39	05:54 20:59
22	07:43 08:36-08:57/21 17:30	07:10 10:26-12:32/126 18:07	06:27 10:10-12:33/143 18:38	06:38 07:19-07:56/37 20:10	06:03 06:43-06:50/7 20:40	05:55 20:59
23	07:43 08:36-08:57/21 17:31	07:09 10:25-12:33/128 18:08	06:25 10:09-12:32/143 18:39	06:36 07:18-07:57/39 20:11	06:02 20:41	05:55 20:59
24	07:42 08:36-08:57/21 17:32 11:23-11:28/5	07:08 10:25-12:34/129 18:10	06:23 10:10-12:31/141 18:40	06:35 07:18-07:57/39 20:12	06:02 20:42	05:55 20:59
25	07:41 08:37-09:01/24 17:33 11:14-11:38/24	07:06 10:24-12:34/130 18:11	06:22 10:09-12:29/140 18:41	06:33 07:17-07:57/40 20:13	06:01 20:43	05:55 20:59
26	07:40 08:38-09:02/24 17:35 11:09-11:43/34	07:05 10:23-12:36/133 18:12	06:20 10:09-12:27/138 18:42	06:32 07:17-07:57/40 20:14	06:00 20:44	05:56 20:59
27	07:40 08:38-09:04/26 17:36 11:06-11:47/41	07:03 10:22-12:36/134 18:13	06:18 10:10-12:26/136 18:43	06:31 07:16-07:56/40 20:15	06:00 20:45	05:56 20:59
28	07:39 08:38-09:05/27 17:37 11:03-11:51/48	07:02 10:22-12:37/135 18:14	06:17 10:09-12:23/134 18:44	06:29 07:16-07:57/41 20:17	05:59 20:45	05:56 20:59
29	07:38 08:39-09:06/27 17:38 11:00-11:54/54	07:01 10:21-12:38/136 18:15	06:16 10:08-12:22/133 18:45	06:28 07:16-07:57/41 20:18	05:59 20:46	05:57 20:59
30	07:37 08:40-09:07/27 17:39 10:57-11:56/59	07:00 10:20-12:39/137 18:16	06:15 11:09-13:18/129 18:46	06:27 07:16-07:57/41 20:19	05:58 20:47	05:57 20:59
31	07:36 08:40-09:08/28 17:41 10:55-11:59/64	06:59 10:19-12:38/138 18:17	06:14 11:09-13:14/125 18:47	06:26 20:48	05:57 20:48	05:57 20:59
	Potential sun hours 299	298	370	398	447	450
	Sum of minutes with flicker 1146	3472	4363	1955	805	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 3 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (6)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December
1	05:58 20:59	06:21 07:31-07:59/28 20:41 06:47-07:07/20	06:51 11:12-12:20/68 19:58	07:20 10:53-13:18/145 19:09	06:54 08:10-08:39/29 17:23 10:09-11:48/99	07:28 16:03-16:27/24 16:59
2	05:58 20:59	06:22 07:30-08:00/30 20:40 06:47-07:07/20	06:52 11:11-12:24/73 19:57	07:21 10:53-13:17/144 19:07	06:55 08:09-08:40/31 17:22 10:10-11:46/96	07:29 16:03-16:28/25 16:59
3	05:59 20:59	06:23 07:29-08:01/32 20:39 06:47-07:06/19	06:53 11:10-12:28/78 19:55	07:22 10:52-13:17/145 19:05	06:56 08:10-08:41/31 17:20 10:12-11:45/93	07:30 16:03-16:28/25 16:59
4	05:59 20:59	06:24 07:28-08:02/34 20:38 06:47-07:06/19	06:54 11:08-12:31/83 19:54	07:23 10:52-13:16/144 19:04	06:57 08:09-08:41/32 17:19 10:14-11:43/89	07:31 16:04-16:29/25 16:58
5	06:00 20:59	06:25 07:28-08:02/34 20:36 06:48-07:05/17	06:55 11:07-12:35/88 19:52	07:24 10:52-13:16/144 19:02	06:58 08:09-08:40/31 17:18 10:15-11:41/86	07:32 16:04-16:29/25 16:58
6	06:00 20:58	06:26 07:27-08:03/36 20:35 06:49-07:05/16	06:56 11:06-12:40/94 19:50	07:25 10:52-13:15/143 19:00	07:00 08:09-08:40/31 17:17 10:16-11:40/84	07:33 16:04-16:30/26 16:58
7	06:01 20:58	06:27 07:26-08:03/37 20:34 06:50-07:04/14	06:57 11:05-12:45/100 19:49	07:26 10:52-13:14/142 18:59	07:01 08:10-08:41/31 17:16 10:19-11:39/80	07:34 16:04-16:30/26 16:58
8	06:01 20:58	06:28 07:25-08:03/38 20:33 06:50-07:01/11	06:58 11:04-12:49/105 19:47	07:27 10:52-13:13/141 18:57	07:02 08:10-08:41/31 17:15 10:21-11:36/75	07:35 16:05-16:31/26 16:58
9	06:02 20:57	06:29 07:25-08:04/39 20:32 06:53-06:59/6	06:59 11:03-12:54/111 19:45	07:28 10:53-13:13/140 18:56	07:03 08:10-08:40/30 17:14 10:22-11:34/72	07:36 16:05-16:32/27 16:58
10	06:03 20:57	06:30 07:24-08:04/40 20:30	07:00 11:03-12:58/115 19:44	07:30 10:54-13:13/139 18:54	07:04 08:11-08:39/28 17:13 10:24-11:32/68	07:36 16:06-16:32/26 16:58
11	06:03 20:57	06:31 07:24-08:04/40 20:29	07:01 11:02-13:02/120 19:42	07:31 10:54-13:12/138 18:53	07:05 08:12-08:40/28 17:12 10:27-11:31/64	07:37 16:06-16:33/27 16:58
12	06:04 20:56	06:32 07:24-08:04/40 20:28	07:02 11:01-13:05/124 19:40	07:32 10:54-13:11/137 18:51	07:07 08:12-08:39/27 17:11 10:30-11:28/58	07:38 16:07-16:33/26 16:58
13	06:05 20:56	06:33 07:24-08:04/40 20:26	07:03 11:01-13:09/128 19:39	07:33 10:54-13:10/136 18:49	07:08 08:11-08:38/27 17:10 10:32-11:25/53	07:39 16:07-16:33/26 16:58
14	06:06 20:55	06:34 07:23-08:04/41 20:25	07:04 11:00-13:11/131 19:37	07:34 10:54-13:09/135 18:48	07:09 08:10-08:37/27 17:09 10:35-11:22/47	07:40 16:07-16:33/26 16:59
15	06:06 20:55	06:35 07:23-08:04/41 20:24	07:05 10:59-13:13/134 19:35	07:35 10:55-13:08/133 18:46	07:10 08:11-08:37/26 17:08 10:39-11:20/41	07:40 16:08-16:34/26 16:59
16	06:07 20:54	06:36 07:23-08:04/41 20:22	07:06 10:59-13:15/136 19:34	07:36 10:55-13:07/132 18:45	07:11 08:10-08:35/25 17:07 10:43-11:16/33	07:41 16:08-16:33/25 16:59
17	06:08 20:54	06:37 07:23-08:04/41 20:21	07:07 10:58-13:16/138 19:32	07:37 10:55-13:06/131 18:43	07:12 08:10-08:33/23 17:07 10:47-11:11/24	07:42 16:09-16:34/25 16:59
18	06:09 20:53	06:37 07:24-08:03/39 20:20	07:08 10:57-13:16/139 19:30	07:38 10:56-13:05/129 18:42	07:14 08:10-08:31/21 17:06 10:57-11:01/4	07:42 16:10-16:34/24 17:00
19	06:10 20:52	06:38 07:24-08:03/39 20:18	07:08 10:56-13:17/141 19:29	07:39 10:57-13:04/127 18:40	07:15 08:11-08:32/21 17:05	07:43 16:09-16:34/25 17:00
20	06:10 20:51	06:39 07:24-08:02/38 20:17	07:09 10:56-13:18/142 19:27	07:40 10:58-13:03/125 18:39	07:16 08:11-08:32/21 17:04	07:44 16:10-16:35/25 17:00
21	06:11 20:51	06:40 07:25-08:01/36 20:15	07:10 10:55-13:19/144 19:25	07:41 10:58-13:02/124 18:37	07:17 08:12-08:32/20 17:04	07:44 16:10-16:35/25 17:01
22	06:12 20:50	06:41 07:24-08:00/36 20:14	07:11 10:55-13:19/144 19:24	07:42 10:59-13:01/122 18:36	07:18 08:12-08:32/20 17:03 16:11-16:15/4	07:45 16:11-16:36/25 17:01
23	06:13 20:49	06:42 07:25-07:58/33 20:12	07:12 10:55-13:19/144 19:22	07:43 10:59-12:59/120 18:35	07:19 08:13-08:31/18 17:03 16:08-16:18/10	07:45 16:11-16:36/25 17:02
24	06:14 20:48	06:43 07:26-07:57/31 20:11	07:13 10:54-13:19/145 19:20	07:45 11:00-12:58/118 18:33	07:20 08:14-08:32/18 17:02 16:07-16:20/13	07:46 16:12-16:37/25 17:02
25	06:15 20:48	06:44 07:27-07:56/29 20:09	07:14 10:54-13:19/145 19:19	06:46 08:19-08:31/12 17:32 10:02-11:58/116	07:22 08:15-08:31/16 17:01 16:06-16:22/16	07:46 16:13-16:37/24 17:03
26	06:16 20:47	06:45 07:29-07:54/25 20:08	07:15 10:54-13:19/145 19:17	06:47 08:16-08:33/17 17:30 10:02-11:56/114	07:23 08:16-08:31/15 17:01 16:05-16:23/18	07:47 16:13-16:38/25 17:04
27	06:16 20:46	06:46 07:31-07:51/20 20:06	07:16 10:53-13:19/146 19:15	06:48 08:14-08:35/21 17:29 10:03-11:55/112	07:24 08:17-08:30/13 17:01 16:05-16:24/19	07:47 16:14-16:39/25 17:04
28	06:17 20:45	06:47 07:33-07:48/15 20:05	07:17 10:53-13:19/146 19:14	06:49 08:13-08:36/23 17:28 10:04-11:53/109	07:25 08:18-08:29/11 17:00 16:04-16:25/21	07:47 16:14-16:39/25 17:05
29	06:18 20:44	06:48 11:16-12:09/53 20:03	07:18 10:53-13:19/146 19:12	06:50 08:11-08:37/26 17:27 10:05-11:52/107	07:26 08:20-08:28/8 17:00 16:04-16:26/22	07:48 16:14-16:40/26 17:06
30	06:19 20:43	06:49 11:15-12:13/58 20:02	07:19 10:53-13:18/145 19:10	06:51 08:11-08:38/27 17:25 10:07-11:51/104	07:27 08:22-08:26/4 16:59 16:04-16:26/22	07:48 16:15-16:40/25 17:06
31	06:20 20:42	06:50 11:13-12:16/63 20:00	06:50 11:13-12:16/63 20:00	06:53 08:10-08:39/29 17:24 10:08-11:49/101	06:53 08:10-08:39/29 17:24 10:08-11:49/101	07:48 16:15-16:41/26 17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	254	1485	3698	4152	2005	786

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
 IT-09047 SELARGIUS
 335244024

SHADOW - Calendar per WTG

WTG: 4 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (7)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
 The sun is shining all the day, from sunrise to sunset
 The rotor plane is always perpendicular to the line from the WTG to the sun
 The WTG is always operating

	January	February	March	April	May	June
1	07:48 15:30-16:04/34 17:08	07:35 17:42	07:00 08:00-08:22/22 18:15	07:10 19:49	06:25 07:11-07:38/27 20:20 08:12-09:10/58	05:57 20:48
2	07:48 15:32-16:05/33 17:09	07:34 17:43	06:59 08:00-08:23/23 18:16	07:09 19:50	06:24 07:11-07:38/27 20:21 08:13-09:10/57	05:57 20:49
3	07:48 15:32-16:06/34 17:10	07:33 17:44	06:57 07:59-08:22/23 18:18	07:07 19:51	06:23 07:11-07:38/27 20:22 08:13-09:09/56	05:56 20:50
4	07:49 15:32-16:05/33 17:11	07:32 17:46	06:56 07:58-08:22/24 18:19	07:05 08:43-09:00/17 19:52	06:21 07:11-07:38/27 20:23 08:14-09:09/55	05:56 20:51
5	07:49 15:33-16:05/32 17:12	07:31 17:47	06:54 07:59-08:22/23 18:20	07:04 08:38-09:03/25 19:53	06:20 07:12-07:38/26 20:24 08:14-09:08/54	05:55 20:51
6	07:49 15:34-16:06/32 17:13	07:30 17:48	06:52 07:58-08:21/23 18:21	07:02 08:34-09:06/32 19:54	06:19 07:11-07:36/25 20:25 08:14-09:06/52	05:55 20:52
7	07:48 15:34-16:06/32 17:14	07:29 17:49	06:51 07:59-08:20/21 18:22	07:00 08:32-09:08/36 19:55	06:18 07:11-07:36/25 20:26 08:14-09:06/52	05:55 20:53
8	07:48 15:35-16:06/31 17:15	07:28 17:50	06:49 08:00-08:19/19 18:23	06:59 08:29-09:09/40 19:56	06:17 07:12-07:35/23 20:27 08:15-09:05/50	05:55 20:53
9	07:48 15:37-16:06/29 17:16	07:27 17:52	06:48 08:00-08:17/17 18:24	06:57 08:28-09:11/43 19:57	06:16 07:13-07:35/22 20:28 08:15-09:04/49	05:54 20:54
10	07:48 15:38-16:07/29 17:17	07:26 17:53	06:46 08:03-08:15/12 18:25	06:56 08:25-09:12/47 19:58	06:14 07:14-07:34/20 20:29 08:16-09:03/47	05:54 20:54
11	07:48 15:38-16:06/28 17:18	07:25 17:54	06:45 08:06-08:10/4 18:26	06:54 08:24-09:13/49 19:59	06:13 07:15-07:33/18 20:30 08:17-09:02/45	05:54 20:55
12	07:48 15:39-16:06/27 17:19	07:24 17:55	06:43 18:27	06:53 08:23-09:14/51 20:00	06:12 07:16-07:31/15 20:31 08:18-09:01/43	05:54 20:55
13	07:47 15:41-16:06/25 17:20	07:22 17:57	06:41 18:29	06:51 08:21-09:14/53 20:01	06:11 07:18-07:29/11 20:32 08:18-09:00/42	05:54 20:56
14	07:47 15:42-16:05/23 17:21	07:21 17:58	06:40 18:30	06:49 08:20-09:15/55 20:02	06:10 07:20-07:26/6 20:33 08:19-08:59/40	05:54 20:56
15	07:47 15:44-16:05/21 17:22	07:20 17:59	06:38 18:31	06:48 08:19-09:14/55 20:03	06:09 08:20-08:57/37 20:34	05:54 20:57
16	07:46 15:45-16:04/19 17:23	07:18 18:00	06:36 18:32	06:46 08:18-09:15/57 20:04	06:08 08:21-08:56/35 20:35	05:54 20:57
17	07:46 15:47-16:04/17 17:24	07:17 18:01	06:35 18:33	06:45 08:17-09:15/58 20:05	06:07 08:23-08:56/33 20:36	05:54 20:57
18	07:45 15:49-16:02/13 17:25	07:16 18:03	06:33 18:34	06:43 08:16-09:15/59 20:06	06:07 08:24-08:54/30 20:37	05:54 20:58
19	07:45 15:53-16:00/7 17:26	07:15 18:04	06:32 18:35	06:42 08:16-09:16/60 20:07	06:06 08:26-08:52/26 20:37	05:54 20:58
20	07:44 17:27	07:13 18:05	06:30 18:36	06:40 08:15-09:15/60 20:08	06:05 08:27-08:50/23 20:38	05:54 20:58
21	07:44 17:29	07:12 18:06	06:28 18:37	06:39 08:15-09:15/60 20:09	06:04 08:29-08:48/19 20:39	05:54 20:59
22	07:43 17:30	07:10 18:07	06:27 18:38	06:38 07:24-07:28/4 20:10 08:14-09:15/61	06:03 08:32-08:46/14 20:40	05:54 20:59
23	07:43 17:31	07:09 18:08	06:25 18:39	06:36 07:20-07:33/13 20:11 08:14-09:15/61	06:02 08:36-08:42/6 20:41	05:55 20:59
24	07:42 17:32	07:08 08:10-08:14/4 18:10	06:23 18:40	06:35 07:18-07:35/17 20:12 08:13-09:14/61	06:02 20:42	05:55 20:59
25	07:41 17:33	07:06 08:06-08:18/12 18:11	06:22 18:41	06:33 07:16-07:36/20 20:13 08:13-09:14/61	06:01 20:43	05:55 20:59
26	07:40 17:35	07:05 08:04-08:20/16 18:12	06:20 18:42	06:32 07:15-07:37/22 20:14 08:13-09:14/61	06:00 20:44	05:56 20:59
27	07:40 17:36	07:03 08:02-08:21/19 18:13	06:18 18:43	06:31 07:13-07:37/24 20:15 08:12-09:12/60	06:00 20:45	05:56 20:59
28	07:39 17:37	07:02 08:01-08:22/21 18:14	06:17 18:44	06:29 07:13-07:38/25 20:16 08:12-09:12/60	05:59 20:45	05:56 20:59
29	07:38 17:38		07:15 19:45	06:28 07:12-07:38/26 20:18 08:13-09:12/59	05:59 20:46	05:57 20:59
30	07:37 17:39		07:13 19:46	06:26 07:12-07:39/27 20:19 08:13-09:12/59	05:58 20:47	05:57 20:59
31	07:36 17:41		07:12 19:47		05:57 20:48	
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	499	72	211	1578	1222	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 4 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (7)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	05:58	06:21 07:26-07:42/16	06:51 08:23-09:12/49	07:20	06:54	07:28 15:20-15:48/28
	20:59	20:41 08:28-09:12/44	19:58	19:09	17:23	16:59
2	05:58	06:22 07:25-07:44/19	06:52 08:24-09:11/47	07:21	06:55	07:29 15:20-15:49/29
	20:59	20:40 08:27-09:13/46	19:57	19:07	17:22	16:59
3	05:59	06:23 07:24-07:45/21	06:53 08:26-09:09/43	07:22 08:41-08:51/10	06:56	07:30 15:20-15:49/29
	20:59	20:39 08:26-09:14/48	19:55	19:05	17:20	16:59
4	05:59	06:24 07:23-07:46/23	06:54 08:26-09:06/40	07:23 08:39-08:53/14	06:57	07:31 15:20-15:50/30
	20:59	20:37 08:26-09:15/49	19:54	19:04	17:19	16:58
5	06:00	06:25 07:22-07:46/24	06:55 08:28-09:04/36	07:24 08:37-08:55/18	06:58	07:32 15:20-15:51/31
	20:59	20:36 08:25-09:16/51	19:52	19:02	17:18	16:58
6	06:00	06:26 07:22-07:47/25	06:56 08:30-09:02/32	07:25 08:35-08:56/21	07:00	07:33 15:20-15:52/32
	20:58	20:35 08:25-09:16/51	19:50	19:00	17:17	16:58
7	06:01	06:27 07:20-07:46/26	06:57 08:33-08:59/26	07:26 08:34-08:56/22	07:01	07:34 15:20-15:52/32
	20:58	20:34 08:23-09:16/53	19:49	18:59	17:16	16:58
8	06:01	06:28 07:20-07:47/27	06:58 08:37-08:54/17	07:27 08:34-08:56/22	07:02	07:35 15:20-15:53/33
	20:58	20:33 08:23-09:17/54	19:47	18:57	17:15	16:58
9	06:02	06:29 07:20-07:47/27	06:59	07:28 08:33-08:56/23	07:03	07:36 15:20-15:54/34
	20:57	20:32 08:22-09:17/55	19:45	18:56	17:14	16:58
10	06:03	06:30 07:20-07:47/27	07:00	07:29 08:34-08:57/23	07:04	07:36 15:21-15:54/33
	20:57	20:30 08:22-09:18/56	19:44	18:54	17:13	16:58
11	06:03	06:31 07:20-07:47/27	07:01	07:31 08:33-08:57/24	07:05	07:37 15:21-15:55/34
	20:57	20:29 08:21-09:19/58	19:42	18:52	17:12	16:58
12	06:04	06:32 07:20-07:47/27	07:02	07:32 08:33-08:56/23	07:07	07:38 15:22-15:56/34
	20:56	20:28 08:21-09:19/58	19:40	18:51	17:11	16:58
13	06:05	06:33 07:20-07:46/26	07:03	07:33 08:34-08:55/21	07:08	07:39 15:21-15:56/35
	20:56	20:26 08:21-09:19/58	19:39	18:49	17:10	16:58
14	06:06	06:34 07:20-07:46/26	07:04	07:34 08:34-08:54/20	07:09	07:40 15:22-15:56/34
	20:55	20:25 08:20-09:20/60	19:37	18:48	17:09	16:59
15	06:06	06:35 07:21-07:45/24	07:05	07:35 08:35-08:53/18	07:10	07:40 15:22-15:57/35
	20:55	20:24 08:20-09:20/60	19:35	18:46	17:08	16:59
16	06:07	06:36 07:21-07:44/23	07:06	07:36 08:36-08:51/15	07:11	07:41 15:22-15:57/35
	20:54	20:22 08:20-09:20/60	19:34	18:45	17:07	16:59
17	06:08	06:36 07:22-07:43/21	07:07	07:37 08:38-08:48/10	07:12	07:42 15:23-15:58/35
	20:53	20:21 08:20-09:20/60	19:32	18:43	17:07	16:59
18	06:09	06:37 07:23-07:42/19	07:07	07:38	07:14	07:42 15:24-15:59/35
	20:53	20:20 08:20-09:20/60	19:30	18:42	17:06	17:00
19	06:10	06:38 07:24-07:40/16	07:08	07:39	07:15	07:43 15:24-15:59/35
	20:52	20:18 08:20-09:20/60	19:29	18:40	17:05	17:00
20	06:10	06:39 07:26-07:38/12	07:09	07:40	07:16	07:44 15:24-16:00/36
	20:51	20:17 08:20-09:20/60	19:27	18:39	17:04	17:00
21	06:11 08:43-08:54/11	06:40 08:19-09:19/60	07:10	07:41	07:17	07:44 15:24-16:00/36
	20:51	20:15	19:25	18:37	17:04	17:01
22	06:12 08:40-08:57/17	06:41 08:19-09:19/60	07:11	07:42	07:18	07:45 15:25-16:01/36
	20:50	20:14	19:24	18:36	17:03	17:01
23	06:13 08:38-09:00/22	06:42 08:19-09:19/60	07:12	07:43	07:19 15:29-15:36/7	07:45 15:25-16:01/36
	20:49	20:12	19:22	18:35	17:03	17:02
24	06:14 08:37-09:02/25	06:43 08:19-09:19/60	07:13	07:45	07:20 15:26-15:39/13	07:46 15:27-16:02/35
	20:48	20:11	19:20	18:33	17:02	17:02
25	06:15 08:36-09:04/28	06:44 08:19-09:18/59	07:14	07:46	07:21 15:25-15:42/17	07:46 15:27-16:02/35
	20:48	20:09	19:19	17:32	17:01	17:03
26	06:16 08:34-09:05/31	06:45 08:20-09:18/58	07:15	07:47	07:23 15:24-15:43/19	07:47 15:27-16:02/35
	20:47	20:08	19:17	17:30	17:01	17:04
27	06:16 08:32-09:06/34	06:46 08:20-09:17/57	07:16	07:48	07:24 15:23-15:44/21	07:47 15:28-16:03/35
	20:46	20:06	19:15	17:29	17:00	17:04
28	06:17 08:31-09:07/36	06:47 08:20-09:16/56	07:17	07:49	07:25 15:22-15:45/23	07:47 15:28-16:03/35
	20:45	20:05	19:14	17:28	17:00	17:05
29	06:18 08:30-09:08/38	06:48 08:21-09:15/54	07:18	07:50	07:26 15:21-15:46/25	07:48 15:29-16:03/34
	20:44	20:03	19:12	17:27	17:00	17:06
30	06:19 07:30-07:38/8	06:49 08:22-09:15/53	07:19	07:51	07:27 15:20-15:47/27	07:48 15:29-16:04/35
	20:43	20:02	19:10	17:25	16:59	17:06
31	06:20 07:27-07:41/14	06:50 08:23-09:13/50		07:52		07:48 15:30-16:04/34
	20:42 08:29-09:11/42	20:00		17:24		17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	347	2184	290	284	152	1045

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

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335244024

SHADOW - Calendar per WTG

WTG: 5 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (8)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:48 17:08	07:35 17:42	07:00 18:15	07:33-07:51/18 19:48	07:10 20:20	06:25 20:48
2	07:48 17:09	07:34 17:43	06:59 18:16	07:30-07:53/23 19:50	07:09 20:21	06:24 20:49
3	07:48 17:10	07:33 17:44	06:57 18:18	07:29-07:54/25 19:51	07:07 20:22	06:23 20:50
4	07:48 17:11	07:32 17:46	06:56 18:19	07:28-07:55/27 19:52	07:05 20:23	06:21 20:51
5	07:49 17:12	07:31 17:47	06:54 18:20	07:27-07:56/29 19:53	07:04 20:24	06:20 20:52
6	07:49 17:13	07:30 17:48	06:52 18:21	07:26-07:56/30 19:54	07:02 20:25	06:19 20:53
7	07:48 17:14	07:29 17:49	06:51 18:22	07:26-07:57/31 19:55	07:00 20:26	06:18 20:54
8	07:48 17:14	07:28 17:50	06:49 18:23	07:25-07:57/32 19:56	06:59 20:27	06:17 20:55
9	07:48 17:15	07:27 17:52	06:48 18:24	07:24-07:56/32 19:57	06:57 20:28	06:16 20:54
10	07:48 17:16	07:26 17:53	06:46 18:25	07:24-07:56/32 19:58	06:56 20:29	06:14 20:54
11	07:48 17:18	07:25 17:54	06:45 18:26	07:24-07:55/31 19:59	06:54 20:30	06:13 20:55
12	07:48 17:19	07:23 17:55	06:43 18:27	07:25-07:55/30 20:00	06:53 20:31	06:12 20:55
13	07:47 17:20	07:22 17:57	06:41 18:29	07:24-07:54/30 20:01	06:51 20:32	06:11 20:56
14	07:47 17:21	07:21 17:58	06:40 18:30	07:24-07:53/29 20:02	06:49 20:33	06:10 20:56
15	07:47 17:22	07:20 17:59	06:38 18:31	07:26-07:52/26 20:03	06:48 20:34	06:09 20:57
16	07:46 17:23	07:18 18:00	06:36 18:32	07:26-07:50/24 20:04	06:46 20:35	06:08 20:57
17	07:46 17:24	07:17 18:01	06:35 18:33	07:27-07:48/21 20:05	06:45 20:36	06:07 20:57
18	07:45 17:25	07:16 18:03	06:33 18:34	07:29-07:46/17 20:06	06:43 20:36	06:06 20:58
19	07:45 17:26	07:14 18:04	06:32 18:35	07:32-07:43/11 20:07	06:42 20:37	06:06 20:58
20	07:44 17:27	07:13 18:05	06:30 18:36	07:32-07:43/11 20:08	06:40 20:38	06:05 20:58
21	07:44 17:29	07:12 18:06	06:28 18:37	07:32-07:43/11 20:09	06:39 20:39	06:04 20:59
22	07:43 17:30	07:10 18:07	06:27 18:38	07:32-07:43/11 20:10	06:37 20:40	06:03 20:59
23	07:43 17:31	07:09 18:08	06:25 18:39	07:32-07:43/11 20:11	06:36 20:41	06:02 20:59
24	07:42 17:32	07:07 18:10	06:23 18:40	07:32-07:43/11 20:12	06:35 20:42	06:02 20:59
25	07:41 17:33	07:06 18:11	06:22 18:41	07:32-07:43/11 20:13	06:33 20:43	06:01 20:59
26	07:40 17:35	07:05 18:12	06:20 18:42	06:46-06:50/4 20:14	07:06-07:16/10 20:44	06:00 20:59
27	07:40 17:36	07:03 18:13	06:18 18:43	06:46-06:50/4 20:15	07:03-07:19/16 20:44	06:00 20:59
28	07:39 17:37	07:02 18:14	06:17 18:44	06:42-06:53/11 20:16	07:00-07:20/20 20:45	06:00 20:59
29	07:38 17:38		06:15 19:45	06:39-06:54/15 20:17	06:59-07:21/22 20:46	05:59 20:59
30	07:37 17:39		06:13 19:46	07:39-07:55/16 20:18	06:58-07:22/24 20:47	05:58 20:59
31	07:36 17:41		06:12 19:47	07:37-07:55/18 20:19	06:58-07:23/25 20:48	05:57 20:59
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	0	13	581	223	454	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
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Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
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 335244024

SHADOW - Calendar per WTG

WTG: 5 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (8)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
 The sun is shining all the day, from sunrise to sunset
 The rotor plane is always perpendicular to the line from the WTG to the sun
 The WTG is always operating

	July	August	September	October	November	December
1	05:58	06:21 07:06-07:32/26	06:51	07:20 08:03-08:34/31	06:54	07:28
	20:59	20:41	19:58	19:09	17:23	16:59
2	05:58	06:22 07:06-07:33/27	06:52	07:21 08:03-08:34/31	06:55	07:29
	20:59	20:40	19:57	19:07	17:22	16:59
3	05:59	06:23 07:06-07:33/27	06:53	07:22 08:02-08:34/32	06:56	07:30
	20:59	20:39	19:55	19:05	17:20	16:59
4	05:59	06:24 07:05-07:33/28	06:54	07:23 08:02-08:34/32	06:57	07:31
	20:59	20:37	19:54	19:04	17:19	16:58
5	06:00	06:25 07:05-07:34/29	06:55 07:37-07:43/6	07:24 08:01-08:33/32	06:58	07:32
	20:59	20:36	19:52	19:02	17:18	16:58
6	06:00	06:26 07:05-07:34/29	06:56 07:34-07:45/11	07:25 08:01-08:33/32	06:59	07:33
	20:58	20:35	19:50	19:00	17:17	16:58
7	06:01	06:27 07:04-07:33/29	06:57 07:32-07:46/14	07:26 08:01-08:32/31	07:01	07:34
	20:58	20:34	19:49	18:59	17:16	16:58
8	06:01	06:28 07:04-07:33/29	06:58 07:30-07:47/17	07:27 08:01-08:31/30	07:02	07:35
	20:58	20:33	19:47	18:57	17:15	16:58
9	06:02	06:29 07:04-07:33/29	06:59 07:30-07:48/18	07:28 08:02-08:30/28	07:03	07:36
	20:57	20:32	19:45	18:56	17:14	16:58
10	06:03	06:30 07:04-07:32/28	07:00 07:29-07:48/19	07:29 08:03-08:30/27	07:04	07:36
	20:57	20:30	19:44	18:54	17:13	16:58
11	06:03	06:31 07:05-07:32/27	07:01 07:28-07:48/20	07:30 08:04-08:28/24	07:05	07:37
	20:57	20:29	19:42	18:52	17:12	16:58
12	06:04	06:32 07:05-07:31/26	07:02 07:28-07:47/19	07:32 08:06-08:26/20	07:07	07:38
	20:56	20:28	19:40	18:51	17:11	16:58
13	06:05	06:33 07:06-07:31/25	07:03 07:28-07:47/19	07:33 08:07-08:24/17	07:08	07:39
	20:56	20:26	19:39	18:49	17:10	16:58
14	06:06	06:34 07:06-07:30/24	07:04 07:29-07:46/17	07:34 08:10-08:20/10	07:09	07:40
	20:55	20:25	19:37	18:48	17:09	16:58
15	06:06	06:35 07:07-07:29/22	07:05 07:29-07:44/15	07:35	07:10	07:40
	20:55	20:24	19:35	18:46	17:08	16:59
16	06:07	06:35 07:09-07:27/18	07:06 07:31-07:42/11	07:36	07:11	07:41
	20:54	20:22	19:34	18:45	17:07	16:59
17	06:08	06:36 07:10-07:25/15	07:06 07:33-07:39/6	07:37	07:12	07:42
	20:53	20:21	19:32	18:43	17:07	16:59
18	06:09	06:37 07:13-07:22/9	07:07	07:38	07:14	07:42
	20:53	20:20	19:30	18:42	17:06	17:00
19	06:09	06:38	07:08	07:39	07:15	07:43
	20:52	20:18	19:29	18:40	17:05	17:00
20	06:10	06:39	07:09	07:40	07:16	07:44
	20:51	20:17	19:27	18:39	17:04	17:00
21	06:11	06:40	07:10	07:41	07:17	07:44
	20:51	20:15	19:25	18:37	17:04	17:01
22	06:12	06:41	07:11	07:42	07:18	07:45
	20:50	20:14	19:24	18:36	17:03	17:01
23	06:13	06:42	07:12	07:43	07:19	07:45
	20:49	20:12	19:22	18:35	17:02	17:02
24	06:14 07:17-07:21/4	06:43	07:13 08:17-08:24/7	07:45	07:20	07:46
	20:48	20:11	19:20	18:33	17:02	17:02
25	06:15 07:14-07:25/11	06:44	07:14 08:13-08:28/15	06:46	07:21	07:46
	20:47	20:09	19:19	17:32	17:01	17:03
26	06:16 07:12-07:27/15	06:45	07:15 08:10-08:30/20	06:47	07:23	07:47
	20:47	20:08	19:17	17:30	17:01	17:04
27	06:16 07:10-07:27/17	06:46	07:16 08:08-08:31/23	06:48	07:24	07:47
	20:46	20:06	19:15	17:29	17:00	17:04
28	06:17 07:09-07:29/20	06:47	07:17 08:07-08:32/25	06:49	07:25	07:47
	20:45	20:05	19:14	17:28	17:00	17:05
29	06:18 07:08-07:30/22	06:48	07:18 08:05-08:33/28	06:50	07:26	07:47
	20:44	20:03	19:12	17:27	17:00	17:06
30	06:19 07:08-07:31/23	06:49	07:19 08:04-08:34/30	06:51	07:27	07:48
	20:43	20:02	19:10	17:25	16:59	17:06
31	06:20 07:07-07:31/24	06:50		06:53		07:48
	20:42	20:00		17:24		17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	136	447	340	377	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
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335244024

SHADOW - Calendar per WTG

WTG: 6 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (9)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:48 08:41-09:41/60 17:08	07:35 08:38-08:46/8 17:42 09:01-09:39/38	07:00 18:15	07:10 19:49	06:25 07:02-07:51/49 20:20	05:57 07:01-07:52/51 20:48
2	07:48 08:42-09:43/61 17:09	07:34 09:03-09:38/35 17:43	06:59 18:16	07:09 19:50	06:24 07:01-07:52/51 20:21	05:57 07:01-07:52/51 20:49
3	07:48 08:42-09:43/61 17:10	07:33 09:04-09:36/32 17:44	06:57 18:18	07:07 19:51	06:23 07:00-07:53/53 20:22	05:56 07:02-07:52/50 20:50
4	07:49 08:43-09:43/60 17:11	07:32 09:07-09:34/27 17:46	06:56 18:19	07:05 19:52	06:21 07:00-07:53/53 20:23	05:56 07:02-07:51/49 20:51
5	07:49 08:42-09:43/61 17:12	07:31 09:09-09:31/22 17:47	06:54 18:20	07:04 19:53	06:20 06:59-07:54/55 20:24	05:55 07:03-07:51/48 20:51
6	07:49 08:43-09:43/60 17:13	07:30 09:13-09:28/15 17:48	06:52 18:21	07:02 19:54	06:19 06:58-07:53/55 20:25	05:55 07:03-07:51/48 20:52
7	07:48 08:32-08:37/5 17:14	07:29 17:49	06:51 18:22	07:01 19:55	06:18 06:58-07:54/56 20:26	05:55 07:03-07:50/47 20:53
8	07:48 08:31-08:39/8 17:15	07:28 17:51	06:49 18:23	06:59 19:56	06:17 06:57-07:54/57 20:27	05:55 07:04-07:50/46 20:53
9	07:48 08:30-08:41/11 17:16	07:27 17:52	06:48 18:24	06:57 19:57	06:16 06:57-07:54/57 20:28	05:54 07:04-07:50/46 20:54
10	07:48 08:30-08:43/13 17:17	07:26 17:53	06:46 18:25	06:56 19:58	06:14 06:57-07:54/57 20:29	05:54 07:05-07:51/46 20:54
11	07:48 08:29-08:44/15 17:18	07:25 17:54	06:45 07:08-07:19/11 18:26	06:54 19:59	06:13 06:57-07:54/57 20:30	05:54 07:05-07:51/46 20:55
12	07:48 08:29-08:45/16 17:19	07:24 17:55	06:43 07:06-07:23/17 18:27	06:53 20:00	06:12 06:56-07:54/58 20:31	05:54 07:06-07:51/45 20:55
13	07:47 08:29-09:47/78 17:20	07:22 17:57	06:41 07:04-07:24/20 18:29	06:51 20:01	06:11 06:56-07:54/58 20:32	05:54 07:06-07:51/45 20:56
14	07:47 08:28-09:46/78 17:21	07:21 17:58	06:40 07:02-07:25/23 18:30	06:49 20:02	06:10 06:56-07:54/58 20:33	05:54 07:07-07:51/44 20:56
15	07:47 08:28-09:47/79 17:22	07:20 17:59	06:38 07:01-07:26/25 18:31	06:48 20:03	06:09 06:56-07:54/58 20:34	05:54 07:07-07:51/44 20:57
16	07:46 08:28-09:46/78 17:23	07:18 18:00	06:37 06:59-07:26/27 18:32	06:46 20:04	06:08 06:56-07:54/58 20:35	05:54 07:07-07:51/44 20:57
17	07:46 08:28-09:47/79 17:24	07:17 18:01	06:35 06:58-07:26/28 18:33	06:44 20:05	06:07 06:57-07:55/58 20:36	05:54 07:08-07:51/43 20:57
18	07:45 08:28-09:47/79 17:25	07:16 18:03	06:33 06:58-07:27/29 18:34	06:43 20:06	06:07 06:57-07:55/58 20:37	05:54 07:08-07:51/43 20:58
19	07:45 08:28-09:47/79 17:26	07:15 18:04	06:32 06:57-07:26/29 18:35	06:42 20:07	06:06 06:57-07:54/57 20:37	05:54 07:08-07:51/43 20:58
20	07:44 08:28-09:47/79 17:28	07:13 18:05	06:30 06:57-07:25/28 18:36	06:40 20:08	06:05 06:57-07:54/57 20:38	05:54 07:08-07:51/43 20:58
21	07:44 08:28-09:46/78 17:29	07:12 18:06	06:28 06:57-07:25/28 18:37	06:39 07:25-07:33/8 20:09	06:04 06:56-07:53/57 20:39	05:54 07:08-07:51/43 20:59
22	07:43 08:29-09:47/78 17:30	07:10 18:07	06:27 06:57-07:24/27 18:38	06:38 07:18-07:38/20 20:10	06:03 06:57-07:54/57 20:40	05:54 07:09-07:52/43 20:59
23	07:43 08:29-09:46/77 17:31	07:09 18:08	06:25 06:57-07:23/26 18:39	06:36 07:15-07:42/27 20:11	06:02 06:57-07:53/56 20:41	05:55 07:09-07:52/43 20:59
24	07:42 08:29-08:52/23 17:32	07:08 18:10	06:23 06:58-07:23/25 18:40	06:35 07:12-07:43/31 20:12	06:02 06:57-07:53/56 20:42	05:55 07:09-07:52/43 20:59
25	07:41 08:30-08:53/23 17:33	07:06 18:11	06:22 06:59-07:21/22 18:41	06:33 07:10-07:45/35 20:13	06:01 06:58-07:53/55 20:43	05:55 07:10-07:53/43 20:59
26	07:40 08:31-08:52/21 17:35	07:05 18:12	06:20 07:00-07:20/20 18:42	06:32 07:09-07:47/38 20:14	06:00 06:58-07:53/55 20:44	05:56 07:10-07:53/43 20:59
27	07:40 08:31-08:52/21 17:36	07:03 18:13	06:18 07:02-07:17/15 18:43	06:31 07:06-07:48/42 20:15	06:00 06:59-07:53/54 20:45	05:56 07:09-07:53/44 20:59
28	07:39 08:32-08:51/19 17:37	07:02 18:14	06:17 07:04-07:13/9 18:44	06:29 07:05-07:49/44 20:16	05:59 06:59-07:52/53 20:45	05:56 07:10-07:54/44 20:59
29	07:38 08:33-08:51/18 17:38	07:01 18:15	06:15 07:04-07:12/8 19:45	06:28 07:04-07:50/46 20:18	05:59 07:00-07:53/53 20:46	05:57 07:10-07:54/44 20:59
30	07:37 08:34-08:50/16 17:39	07:00 18:16	06:13 07:03-07:11/7 19:46	06:27 07:03-07:51/48 20:19	05:58 07:00-07:52/52 20:47	05:57 07:10-07:55/45 20:59
31	07:36 08:35-08:48/13 17:41	06:59 18:17	06:11 07:02-07:10/6 19:47	06:25 07:02-07:49/44 20:20	05:57 07:01-07:52/51 20:48	05:57 07:10-07:55/45 20:59
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	2193	177	409	339	1719	1357

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalcanti 1
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335244024

SHADOW - Calendar per WTG

WTG: 6 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (9)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December
1	05:58 07:10-07:55/45	06:21 07:07-08:05/58	06:51	07:20 07:44-08:02/18	06:54	07:28 08:11-08:26/15
	20:59	20:41	19:58	19:09	17:23	16:59 08:27-09:27/60
2	05:58 07:09-07:55/46	06:22 07:07-08:05/58	06:52	07:21 07:46-07:59/13	06:55	07:29 08:12-08:25/13
	20:59	20:40	19:57	19:07	17:22	16:59 08:27-09:28/61
3	05:59 07:10-07:56/46	06:23 07:08-08:05/57	06:53	07:22 07:50-07:55/5	06:56	07:30 08:13-08:25/12
	20:59	20:39	19:55	19:05	17:20	16:59 08:28-09:28/60
4	05:59 07:10-07:56/46	06:24 07:08-08:05/57	06:54	07:23	06:57	07:31 08:15-08:24/9
	20:59	20:37	19:54	19:04	17:19	16:58 08:28-09:29/61
5	06:00 07:09-07:56/47	06:25 07:08-08:05/57	06:55	07:24	06:58 08:43-08:58/15	07:32 08:17-08:22/5
	20:59	20:36	19:52	19:02	17:18	16:58 08:28-09:29/61
6	06:00 07:10-07:57/47	06:26 07:08-08:04/56	06:56	07:25	07:00 08:39-09:02/23	07:33 08:29-09:30/61
	20:58	20:35	19:50	19:00	17:17	16:58
7	06:01 07:09-07:57/48	06:27 07:08-08:03/55	06:57	07:26	07:01 08:37-09:05/28	07:34 08:29-09:30/61
	20:58	20:34	19:49	18:59	17:16	16:58
8	06:01 07:09-07:58/49	06:28 07:08-08:02/54	06:58	07:27	07:02 08:35-09:07/32	07:35 08:30-09:30/60
	20:58	20:33	19:47	18:57	17:15	16:58
9	06:02 07:08-07:58/50	06:29 07:09-08:02/53	06:59	07:28	07:03 08:33-09:09/36	07:36 08:30-09:31/61
	20:57	20:32	19:45	18:56	17:14	16:58
10	06:03 07:09-07:59/50	06:30 07:09-08:01/52	07:00	07:29	07:04 08:08-08:17/9	07:36 08:31-09:32/61
	20:57	20:30	19:44	18:54	17:13 08:32-09:10/38	16:58
11	06:03 07:09-08:00/51	06:31 07:10-08:01/51	07:01	07:31	07:05 08:07-08:20/13	07:37 08:32-09:32/60
	20:57	20:29	19:42	18:52	17:12 08:31-09:13/42	16:58
12	06:04 07:09-08:00/51	06:32 07:11-08:00/49	07:02	07:32	07:07 08:06-08:22/16	07:38 08:32-09:33/61
	20:56	20:28	19:40	18:51	17:11 08:30-09:14/44	16:58
13	06:05 07:08-08:00/52	06:33 07:11-07:59/48	07:03	07:33	07:08 08:05-08:23/18	07:39 08:32-09:32/60
	20:56	20:26	19:39	18:49	17:10 08:29-09:15/46	16:58
14	06:06 07:08-08:01/53	06:34 07:12-07:58/46	07:04	07:34	07:09 08:04-08:23/19	07:40 08:33-09:33/60
	20:55	20:25	19:37	18:48	17:09 08:28-09:16/48	16:59
15	06:06 07:08-08:02/54	06:35 07:13-07:57/44	07:05 07:55-08:02/7	07:35	07:10 08:04-08:25/21	07:40 08:34-09:34/60
	20:55	20:24	19:35	18:46	17:08 08:28-09:18/50	16:59
16	06:07 07:08-08:01/53	06:36 07:14-07:55/41	07:06 07:51-08:06/15	07:36	07:11 08:03-08:25/22	07:41 08:33-09:34/61
	20:54	20:22	19:34	18:45	17:07 08:28-09:18/50	16:59
17	06:08 07:08-08:02/54	06:36 07:16-07:54/38	07:07 07:49-08:08/19	07:37	07:12 08:03-08:26/23	07:42 08:34-09:34/60
	20:53	20:21	19:32	18:43	17:07 08:27-09:19/52	16:59
18	06:09 07:08-08:03/55	06:37 07:17-07:52/35	07:07 07:47-08:09/22	07:38	07:14 08:03-08:26/23	07:42 08:35-09:35/60
	20:53	20:20	19:30	18:42	17:06 08:27-09:20/53	17:00
19	06:10 07:08-08:03/55	06:38 07:19-07:49/30	07:08 07:45-08:09/24	07:39	07:15 08:04-09:20/76	07:43 08:35-09:35/60
	20:52	20:18	19:29	18:40	17:05	17:00
20	06:10 07:08-08:04/56	06:39 07:22-07:47/25	07:09 07:44-08:09/25	07:40	07:16 08:04-09:22/78	07:44 08:36-09:36/60
	20:51	20:17	19:27	18:39	17:04	17:00
21	06:11 07:07-08:03/56	06:40 07:24-07:42/18	07:10 07:43-08:10/27	07:41	07:17 08:04-09:22/78	07:44 08:36-09:36/60
	20:51	20:15	19:25	18:37	17:04	17:01
22	06:12 07:07-08:04/57	06:41 07:31-07:35/4	07:11 07:42-08:10/28	07:42	07:18 08:04-09:23/79	07:45 08:37-09:37/60
	20:50	20:14	19:24	18:36	17:03	17:01
23	06:13 07:07-08:04/57	06:42	07:12 07:41-08:10/29	07:43	07:19 08:04-09:23/79	07:45 08:37-09:37/60
	20:49	20:12	19:22	18:35	17:03	17:02
24	06:14 07:07-08:05/58	06:43	07:13 07:41-08:09/28	07:45	07:20 08:06-09:24/78	07:46 08:38-09:38/60
	20:48	20:11	19:20	18:33	17:02	17:02
25	06:15 07:07-08:05/58	06:44	07:14 07:41-08:09/28	06:46	07:21 08:06-09:25/79	07:46 08:38-09:38/60
	20:47	20:09	19:19	17:32	17:01	17:03
26	06:16 07:07-08:05/58	06:45	07:15 07:41-08:08/27	06:47	07:23 08:07-09:25/78	07:47 08:38-09:38/60
	20:47	20:08	19:17	17:30	17:01	17:04
27	06:16 07:06-08:05/59	06:46	07:16 07:41-08:08/27	06:48	07:24 08:07-09:26/79	07:47 08:39-09:39/60
	20:46	20:06	19:15	17:29	17:00	17:04
28	06:17 07:06-08:05/59	06:47	07:17 07:41-08:07/26	06:49	07:25 08:08-09:26/78	07:47 08:39-09:40/61
	20:45	20:05	19:14	17:28	17:00	17:05
29	06:18 07:07-08:05/58	06:48	07:18 07:42-08:05/23	06:50	07:26 08:09-09:27/78	07:48 08:40-09:40/60
	20:44	20:03	19:12	17:27	17:00	17:06
30	06:19 07:07-08:05/58	06:49	07:19 07:42-08:04/22	06:51	07:27 08:10-08:26/16	07:48 08:40-09:40/60
	20:43	20:02	19:10	17:25	16:59 08:27-09:27/60	17:06
31	06:20 07:07-08:05/58	06:50		06:53		07:48 08:40-09:41/61
	20:42	20:00		17:24		17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	1644	986	377	36	1657	1925

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 7 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (10)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	
1	07:48 17:08	07:35 08:13-08:21/8 17:42	07:00 08:07-08:25/18 18:15 09:02-10:35/93	07:10 09:23-11:54/151 19:49 07:29-07:43/14	06:25 09:17-11:11/114 20:20	05:57 09:32-10:41/69 20:48 19:44-20:10/26	
2	07:48 17:09	07:34 08:09-08:25/16 17:43	06:59 08:12-08:21/9 18:16 08:59-10:36/97	07:09 09:22-11:53/151 19:50 07:27-07:44/17	06:24 09:17-11:10/113 20:21	05:57 09:33-10:41/68 20:49 19:45-20:10/25	
3	07:48 17:10	07:33 08:07-08:28/21 17:44	06:57 08:57-10:39/102 18:18	07:07 09:21-11:52/151 19:51 07:25-07:43/18	06:23 09:18-11:08/110 20:22	05:56 09:34-10:40/66 20:50 19:45-20:10/25	
4	07:49 17:11	07:32 08:05-08:30/25 17:46	06:56 08:55-10:40/105 18:19	07:05 09:21-11:51/150 19:52 07:24-07:44/20	06:21 09:18-11:07/109 20:23	05:56 09:34-10:39/65 20:51 19:46-20:10/24	
5	07:49 17:12	07:31 08:04-08:32/28 17:47	06:54 08:54-10:42/108 18:20	07:04 09:20-11:50/150 19:53 07:22-07:43/21	06:20 09:19-11:06/107 20:24	05:55 09:35-10:39/64 20:51 19:47-20:10/23	
6	07:49 17:13	07:30 08:03-08:33/30 17:48	06:53 08:51-10:44/113 18:21	07:02 09:19-11:49/150 19:54 07:23-07:44/21	06:19 09:18-11:04/106 20:25	05:55 09:36-10:39/63 20:52 19:47-20:10/23	
7	07:48 17:14	07:29 08:02-08:34/32 17:49	06:51 08:50-10:46/116 18:22	07:01 09:19-11:48/149 19:55 07:22-07:43/21	06:18 09:19-11:03/104 20:26	05:55 09:36-10:38/62 20:53 19:47-20:09/22	
8	07:48 17:15	07:28 08:01-08:36/35 17:51	06:49 08:48-10:47/119 18:23	06:59 09:19-11:46/147 19:56 07:22-07:41/19	06:17 09:19-11:01/102 20:27	05:55 09:37-10:38/61 20:53 19:48-20:09/21	
9	07:48 17:16	07:27 08:00-08:37/37 17:52	06:48 08:46-10:47/121 18:24	06:57 09:19-11:46/147 19:57 07:23-07:41/18	06:16 09:20-11:00/100 20:28	05:54 09:37-10:38/61 20:54 19:49-20:09/20	
10	07:48 17:17	07:26 07:59-08:37/38 17:53	06:46 08:45-10:49/124 18:25	06:56 09:18-11:44/146 19:58 07:24-07:39/15	06:14 09:20-10:59/99 20:29	05:54 09:38-10:38/60 20:54 19:49-20:09/20	
11	07:48 17:18	07:25 07:59-08:37/38 17:54	06:45 08:43-10:50/127 18:26	06:54 09:18-11:43/145 19:59 07:26-07:37/11	06:13 09:21-10:58/97 20:30	05:54 09:39-10:38/59 20:55 19:50-20:09/19	
12	07:48 17:19	07:24 07:58-08:38/40 17:55	06:43 08:43-10:51/128 18:27	06:53 09:18-11:41/143 20:00	06:12 09:21-10:57/96 20:31	05:54 09:39-10:38/59 20:55 19:51-20:08/17	
13	07:47 17:20	07:22 07:58-08:39/41 17:57	06:41 08:41-10:52/131 18:29	06:51 09:18-11:40/142 20:01	06:11 09:21-10:56/95 20:32	05:54 09:40-10:38/58 20:56 19:51-20:08/17	
14	07:47 17:21	07:21 07:57-08:38/41 17:58	06:40 08:39-10:52/133 18:30	06:50 09:17-11:38/141 20:02	06:10 09:22-10:55/93 20:33	05:54 09:40-10:38/58 20:56 19:52-20:08/16	
15	07:47 17:22	07:20 07:57-08:39/42 17:59	06:38 08:38-10:54/136 18:31	06:48 09:16-11:36/140 20:03	06:09 09:22-10:53/91 20:34	05:54 09:40-10:38/58 20:57 19:52-20:08/16	
16	07:46 17:23	07:19 07:58-08:39/41 18:00	06:37 08:37-10:54/137 18:32	06:46 09:17-11:35/138 20:04	06:08 09:23-10:52/89 20:35	05:54 09:41-10:37/56 20:57 19:53-20:08/15	
17	07:46 17:24	07:17 07:57-08:38/41 18:01	06:35 08:35-10:54/139 18:33	06:45 09:16-11:33/137 20:05	06:07 09:24-10:52/88 20:36	05:54 09:41-10:37/56 20:57 19:53-20:08/15	
18	07:45 17:25	07:16 07:57-08:38/41 18:03	06:33 08:35-10:55/140 18:34	06:43 09:16-11:32/136 20:06	06:07 09:24-10:51/87 20:37	05:54 09:41-10:37/56 20:58 19:54-20:08/14	
19	07:45 17:26	07:15 07:58-08:39/41 18:04	06:32 08:33-10:55/142 18:35	06:42 09:17-11:30/133 20:07	06:06 09:25-10:50/85 20:37	05:54 09:41-10:37/56 20:58 19:54-20:08/14	
20	07:44 17:28	07:13 07:57-08:37/40 18:05	06:30 08:32-10:55/143 18:36	06:40 09:16-11:28/132 20:08	06:05 09:25-10:49/84 20:38	05:54 09:42-10:37/55 20:58 19:54-20:08/14	
21	07:44 17:29	07:12 07:58-08:37/39 18:06	06:28 08:32-10:56/144 18:37	06:39 09:16-11:27/131 20:09	06:04 09:25-10:48/83 20:39	05:54 09:42-10:37/55 20:59 19:54-20:08/14	
22	07:43 17:30	07:10 07:58-08:36/38 18:07	06:27 08:30-10:56/146 18:38	06:38 09:16-11:25/129 20:10	06:03 09:27-10:48/81 20:40	05:55 09:43-10:38/55 20:59 19:55-20:09/14	
23	07:43 17:31	07:09 07:59-08:36/37 18:08	06:25 08:29-10:56/147 18:39	06:36 09:16-11:24/128 20:11	06:02 09:27-10:47/80 20:41	05:55 09:42-10:38/56 20:59 19:55-20:09/14	
24	07:42 17:32	07:08 08:00-08:35/35 18:10	06:23 08:29-10:57/148 18:40	06:35 09:16-11:21/125 20:12	06:02 09:27-10:45/78 20:42	05:55 09:42-10:38/56 20:59 19:55-20:09/14	
25	07:41 17:33	07:06 08:01-08:33/32 18:11	06:22 08:28-10:56/148 18:41	06:33 09:16-11:20/124 20:13	06:01 09:29-10:45/76 20:43	05:55 09:43-10:39/56 20:59 19:55-20:10/15	
26	07:40 17:35	07:05 08:02-08:32/30 18:12	06:20 08:26-10:56/150 18:42	06:32 09:17-11:19/122 20:14	06:00 09:29-10:44/75 20:44	05:56 09:43-10:39/56 20:59 19:55-20:10/15	
27	07:40 17:36	07:03 08:03-08:30/27 18:13	06:18 08:26-10:56/150 18:43	06:31 09:16-11:17/121 20:15	06:00 09:30-10:44/74 20:45	05:56 09:43-10:39/56 20:59 19:55-20:10/15	
28	07:39 17:37	07:02 08:05-08:28/23 18:14	06:17 08:25-10:56/151 18:44	06:29 09:16-11:15/119 20:16	05:59 09:30-10:43/73 20:45	05:56 09:43-10:41/58 20:59 19:55-20:11/16	
29	07:38 17:38	07:01 08:04-08:27/21 18:15	06:15 08:24-10:56/151 18:45	06:28 09:17-11:14/117 20:18	05:59 09:31-10:43/72 20:46	05:57 09:43-10:41/58 20:59 19:55-20:11/16	
30	07:37 17:39	07:00 08:05-08:26/20 18:16	06:14 08:24-11:55/151 19:46	06:27 09:17-11:13/116 20:19	05:58 09:31-10:42/71 20:47	05:57 09:43-10:42/59 20:59 19:54-20:11/17	
31	07:36 17:41	06:59 08:06-08:25/19 18:17	06:13 08:23-11:54/151 19:47	06:26 09:17-11:12/115 20:20	05:58 09:32-10:42/70 20:48	05:57 09:43-10:42/59 20:59 19:54-20:11/17	
	Potential sun hours	299	298	370	398	447	450
	Sum of minutes with flicker	0	1507	4138	4309	3437	2311

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 7 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (10)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December
1	05:58 09:43-10:42/59	06:21 09:31-11:08/97	06:51 09:17-11:42/145	07:20 09:21-11:30/129	06:54 07:29-08:06/37	07:28
	20:59 19:54-20:13/19	20:41 19:55-20:17/22	19:58 07:25-07:36/11	19:09	17:23	16:59
2	05:58 09:42-10:42/60	06:22 09:31-11:09/98	06:52 09:17-11:43/146	07:21 09:21-11:29/128	06:55 07:29-08:05/36	07:29
	20:59 19:54-20:13/19	20:40 19:56-20:16/20	19:57 07:23-07:38/15	19:07	17:22	16:59
3	05:59 09:43-10:43/60	06:23 09:31-11:10/99	06:53 09:17-11:44/147	07:22 09:22-11:27/125	06:56 07:31-08:05/34	07:30
	20:59 19:54-20:14/20	20:39 19:57-20:16/19	19:55 07:21-07:39/18	19:05	17:20	16:59
4	05:59 09:43-10:44/61	06:24 09:30-11:11/101	06:54 09:16-11:43/147	07:23 09:23-11:26/123	06:57 07:32-08:04/32	07:31
	20:59 19:53-20:14/21	20:38 19:59-20:14/15	19:54 07:20-07:39/19	19:04	17:19	16:58
5	06:00 09:42-10:44/62	06:25 09:30-11:13/103	06:55 09:15-11:44/149	07:24 09:24-11:24/120	06:58 07:33-08:03/30	07:32
	20:59 19:54-20:15/21	20:36 20:02-20:11/9	19:52 07:18-07:39/21	19:02	17:18	16:58
6	06:00 09:42-10:45/63	06:26 09:29-11:14/105	06:56 09:15-11:45/150	07:25 09:25-11:22/117	07:00 07:34-08:01/27	07:33
	20:58 19:54-20:16/22	20:35	19:50 07:18-07:39/21	19:00	17:17	16:58
7	06:01 09:42-10:45/63	06:27 09:28-11:14/106	06:57 09:15-11:45/150	07:26 09:26-11:20/114	07:01 07:36-08:00/24	07:34
	20:58 19:53-20:16/23	20:34	19:49 07:17-07:39/22	18:59	17:16	16:58
8	06:02 09:42-10:46/64	06:28 09:27-11:15/108	06:58 09:15-11:45/150	07:27 09:28-11:18/110	07:02 07:38-07:58/20	07:35
	20:58 19:53-20:17/24	20:33	19:47 07:18-07:38/20	18:57	17:15	16:58
9	06:02 09:41-10:46/65	06:29 09:27-11:16/109	06:59 09:15-11:46/151	07:28 09:29-11:16/107	07:03 07:40-07:56/16	07:36
	20:57 19:52-20:17/25	20:32	19:45 07:19-07:38/19	18:56	17:14	16:58
10	06:03 09:41-10:48/67	06:30 09:26-11:17/111	07:00 09:15-11:46/151	07:30 09:31-11:15/104	07:04 07:44-07:52/8	07:36
	20:57 19:52-20:17/25	20:30	19:44 07:20-07:37/17	18:54	17:13	16:58
11	06:03 09:41-10:49/68	06:31 09:26-11:19/113	07:01 09:15-11:46/151	07:31 09:33-11:12/99	07:05	07:37
	20:57 19:52-20:18/26	20:29	19:42 07:21-07:36/15	18:53	17:12	16:58
12	06:04 09:41-10:50/69	06:32 09:25-11:20/115	07:02 09:15-11:46/151	07:32 08:43-08:57/14	07:07	07:38
	20:56 19:52-20:18/26	20:28	19:40 07:22-07:34/12	18:51 09:34-11:10/96	17:11	16:58
13	06:05 09:40-10:50/70	06:33 09:25-11:21/116	07:03 09:15-11:46/151	07:33 08:40-09:00/20	07:08	07:39
	20:56 19:52-20:19/27	20:26	19:39 07:23-07:32/9	18:49 09:36-11:07/91	17:10	16:58
14	06:06 09:40-10:51/71	06:34 09:25-11:22/117	07:04 09:15-11:46/151	07:34 08:37-09:02/25	07:09	07:40
	20:55 19:52-20:19/27	20:25	19:37 07:24-07:27/3	18:48 09:38-11:05/87	17:09	16:59
15	06:06 09:40-10:52/72	06:35 09:24-11:23/119	07:05 09:15-11:46/151	07:35 08:35-09:03/28	07:10	07:40
	20:55 19:52-20:20/28	20:24	19:35	18:46 09:40-11:02/82	17:08	16:59
16	06:07 09:39-10:52/73	06:36 09:24-11:25/121	07:06 09:15-11:46/151	07:36 08:33-09:04/31	07:11	07:41
	20:54 19:51-20:20/29	20:22	19:34	18:45 09:42-10:59/77	17:07	16:59
17	06:08 09:38-10:53/75	06:37 09:23-11:26/123	07:07 09:16-11:45/149	07:37 08:32-09:05/33	07:12	07:42
	20:53 19:51-20:20/29	20:21	19:32	18:43 09:45-10:55/70	17:07	16:59
18	06:09 09:38-10:54/76	06:37 09:23-11:27/124	07:08 09:15-11:44/149	07:38 08:31-09:06/35	07:14	07:42
	20:53 19:51-20:21/30	20:20	19:30	18:42 09:47-10:51/64	17:06	17:00
19	06:10 09:38-10:55/77	06:38 09:22-11:28/126	07:08 09:15-11:43/148	07:39 08:30-09:07/37	07:15	07:43
	20:52 19:51-20:21/30	20:18	19:29	18:40 09:52-10:48/56	17:05	17:00
20	06:10 09:38-10:57/79	06:39 09:22-11:30/128	07:09 09:15-11:42/147	07:40 08:29-09:08/39	07:16	07:44
	20:51 19:52-20:22/30	20:17	19:27	18:39 09:56-10:44/48	17:04	17:00
21	06:11 09:36-10:57/81	06:40 09:21-11:30/129	07:10 09:16-11:42/146	07:41 08:29-09:08/39	07:17	07:44
	20:51 19:51-20:21/30	20:15	19:25	18:37 10:00-10:38/38	17:04	17:01
22	06:12 09:36-10:58/82	06:41 09:20-11:31/131	07:11 09:16-11:41/145	07:42 08:28-09:08/40	07:18	07:45
	20:50 19:51-20:21/30	20:14	19:24	18:36 10:08-10:30/22	17:03	17:01
23	06:13 09:36-10:59/83	06:42 09:20-11:32/132	07:12 09:16-11:40/144	07:43 08:27-09:08/41	07:19	07:45
	20:49 19:51-20:21/30	20:12	19:22	18:35	17:03	17:02
24	06:14 09:35-11:00/85	06:43 09:20-11:33/133	07:13 09:17-11:39/142	07:45 08:27-09:08/41	07:20	07:46
	20:48 19:52-20:21/29	20:11	19:20	18:33	17:02	17:02
25	06:15 09:35-11:01/86	06:44 09:19-11:35/136	07:14 09:17-11:38/141	06:46 07:28-08:09/41	07:22	07:46
	20:48 19:52-20:21/29	20:09	19:19	17:32	17:01	17:03
26	06:16 09:35-11:02/87	06:45 09:19-11:36/137	07:15 09:18-11:37/139	06:47 07:27-08:09/42	07:23	07:47
	20:47 19:52-20:21/29	20:08	19:17	17:31	17:01	17:04
27	06:16 09:33-11:02/89	06:46 09:19-11:37/138	07:16 09:18-11:36/138	06:48 07:27-08:08/41	07:24	07:47
	20:46 19:52-20:20/28	20:06	19:15	17:29	17:01	17:04
28	06:17 09:33-11:03/90	06:47 09:18-11:38/140	07:17 09:19-11:35/136	06:49 07:27-08:08/41	07:25	07:47
	20:45 19:52-20:20/28	20:05	19:14	17:28	17:00	17:05
29	06:18 09:33-11:05/92	06:48 09:18-11:39/141	07:18 09:19-11:33/134	06:50 07:27-08:07/40	07:26	07:48
	20:44 19:53-20:20/27	20:03	19:12	17:27	17:00	17:06
30	06:19 09:32-11:06/94	06:49 09:18-11:40/142	07:19 09:20-11:32/132	06:51 07:28-08:08/40	07:27	07:48
	20:43 19:53-20:19/26	20:02	19:10	17:25	16:59	17:06
31	06:20 09:32-11:07/95	06:50 09:17-11:41/144		06:53 07:28-08:07/39		07:48
	20:42 19:54-20:18/24	20:00 07:29-07:33/4		17:24		17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	3129	3831	4604	2714	264	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
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SHADOW - Calendar per WTG

WTG: 8 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (11)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
 The sun is shining all the day, from sunrise to sunset
 The rotor plane is always perpendicular to the line from the WTG to the sun
 The WTG is always operating

	January	February	March	April	May	June
1	07:48 15:38-16:09/31 17:08	07:35 17:42	07:00 08:10-08:25/15 18:15	07:10 19:49	06:25 07:05-07:23/18 20:20 19:56-19:57/1	05:57 20:49
2	07:48 15:38-16:09/31 17:09	07:34 17:43	06:59 08:15-08:20/5 18:16	07:09 19:50	06:24 07:07-07:22/15 20:21	05:57 20:49
3	07:49 15:39-16:09/30 17:10	07:34 17:44	06:57 18:18	07:07 19:51	06:23 07:09-07:20/11 20:22	05:56 20:50
4	07:49 15:40-16:10/30 17:11	07:33 17:46	06:56 18:19	07:05 19:52	06:21 07:13-07:16/3 20:23	05:56 20:51
5	07:49 15:40-16:09/29 17:12	07:31 17:47	06:54 18:20	07:04 19:53	06:20 20:24	05:55 20:51
6	07:49 15:41-16:09/28 17:13	07:30 08:13-08:25/12 17:48	06:53 18:21	07:02 19:54	06:19 20:25	05:55 20:52
7	07:49 15:42-16:09/27 17:14	07:29 08:10-08:28/18 17:49	06:51 18:22	07:01 19:55	06:18 20:26	05:55 20:53
8	07:48 15:44-16:09/25 17:15	07:28 08:09-08:31/22 17:50	06:49 18:23	06:59 19:56	06:17 20:27	05:55 20:53
9	07:48 15:45-16:08/23 17:15	07:27 08:07-08:32/25 17:52	06:48 18:24	06:57 19:57	06:16 20:28	05:54 20:54
10	07:48 15:47-16:08/21 17:17	07:26 08:05-08:33/28 17:53	06:46 18:25	06:56 19:58	06:14 20:29	05:54 20:54
11	07:48 15:48-16:07/19 17:18	07:25 08:05-08:34/29 17:54	06:45 18:26	06:54 19:59	06:13 20:30	05:54 20:55
12	07:48 15:50-16:06/16 17:19	07:24 08:04-08:35/31 17:55	06:43 18:27	06:53 20:00	06:12 20:31	05:54 20:55
13	07:47 15:52-16:05/13 17:20	07:22 08:04-08:36/32 17:57	06:41 18:29	06:51 20:01	06:11 20:32	05:54 20:56
14	07:47 15:55-16:02/7 17:21	07:21 08:02-08:36/34 17:58	06:40 18:30	06:49 20:02	06:10 20:33	05:54 20:56
15	07:47 17:22	07:20 08:02-08:37/35 17:59	06:38 18:31	06:48 07:16-07:22/6 20:03	06:09 20:34	05:54 20:57
16	07:46 17:23	07:19 08:02-08:37/35 18:00	06:37 18:32	06:46 07:11-07:25/14 20:04	06:08 20:35	05:54 20:57
17	07:46 17:24	07:17 08:01-08:37/36 18:01	06:35 18:33	06:45 07:10-07:27/17 20:05	06:07 20:36	05:54 20:57
18	07:45 17:25	07:16 08:01-08:37/36 18:03	06:33 18:34	06:43 07:08-07:27/19 20:06	06:07 20:37	05:54 20:58
19	07:45 17:26	07:15 08:02-08:37/35 18:04	06:32 18:35	06:42 07:07-07:29/22 20:07	06:06 20:38	05:54 20:58
20	07:44 17:27	07:13 08:01-08:36/35 18:05	06:30 18:36	06:40 07:05-07:29/24 20:08	06:05 20:38	05:54 20:58
21	07:44 17:29	07:12 08:02-08:36/34 18:06	06:28 18:37	06:39 07:05-07:29/24 20:09	06:04 20:39	05:54 20:59
22	07:43 17:30	07:10 08:02-08:35/33 18:07	06:27 18:38	06:38 07:04-07:29/25 20:10	06:03 20:40	05:54 20:59
23	07:43 17:31	07:09 08:02-08:35/33 18:08	06:25 18:39	06:36 07:04-07:29/25 20:11	06:02 20:41	05:55 20:59
24	07:42 17:32	07:08 08:04-08:35/31 18:10	06:23 18:40	06:35 07:04-07:30/26 20:12	06:02 20:42	05:55 20:59
25	07:41 17:33	07:06 08:04-08:33/29 18:11	06:22 18:41	06:33 07:03-07:29/26 20:13	06:01 20:43	05:55 20:59
26	07:40 17:35	07:05 08:05-08:32/27 18:12	06:20 18:42	06:32 07:03-07:28/25 20:14	06:00 20:44	05:56 20:59
27	07:40 17:36	07:03 08:06-08:30/24 18:13	06:18 18:43	06:31 07:04-07:28/24 20:15 19:52-19:53/1	06:00 20:45	05:56 20:59
28	07:39 17:37	07:02 08:08-08:28/20 18:14	06:17 18:44	06:29 07:03-07:27/24 20:17 19:53-19:54/1	05:59 20:45	05:56 20:59
29	07:38 17:38		07:15 19:45	06:28 07:04-07:26/22 20:18 19:54-19:55/1	05:59 20:46	05:57 20:59
30	07:37 17:39		07:14 19:46	06:27 07:05-07:26/21 20:19 19:55-19:56/1	05:58 20:47	05:57 20:59
31	07:36 17:41		07:12 19:47		05:57 20:48	
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	330	674	20	348	48	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

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SHADOW - Calendar per WTG

WTG: 8 - VESTAS V162-7.2 7200 162.0 IO! hub: 119,0 m (TOT: 200,0 m) (11)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December				
1	05:58	06:21	06:51	07:20	06:54	07:35-08:02/27	07:28	15:30-15:49/19		
	20:59	20:41	19:58	19:09	17:23		16:59			
2	05:58	06:22	06:52	07:21	06:55	07:36-08:01/25	07:29	15:29-15:50/21		
	20:59	20:40	19:57	19:07	17:22		16:59			
3	05:59	06:23	06:53	07:22	06:56	07:39-08:00/21	07:30	15:28-15:51/23		
	20:59	20:39	19:55	19:05	17:20		16:59			
4	05:59	06:24	06:54	07:23	06:57	07:41-07:58/17	07:31	15:28-15:53/25		
	20:59	20:38	19:54	19:04	17:19		16:58			
5	06:00	06:25	06:55	07:24	06:58	07:43-07:55/12	07:32	15:27-15:54/27		
	20:59	20:36	19:52	19:02	17:18		16:58			
6	06:00	06:26	06:56	07:25	07:00		07:33	15:27-15:55/28		
	20:58	20:35	19:50	19:00	17:17		16:58			
7	06:01	06:27	06:57	07:26	07:01		07:34	15:27-15:56/29		
	20:58	20:34	19:49	18:59	17:16		16:58			
8	06:01	06:28	06:58	07:27	07:02		07:35	15:27-15:57/30		
	20:58	20:33	19:47	18:57	17:15		16:58			
9	06:02	06:29	07:20-07:27/7	06:59	07:28	07:03	07:36	15:27-15:57/30		
	20:58	20:32	19:45	18:56	17:14		16:58			
10	06:03	06:30	07:17-07:30/13	07:00	07:30	07:04	07:37	15:28-15:58/30		
	20:57	20:30	19:44	18:54	17:13		16:58			
11	06:03	06:31	07:15-07:31/16	07:01	07:31	07:05	07:37	15:28-15:59/31		
	20:57	20:29	19:42	18:53	17:12		16:58			
12	06:04	06:32	07:14-07:33/19	07:02	07:32	08:46-08:57/11	07:07	07:38	15:28-16:00/32	
	20:56	20:28	20:04-20:05/1	19:40	18:51	17:11	16:58			
13	06:05	06:33	07:13-07:33/20	07:03	07:33	08:42-09:00/18	07:08	07:39	15:28-16:00/32	
	20:56	20:26	20:03-20:04/1	19:39	18:49	17:10	16:58			
14	06:06	06:34	07:12-07:34/22	07:04	07:34	08:40-09:02/22	07:09	07:40	15:28-16:01/33	
	20:55	20:25	20:02-20:03/1	19:37	18:48	17:09	16:59			
15	06:06	06:35	07:11-07:35/24	07:05	07:35	08:38-09:03/25	07:10	07:40	15:29-16:02/33	
	20:55	20:24	19:35	18:46	17:08		16:59			
16	06:07	06:36	07:10-07:35/25	07:06	07:36	08:36-09:04/28	07:11	07:41	15:28-16:02/34	
	20:54	20:22	19:34	18:45	17:07		16:59			
17	06:08	06:36	07:10-07:35/25	07:07	07:37	08:35-09:05/30	07:12	07:42	15:29-16:03/34	
	20:54	20:21	19:32	18:43	17:07		16:59			
18	06:09	06:37	07:10-07:35/25	07:08	07:38	08:34-09:05/31	07:14	07:43	15:30-16:04/34	
	20:53	20:20	19:30	18:42	17:06		17:00			
19	06:10	06:38	07:09-07:35/26	07:08	07:39	08:34-09:07/33	07:15	07:43	15:30-16:04/34	
	20:52	20:18	19:29	18:40	17:05		17:00			
20	06:10	06:39	07:09-07:35/26	07:09	07:40	08:33-09:07/34	07:16	07:44	15:30-16:05/35	
	20:52	20:17	19:27	18:39	17:04		17:00			
21	06:11	06:40	07:09-07:35/26	07:10	07:41	08:32-09:07/35	07:17	07:44	15:30-16:05/35	
	20:51	20:15	19:25	18:37	17:04		17:01			
22	06:12	06:41	07:09-07:33/24	07:11	07:42	08:32-09:07/35	07:18	07:45	15:31-16:06/35	
	20:50	20:14	19:24	18:36	17:03		17:01			
23	06:13	06:42	07:09-07:32/23	07:12	07:44	08:31-09:07/36	07:19	07:45	15:31-16:06/35	
	20:49	20:12	19:22	18:35	17:03		17:02			
24	06:14	06:43	07:10-07:31/21	07:13	07:45	08:31-09:07/36	07:20	07:46	15:32-16:07/35	
	20:48	20:11	19:20	18:33	17:02		17:02			
25	06:15	06:44	07:11-07:30/19	07:14	06:46	07:32-08:07/35	07:22	07:46	15:33-16:07/34	
	20:48	20:09	19:19	17:32	17:01		17:03			
26	06:16	06:45	07:12-07:29/17	07:15	06:47	07:32-08:07/35	07:23	07:47	15:33-16:07/34	
	20:47	20:08	19:17	17:30	17:01		17:04			
27	06:16	06:46	07:13-07:26/13	07:16	06:48	07:32-08:06/34	07:24	07:47	15:34-16:08/34	
	20:46	20:06	19:15	17:29	17:00		17:04			
28	06:17	06:47	07:17-07:22/5	07:17	06:49	07:32-08:06/34	07:25	15:35-15:42/7	07:47	15:34-16:08/34
	20:45	20:05	19:14	17:28	17:00		17:05			
29	06:18	06:48	07:18	06:50	07:32-08:05/33	07:26	15:32-15:45/13	07:48	15:35-16:08/33	
	20:44	20:03	19:12	17:27	17:00		17:06			
30	06:19	06:49	07:19	06:51	07:34-08:05/31	07:27	15:31-15:47/16	07:48	15:35-16:08/33	
	20:43	20:02	19:10	17:25	16:59		17:06			
31	06:20	06:50		06:53	07:35-08:04/29		07:48	15:36-16:08/32		
	20:42	20:00		17:24			17:07			
Potential sun hours	457	427	375	346	299	138	290			
Sum of minutes with flicker	0	399	0	605	138	968				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
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SHADOW - Calendar per WTG

WTG: 9 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (12)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:48	07:35 08:38-08:54/16	07:00	07:10 19:09-19:24/15	06:25 07:02-07:33/31	05:57
	17:08	17:42	18:15	19:49	20:20	20:48
2	07:48	07:34 08:40-08:52/12	06:59	07:09 19:14-19:17/3	06:24 07:02-07:33/31	05:57
	17:09	17:43	18:16	19:50	20:21	20:49
3	07:49	07:33 08:44-08:48/4	06:57	07:07	06:23 07:02-07:33/31	05:56
	17:10	17:44	18:18	19:51	20:22	20:50
4	07:49	07:32	06:56	07:05	06:21 07:02-07:33/31	05:56
	17:11	17:46	18:19	19:52	20:23	20:51
5	07:49	07:31	06:54	07:04	06:20 07:03-07:32/29	05:55
	17:12	17:47	18:20	19:53	20:24	20:51
6	07:49 08:37-08:39/2	07:30	06:53	07:02	06:19 07:02-07:31/29	05:55
	17:13	17:48	18:21	19:54	20:25	20:52
7	07:49 08:35-08:42/7	07:29	06:51	07:01	06:18 07:03-07:30/27	05:55
	17:14	17:49	18:22	19:55	20:26	20:53
8	07:48 08:34-08:44/10	07:28	06:49	06:59	06:17 07:03-07:30/27	05:55
	17:15	17:50	18:23	19:56	20:27	20:53
9	07:48 08:33-08:46/13	07:27	06:48	06:57	06:16 07:04-07:29/25	05:54
	17:15	17:52	18:24	19:57	20:28	20:54
10	07:48 08:33-08:48/15	07:26	06:46	06:56	06:14 07:05-07:28/23	05:54
	17:17	17:53	18:25	19:58	20:29	20:54
11	07:48 08:32-08:48/16	07:25	06:45	06:54	06:13 07:06-07:27/21	05:54
	17:18	17:54	18:26	19:59	20:30	20:55
12	07:48 08:32-08:50/18	07:24	06:43	06:53	06:12 07:07-07:26/19	05:54
	17:19	17:55	18:27	20:00	20:31	20:55
13	07:47 08:32-08:51/19	07:22	06:41	06:51	06:11 07:08-07:24/16	05:54
	17:20	17:57	18:29	20:01	20:32	20:56
14	07:47 08:31-08:52/21	07:21	06:40 18:07-18:08/1	06:49	06:10 07:10-07:22/12	05:54
	17:21	17:58	18:30	20:02	20:33	20:56
15	07:47 08:31-08:53/22	07:20	06:38 18:06-18:10/4	06:48	06:09 07:14-07:18/4	05:54
	17:22	17:59	18:31	20:03	20:34	20:57
16	07:46 08:31-08:53/22	07:19	06:37 07:10-07:13/3	06:46	06:08	05:54
	17:23	18:00	18:32 18:04-18:11/7	20:04	20:35	20:57
17	07:46 08:31-08:54/23	07:17	06:35 07:05-07:17/12	06:45	06:07	05:54
	17:24	18:01	18:33 18:03-18:12/9	20:05	20:36	20:57
18	07:45 08:31-08:55/24	07:16	06:33 07:04-07:19/15	06:43	06:07	05:54
	17:25	18:03	18:34 18:03-18:13/10	20:06	20:37	20:58
19	07:45 08:31-08:56/25	07:15	06:32 07:02-07:20/18	06:42	06:06	05:54
	17:26	18:04	18:35 18:02-18:14/12	20:07	20:37	20:58
20	07:44 08:31-08:56/25	07:13	06:30 07:00-07:20/20	06:40 07:16-07:24/8	06:05	05:54
	17:27	18:05	18:36 18:01-18:15/14	20:08	20:38	20:58
21	07:44 08:31-08:56/25	07:12	06:28 07:00-07:21/21	06:39 07:12-07:27/15	06:04	05:54
	17:29	18:06	18:37 18:01-18:16/15	20:09	20:39	20:59
22	07:43 08:31-08:57/26	07:10	06:27 06:59-07:20/21	06:38 07:10-07:29/19	06:03	05:54
	17:30	18:07	18:38 18:00-18:17/17	20:10	20:40	20:59
23	07:43 08:31-08:57/26	07:09	06:25 07:00-07:21/21	06:36 07:08-07:30/22	06:02	05:55
	17:31	18:08	18:39 18:00-18:18/18	20:11	20:41	20:59
24	07:42 08:31-08:57/26	07:08	06:23 06:59-07:20/21	06:35 07:07-07:32/25	06:02	05:55
	17:32	18:10	18:40 18:00-18:20/20	20:12	20:42	20:59
25	07:41 08:33-08:58/25	07:06	06:22 06:59-07:19/20	06:33 07:05-07:32/27	06:01	05:55
	17:33	18:11	18:41 18:00-18:20/20	20:13	20:43	20:59
26	07:40 08:33-08:58/25	07:05	06:20 07:00-07:18/18	06:32 07:05-07:33/28	06:00	05:56
	17:35	18:12	18:42 18:00-18:21/21	20:14	20:44	20:59
27	07:40 08:33-08:57/24	07:03	06:18 07:00-07:17/17	06:31 07:03-07:32/29	06:00	05:56
	17:36	18:13	18:43 18:01-18:23/22	20:15	20:45	20:59
28	07:39 08:34-08:57/23	07:02	06:17 07:01-07:14/13	06:29 07:03-07:33/30	05:59	05:56
	17:37	18:14	18:44 18:02-18:23/21	20:17	20:45	20:59
29	07:38 08:35-08:56/21		07:15 08:04-08:12/8	06:28 07:03-07:33/30	05:59	05:57
	17:38		19:45 19:03-19:24/21	20:18	20:46	20:59
30	07:37 08:35-08:56/21		07:13 19:05-19:26/21	06:26 07:03-07:34/31	05:58	05:57
	17:39		19:46	20:19	20:47	20:59
31	07:36 08:37-08:55/18		07:12 19:06-19:26/20		05:57	
	17:41		19:47		20:48	
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	522	32	501	282	356	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 9 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (12)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December
1	05:58	06:21 07:17-07:37/20	06:51	07:20	06:54	07:28 08:14-08:30/16
	20:59	20:41	19:58	19:09	17:23	16:59
2	05:58	06:22 07:16-07:38/22	06:52	07:21	06:55	07:29 08:15-08:30/15
	20:59	20:40	19:57	19:07	17:22	16:59
3	05:59	06:23 07:15-07:39/24	06:53	07:22	06:56	07:30 08:16-08:29/13
	20:59	20:39	19:55	19:05	17:20	16:59
4	05:59	06:24 07:14-07:40/26	06:54	07:23	06:57	07:31 08:18-08:29/11
	20:59	20:38	19:54	19:04	17:19	16:58
5	06:00	06:25 07:14-07:41/27	06:55	07:24	06:58	07:32 08:20-08:27/7
	20:59	20:36	19:52	19:02	17:18	16:58
6	06:00	06:26 07:13-07:41/28	06:56	07:25	07:00	07:33 08:23-08:25/2
	20:58	20:35	19:50	19:00	17:17	16:58
7	06:01	06:27 07:12-07:41/29	06:57	07:26	07:01	07:34
	20:58	20:34	19:49	18:59	17:16	16:58
8	06:01	06:28 07:11-07:41/30	06:58	07:27	07:02 08:14-08:20/6	07:35
	20:58	20:33	19:47	18:57	17:15	16:58
9	06:02	06:29 07:11-07:41/30	06:59	07:28	07:03 08:11-08:23/12	07:36
	20:57	20:32	19:45	18:56	17:14	16:58
10	06:03	06:30 07:11-07:42/31	07:00	07:30	07:04 08:09-08:25/16	07:37
	20:57	20:30	19:44	18:54	17:13	16:58
11	06:03	06:31 07:11-07:42/31	07:01 19:02-19:15/13	07:31	07:05 08:08-08:27/19	07:37
	20:57	20:29	19:42	18:52	17:12	16:58
12	06:04	06:32 07:10-07:42/32	07:02 18:59-19:18/19	07:32	07:07 08:07-08:28/21	07:38
	20:56	20:28	19:40	18:51	17:11	16:58
13	06:05	06:33 07:11-07:41/30	07:03 18:56-19:17/21	07:33	07:08 08:06-08:28/22	07:39
	20:56	20:26	19:39	18:49	17:10	16:58
14	06:06	06:34 07:11-07:41/30	07:04 07:55-08:01/6	07:34	07:09 08:06-08:29/23	07:40
	20:55	20:25	19:37 18:54-19:15/21	18:48	17:09	16:59
15	06:06	06:35 07:11-07:41/30	07:05 07:52-08:04/12	07:35	07:10 08:06-08:30/24	07:40
	20:55	20:24	19:35 18:52-19:14/22	18:46	17:08	16:59
16	06:07	06:36 07:11-07:40/29	07:06 07:50-08:06/16	07:36	07:11 08:06-08:31/25	07:41
	20:54	20:22	19:34 18:51-19:12/21	18:45	17:07	16:59
17	06:08	06:36 07:12-07:39/27	07:07 07:48-08:06/18	07:37	07:12 08:06-08:31/25	07:42
	20:54	20:21	19:32 18:49-19:09/20	18:43	17:07	16:59
18	06:09	06:37 07:12-07:38/26	07:07 07:47-08:07/20	07:38	07:14 08:05-08:31/26	07:42
	20:53	20:20	19:30 18:48-19:08/20	18:42	17:06	17:00
19	06:10	06:38 07:13-07:37/24	07:08 07:46-08:07/21	07:39	07:15 08:06-08:32/26	07:43
	20:52	20:18	19:29 18:47-19:06/19	18:40	17:05	17:00
20	06:10	06:39 07:14-07:36/22	07:09 07:45-08:06/21	07:40	07:16 08:06-08:32/26	07:44
	20:52	20:17	19:27 18:46-19:05/19	18:39	17:04	17:00
21	06:11	06:40 07:16-07:34/18	07:10 07:45-08:06/21	07:41	07:17 08:07-08:32/25	07:44
	20:51	20:15	19:25 18:46-19:03/17	18:37	17:04	17:01
22	06:12	06:41 07:17-07:31/14	07:11 07:44-08:05/21	07:42	07:18 08:07-08:32/25	07:45
	20:50	20:14	19:24 18:45-19:01/16	18:36	17:03	17:01
23	06:13	06:42 07:20-07:27/7	07:12 07:45-08:05/20	07:43	07:19 08:07-08:32/25	07:45
	20:49	20:12	19:22 18:45-19:00/15	18:35	17:02	17:02
24	06:14	06:43	07:13 07:45-08:03/18	07:45	07:20 08:09-08:33/24	07:46
	20:48	20:11	19:20 18:45-18:58/13	18:33	17:02	17:02
25	06:15	06:44	07:14 07:46-08:02/16	06:46	07:22 08:09-08:32/23	07:46
	20:48	20:09	19:19 18:45-18:56/11	17:32	17:01	17:03
26	06:16	06:45	07:15 07:47-08:00/13	06:47	07:23 08:10-08:32/22	07:47
	20:47	20:08	19:17 18:45-18:55/10	17:30	17:01	17:04
27	06:16	06:46	07:16 07:49-07:57/8	06:48	07:24 08:10-08:32/22	07:47
	20:46	20:06	19:15 18:45-18:53/8	17:29	17:00	17:04
28	06:17	06:47	07:17 18:46-18:51/5	06:49	07:25 08:11-08:32/21	07:47
	20:45	20:05	19:14	17:28	17:00	17:05
29	06:18 07:23-07:31/8	06:48	07:18 18:47-18:49/2	06:50	07:26 08:12-08:31/19	07:48
	20:44	20:03	19:12	17:27	17:00	17:06
30	06:19 07:20-07:34/14	06:49	07:19	06:51	07:27 08:13-08:31/18	07:48
	20:43	20:02	19:10	17:25	16:59	17:06
31	06:20 07:18-07:36/18	06:50		06:53		07:48
	20:42	20:00		17:24		17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	40	587	523	0	495	64

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
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SHADOW - Calendar per WTG

WTG: 10 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (13)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:48 17:08	07:35 17:42	07:00 18:15	07:35-08:36/61	07:10 19:49	08:35-09:15/40 20:20
2	07:48 17:09	07:34 17:43	06:59 18:16	07:34-08:37/63	07:09 19:50	08:36-09:12/36 20:21
3	07:49 17:10	07:34 17:44	06:57 18:18	07:33-08:37/64	07:07 19:51	08:38-09:08/30 20:22
4	07:49 17:11	07:33 17:46	06:56 18:19	07:32-08:37/65	07:05 19:52	08:42-09:05/23 20:23
5	07:49 17:12	07:31 17:47	06:54 18:20	07:31-08:38/67	07:04 19:53	08:47-08:59/12 20:24
6	07:49 17:13	07:30 17:48	06:53 18:21	07:30-08:38/68	07:02 19:54	06:19 20:25
7	07:49 17:14	07:29 17:49	06:51 18:22	07:30-08:39/69	07:01 19:55	06:18 20:26
8	07:48 17:15	07:28 17:51	06:49 18:23	07:29-08:38/69	06:59 19:56	06:17 20:27
9	07:48 17:16	07:27 17:52	06:48 18:24	07:28-08:38/70	06:57 19:57	06:16 20:28
10	07:48 17:17	07:26 17:53	06:46 18:25	07:28-08:39/71	06:56 19:58	06:14 20:29
11	07:48 17:18	07:25 17:54	06:45 18:26	07:27-08:38/71	06:54 19:59	06:13 20:30
12	07:48 17:19	07:24 17:55	06:43 18:27	07:27-08:38/71	06:53 20:00	06:12 20:31
13	07:47 17:20	07:22 17:57	06:41 18:29	07:27-08:38/71	06:51 20:01	06:11 20:32
14	07:47 17:21	07:21 17:58	06:40 18:30	07:26-08:37/71	06:50 20:02	06:10 20:33
15	07:47 17:22	07:20 17:59	06:38 18:31	07:26-08:37/71	06:48 20:03	06:09 20:34
16	07:46 17:23	07:19 18:00	06:37 18:32	07:26-08:36/70	06:46 20:04	06:08 20:35
17	07:46 17:24	07:17 18:01	06:35 18:33	07:25-08:35/70	06:45 20:05	06:07 20:36
18	07:45 17:25	07:16 18:03	06:33 18:34	07:26-08:35/69	06:43 20:06	06:07 20:37
19	07:45 17:26	07:15 18:04	06:32 18:35	07:26-08:34/68	06:42 20:07	06:06 20:38
20	07:44 17:28	07:13 18:05	06:30 18:36	07:25-08:33/68	06:40 20:08	06:05 20:38
21	07:44 17:29	07:12 18:06	06:28 18:37	07:26-08:32/66	06:39 20:09	06:04 20:39
22	07:43 17:30	07:10 18:07	06:27 18:38	07:26-08:31/65	06:38 20:10	06:03 20:40
23	07:43 17:31	07:09 18:08	06:25 18:39	07:26-08:30/64	06:36 20:11	06:02 20:41
24	07:42 17:32	07:08 18:10	06:23 18:40	07:27-08:29/62	06:35 20:12	06:02 20:42
25	07:41 17:33	07:06 18:11	06:22 18:41	07:27-08:27/60	06:33 20:13	06:01 20:43
26	07:40 17:35	07:05 18:12	06:20 18:42	07:29-08:26/57	06:32 20:14	06:00 20:44
27	07:40 17:36	07:03 18:13	06:18 18:43	07:29-08:25/56	06:31 20:15	06:00 20:45
28	07:39 17:37	07:02 18:14	06:17 18:44	07:29-08:23/54	06:29 20:17	05:59 20:45
29	07:38 17:38	08:08-08:37/29	07:15 19:45	08:31-09:21/50	06:28 20:18	05:59 20:46
30	07:37 17:39	08:08-08:37/29	07:14 19:46	08:32-09:19/47	06:27 20:19	05:58 20:47
31	07:36 17:41	08:07-08:38/31	07:12 19:48	08:33-09:17/44	06:25 20:19	05:58 20:48
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	226	901	1992	141	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
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SHADOW - Calendar per WTG

WTG: 10 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (13)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December			
1	05:58	06:21	06:51	07:20	08:06-09:17/71	06:54	07:38-08:09/31	07:28	
	20:59	20:41	19:58	19:09		17:23		16:59	
2	05:58	06:22	06:52	07:21	08:06-09:17/71	06:55	07:37-08:09/32	07:29	
	20:59	20:40	19:57	19:07		17:22		16:59	
3	05:59	06:23	06:53	07:22	08:05-09:16/71	06:56	07:38-08:10/32	07:30	
	20:59	20:39	19:55	19:05		17:20		16:59	
4	05:59	06:24	06:54	07:23	08:05-09:16/71	06:57	07:37-08:10/33	07:31	
	20:59	20:38	19:54	19:04		17:19		16:58	
5	06:00	06:25	06:55	07:24	08:05-09:15/70	06:58	07:37-08:10/33	07:32	
	20:59	20:36	19:52	19:02		17:18		16:58	
6	06:00	06:26	06:56	07:25	08:05-09:15/70	07:00	07:37-08:10/33	07:33	
	20:58	20:35	19:50	19:01		17:17		16:58	
7	06:01	06:27	06:57	08:42-08:53/11	07:26	08:05-09:14/69	07:01	07:38-08:11/33	07:34
	20:58	20:34	19:49	18:59		17:16		16:58	
8	06:01	06:28	06:58	08:36-08:59/23	07:27	08:06-09:13/67	07:02	07:38-08:10/32	07:35
	20:58	20:33	19:47	18:57		17:15		16:58	
9	06:02	06:29	06:59	08:33-09:02/29	07:28	08:06-09:12/66	07:03	07:38-08:10/32	07:36
	20:58	20:32	19:45	18:56		17:14		16:58	
10	06:03	06:30	07:00	08:30-09:05/35	07:30	08:07-09:12/65	07:04	07:38-08:09/31	07:37
	20:57	20:30	19:44	18:54		17:13		16:58	
11	06:03	06:31	07:01	08:27-09:07/40	07:31	08:08-09:11/63	07:05	07:39-08:10/31	07:37
	20:57	20:29	19:42	18:53		17:12		16:58	
12	06:04	06:32	07:02	08:25-09:08/43	07:32	08:08-09:10/62	07:07	07:40-08:09/29	07:38
	20:56	20:28	19:40	18:51		17:11		16:58	
13	06:05	06:33	07:03	08:23-09:10/47	07:33	08:09-09:09/60	07:08	07:40-08:08/28	07:39
	20:56	20:26	19:39	18:49		17:10		16:58	
14	06:06	06:34	07:04	08:22-09:11/49	07:34	08:10-09:07/57	07:09	07:41-08:08/27	07:40
	20:55	20:25	19:37	18:48		17:09		16:59	
15	06:06	06:35	07:05	08:20-09:12/52	07:35	08:11-09:06/55	07:10	07:43-08:08/25	07:40
	20:55	20:24	19:35	18:46		17:08		16:59	
16	06:07	06:36	07:06	08:18-09:14/56	07:36	08:12-09:04/52	07:11	07:44-08:07/23	07:41
	20:54	20:22	19:34	18:45		17:07		16:59	
17	06:08	06:37	07:07	08:17-09:14/57	07:37	08:13-09:02/49	07:12	07:45-08:05/20	07:42
	20:54	20:21	19:32	18:43		17:07		16:59	
18	06:09	06:37	07:08	08:16-09:15/59	07:38	08:14-09:00/46	07:14	07:46-08:04/18	07:43
	20:53	20:20	19:30	18:42		17:06		17:00	
19	06:10	06:38	07:08	08:14-09:15/61	07:39	08:17-08:59/42	07:15	07:49-08:03/14	07:43
	20:52	20:18	19:29	18:40		17:05		17:00	
20	06:10	06:39	07:09	08:13-09:16/63	07:40	08:19-08:57/38	07:16	07:52-08:01/9	07:44
	20:52	20:17	19:27	18:39		17:04		17:00	
21	06:11	06:40	07:10	08:12-09:16/64	07:41	08:21-08:54/33	07:17		07:44
	20:51	20:15	19:25	18:37		17:04		17:01	
22	06:12	06:41	07:11	08:11-09:17/66	07:42	08:24-08:50/26	07:18		07:45
	20:50	20:14	19:24	18:36		17:03		17:01	
23	06:13	06:42	07:12	08:10-09:17/67	07:44	08:28-08:45/17	07:19		07:45
	20:49	20:12	19:22	18:35		17:03		17:02	
24	06:14	06:43	07:13	08:09-09:17/68	07:45		07:20		07:46
	20:48	20:11	19:20	18:33		17:02		17:02	
25	06:15	06:44	07:14	08:08-09:17/69	06:46	07:49-07:59/10	07:22		07:46
	20:48	20:09	19:19	17:32		17:01		17:03	
26	06:16	06:45	07:15	08:08-09:18/70	06:47	07:46-08:02/16	07:23		07:47
	20:47	20:08	19:17	17:31		17:01		17:04	
27	06:16	06:46	07:16	08:07-09:18/71	06:48	07:43-08:04/21	07:24		07:47
	20:46	20:06	19:15	17:29		17:01		17:04	
28	06:17	06:47	07:17	08:07-09:18/71	06:49	07:42-08:05/23	07:25		07:47
	20:45	20:05	19:14	17:28		17:00		17:05	
29	06:18	06:48	07:18	08:06-09:17/71	06:50	07:40-08:06/26	07:26		07:48
	20:44	20:03	19:12	17:27		17:00		17:06	
30	06:19	06:49	07:19	08:06-09:17/71	06:51	07:40-08:08/28	07:27		07:48
	20:43	20:02	19:10	17:25		16:59		17:06	
31	06:20	06:50			06:53	07:39-08:08/29			07:48
	20:42	20:00			17:24				17:07
Potential sun hours	457	427	375	346	299	290			
Sum of minutes with flicker	0	0	1313	1444	546	0			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 11 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (14)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:48 09:45-10:16/31	07:35	07:00 16:36-17:53/77	07:10	06:25 06:59-07:30/31	05:57 06:18-08:02/104
	17:08	17:42	18:15	19:49	20:20	20:49
2	07:48 09:46-10:16/30	07:34 17:07-17:19/12	06:59 16:36-17:52/76	07:09	06:24 06:56-07:34/38	05:57 06:18-08:02/104
	17:09	17:43	18:16	19:50	20:21	20:49
3	07:49 09:46-10:15/29	07:34 17:02-17:21/19	06:57 16:36-17:52/76	07:07	06:23 06:53-07:37/44	05:56 06:18-08:03/105
	17:10	17:44	18:18	19:51	20:22	20:50
4	07:49 09:48-10:15/27	07:33 16:59-17:22/23	06:56 16:36-17:51/75	07:05	06:21 06:51-07:39/48	05:56 06:17-08:03/106
	17:11	17:46	18:19	19:52	20:23	20:51
5	07:49 09:49-10:15/26	07:31 16:57-17:23/26	06:54 16:36-17:52/76	07:04	06:20 06:49-07:41/52	05:55 06:17-08:03/106
	17:12	17:47	18:20	19:53	20:24	20:51
6	07:49 09:49-10:14/25	07:30 16:55-17:25/30	06:53 16:36-17:51/75	07:02	06:19 06:46-07:42/56	05:55 06:17-08:04/107
	17:13	17:48	18:21	19:54	20:25	20:52
7	07:49 09:51-10:13/22	07:29 16:53-17:26/33	06:51 16:37-17:51/74	07:01	06:18 06:44-07:44/60	05:55 06:16-08:03/107
	17:14	17:49	18:22	19:55	20:26	20:53
8	07:48 09:52-10:12/20	07:28 16:52-17:28/36	06:49 16:37-17:50/73	06:59	06:17 06:43-07:45/62	05:55 06:16-08:04/108
	17:15	17:51	18:23	19:56	20:27	20:53
9	07:48 09:55-10:11/16	07:27 16:50-17:29/39	06:48 16:37-17:49/72	06:57	06:16 06:42-07:47/65	05:54 06:16-08:04/108
	17:16	17:52	18:24	19:57	20:28	20:54
10	07:48 09:57-10:10/13	07:26 16:48-17:30/42	06:46 16:38-17:48/70	06:56	06:15 06:40-07:48/68	05:54 06:16-08:05/109
	17:17	17:53	18:25	19:58	20:29	20:54
11	07:48 10:00-10:06/6	07:25 16:47-17:31/44	06:45 16:38-17:47/69	06:54	06:13 06:39-07:49/70	05:54 06:16-08:05/109
	17:18	17:54	18:26	19:59	20:30	20:55
12	07:48	07:24 16:46-17:33/47	06:43 16:39-17:47/68	06:53	06:12 06:38-07:50/72	05:54 06:16-08:05/109
	17:19	17:55	18:28	20:00	20:31	20:55
13	07:47	07:22 16:45-17:34/49	06:41 16:40-17:45/65	06:51	06:11 06:37-07:51/74	05:54 06:16-08:06/110
	17:20	17:57	18:29	20:01	20:32	20:56
14	07:47	07:21 16:44-17:35/51	06:40 16:40-17:44/64	06:50	06:10 06:36-07:52/76	05:54 06:16-08:06/110
	17:21	17:58	18:30	20:02	20:33	20:56
15	07:47	07:20 16:43-17:37/54	06:38 16:42-17:43/61	06:48	06:09 06:35-07:53/78	05:54 06:16-08:06/110
	17:22	17:59	18:31	20:03	20:34	20:57
16	07:46	07:19 16:42-17:38/56	06:37 16:42-17:41/59	06:46	06:08 06:34-07:53/79	05:54 06:16-08:06/110
	17:23	18:00	18:32	20:04	20:35	20:57
17	07:46	07:17 16:41-17:39/58	06:35 16:43-17:40/57	06:45	06:07 06:34-07:55/81	05:54 06:16-08:06/110
	17:24	18:01	18:33	20:05	20:36	20:57
18	07:45	07:16 16:40-17:40/60	06:33 16:45-17:39/54	06:43	06:07 06:33-07:56/83	05:54 06:16-08:07/111
	17:25	18:03	18:34	20:06	20:37 06:27-06:28/1	20:58
19	07:45	07:15 16:40-17:42/62	06:32 16:46-17:36/50	06:42	06:06 06:32-07:56/84	05:54 06:16-08:07/111
	17:26	18:04	18:35	20:07	20:38 06:26-06:29/3	20:58
20	07:44	07:13 16:39-17:43/64	06:30 16:47-17:34/47	06:40	06:05 06:32-07:56/84	05:54 06:16-08:07/111
	17:28	18:05	18:36	20:08	20:38 06:25-06:30/5	20:58
21	07:44	07:12 16:39-17:44/65	06:28 16:50-17:32/42	06:39	06:04 06:25-07:57/92	05:54 06:17-08:08/111
	17:29	18:06	18:37	20:09	20:39	20:59
22	07:43	07:10 16:38-17:45/67	06:27 16:51-17:30/39	06:38	06:03 06:24-07:58/94	05:55 06:17-08:08/111
	17:30	18:07	18:38	20:10	20:40	20:59
23	07:43	07:09 16:38-17:47/69	06:25 16:54-17:26/32	06:36	06:02 06:23-07:58/95	05:55 06:17-08:08/111
	17:31	18:08	18:39	20:11	20:41	20:59
24	07:42	07:08 16:38-17:48/70	06:23 16:57-17:23/26	06:35	06:02 06:22-07:58/96	05:55 06:17-08:08/111
	17:32	18:10	18:40	20:12	20:42	20:59
25	07:41	07:06 16:37-17:49/72	06:22 17:02-17:17/15	06:33	06:01 06:22-07:59/97	05:55 06:18-08:08/110
	17:33	18:11	18:41	20:13	20:43	20:59
26	07:40	07:05 16:37-17:51/74	06:20	06:32	06:00 06:21-07:59/98	05:56 06:18-08:08/110
	17:35	18:12	18:42	20:14	20:44	20:59
27	07:40	07:03 16:36-17:52/76	06:18	06:31	06:00 06:21-08:00/99	05:56 06:18-08:08/110
	17:36	18:13	18:43	20:15	20:45	20:59
28	07:39	07:02 16:37-17:53/76	06:17	06:29	05:59 06:20-08:00/100	05:56 06:19-08:09/110
	17:37	18:14	18:44	20:17	20:45	20:59
29	07:38		07:15	06:28	05:59 06:20-08:01/101	05:57 06:19-08:09/110
	17:38		19:45	20:18	20:46	20:59
30	07:37		07:14	06:27 07:05-07:26/21	05:58 06:19-08:01/102	05:57 06:20-08:09/109
	17:40		19:46	20:19	20:47	20:59
31	07:36		07:12		05:58 06:19-08:02/103	
	17:41		19:48		20:48	
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	245	1374	1492	21	2391	3268

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
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335244024

SHADOW - Calendar per WTG

WTG: 11 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (14)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December
1	05:58 06:20-08:09/109 20:59	06:21 06:49-08:01/72 20:41	06:51 19:58	07:20 17:18-18:25/67 19:09	06:54 16:18-16:59/41 17:23	07:28 09:43-09:47/4 16:59
2	05:58 06:21-08:09/108 20:59	06:22 06:50-07:59/69 20:40	06:52 19:57	07:21 17:17-18:25/68 19:07	06:55 16:19-16:58/39 17:22	07:29 09:39-09:52/13 16:59
3	05:59 06:21-08:09/108 20:59	06:23 06:51-07:58/67 20:39	06:53 19:55	07:22 17:16-18:26/70 19:05	06:56 16:22-16:57/35 17:20	07:30 09:38-09:54/16 16:59
4	05:59 06:22-08:10/108 20:59	06:24 06:53-07:57/64 20:38	06:54 19:54	07:23 17:15-18:26/71 19:04	06:57 16:23-16:56/33 17:19	07:31 09:37-09:56/19 16:58
5	06:00 06:22-08:09/107 20:59	06:25 06:54-07:56/62 20:36	06:55 19:52	07:24 17:14-18:26/72 19:02	06:58 16:25-16:55/30 17:18	07:32 09:36-09:58/22 16:58
6	06:00 06:23-08:10/107 20:58	06:26 06:56-07:54/58 20:35	06:56 19:50	07:25 17:13-18:26/73 19:01	07:00 16:27-16:53/26 17:17	07:33 09:35-09:59/24 16:58
7	06:01 06:23-08:09/106 20:58	06:27 06:56-07:51/55 20:34	06:57 19:49	07:26 17:12-18:26/74 18:59	07:01 16:31-16:53/22 17:16	07:34 09:35-10:01/26 16:58
8	06:02 06:24-08:10/106 20:58	06:28 06:58-07:49/51 20:33	06:58 19:47	07:27 17:11-18:26/75 18:57	07:02 16:34-16:51/17 17:15	07:35 09:35-10:02/27 16:58
9	06:02 06:25-08:10/105 20:58	06:29 07:00-07:47/47 20:32	06:59 19:45	07:28 17:11-18:26/75 18:56	07:03 16:38-16:50/12 17:14	07:36 09:35-10:03/28 16:58
10	06:03 06:25-08:10/105 20:57	06:30 07:03-07:45/42 20:30	07:00 19:44	07:30 17:11-18:27/76 18:54	07:04 17:13	07:37 09:35-10:05/30 16:58
11	06:04 06:26-08:10/104 20:57	06:31 07:06-07:42/36 20:29	07:01 19:42	07:31 17:10-18:27/77 18:53	07:05 17:12	07:37 09:35-10:06/31 16:58
12	06:04 06:27-08:10/103 20:56	06:32 07:09-07:38/29 20:28	07:02 19:40	07:32 17:10-18:26/76 18:51	07:07 17:11	07:38 09:35-10:07/32 16:58
13	06:05 06:27-08:09/102 20:56	06:33 07:15-07:32/17 20:26	07:03 19:39	07:33 17:10-18:26/76 18:49	07:08 17:10	07:39 09:34-10:07/33 16:58
14	06:06 06:28-08:10/102 20:55	06:34 20:25	07:04 19:37	07:34 17:09-18:25/76 18:48	07:09 17:09	07:40 09:35-10:08/33 16:59
15	06:06 06:29-08:10/101 20:55	06:35 20:24	07:05 19:35	07:35 17:09-18:24/75 18:46	07:10 17:08	07:40 09:35-10:09/34 16:59
16	06:07 06:30-08:09/99 20:54	06:36 20:22	07:06 19:34	07:36 17:09-18:22/73 18:45	07:11 17:07	07:41 09:35-10:09/34 16:59
17	06:08 06:30-08:09/99 20:54	06:37 20:21	07:07 19:32	07:37 17:08-18:20/72 18:43	07:12 17:07	07:42 09:35-10:10/35 16:59
18	06:09 06:31-08:09/98 20:53	06:38 20:20	07:08 19:30	07:38 17:08-18:19/71 18:42	07:14 17:06	07:43 09:36-10:11/35 17:00
19	06:10 06:32-08:09/97 20:52	06:38 20:18	07:09 19:29	07:39 17:09-18:18/69 18:40	07:15 17:05	07:43 09:36-10:11/35 17:00
20	06:10 06:33-08:09/96 20:52	06:39 20:17	07:09 19:27	07:40 17:09-18:16/67 18:39	07:16 17:04	07:44 09:37-10:12/35 17:00
21	06:11 06:33-08:08/95 20:51	06:40 20:15	07:10 19:25	07:41 17:10-18:15/65 18:37	07:17 17:04	07:44 09:37-10:12/35 17:01
22	06:12 06:34-08:07/93 20:50	06:41 20:14	07:11 19:24	07:42 17:10-18:13/63 18:36	07:18 17:03	07:45 09:38-10:13/35 17:01
23	06:13 06:42-08:07/85 20:49	06:42 20:12	07:12 19:22	07:44 17:10-18:11/61 18:35	07:19 17:03	07:45 09:38-10:13/35 17:02
24	06:14 06:42-08:07/85 20:48	06:43 20:11	07:13 19:20	07:45 17:10-18:10/60 18:33	07:20 17:02	07:46 09:39-10:14/35 17:02
25	06:15 06:43-08:06/83 20:48	06:44 20:09	07:14 19:19	07:46 16:12-17:09/57 17:32	07:22 17:01	07:46 09:39-10:14/35 17:03
26	06:16 06:44-08:06/82 20:47	06:45 20:08	07:15 19:17	06:47 16:12-17:08/56 17:31	07:23 17:01	07:47 09:39-10:14/35 17:04
27	06:16 06:45-08:05/80 20:46	06:46 20:06	07:16 19:15	06:48 16:13-17:06/53 17:29	07:24 17:01	07:47 09:41-10:15/34 17:04
28	06:17 06:45-08:04/79 20:45	06:47 20:05	07:17 19:14	06:49 16:13-17:04/51 17:28	07:25 17:00	07:47 09:41-10:15/34 17:05
29	06:18 06:46-08:03/77 20:44	06:48 20:03	07:18 19:12	06:50 16:14-17:03/49 17:27	07:26 17:00	07:48 09:41-10:15/34 17:06
30	06:19 06:47-08:02/75 20:43	06:49 20:02	07:19 19:10	06:51 16:16-17:02/46 17:25	07:27 16:59	07:48 09:42-10:15/33 17:06
31	06:20 06:48-08:01/73 20:42	06:50 20:00	 	06:53 16:17-17:01/44 17:24	 	07:48 09:43-10:15/32 17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	2989	669	595	2058	255	923

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
 IT-09047 SELARGIUS
 335244024

SHADOW - Calendar per WTG

WTG: 12 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (15)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
 The sun is shining all the day, from sunrise to sunset
 The rotor plane is always perpendicular to the line from the WTG to the sun
 The WTG is always operating

	January	February	March	April	May	June
1	07:48 17:08	07:35 08:07-08:35/28 17:42	07:00 17:23-17:54/31 18:15	07:10 19:18-19:28/10 19:49	06:25 20:20	05:57 20:49
2	07:48 17:09	07:35 08:07-08:35/28 17:43	06:59 17:23-17:56/33 18:17	07:09 19:17-19:28/11 19:50	06:24 20:21	05:57 20:49
3	07:49 17:10	07:34 08:06-08:36/30 17:44	06:57 17:22-17:56/34 18:18	07:07 19:16-19:29/13 19:51	06:23 20:22	05:56 20:50
4	07:49 17:11	07:33 08:06-08:37/31 17:46	06:56 17:21-17:57/36 18:19	07:05 19:17-19:31/14 19:52	06:22 20:23	05:56 20:51
5	07:49 17:12	07:32 08:06-08:37/31 17:47	06:54 17:22-17:59/37 18:20	07:04 19:16-19:31/15 19:53	06:20 20:24	05:56 20:51
6	07:49 17:13	07:30 08:06-08:38/32 17:48	06:53 17:21-18:00/39 18:21	07:02 19:16-19:32/16 19:54	06:19 20:25	05:55 20:52
7	07:49 17:14	07:29 08:06-08:38/32 17:49	06:51 17:22-18:01/39 18:22	07:01 19:18-19:34/16 19:55	06:18 20:26	05:55 20:53
8	07:48 17:15	07:28 08:06-08:38/32 17:51	06:49 17:21-18:02/41 18:23	06:59 19:18-19:34/16 19:56	06:17 20:27	05:55 20:53
9	07:48 17:16	07:27 08:06-08:38/32 17:52	06:48 17:21-18:02/41 18:24	06:57 19:20-19:35/15 19:57	06:16 20:28	05:54 20:54
10	07:48 17:17	07:26 08:06-08:37/31 17:53	06:46 17:22-18:02/40 18:25	06:56 19:22-19:31/9 19:58	06:15 20:29	05:54 20:54
11	07:48 17:18	07:25 08:06-08:37/31 17:54	06:45 17:22-18:01/39 18:26	06:54 19:59	06:13 20:30	05:54 20:55
12	07:48 17:19	07:24 08:07-08:37/30 17:55	06:43 17:23-18:00/37 18:28	06:53 20:00	06:12 20:31	05:54 20:55
13	07:47 17:20	07:22 08:08-08:37/29 17:57	06:41 17:24-17:59/35 18:29	06:51 20:01	06:11 20:32	05:54 20:56
14	07:47 17:21	07:21 08:08-08:35/27 17:58	06:40 17:25-17:57/32 18:30	06:50 20:02	06:10 20:33	05:54 20:56
15	07:47 17:22	07:20 08:09-08:35/26 17:59	06:38 17:26-17:55/29 18:31	06:48 20:03	06:09 20:34	05:54 20:57
16	07:46 17:23	07:19 08:10-08:34/24 18:00	06:37 17:28-17:53/25 18:32	06:47 20:04	06:08 20:35	05:54 20:57
17	07:46 17:24	07:17 08:12-08:33/21 18:01	06:35 17:30-17:50/20 18:33	06:45 20:05	06:08 20:36	05:54 20:58
18	07:45 17:25	07:16 08:14-08:30/16 18:03	06:33 17:34-17:47/13 18:34	06:44 20:06	06:07 20:37	05:54 20:58
19	07:45 17:26	07:15 08:17-08:27/10 18:04	06:32 17:36-17:42/6 18:35	06:42 20:07	06:06 20:38	05:54 20:58
20	07:44 17:28	07:13 17:35-17:43/8 18:05	06:30 18:36	06:41 20:08	06:05 20:38	05:54 20:58
21	07:44 17:29	07:12 17:33-17:44/11 18:06	06:28 18:37	06:39 20:09	06:04 20:39	05:54 20:59
22	07:43 17:30	07:10 17:30-17:45/15 18:07	06:27 18:38	06:38 20:10	06:03 20:40	05:55 20:59
23	07:43 17:31	07:09 17:29-17:47/18 18:09	06:25 18:39	06:36 20:11	06:03 20:41	05:55 20:59
24	07:42 17:32	07:08 17:28-17:48/20 18:10	06:23 18:40	06:35 20:12	06:02 20:42	05:55 20:59
25	07:41 17:34	07:06 17:26-17:49/23 18:11	06:22 18:41	06:33 20:13	06:01 20:43	05:55 20:59
26	07:41 08:15-08:25/10 17:35	07:05 17:26-17:51/25 18:12	06:20 18:42	06:32 20:15	06:00 20:44	05:56 20:59
27	07:40 08:13-08:28/15 17:36	07:03 17:24-17:52/28 18:13	06:19 18:43	06:31 20:16	06:00 20:45	05:56 20:59
28	07:39 08:11-08:30/19 17:37	07:02 17:24-17:53/29 18:14	06:17 18:21-18:23/2 18:44	06:29 20:17	05:59 20:45	05:56 21:00
29	07:38 08:10-08:31/21 17:38		07:15 19:21-19:25/4 19:45	06:28 20:18	05:59 20:46	05:57 20:59
30	07:37 08:09-08:32/23 17:40		07:14 19:19-19:26/7 19:47	06:27 20:19	05:58 20:47	05:57 20:59
31	07:36 08:08-08:34/26 17:41		07:12 19:18-19:26/8 19:48		05:58 20:48	
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	114	712	622	135	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: MORES_shadows Description: Sa Costa Shadow Flickering

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SHADOW - Calendar per WTG

WTG: 12 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (15)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	05:58 20:59	06:21 20:41	06:51 19:59	07:20 19:09	18:02-18:38/36 17:23	06:54 16:59
2	05:58 20:59	06:22 20:40	06:52 19:57	07:21 19:07	18:01-18:39/38 17:22	06:55 16:59
3	05:59 20:59	06:23 20:39	06:53 19:55	07:22 19:05	18:00-18:39/39 17:20	06:56 16:59
4	05:59 20:59	06:24 20:38	06:54 19:54	07:23 19:04	17:59-18:40/41 17:19	06:57 16:58
5	06:00 20:59	06:25 20:36	06:55 19:52	07:24 19:02	17:58-18:39/41 17:18	06:58 16:58
6	06:00 20:58	06:26 20:35	06:56 19:50	07:25 19:01	17:57-18:38/41 17:17	07:00 16:58
7	06:01 20:58	06:27 20:34	06:57 19:49	07:26 18:59	17:57-18:36/39 17:16	07:01 16:58
8	06:02 20:58	06:28 20:33	06:58 19:47	07:28 18:57	17:56-18:34/38 17:15	07:02 16:58
9	06:02 20:58	06:29 20:32	06:59 19:46	07:29 18:56	17:56-18:33/37 17:14	07:03 16:58
10	06:03 20:57	06:30 20:30	07:00 19:44	07:30 18:54	17:57-18:32/35 17:13	07:04 16:58
11	06:04 20:57	06:31 20:29	07:01 19:42	07:31 18:53	17:56-18:30/34 17:12	07:05 16:58
12	06:04 20:56	06:32 20:28	07:02 19:41	07:32 18:51	17:56-18:29/33 17:11	07:07 16:58
13	06:05 20:56	06:33 20:27	07:03 19:39	07:33 18:49	17:57-18:27/30 17:10	07:08 16:58
14	06:06 20:55	06:34 20:25	07:04 19:37	07:34 18:48	17:57-18:25/28 17:09	07:09 16:59
15	06:06 20:55	06:35 20:24	07:05 19:36	07:35 18:46	17:57-18:24/27 17:08	07:10 16:59
16	06:07 20:54	06:36 20:22	07:06 19:34	07:36 18:45	17:58-18:22/24 17:07	07:11 16:59
17	06:08 20:54	06:37 20:21	07:07 19:32	07:37 18:43	17:58-18:20/22 17:06	07:12 16:59
18	06:09 20:53	06:38 20:20	07:08 19:30	07:38 18:42	17:59-18:19/20 17:05	07:14 17:00
19	06:10 20:52	06:39 20:18	07:09 19:29	07:39 18:40	18:01-18:18/17 17:04	07:15 17:00
20	06:10 20:52	06:40 20:17	07:10 19:27	07:40 18:39	18:03-18:16/13 17:03	07:16 17:01
21	06:11 20:51	06:40 20:15	07:11 19:25	07:41 18:38	18:04-18:15/11 17:02	07:17 17:01
22	06:12 20:50	06:41 20:14	07:11 19:24	07:42 18:36	18:06-18:13/7 17:01	07:18 17:01
23	06:13 20:49	06:42 20:12	07:12 19:22	07:44 18:35	08:46-08:58/12 18:06-18:11/5	07:19 17:03
24	06:14 20:48	06:43 20:11	07:13 19:20	07:45 18:33	08:43-09:00/17 18:06-18:10/4	07:20 17:02
25	06:15 20:48	06:44 20:09	07:14 19:19	06:46 17:32	07:41-08:03/22 17:07-17:09/2	07:22 17:02
26	06:16 20:47	06:45 20:08	07:15 19:17	06:47 17:31	07:40-08:04/24 17:07-17:08/1	07:23 17:01
27	06:17 20:46	06:46 20:06	07:16 19:15	06:48 17:29	07:38-08:05/27 17:29	07:24 17:01
28	06:17 20:45	06:47 20:05	07:17 19:14	06:49 17:28	07:37-08:05/28 17:28	07:25 17:00
29	06:18 20:44	06:48 20:03	07:18 19:12	06:50 17:27	07:36-08:06/30 17:27	07:26 17:00
30	06:19 20:43	06:49 20:02	07:19 19:10	06:51 17:25	07:37-08:07/30 17:25	07:27 16:59
31	06:20 20:42	06:50 20:00		06:53 17:24	07:36-08:07/31 17:24	07:28 17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	0	0	301	884	421	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: MORES_shadows Description: Sa Costa Shadow Flickering

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SHADOW - Calendar per WTG

WTG: 13 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (16)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:48 13:46-14:27/41 17:08	07:35 17:42	07:00 18:15	07:10 18:23-19:03/40 19:49	06:25 06:44-06:59/15 20:20	05:57 06:42-06:57/15 20:49
2	07:48 13:47-14:27/40 17:09	07:35 17:43	06:59 18:17	07:09 18:23-19:01/38 19:50	06:24 06:43-07:01/18 20:21	05:57 06:43-06:56/13 20:49
3	07:49 13:49-14:27/38 17:10	07:34 17:44	06:57 18:18	07:07 18:24-18:59/35 19:51	06:23 06:42-07:02/20 20:22	05:56 06:45-06:55/10 20:50
4	07:49 13:50-14:27/37 17:11	07:33 17:46	06:56 18:19	07:05 18:26-18:58/32 19:52	06:22 06:41-07:03/22 20:23	05:56 06:47-06:53/6 20:51
5	07:49 13:51-14:26/35 17:12	07:32 17:47	06:54 18:20	07:04 18:27-18:56/29 19:53	06:20 06:40-07:04/24 20:24	05:55 20:51
6	07:49 13:52-14:25/33 17:13	07:30 17:48	06:53 18:21	07:02 18:30-18:54/24 19:54	06:19 06:39-07:05/26 20:25	05:55 20:52
7	07:49 13:54-14:24/30 17:14	07:29 17:49	06:51 18:22	07:01 18:32-18:50/18 19:55	06:18 06:37-07:04/27 20:26	05:55 20:53
8	07:49 13:56-14:23/27 17:15	07:28 17:51	06:49 17:43-17:55/12 18:23	06:59 18:37-18:44/7 19:56	06:17 06:36-07:05/29 20:27	05:55 20:53
9	07:48 13:59-14:22/23 17:16	07:27 17:52	06:48 17:38-17:59/21 18:24	06:57 19:57	06:16 06:35-07:05/30 20:28	05:54 20:54
10	07:48 14:02-14:21/19 17:17	07:26 17:53	06:46 17:35-18:02/27 18:25	06:56 19:58	06:15 06:34-07:05/31 20:29	05:54 20:54
11	07:48 14:05-14:18/13 17:18	07:25 17:54	06:45 17:33-18:04/31 18:26	06:54 19:59	06:13 06:33-07:06/33 20:30	05:54 20:55
12	07:48 17:19 17:19	07:24 17:55	06:43 17:31-18:06/35 18:28	06:53 20:00	06:12 06:32-07:06/34 20:31	05:54 20:55
13	07:47 17:20 17:20	07:22 17:57	06:41 17:29-18:07/38 18:29	06:51 20:01	06:11 06:31-07:06/35 20:32	05:54 20:56
14	07:47 17:21 17:21	07:21 17:58	06:40 17:27-18:07/40 18:30	06:50 20:02	06:10 06:31-07:05/34 20:33	05:54 20:56
15	07:47 17:22 17:22	07:20 17:59	06:38 17:27-18:09/42 18:31	06:48 20:03	06:09 06:31-07:05/34 20:34	05:54 20:57
16	07:46 17:23 17:23	07:19 18:00	06:37 17:25-18:09/44 18:32	06:47 20:04	06:08 06:32-07:06/34 20:35	05:54 20:57
17	07:46 17:24 17:24	07:17 18:01	06:35 17:24-18:09/45 18:33	06:45 20:05	06:08 06:32-07:06/34 20:36	05:54 20:58
18	07:46 17:25 17:25	07:16 18:03	06:33 17:23-18:10/47 18:34	06:44 20:06	06:07 06:32-07:05/33 20:37	05:54 20:58
19	07:45 17:26 17:26	07:15 18:04	06:32 17:22-18:10/48 18:35	06:42 20:07	06:06 06:32-07:05/33 20:38	05:54 20:58
20	07:44 17:28 17:28	07:13 18:05	06:30 17:21-18:10/49 18:36	06:41 20:08	06:05 06:32-07:04/32 20:39	05:54 20:58
21	07:44 17:29 17:29	07:12 18:06	06:28 17:21-18:10/49 18:37	06:39 20:09	06:04 06:33-07:05/32 20:39	05:54 20:59
22	07:43 17:30 17:30	07:10 18:07	06:27 17:21-18:10/49 18:38	06:38 20:10	06:03 06:34-07:04/30 20:40	05:55 20:59
23	07:43 17:31 17:31	07:09 18:09	06:25 17:20-18:09/49 18:39	06:36 20:11	06:03 06:34-07:03/29 20:41	05:55 20:59
24	07:42 17:32 17:32	07:08 18:10	06:23 17:20-18:10/50 18:40	06:35 20:12	06:02 06:35-07:03/28 20:42	05:55 20:59
25	07:41 17:33 17:33	07:06 18:11	06:22 17:20-18:09/49 18:41	06:33 20:13	06:01 06:35-07:03/28 20:43	05:55 20:59
26	07:41 17:35 17:35	07:05 18:12	06:20 17:21-18:09/48 18:42	06:32 20:15	06:00 06:36-07:02/26 20:44	05:56 20:59
27	07:40 17:36 17:36	07:03 18:13	06:19 17:20-18:08/48 18:43	06:31 20:16	06:00 06:37-07:02/25 20:45	05:56 21:00
28	07:39 17:37 17:37	07:02 18:14	06:17 17:20-18:07/47 18:44	06:29 20:17	05:59 06:38-07:01/23 20:45	05:56 21:00
29	07:38 17:38 17:38		07:15 18:21-19:07/46 19:45	06:28 06:47-06:55/8 20:18	05:59 06:39-07:00/21 20:46	05:57 21:00
30	07:37 17:40 17:40		07:14 18:21-19:05/44 19:47	06:27 06:46-06:58/12 20:19	05:58 06:39-06:59/20 20:47	05:57 20:59
31	07:36 17:41 17:41		07:12 18:21-19:04/43 19:48		05:58 06:41-06:59/18 20:48	
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	336	0	1001	243	858	44

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

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SHADOW - Calendar per WTG

WTG: 13 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (16)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December
1	05:58	06:21 06:43-07:16/33	06:51	07:20 18:09-18:45/36	06:54	07:28 13:47-13:59/12
	20:59	20:41	19:59	19:09	17:23	16:59
2	05:58	06:22 06:44-07:16/32	06:52	07:21 18:10-18:43/33	06:55	07:29 13:44-14:03/19
	20:59	20:40	19:57	19:07	17:22	16:59
3	05:59	06:23 06:45-07:16/31	06:53	07:22 18:12-18:41/29	06:56	07:30 13:42-14:05/23
	20:59	20:39	19:55	19:05	17:20	16:59
4	05:59	06:24 06:46-07:16/30	06:54	18:35-18:42/7	07:23	18:14-18:38/24
	20:59	20:38	19:54	19:04	17:19	16:58
5	06:00	06:25 06:47-07:15/28	06:55	18:28-18:46/18	07:24	18:17-18:34/17
	20:59	20:36	19:52	19:02	17:18	16:58
6	06:00	06:26 06:48-07:15/27	06:56	18:25-18:49/24	07:25	18:25-18:26/1
	20:59	20:35	19:50	19:01	17:17	16:58
7	06:01	06:27 06:49-07:14/25	06:57	18:22-18:51/29	07:26	18:29-18:30/1
	20:58	20:34	19:49	18:59	17:16	16:58
8	06:02 06:56-06:58/2	06:28 06:49-07:13/24	06:58	18:20-18:52/32	07:28	18:31-18:32/1
	20:58	20:33	19:47	18:57	17:15	16:58
9	06:02 06:53-07:02/9	06:29 06:50-07:12/22	06:59	18:18-18:53/35	07:29	18:34-18:35/1
	20:58	20:32	19:46	18:56	17:14	16:58
10	06:03 06:51-07:03/12	06:30 06:51-07:11/20	07:00	18:17-18:54/37	07:30	18:36-18:37/1
	20:57	20:30	19:44	18:54	17:13	16:58
11	06:04 06:50-07:05/15	06:31 06:52-07:09/17	07:01	18:15-18:55/40	07:31	18:38-18:39/1
	20:57	20:29	19:42	18:53	17:12	16:58
12	06:04 06:50-07:06/16	06:32 06:53-07:08/15	07:02	18:14-18:56/42	07:32	18:40-18:41/1
	20:56	20:28	19:41	18:51	17:11	16:58
13	06:05 06:48-07:07/19	06:33 06:54-07:05/11	07:03	18:13-18:56/43	07:33	18:42-18:43/1
	20:56	20:27	19:39	18:49	17:10	16:58
14	06:06 06:48-07:08/20	06:34 06:55-07:02/7	07:04	18:12-18:57/45	07:34	18:44-18:45/1
	20:55	20:25	19:37	18:48	17:09	16:59
15	06:06 06:47-07:09/22	06:35	07:05	18:11-18:57/46	07:35	18:46-18:47/1
	20:55	20:24	19:36	18:46	17:08	16:59
16	06:07 06:47-07:11/24	06:36	07:06	18:10-18:57/47	07:36	18:48-18:49/1
	20:54	20:22	19:34	18:45	17:07	16:59
17	06:08 06:45-07:11/26	06:37	07:07	18:09-18:57/48	07:37	18:50-18:51/1
	20:54	20:21	19:32	18:43	17:07	16:59
18	06:09 06:45-07:12/27	06:38	07:08	18:08-18:57/49	07:38	18:52-18:53/1
	20:53	20:20	19:30	18:42	17:06	17:00
19	06:10 06:45-07:13/28	06:39	07:09	18:07-18:56/49	07:39	18:54-18:55/1
	20:52	20:18	19:29	18:40	17:05	17:00
20	06:10 06:45-07:13/28	06:40	07:10	18:06-18:56/50	07:40	18:56-18:57/1
	20:52	20:17	19:27	18:39	17:04	17:01
21	06:11 06:43-07:13/30	06:40	07:11	18:06-18:55/49	07:41	18:58-18:59/1
	20:51	20:15	19:25	18:38	17:04	17:01
22	06:12 06:43-07:14/31	06:41	07:12	18:06-18:55/49	07:42	18:59-19:00/1
	20:50	20:14	19:24	18:36	17:03	17:01
23	06:13 06:43-07:14/31	06:42	07:13	18:06-18:54/48	07:44	19:01-19:02/1
	20:49	20:12	19:22	18:35	17:03	17:02
24	06:14 06:43-07:15/32	06:43	07:14	18:06-18:54/48	07:45	19:03-19:04/1
	20:48	20:11	19:20	18:33	17:02	17:03
25	06:15 06:43-07:16/33	06:44	07:15	18:06-18:53/47	06:46	19:05-19:06/1
	20:48	20:09	19:19	17:32	17:02	17:03
26	06:16 06:43-07:16/33	06:45	07:16	18:06-18:52/46	06:47	19:07-19:08/1
	20:47	20:08	19:17	17:31	17:01	17:04
27	06:17 06:42-07:16/34	06:46	07:17	18:06-18:51/45	06:48	19:09-19:10/1
	20:46	20:06	19:15	17:29	17:01	17:04
28	06:17 06:41-07:16/35	06:47	07:18	18:07-18:50/43	06:49	19:11-19:12/1
	20:45	20:05	19:14	17:28	17:00	17:05
29	06:18 06:41-07:16/35	06:48	07:19	18:07-18:48/41	06:50	19:13-19:14/1
	20:44	20:03	19:12	17:27	17:00	17:06
30	06:19 06:41-07:16/35	06:49	07:20	18:08-18:47/39	06:52	19:15-19:16/1
	20:43	20:02	19:10	17:25	16:59	17:06
31	06:20 06:42-07:16/34	06:50		06:53		17:08
	20:42	20:00		17:24		17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	611	322	1096	140	0	1238

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

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SHADOW - Calendar per WTG

WTG: 14 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (18)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:48 17:08	07:35 17:42	07:00 18:15	07:37-08:04/27 19:48	06:25 20:20	05:57 20:48	05:57 20:59	06:21 20:41	06:51 19:58	07:20 08:13-08:40/27 19:09	06:54 17:23	07:28 16:59
2	07:48 17:09	07:34 17:43	06:59 18:16	07:35-08:04/29 19:49	06:24 20:21	05:56 20:49	05:58 20:59	06:22 20:40	06:52 19:57	07:21 08:12-08:41/29 19:07	06:55 17:21	07:29 16:59
3	07:48 17:10	07:33 17:44	06:57 18:17	07:35-08:05/30 19:51	06:23 20:22	05:56 20:50	05:58 20:59	06:23 20:39	06:53 19:55	07:22 08:11-08:41/30 19:05	06:56 17:20	07:30 16:58
4	07:49 17:11	07:32 17:45	06:56 18:19	07:34-08:05/31 19:52	06:21 20:23	05:56 20:51	05:59 20:59	06:24 20:37	06:54 19:54	07:23 08:10-08:41/31 19:04	06:57 17:19	07:31 16:58
5	07:49 17:12	07:31 17:47	06:54 18:20	07:34-08:06/32 19:53	06:20 20:24	05:55 20:51	06:00 20:59	06:25 20:36	06:55 19:52	07:24 08:09-08:41/32 19:02	06:58 17:18	07:32 16:58
6	07:49 17:12	07:30 17:48	06:52 18:21	07:33-08:05/32 19:54	06:19 20:25	05:55 20:52	06:00 20:58	06:26 20:35	06:56 19:50	07:25 08:09-08:41/32 19:00	06:59 17:17	07:33 16:58
7	07:48 17:13	07:29 17:49	06:51 18:22	07:33-08:05/32 19:55	06:18 20:26	05:55 20:53	06:01 20:58	06:27 20:34	06:57 19:49	07:26 08:08-08:41/33 18:59	07:01 17:16	07:34 16:58
8	07:48 17:14	07:28 17:50	06:49 18:23	07:32-08:05/33 19:56	06:17 20:27	05:54 20:53	06:01 20:58	06:28 20:33	06:58 19:47	07:27 08:08-08:40/32 18:57	07:02 17:15	07:35 16:58
9	07:48 17:15	07:27 17:52	06:48 18:24	07:32-08:04/32 19:57	06:15 20:28	05:54 20:54	06:02 20:57	06:29 20:32	06:59 19:45	07:28 08:08-08:40/32 18:56	07:03 17:14	07:36 16:58
10	07:48 17:16	07:26 17:53	06:46 18:25	07:33-08:04/31 19:58	06:14 20:29	05:54 20:54	06:03 20:57	06:30 20:30	07:00 19:44	07:29 08:08-08:39/31 18:54	07:04 17:13	07:36 16:58
11	07:48 17:17	07:25 17:54	06:45 18:26	07:33-08:02/29 19:59	06:13 20:30	05:54 20:55	06:03 20:57	06:31 20:29	07:01 19:42	07:30 08:10-08:39/29 18:52	07:05 17:12	07:37 16:58
12	07:48 17:18	07:23 17:55	06:43 18:27	07:34-08:02/28 19:59	06:12 20:31	05:54 20:55	06:04 20:56	06:32 20:28	07:02 19:40	07:32 08:10-08:38/28 18:51	07:07 17:11	07:38 16:58
13	07:47 17:20	07:22 17:56	06:41 18:28	07:34-08:00/26 20:00	06:11 20:32	05:54 20:56	06:05 20:56	06:32 20:26	07:03 19:39	07:33 08:11-08:37/26 18:49	07:08 17:10	07:39 16:58
14	07:47 17:21	07:21 17:58	06:40 18:30	07:35-07:58/23 20:02	06:10 20:33	05:54 20:56	06:05 20:55	06:33 20:25	07:04 19:37	07:34 08:12-08:35/23 18:48	07:09 17:09	07:40 16:58
15	07:47 17:22	07:20 17:59	06:38 18:31	07:37-07:57/20 20:03	06:09 20:34	05:54 20:57	06:06 20:55	06:34 20:24	07:05 19:35	07:35 08:13-08:33/20 18:46	07:10 17:08	07:40 16:59
16	07:46 17:23	07:18 18:00	06:36 18:32	07:38-07:54/16 20:04	06:08 20:35	05:54 20:57	06:07 20:54	06:35 20:22	07:05 19:34	07:36 08:15-08:30/15 18:45	07:11 17:07	07:41 16:59
17	07:46 17:24	07:17 18:01	06:35 18:33	07:42-07:49/7 20:05	06:07 20:36	05:54 20:57	06:08 20:53	06:36 20:21	07:06 19:32	07:37 08:19-08:26/7 18:43	07:12 17:06	07:42 16:59
18	07:45 17:25	07:16 18:02	06:33 18:34	06:06 20:37	06:06 20:37	05:54 20:58	06:09 20:53	06:37 20:20	07:07 19:30	07:38 08:17-08:32/20 18:42	07:14 17:06	07:43 16:59
19	07:45 17:26	07:14 18:04	06:32 18:35	06:06 20:37	06:06 20:37	05:54 20:58	06:09 20:52	06:38 20:18	07:08 19:29	07:39 08:16-08:31/19 18:40	07:15 17:05	07:44 16:58
20	07:44 17:27	07:13 18:05	06:30 18:36	06:05 20:38	06:05 20:38	05:54 20:58	06:10 20:51	06:39 20:17	07:09 19:27	07:40 08:15-08:30/19 18:39	07:16 17:04	07:44 16:58
21	07:44 17:29	07:12 18:06	06:28 18:37	06:04 20:39	06:04 20:39	05:54 20:59	06:11 20:51	06:40 20:15	07:10 19:25	07:41 08:14-08:29/18 18:37	07:17 17:04	07:44 16:58
22	07:43 17:30	07:10 18:07	06:27 18:38	06:03 20:40	06:03 20:40	05:54 20:59	06:12 20:50	06:41 20:14	07:11 19:24	07:42 08:13-08:28/17 18:36	07:18 17:03	07:45 16:58
23	07:43 17:31	07:09 18:08	06:25 18:39	06:02 20:41	06:02 20:41	05:55 20:59	06:13 20:49	06:42 20:12	07:12 19:22	07:43 08:12-08:27/16 18:35	07:19 17:02	07:45 16:58
24	07:42 17:32	07:07 18:09	06:23 18:40	06:02 20:42	06:02 20:42	05:55 20:59	06:14 20:48	06:43 20:11	07:13 19:20	07:44 08:11-08:26/15 18:34	07:20 17:02	07:46 16:58
25	07:41 17:33	07:06 18:11	06:22 18:41	06:01 20:43	06:01 20:43	05:55 20:59	06:15 20:47	06:44 20:09	07:14 19:19	07:45 08:10-08:25/14 18:33	07:21 17:01	07:46 16:58
26	07:40 17:35	07:05 18:12	06:20 18:42	06:00 20:44	06:00 20:44	05:55 20:59	06:15 20:47	06:45 20:08	07:15 19:17	07:46 08:09-08:24/13 18:32	07:22 17:00	07:47 16:58
27	07:40 17:36	07:03 18:13	06:18 18:43	06:00 20:45	06:00 20:45	05:56 20:59	06:16 20:46	06:46 20:06	07:16 19:15	07:47 08:08-08:23/12 18:31	07:23 17:00	07:47 16:58
28	07:39 17:37	07:02 18:14	06:17 18:44	05:59 20:46	05:59 20:46	05:56 20:59	06:17 20:45	06:47 20:05	07:17 19:14	07:48 08:07-08:22/11 18:30	07:24 17:00	07:47 16:58
29	07:38 17:38	07:01 18:15	06:15 18:45	05:58 20:47	05:58 20:47	05:57 20:59	06:18 20:44	06:48 20:03	07:18 19:12	07:49 08:06-08:21/10 18:29	07:25 17:00	07:48 16:58
30	07:37 17:39	07:00 18:16	06:13 18:46	05:57 20:48	05:57 20:48	05:57 20:59	06:19 20:43	06:49 20:02	07:19 19:10	07:50 08:05-08:20/9 18:28	07:26 17:00	07:48 16:58
31	07:36 17:41	07:00 18:17	06:12 18:47	05:57 20:49	05:57 20:49	05:57 20:59	06:20 20:42	06:50 20:00	07:20 19:09	07:51 08:04-08:19/8 18:27	07:27 17:00	07:48 16:58
Potential sun hours	299	298	370	398	447	450	457	427	375	346	299	290
Sum of minutes with flicker	0	73	458	0	0	0	0	0	79	457	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
 IT-09047 SELARGIUS
 335244024

SHADOW - Calendar per WTG

WTG: 15 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (19)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
 The sun is shining all the day, from sunrise to sunset
 The rotor plane is always perpendicular to the line from the WTG to the sun
 The WTG is always operating

	January		February		March		April		May		June	
1	07:48	15:05-16:42/97	07:36	15:09-16:40/91	07:00	15:42-16:16/34	07:10	06:25			05:57	20:17-20:24/7
	17:08		17:42		18:15		19:49	20:20			20:49	
2	07:49	15:05-16:43/98	07:35	15:10-16:40/90	06:59	15:47-16:13/26	07:09	06:24			05:57	20:18-20:25/7
	17:09		17:43		18:17		19:50	20:21			20:49	
3	07:49	15:05-16:43/98	07:34	15:10-16:40/90	06:57	15:52-16:06/14	07:07	06:23			05:56	20:19-20:26/7
	17:10		17:45		18:18		19:51	20:22			20:50	
4	07:49	15:06-16:43/97	07:33	15:10-16:41/91	06:56		07:05	06:22			05:56	20:19-20:26/7
	17:11		17:46		18:19		19:52	20:23			20:51	
5	07:49	15:06-16:44/98	07:32	15:11-16:41/90	06:54		07:04	06:20			05:56	20:20-20:27/7
	17:12		17:47		18:20		19:53	20:24			20:51	
6	07:49	15:05-16:43/98	07:31	15:12-16:41/89	06:53		07:02	06:19			05:55	20:21-20:27/6
	17:13		17:48		18:21		19:54	20:25			20:52	
7	07:49	15:06-16:44/98	07:29	15:12-16:41/89	06:51		07:01	06:18			05:55	20:21-20:27/6
	17:14		17:49		18:22		19:55	20:26			20:53	
8	07:49	15:06-16:44/98	07:28	15:13-16:41/88	06:50		06:59	06:17			05:55	20:22-20:28/6
	17:15		17:51		18:23		19:56	20:27			20:53	
9	07:48	15:06-16:45/99	07:27	15:14-16:40/86	06:48		06:57	06:16			05:55	20:23-20:29/6
	17:16		17:52		18:24		19:57	20:28			20:54	
10	07:48	15:07-16:45/98	07:26	15:13-16:39/86	06:46		06:56	06:15			05:54	20:24-20:29/5
	17:17		17:53		18:25		19:58	20:29			20:54	
11	07:48	15:06-16:44/98	07:25	15:14-16:39/85	06:45		06:54	06:14			05:54	20:25-20:30/5
	17:18		17:54		18:27		19:59	20:30			20:55	
12	07:48	15:06-16:45/99	07:24	15:15-16:39/84	06:43		06:53	06:12			05:54	20:27-20:30/3
	17:19		17:56		18:28		20:00	20:31			20:55	
13	07:48	15:07-16:45/98	07:22	15:16-16:39/83	06:42		06:51	06:11			05:54	20:28-20:31/3
	17:20		17:57		18:29		20:01	20:32			20:56	
14	07:47	15:06-16:44/98	07:21	15:16-16:38/82	06:40		06:50	06:10			05:54	20:30-20:31/1
	17:21		17:58		18:30		20:02	20:33			20:56	
15	07:47	15:07-16:44/97	07:20	15:18-16:37/79	06:38		06:48	06:09			05:54	
	17:22		17:59		18:31		20:03	20:34			20:57	
16	07:46	15:06-16:43/97	07:19	15:19-16:37/78	06:37		06:47	06:09			05:54	
	17:23		18:00		18:32		20:04	20:35			20:57	
17	07:46	15:07-16:42/95	07:17	15:20-16:36/76	06:35		06:45	06:08			05:54	
	17:24		18:02		18:33		20:05	20:36			20:58	
18	07:46	15:07-16:35/88	07:16	15:21-16:35/74	06:33		06:44	06:07			05:54	
	17:25		18:03		18:34		20:06	20:37			20:58	
19	07:45	15:07-16:36/89	07:15	15:22-16:34/72	06:32		06:42	06:06	20:13-20:14/1		05:54	
	17:27		18:04		18:35		20:07	20:38			20:58	
20	07:45	15:07-16:36/89	07:13	15:23-16:33/70	06:30		06:41	06:05	20:12-20:14/2		05:54	
	17:28		18:05		18:36		20:08	20:39			20:59	
21	07:44	15:08-16:37/89	07:12	15:25-16:32/67	06:28		06:39	06:04	20:13-20:16/3		05:54	
	17:29		18:06		18:37		20:09	20:39			20:59	
22	07:43	15:08-16:38/90	07:11	15:27-16:31/64	06:27		06:38	06:03	20:13-20:16/3		05:55	
	17:30		18:07		18:38		20:10	20:40			20:59	
23	07:43	15:08-16:38/90	07:09	15:28-16:29/61	06:25		06:36	06:03	20:13-20:17/4		05:55	
	17:31		18:09		18:39		20:11	20:41			20:59	
24	07:42	15:07-16:38/91	07:08	15:30-16:28/58	06:24		06:35	06:02	20:13-20:17/4		05:55	
	17:32		18:10		18:40		20:13	20:42			20:59	
25	07:41	15:08-16:39/91	07:06	15:32-16:26/54	06:22		06:33	06:01	20:14-20:19/5		05:55	
	17:34		18:11		18:41		20:14	20:43			20:59	
26	07:41	15:08-16:39/91	07:05	15:34-16:24/50	06:20		06:32	06:01	20:14-20:19/5		05:56	
	17:35		18:12		18:42		20:15	20:44			20:59	
27	07:40	15:08-16:40/92	07:03	15:36-16:22/46	06:19		06:31	06:00	20:15-20:21/6		05:56	
	17:36		18:13		18:43		20:16	20:45			21:00	
28	07:39	15:08-16:40/92	07:02	15:39-16:20/41	06:17		06:29	05:59	20:15-20:21/6		05:56	
	17:37		18:14		18:45		20:17	20:46			21:00	
29	07:38	15:09-16:40/91			07:15		06:28	05:59	20:16-20:22/6		05:57	20:32-20:34/2
	17:38				19:46		20:18	20:46			21:00	
30	07:37	15:09-16:40/91			07:14		06:27	05:58	20:16-20:22/6		05:57	20:31-20:35/4
	17:40				19:47		20:19	20:47			21:00	
31	07:36	15:09-16:40/91			07:12			05:58	20:17-20:23/6			
	17:41				19:48			20:48				
Potential sun hours	299		298		370		398		447		450	
Sum of minutes with flicker	2926		2114		74		0		57		82	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 15 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (19)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December	
1	05:58 20:30-20:34/4 20:59	06:21 20:41	06:51 19:59	07:20 19:09	06:54 14:43-16:09/86 17:23	07:28 14:48-16:26/98 16:59	
2	05:58 20:30-20:35/5 20:59	06:22 20:40	06:52 19:57	07:21 19:07	06:55 14:42-16:09/87 17:22	07:29 14:49-16:27/98 16:59	
3	05:59 20:29-20:34/5 20:59	06:23 20:39	06:53 19:55	07:22 19:06	06:56 14:43-16:10/87 17:21	07:30 14:49-16:28/99 16:59	
4	05:59 20:29-20:34/5 20:59	06:24 20:38	06:54 19:54	07:23 19:04	06:57 14:42-16:10/88 17:19	07:31 14:51-16:28/97 16:59	
5	06:00 20:28-20:34/6 20:59	06:25 20:37	06:55 19:52	07:24 19:02	06:59 14:41-16:10/89 17:18	07:32 14:51-16:29/98 16:58	
6	06:00 20:27-20:34/7 20:59	06:26 20:35	06:56 19:51	07:26 19:01	07:00 14:41-16:10/89 17:17	07:33 14:51-16:29/98 16:58	
7	06:01 20:26-20:33/7 20:58	06:27 20:34	06:57 19:49	07:27 18:59	07:01 14:41-16:11/90 17:16	07:34 14:52-16:30/98 16:58	
8	06:02 20:26-20:33/7 20:58	06:28 20:33	06:58 19:47	07:28 18:57	07:02 14:41-16:11/90 17:15	07:35 14:53-16:30/97 16:58	
9	06:02 20:26-20:33/7 20:58	06:29 20:32	06:59 19:46	07:29 18:56	07:03 14:40-16:11/91 17:14	07:36 14:54-16:31/97 16:58	
10	06:03 20:25-20:32/7 20:57	06:30 20:30	07:00 19:44	07:30 18:54	07:04 14:40-16:11/91 17:13	07:37 14:54-16:32/98 16:58	
11	06:04 20:25-20:32/7 20:57	06:31 20:29	07:01 19:42	07:31 16:23-16:44/21 18:53	07:06 14:41-16:12/91 17:12	07:37 14:55-16:32/97 16:58	
12	06:04 20:25-20:32/7 20:56	06:32 20:28	07:02 19:41	07:32 16:18-16:48/30 18:51	07:07 14:41-16:12/91 17:11	07:38 14:56-16:33/97 16:58	
13	06:05 20:24-20:31/7 20:56	06:33 20:27	07:03 19:39	07:33 16:14-16:51/37 18:50	07:08 14:41-16:12/91 17:10	07:39 14:56-16:32/96 16:59	
14	06:06 20:24-20:31/7 20:55	06:34 20:25	07:04 19:37	07:34 16:10-16:53/43 18:48	07:09 14:40-16:12/92 17:09	07:40 14:57-16:33/96 16:59	
15	06:07 20:24-20:30/6 20:55	06:35 20:24	07:05 19:36	07:35 16:07-16:55/48 18:46	07:10 14:41-16:12/91 17:08	07:41 14:58-16:34/96 16:59	
16	06:07 20:24-20:30/6 20:54	06:36 20:23	07:06 19:34	07:36 16:05-16:56/51 18:45	07:11 14:41-16:12/91 17:07	07:41 14:58-16:34/96 16:59	
17	06:08 20:23-20:29/6 20:54	06:37 20:21	07:07 19:32	07:37 16:02-16:58/56 18:43	07:13 14:41-16:12/91 17:07	07:42 14:58-16:34/96 16:59	
18	06:09 20:23-20:28/5 20:53	06:38 20:20	07:08 19:31	07:38 16:00-16:59/59 18:42	07:14 14:41-16:12/91 17:06	07:43 14:59-16:34/95 17:00	
19	06:10 20:23-20:28/5 20:52	06:39 20:18	07:09 19:29	07:39 15:59-17:01/62 18:40	07:15 14:43-16:13/90 17:05	07:43 14:59-16:34/95 17:00	
20	06:11 20:23-20:28/5 20:52	06:40 20:17	07:10 19:27	07:40 15:57-17:02/65 18:39	07:16 14:43-16:13/90 17:05	07:44 15:00-16:35/95 17:01	
21	06:11 20:23-20:26/3 20:51	06:41 20:15	07:11 19:25	07:41 15:55-17:03/68 18:38	07:17 14:43-16:12/89 17:04	07:44 15:00-16:35/95 17:01	
22	06:12 20:23-20:26/3 20:50	06:42 20:14	07:12 19:24	07:42 15:53-17:04/71 18:36	07:18 14:43-16:12/89 17:03	07:45 15:01-16:36/95 17:02	
23	06:13 20:23-20:25/2 20:49	06:42 20:12	07:13 19:22	07:44 15:52-17:04/72 18:35	07:19 14:43-16:12/89 17:03	07:45 15:01-16:36/95 17:02	
24	06:14 20:23-20:24/1 20:49	06:43 20:11	07:13 19:20	07:45 15:50-17:05/75 18:33	07:21 14:45-16:13/88 17:02	07:46 15:02-16:37/95 17:03	
25	06:15 20:23-20:24/1 20:48	06:44 20:09	07:14 19:19	06:46 14:50-16:06/76 17:32	07:22 14:45-16:20/95 17:02	07:46 15:02-16:37/95 17:03	
26	06:16 20:47 20:46	06:45 20:08	07:15 19:17	06:47 14:48-16:07/79 17:31	07:23 14:45-16:22/97 17:01	07:47 15:02-16:38/96 17:04	
27	06:17 20:46 20:45	06:46 20:06	07:16 19:15	06:48 14:47-16:07/80 17:29	07:24 14:46-16:23/97 17:01	07:47 15:03-16:39/96 17:04	
28	06:18 20:45 20:44	06:47 20:05	07:17 19:14	06:49 14:46-16:07/81 17:28	07:25 14:46-16:24/98 17:00	07:47 15:04-16:39/95 17:05	
29	06:18 20:44 20:43	06:48 20:03	07:18 19:12	06:50 14:45-16:08/83 17:27	07:26 14:47-16:25/98 17:00	07:48 15:04-16:40/96 17:06	
30	06:19 20:43 20:42	06:49 20:02	07:19 19:10	06:52 14:45-16:09/84 17:25	07:27 14:47-16:26/99 17:00	07:48 15:04-16:40/96 17:07	
31	06:20 20:42	06:50 20:00	07:20 17:24	06:53 14:44-16:09/85 17:24	17:00	07:48 15:05-16:41/96 17:07	
	Potential sun hours Sum of minutes with flicker	457 131	427 0	375 0	346 1326	299 2736	290 2987

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
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Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
 IT-09047 SELARGIUS
 335244024

SHADOW - Calendar per WTG

WTG: 16 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (20)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

January	February	March	April	May	June	July	August	September	October	November	December
1 07:48 17:08	07:36 17:42	07:00 18:15	07:10 19:49	06:25 20:20	05:57 20:49	05:58 20:59	06:21 20:41	06:51 19:59	07:20 18:44-18:46/2	06:54 16:39-16:59/20	07:28 17:23
2 07:49 17:09	07:35 17:43	06:59 18:17	07:09 19:50	06:24 20:21	05:57 20:49	05:58 20:59	06:22 20:40	06:52 19:57	07:21 19:07	06:55 16:39-16:58/19	07:29 17:22
3 07:49 17:10	07:34 17:42-17:21/4	06:57 18:18	07:07 19:51	06:23 20:20	05:56 20:50	05:59 20:59	06:23 20:39	06:53 19:55	07:22 19:06	06:56 16:40-16:57/17	07:30 17:21
4 07:49 17:11	07:33 17:46	06:56 18:19	07:05 19:52	06:22 20:23	05:56 20:51	05:59 20:59	06:24 20:38	06:54 19:54	07:23 19:04	06:57 16:41-16:56/15	07:31 17:19
5 07:49 17:12	07:32 17:13-17:23/10	06:54 18:20	07:04 19:53	06:20 20:24	05:56 20:51	06:00 20:59	06:25 20:37	06:55 19:52	07:24 19:02	06:59 16:42-16:55/13	07:32 17:18
6 07:49 17:13	07:31 17:12-17:25/13	06:53 18:21	07:02 19:52	06:19 20:25	05:55 20:52	06:00 20:59	06:26 20:35	06:56 19:51	07:26 19:01	07:00 16:43-16:53/10	07:33 17:17
7 07:49 17:14	07:30 17:11-17:26/15	06:50 18:22	07:01 19:55	06:18 20:26	05:55 20:53	06:01 20:58	06:27 20:34	06:57 19:49	07:27 18:59	06:59 16:46-16:53/7	07:34 17:16
8 07:49 17:15	07:29 17:10-17:28/18	06:50 18:23	06:59 19:56	06:17 20:27	05:55 20:53	06:02 20:58	06:28 20:33	06:58 19:47	07:28 18:57	07:02 16:49-16:51/2	07:35 17:15
9 07:48 17:16	07:28 17:09-17:30/21	06:46 18:25	06:57 19:58	06:16 20:29	05:54 20:54	06:03 20:57	06:29 20:30	06:59 19:44	07:29 18:54	07:03 17:13	07:36 17:14
10 07:48 17:17	07:27 17:09-17:31/22	06:45 18:26	06:56 19:59	06:15 20:30	05:54 20:55	06:04 20:57	06:30 20:29	07:00 19:42	07:30 18:53	07:04 17:12	07:37 17:13
11 07:48 17:18	07:26 17:09-17:33/24	06:43 18:27	06:54 19:58	06:14 20:31	05:54 20:55	06:04 20:57	06:31 20:29	07:01 19:42	07:31 18:53	07:06 17:12	07:38 17:12
12 07:48 17:19	07:25 17:09-17:34/25	06:42 18:28	06:53 19:59	06:13 20:32	05:54 20:56	06:05 20:56	06:32 20:27	07:02 19:41	07:32 18:51	07:07 17:11	07:39 17:10
13 07:47 17:20	07:24 17:09-17:33/24	06:40 18:03-18:08/5	06:51 19:58	06:12 20:33	05:54 20:56	06:06 20:56	06:33 20:27	07:03 19:39	07:33 18:50	07:08 17:10	07:40 17:09
14 07:47 17:21	07:23 17:09-17:33/24	06:40 18:03-18:08/5	06:50 19:59	06:11 20:34	05:54 20:56	06:06 20:56	06:34 20:27	07:04 19:38	07:34 18:49	07:09 17:08	07:41 17:08
15 07:47 17:22	07:22 17:10-17:33/23	06:39 18:03-18:10/7	06:48 19:59	06:10 20:35	05:54 20:57	06:07 20:56	06:35 20:24	07:05 19:36	07:35 18:46	07:10 17:07	07:42 17:07
16 07:46 17:23	07:19 17:10-17:33/23	06:37 18:02-18:11/9	06:47 19:59	06:09 20:36	05:54 20:57	06:07 20:56	06:36 20:24	07:06 19:36	07:36 18:46	07:11 17:06	07:43 17:06
17 07:46 17:24	07:17 17:11-17:32/21	06:35 18:02-18:12/10	06:45 19:59	06:08 20:37	05:54 20:57	06:08 20:56	06:37 20:23	07:07 19:34	07:37 18:45	07:12 17:05	07:44 17:05
18 07:46 17:25	07:16 17:11-17:32/21	06:33 18:02-18:13/10	06:44 19:59	06:07 20:38	05:54 20:57	06:09 20:56	06:38 20:23	07:08 19:34	07:38 18:45	07:13 17:04	07:45 17:04
19 07:45 17:26	07:15 17:14-17:30/16	06:32 18:03-18:14/11	06:42 19:59	06:06 20:39	05:54 20:57	06:10 20:56	06:39 20:23	07:09 19:34	07:39 18:45	07:14 17:03	07:46 17:03
20 07:45 17:27	07:13 17:15-17:27/12	06:30 18:04-18:15/11	06:41 19:59	06:05 20:40	05:54 20:57	06:10 20:56	06:40 20:23	07:10 19:34	07:40 18:46	07:15 17:02	07:47 17:02
21 07:44 17:28	07:12 17:20-17:22/2	06:28 18:06-18:15/9	06:39 19:59	06:04 20:41	05:54 20:57	06:11 20:56	06:41 20:23	07:11 19:34	07:41 17:49-17:55/6	07:16 17:01	07:48 17:01
22 07:43 17:29	18:06	18:37	20:09	20:39	20:59	20:51	20:15	19:25	18:38	17:04	17:00
23 07:43 17:30	18:07	18:38	20:10	20:40	20:59	20:50	20:14	19:24	18:36	17:05	17:00
24 07:42 17:31	18:09	18:39	20:11	20:41	20:59	20:49	20:12	19:22	18:35	17:06	17:00
25 07:41 17:32	18:10	18:40	20:12	20:42	20:59	20:49	20:11	19:20	18:33	17:07	17:00
26 07:41 17:33	18:11	18:41	20:13	20:43	20:59	20:48	20:10	19:19	18:32	17:08	17:00
27 07:40 17:34	18:12	18:42	20:14	20:44	20:59	20:48	20:09	19:19	18:31	17:09	17:00
28 07:40 17:35	18:13	18:43	20:15	20:45	20:59	20:47	20:08	19:18	18:30	17:10	17:00
29 07:38 17:36	18:14	18:44	20:16	20:46	20:59	20:46	20:07	19:17	18:29	17:11	17:00
30 07:37 17:37	18:15	18:45	20:17	20:47	20:59	20:45	20:06	19:16	18:28	17:12	17:00
31 07:36 17:41	18:16	18:46	20:18	20:48	20:59	20:44	20:05	19:15	18:27	17:13	17:00
Potential sun hours	299	370	398	447	450	457	375	220	299	103	290
Sum of minutes with flicker	0	318	78	0	0	0	0	78	220	103	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 17 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (21)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	
1	07:48 15:59-16:20/21 17:08 07:49 16:00-16:20/20 17:09	07:36 17:42 07:35 17:43	07:00 17:35-17:52/17 18:15	07:10 07:29-08:53/84 19:49	06:25 07:00-08:55/115 20:20	05:57 07:09-08:42/93 20:49	
2	07:49 16:01-16:20/19 17:10	07:34 17:44	06:59 17:38-17:51/13 18:17	07:09 07:27-08:54/87 19:50	06:24 07:00-08:55/115 20:21	05:57 07:10-08:42/92 20:49	
3	07:49 16:02-16:20/18 17:11	07:33 17:46	06:57 17:41-17:46/5 18:18	07:07 07:25-08:54/89 19:51	06:23 07:00-08:55/115 20:22	05:56 07:11-08:42/91 20:50	
4	07:49 16:03-16:20/17 17:12	07:32 17:47	06:56 18:19	07:05 07:24-08:55/91 19:52	06:22 07:00-08:55/115 20:23	05:56 07:11-08:41/90 20:51	
5	07:49 16:03-16:19/16 17:13	07:31 17:48	06:54 18:20	07:04 07:22-08:56/94 19:53	06:20 07:01-08:54/113 20:24	05:56 07:12-08:41/89 20:51	
6	07:49 16:05-16:18/13 17:14	07:29 17:49	06:53 18:21	07:02 07:21-08:57/96 19:54	06:19 07:01-08:54/113 20:25	05:55 07:12-08:42/90 20:52	
7	07:49 16:07-16:18/11 17:15	07:28 17:51	06:51 18:22	07:01 07:19-08:57/98 19:55	06:18 07:00-08:53/113 20:26	05:55 07:13-08:42/89 20:53	
8	07:48 16:10-16:16/6 17:16	07:27 17:52	06:49 18:23	06:59 07:17-08:57/100 19:56	06:17 07:00-08:52/112 20:27	05:55 07:13-08:41/88 20:53	
9	07:48 17:17	07:26 17:53	06:48 18:24	06:57 07:16-08:58/102 19:57	06:16 07:00-08:52/112 20:28	05:54 07:13-08:41/88 20:54	
10	07:48 17:18	07:25 17:54	06:46 18:25	06:56 07:14-08:58/104 19:58	06:15 07:01-08:52/111 20:29	05:54 07:14-08:41/87 20:54	
11	07:48 17:19	07:24 17:55	06:45 18:26	06:54 07:13-08:59/106 19:59	06:14 07:01-08:51/110 20:30	05:54 07:14-08:41/87 20:55	
12	07:48 17:20	07:23 17:56	06:43 18:27	06:53 07:11-08:59/108 19:59	06:12 07:01-08:51/110 20:31	05:54 07:15-08:41/86 20:55	
13	07:47 17:21	07:22 17:57	06:42 18:28	06:51 07:10-08:59/109 20:01	06:11 07:01-08:50/109 20:32	05:54 07:15-08:41/86 20:56	
14	07:47 17:22	07:21 17:58	06:40 18:30	06:50 07:08-08:59/111 20:02	06:10 07:01-08:49/108 20:33	05:54 07:16-08:41/85 20:56	
15	07:47 17:23	07:20 17:59	06:38 18:31	06:48 07:07-09:00/113 20:03	06:09 07:02-08:49/107 20:34	05:54 07:16-08:41/85 20:57	
16	07:46 17:24	07:19 18:00	06:37 18:32	06:47 07:06-08:59/113 20:04	06:08 07:03-08:49/106 20:35	05:54 07:16-08:41/85 20:57	
17	07:46 17:25	07:17 17:37-17:39/2 18:01	06:35 18:33	06:45 07:06-09:00/114 20:05	06:08 07:03-08:49/106 20:36	05:54 07:17-08:41/84 20:58	
18	07:46 17:26	07:16 17:36-17:40/4 18:03	06:33 18:34	06:44 07:05-08:59/114 20:06	06:07 07:03-08:48/105 20:37	05:54 07:17-08:41/84 20:58	
19	07:45 17:27	07:15 17:35-17:42/7 18:04	06:32 18:35	06:42 07:04-08:59/115 20:07	06:06 07:03-08:47/104 20:38	05:54 07:17-08:41/84 20:58	
20	07:45 17:28	07:13 17:33-17:43/10 18:05	06:30 06:59-07:25/26 18:36	06:41 07:03-08:59/116 20:08	06:05 07:04-08:47/103 20:39	05:54 07:17-08:41/84 20:58	
21	07:44 17:29	07:12 17:33-17:44/11 18:06	06:28 06:53-07:30/37 18:37	06:39 07:03-08:59/116 20:09	06:04 07:05-08:47/102 20:39	05:54 07:18-08:42/84 20:59	
22	07:43 17:30	07:11 17:32-17:45/13 18:07	06:27 06:48-07:34/46 18:38	06:38 07:02-08:58/116 20:10	06:03 07:05-08:46/101 20:40	05:55 07:18-08:42/84 20:59	
23	07:43 17:31	07:09 17:33-17:47/14 18:09	06:25 06:45-07:37/52 18:39	06:36 07:02-08:58/116 20:11	06:03 07:05-08:46/101 20:41	05:55 07:18-08:42/84 20:59	
24	07:42 17:32	07:08 17:33-17:48/15 18:10	06:23 06:42-07:40/58 18:40	06:35 07:02-08:59/117 20:12	06:02 07:06-08:46/100 20:42	05:55 07:18-08:42/84 20:59	
25	07:41 17:33	07:06 17:33-17:49/16 18:11	06:22 06:40-07:42/62 18:41	06:33 07:01-08:58/117 20:14	06:01 07:06-08:45/99 20:43	05:55 07:19-08:43/84 20:59	
26	07:41 17:34	07:05 17:33-17:51/18 18:12	06:20 06:39-07:45/66 18:42	06:32 07:01-08:58/117 20:15	06:00 07:06-08:44/98 20:44	05:56 07:18-08:43/85 20:59	
27	07:40 17:35	07:03 17:33-17:52/19 18:13	06:19 06:37-07:46/69 18:43	06:31 07:01-08:58/117 20:16	06:00 07:07-08:44/97 20:45	05:56 07:18-08:43/85 21:00	
28	07:39 17:36	07:02 17:35-17:53/18 18:14	06:17 06:35-07:47/72 18:44	06:29 07:00-08:57/117 20:17	05:59 07:07-08:44/97 20:45	05:56 07:19-08:44/85 21:00	
29	07:38 17:37		07:15 07:34-08:49/75 19:46	06:28 07:01-08:57/116 20:18	05:59 07:08-08:44/96 20:46	05:57 07:18-08:44/86 21:00	
30	07:37 17:40		07:14 07:32-08:50/78 19:47	06:27 07:01-08:56/115 20:19	05:58 07:08-08:43/95 20:47	05:57 07:19-08:45/86 21:00	
31	07:36 17:41		07:12 07:30-08:51/81 19:48		05:58 07:09-08:43/94 20:48		
	Potential sun hours Sum of minutes with flicker	299 141	298 147	370 757	398 3228	447 3282	450 2594

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar per WTG

WTG: 17 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (21)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	05:58 07:19-08:45/86 20:59	06:21 07:12-09:01/109 20:41	06:51 07:12-08:58/106 19:59	07:20 19:09	06:54 17:23	07:28 16:59
2	05:58 07:19-08:46/87 20:59	06:22 07:11-09:02/111 20:40	06:52 07:13-08:57/104 19:57	07:21 19:07	06:55 17:22	07:29 16:59
3	05:59 07:18-08:46/88 20:59	06:23 07:11-09:02/111 20:39	06:53 07:14-08:56/102 19:55	07:22 19:05	06:56 17:21	07:30 15:53-15:59/6 16:59
4	05:59 07:19-08:47/88 20:59	06:24 07:11-09:03/112 20:38	06:54 07:15-08:55/100 19:54	07:23 19:04	06:57 17:19	07:31 15:51-16:01/10 16:58
5	06:00 07:18-08:47/89 20:59	06:25 07:11-09:03/112 20:36	06:55 07:16-08:54/98 19:52	07:24 19:02	06:58 17:18	07:32 15:50-16:03/13 16:58
6	06:00 07:19-08:48/89 20:59	06:26 07:11-09:04/113 20:35	06:56 07:16-08:52/96 19:50	07:25 19:01	07:00 17:17	07:33 15:50-16:05/15 16:58
7	06:01 07:18-08:48/90 20:58	06:27 07:10-09:04/114 20:34	06:57 07:17-08:51/94 19:49	07:27 18:59	07:01 17:16	07:34 15:49-16:06/17 16:58
8	06:02 07:18-08:48/90 20:58	06:28 07:09-09:03/114 20:33	06:58 07:18-08:50/92 19:47	07:28 18:57	07:02 17:15	07:35 15:49-16:07/18 16:58
9	06:02 07:18-08:49/91 20:58	06:29 07:09-09:03/114 20:32	06:59 07:19-08:48/89 19:46	07:29 18:56	07:03 17:14	07:36 15:49-16:08/19 16:58
10	06:03 07:17-08:49/92 20:57	06:30 07:09-09:04/115 20:30	07:00 07:20-08:47/87 19:44	07:30 18:54	07:04 17:13	07:37 15:49-16:09/20 16:58
11	06:04 07:18-08:50/92 20:57	06:31 07:09-09:04/115 20:29	07:01 07:21-08:45/84 19:42	07:31 18:13-18:23/10 18:53	07:06 17:12	07:37 15:49-16:10/21 16:58
12	06:04 07:18-08:51/93 20:56	06:32 07:09-09:04/115 20:28	07:02 07:22-08:44/82 19:41	07:32 18:10-18:25/15 18:51	07:07 17:11	07:38 15:49-16:11/22 16:58
13	06:05 07:17-08:51/94 20:56	06:33 07:08-09:04/116 20:27	07:03 07:23-08:42/79 19:39	07:33 18:08-18:26/18 18:50	07:08 17:10	07:39 15:49-16:11/22 16:58
14	06:06 07:17-08:52/95 20:55	06:34 07:08-09:04/116 20:25	07:04 07:24-08:40/76 19:37	07:34 18:07-18:25/18 18:48	07:09 17:09	07:40 15:49-16:12/23 16:59
15	06:06 07:17-08:53/96 20:55	06:35 07:08-09:04/116 20:24	07:05 07:25-08:38/73 19:36	07:35 18:06-18:23/17 18:46	07:10 17:08	07:41 15:50-16:13/23 16:59
16	06:07 07:17-08:53/96 20:54	06:36 07:08-09:04/116 20:23	07:06 07:26-08:36/70 19:34	07:36 18:05-18:22/17 18:45	07:11 17:08	07:41 15:50-16:14/24 16:59
17	06:08 07:16-08:53/97 20:54	06:37 07:08-09:04/116 20:21	07:07 07:27-08:33/66 19:32	07:37 18:04-18:20/16 18:43	07:13 17:07	07:42 15:50-16:14/24 16:59
18	06:09 07:16-08:54/98 20:53	06:38 07:08-09:04/116 20:20	07:08 07:28-08:31/63 19:31	07:38 18:03-18:19/16 18:42	07:14 17:06	07:43 15:51-16:15/24 17:00
19	06:10 07:16-08:55/99 20:52	06:39 07:08-09:04/116 20:18	07:09 07:29-08:28/59 19:29	07:39 18:04-18:18/14 18:40	07:15 17:05	07:43 15:50-16:15/25 17:00
20	06:10 07:16-08:56/100 20:52	06:40 07:08-09:04/116 20:17	07:10 07:30-08:25/55 19:27	07:40 18:04-18:16/12 18:39	07:16 17:05	07:44 15:51-16:16/25 17:01
21	06:11 07:15-08:55/100 20:51	06:41 07:08-09:04/116 20:15	07:11 07:32-08:20/48 19:25	07:41 18:04-18:15/11 18:38	07:17 17:04	07:44 15:51-16:16/25 17:01
22	06:12 07:14-08:56/102 20:50	06:41 07:08-09:04/116 20:14	07:12 07:36-08:16/40 19:24	07:43 18:04-18:13/9 18:36	07:18 17:03	07:45 15:52-16:17/25 17:01
23	06:13 07:14-08:57/103 20:49	06:42 07:07-09:03/116 20:12	07:12 07:41-08:10/29 19:22	07:44 18:05-18:11/6 18:35	07:19 17:03	07:45 15:52-16:17/25 17:02
24	06:14 07:14-08:58/104 20:48	06:43 07:07-09:02/115 20:11	07:13 07:49-08:01/12 19:20	07:45 18:05-18:10/5 18:33	07:21 17:02	07:46 15:53-16:18/25 17:03
25	06:15 07:14-08:58/104 20:48	06:44 07:07-09:02/115 20:09	07:14 19:19	06:46 17:08-17:09/1 17:32	07:22 17:02	07:46 15:54-16:18/24 17:03
26	06:16 07:14-08:59/105 20:47	06:45 07:08-09:01/113 20:08	07:15 19:17	06:47 17:31	07:23 17:01	07:47 15:54-16:18/24 17:04
27	06:17 07:14-09:00/106 20:46	06:46 07:08-09:01/113 20:06	07:16 19:15	06:48 17:29	07:24 17:01	07:47 15:55-16:19/24 17:04
28	06:17 07:12-08:59/107 20:45	06:47 07:08-09:00/112 20:05	07:17 19:14	06:49 17:28	07:25 17:00	07:47 15:55-16:19/24 17:05
29	06:18 07:12-09:00/108 20:44	06:48 07:09-09:00/111 20:03	07:18 19:12	06:50 17:27	07:26 17:00	07:48 15:56-16:19/23 17:06
30	06:19 07:12-09:00/108 20:43	06:49 07:10-08:59/109 20:02	07:19 19:10	06:52 17:25	07:27 16:59	07:48 15:56-16:19/23 17:07
31	06:20 07:12-09:01/109 20:42	06:50 07:11-08:59/108 20:00		06:53 17:24		07:48 15:57-16:19/22 17:07
Potential sun hours	457	427	375	346	299	290
Sum of minutes with flicker	3006	3527	1804	185	0	615

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

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SHADOW - Calendar per WTG

WTG: 18 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (22)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:48	07:36 16:36-17:15/39	07:00	07:10 19:06-19:28/22	06:25	05:57
	17:08	17:42	18:15	19:49	20:20	20:49
2	07:49	07:35 16:36-17:16/40	06:59	07:09 19:06-19:28/22	06:24	05:57
	17:09	17:43	18:17	19:50	20:21	20:49
3	07:49	07:34 16:35-17:17/42	06:57	07:07 19:06-19:29/23	06:23	05:56
	17:10	17:44	18:18	19:51	20:22	20:50
4	07:49	07:33 16:35-17:17/42	06:56	07:05 19:08-19:29/21	06:22	05:56
	17:11	17:46	18:19	19:52	20:23	20:51
5	07:49	07:32 16:35-17:18/43	06:54	07:04 19:08-19:27/19	06:20	05:56
	17:12	17:47	18:20	19:53	20:24	20:51
6	07:49	07:31 16:35-17:18/43	06:53	07:02 19:11-19:25/14	06:19	05:55
	17:13	17:48	18:21	19:54	20:25	20:52
7	07:49	07:29 16:35-17:19/44	06:51	07:01 19:14-19:21/7	06:18	05:55
	17:14	17:49	18:22	19:55	20:26	20:53
8	07:49	07:28 16:35-17:19/44	06:49	06:59	06:17	05:55
	17:15	17:51	18:23	19:56	20:27	20:53
9	07:48	07:27 16:35-17:19/44	06:48	06:57	06:16	05:54
	17:16	17:52	18:24	19:57	20:28	20:54
10	07:48	07:26 16:35-17:19/44	06:46	06:56	06:15	05:54
	17:17	17:53	18:25	19:58	20:29	20:54
11	07:48	07:25 16:35-17:19/44	06:45	06:54	06:13	05:54
	17:18	17:54	18:26	19:59	20:30	20:55
12	07:48	07:24 16:36-17:19/43	06:43	06:53	06:12	05:54
	17:19	17:55	18:28	20:00	20:31	20:55
13	07:47	07:22 16:36-17:19/43	06:41	06:51	06:11	05:54
	17:20	17:57	18:29	20:01	20:32	20:56
14	07:47	07:21 16:36-17:18/42	06:40	06:50	06:10	05:54
	17:21	17:58	18:30	20:02	20:33	20:56
15	07:47	07:20 16:37-17:18/41	06:38	06:48	06:09	05:54
	17:22	17:59	18:31	20:03	20:34	20:57
16	07:46	07:19 16:38-17:17/39	06:37	06:47	06:08	05:54
	17:23	18:00	18:32	20:04	20:35	20:57
17	07:46	07:17 16:38-17:16/38	06:35	06:45	06:08	05:54
	17:24	18:01	18:33	20:05	20:36	20:58
18	07:46	07:16 16:39-17:15/36	06:33	06:44	06:07	05:54
	17:25	18:03	18:34	20:06	20:37	20:58
19	07:45	07:15 16:41-17:14/33	06:32	06:42	06:06	05:54
	17:26	18:04	18:35	20:07	20:38	20:58
20	07:45	07:13 16:42-17:12/30	06:30	06:41	06:05	05:54
	17:28	18:05	18:36	20:08	20:39	20:58
21	07:44 16:50-16:56/6	07:12 16:44-17:11/27	06:28 18:15-18:16/1	06:39	06:04	05:54
	17:29	18:06	18:37	20:09	20:39	20:59
22	07:43 16:47-17:01/14	07:11 16:46-17:10/24	06:27 18:13-18:17/4	06:38	06:03	05:55
	17:30	18:07	18:38	20:10	20:40	20:59
23	07:43 16:44-17:03/19	07:09 16:48-17:06/18	06:25 18:10-18:18/8	06:36	06:03	05:55
	17:31	18:09	18:39	20:11	20:41	20:59
24	07:42 16:43-17:05/22	07:08 16:53-17:03/10	06:23 18:10-18:20/10	06:35	06:02	05:55
	17:32	18:10	18:40	20:12	20:42	20:59
25	07:41 16:42-17:08/26	07:06	06:22 18:08-18:20/12	06:33	06:01	05:55
	17:34	18:11	18:41	20:14	20:43	20:59
26	07:41 16:41-17:09/28	07:05	06:20 18:08-18:22/14	06:32	06:00	05:56
	17:35	18:12	18:42	20:15	20:44	20:59
27	07:40 16:40-17:10/30	07:03	06:19 18:07-18:23/16	06:31	06:00	05:56
	17:36	18:13	18:43	20:16	20:45	21:00
28	07:39 16:39-17:12/33	07:02	06:17 18:06-18:23/17	06:29	05:59	05:56
	17:37	18:14	18:44	20:17	20:45	21:00
29	07:38 16:38-17:13/35		07:15 19:06-19:25/19	06:28	05:59	05:57
	17:38		19:46	20:18	20:46	21:00
30	07:37 16:37-17:14/37		07:14 19:05-19:26/21	06:27	05:58	05:57
	17:40		19:47	20:19	20:47	21:00
31	07:36 16:37-17:15/38		07:12 19:05-19:26/21		05:58	
	17:41		19:48		20:48	
Potential sun hours	299	298	370	398	447	450
Sum of minutes with flicker	288	893	143	128	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project: MORES_shadows Description: Sa Costa Shadow Flickering

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335244024

SHADOW - Calendar per WTG

WTG: 18 - VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (22)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December			
1	05:58	06:21	06:51	07:20	06:54	16:05-16:48/43	07:28		
	20:59	20:41	19:59	19:09	17:23		16:59		
2	05:58	06:22	06:52	07:21	06:55	16:04-16:48/44	07:29		
	20:59	20:40	19:57	19:07	17:22		16:59		
3	05:59	06:23	06:53	07:22	06:56	16:05-16:49/44	07:30		
	20:59	20:39	19:55	19:05	17:21		16:59		
4	05:59	06:24	06:54	07:23	06:57	16:05-16:49/44	07:31		
	20:59	20:38	19:54	19:04	17:19		16:58		
5	06:00	06:25	06:55	19:10-19:17/7	07:24	06:58	16:05-16:48/43	07:32	
	20:59	20:36	19:52	19:02	17:18		16:58		
6	06:00	06:26	06:56	19:06-19:20/14	07:25	07:00	16:05-16:48/43	07:33	
	20:59	20:35	19:50	19:01	17:17		16:58		
7	06:01	06:27	06:57	19:04-19:22/18	07:27	07:01	16:06-16:48/42	07:34	
	20:58	20:34	19:49	18:59	17:16		16:58		
8	06:02	06:28	06:58	19:02-19:23/21	07:28	07:02	16:06-16:48/42	07:35	
	20:58	20:33	19:47	18:57	17:15		16:58		
9	06:02	06:29	06:59	19:00-19:23/23	07:29	07:03	16:07-16:47/40	07:36	
	20:58	20:32	19:46	18:56	17:14		16:58		
10	06:03	06:30	07:00	18:59-19:22/23	07:30	07:04	16:07-16:46/39	07:37	
	20:57	20:30	19:44	18:54	17:13		16:58		
11	06:04	06:31	07:01	18:58-19:20/22	07:31	07:06	16:09-16:46/37	07:37	
	20:57	20:29	19:42	18:53	17:12		16:58		
12	06:04	06:32	07:02	18:57-19:19/22	07:32	07:07	16:09-16:46/37	07:38	
	20:56	20:28	19:41	18:51	17:11		16:58		
13	06:05	06:33	07:03	18:57-19:17/20	07:33	07:08	16:10-16:45/35	07:39	
	20:56	20:27	19:39	18:49	17:10		16:58		
14	06:06	06:34	07:04	18:56-19:15/19	07:34	07:09	16:11-16:44/33	07:40	
	20:55	20:25	19:37	18:48	17:09		16:59		
15	06:06	06:35	07:05	18:56-19:14/18	07:35	07:10	16:13-16:43/30	07:41	
	20:55	20:24	19:36	18:46	17:08		16:59		
16	06:07	06:36	07:06	18:56-19:12/16	07:36	07:11	16:14-16:42/28	07:41	
	20:54	20:23	19:34	18:45	17:07		16:59		
17	06:08	06:37	07:07	18:56-19:10/14	07:37	07:13	16:15-16:41/26	07:42	
	20:54	20:21	19:32	18:43	17:07		16:59		
18	06:09	06:38	07:08	18:56-19:09/13	07:38	17:21-17:35/14	07:14	16:17-16:39/22	07:43
	20:53	20:20	19:31	18:42	17:06		17:00		
19	06:10	06:39	07:09	18:56-19:06/10	07:39	17:19-17:39/20	07:15	16:19-16:38/19	07:43
	20:52	20:18	19:29	18:40	17:05		17:00		
20	06:10	06:40	07:10	18:56-19:05/9	07:40	17:16-17:41/25	07:16	16:22-16:36/14	07:44
	20:52	20:17	19:27	18:39	17:05		17:01		
21	06:11	06:41	07:11	18:57-19:03/6	07:41	17:14-17:42/28	07:17	16:26-16:32/6	07:44
	20:51	20:15	19:25	18:38	17:04		17:01		
22	06:12	06:41	07:12	18:59-19:01/2	07:42	17:12-17:43/31	07:18		07:45
	20:50	20:14	19:24	18:36	17:03		17:01		
23	06:13	06:42	07:12	07:44	17:10-17:44/34	07:19		07:45	
	20:49	20:12	19:22	18:35	17:03		17:02		
24	06:14	06:43	07:13	07:45	17:09-17:45/36	07:21		07:46	
	20:48	20:11	19:20	18:33	17:02		17:03		
25	06:15	06:44	07:14	06:46	16:09-16:47/38	07:22		07:46	
	20:48	20:09	19:19	17:32	17:02		17:03		
26	06:16	06:45	07:15	06:47	16:08-16:47/39	07:23		07:47	
	20:47	20:08	19:17	17:31	17:01		17:04		
27	06:17	06:46	07:16	06:48	16:07-16:47/40	07:24		07:47	
	20:46	20:06	19:15	17:29	17:01		17:04		
28	06:17	06:47	07:17	06:49	16:06-16:48/42	07:25		07:47	
	20:45	20:05	19:14	17:28	17:00		17:05		
29	06:18	06:48	07:18	06:50	16:05-16:48/43	07:26		07:48	
	20:44	20:03	19:12	17:27	17:00		17:06		
30	06:19	06:49	07:19	06:52	16:05-16:49/44	07:27		07:48	
	20:43	20:02	19:10	17:25	16:59		17:06		
31	06:20	06:50		06:53	16:05-16:49/44		07:48		
	20:42	20:00		17:24			17:07		
Potential sun hours	457	427	375	346	299	711	290	0	
Sum of minutes with flicker	0	0	277	478	711	0	0	0	

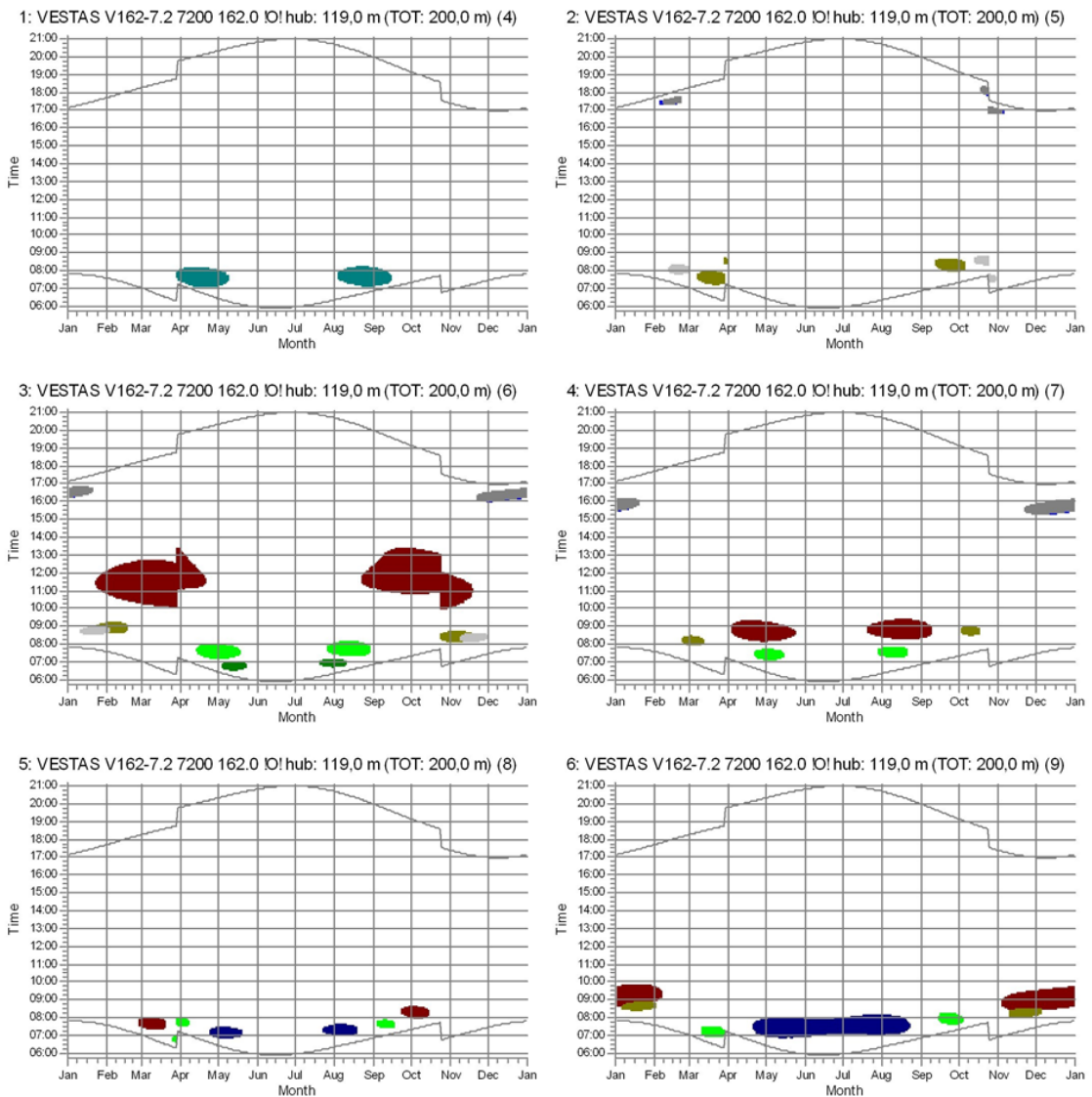
Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker










Project: MORES_shadows Description: Sa Costa Shadow Flickering

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SHADOW - Calendar per WTG, graphical



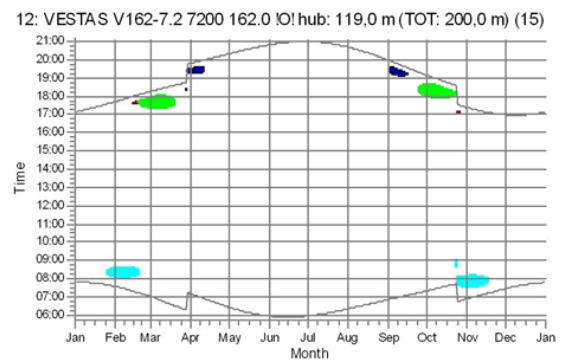
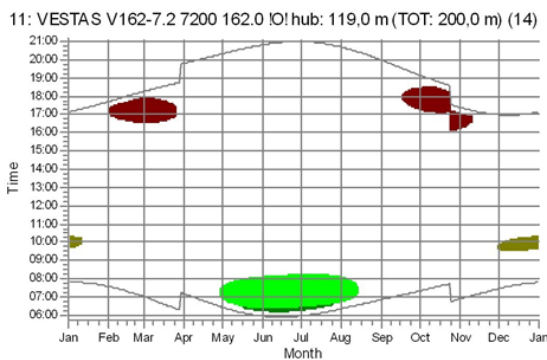
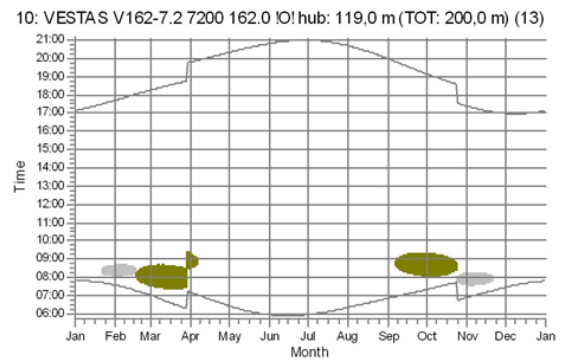
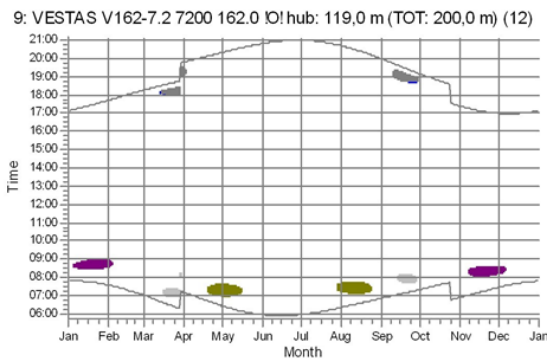
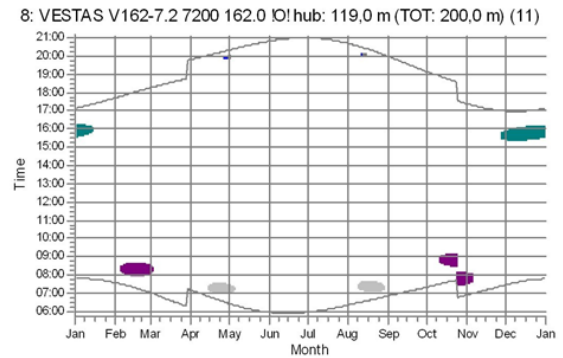
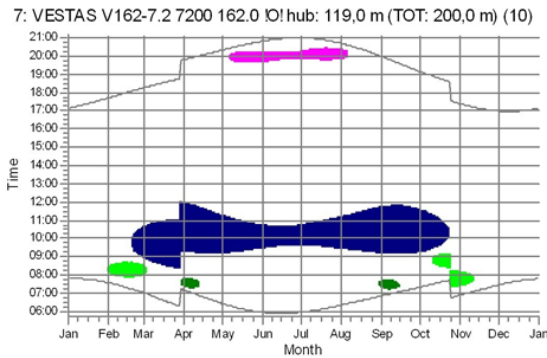
Shadow receptors

	A: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)		H: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)
	C: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)		I: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)
	D: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)		J: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)
	F: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)		L: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)
	G: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)		













Project: MORES_shadows
Description: Sa Costa Shadow Flickering

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SHADOW - Calendar per WTG, graphical



Shadow receptors

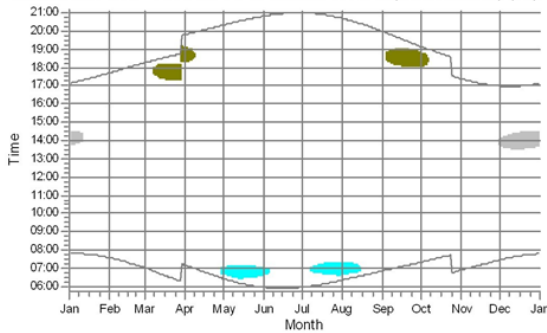
	A: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)		H: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)
	C: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)		I: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)
	D: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)		J: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)
	E: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)		K: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)
	F: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)		L: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)
	G: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)		M: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Project: MORES_shadows Description: Sa Costa Shadow Flickering

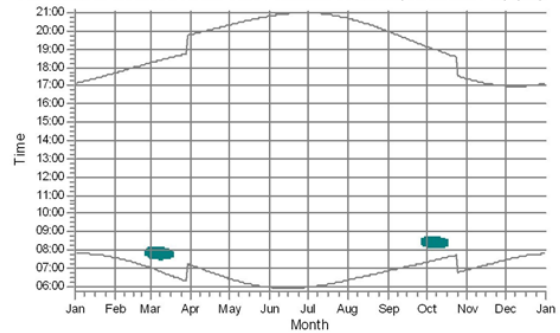
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SHADOW - Calendar per WTG, graphical

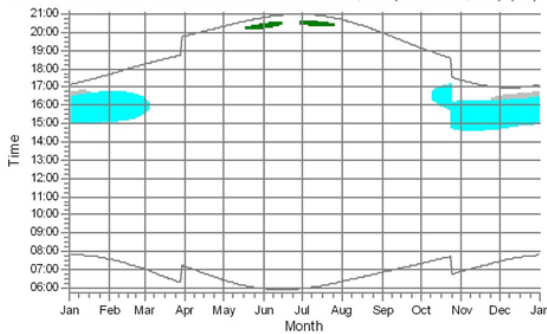
13: VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (16)



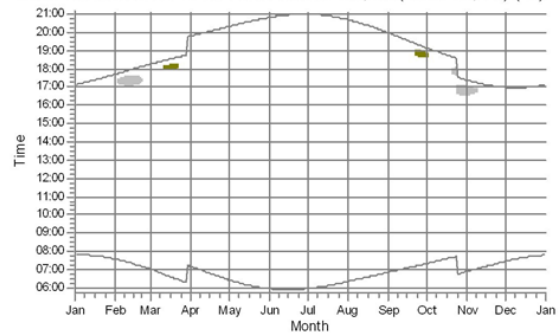
14: VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (18)



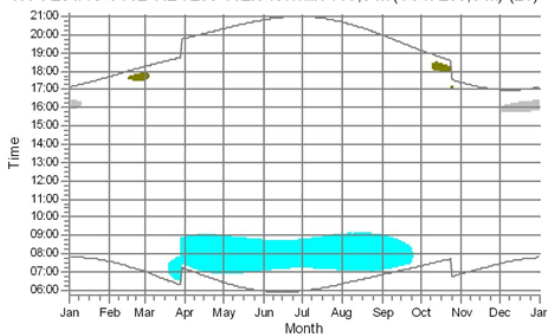
15: VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (19)



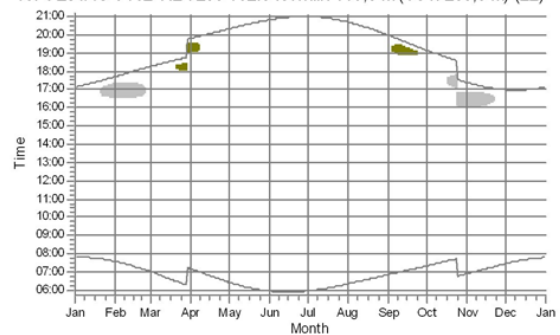
16: VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (20)








17: VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (21)



18: VESTAS V162-7.2 7200 162.0 !O! hub: 119,0 m (TOT: 200,0 m) (22)



Shadow receptors

	A: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)		L: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)
	F: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)		M: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)
	J: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)		

Project: MORES_shadows Description: Sa Costa Shadow Flickering

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SHADOW - Calendar

Shadow receptor: A - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June			
1	07:48	07:35	07:00	07:10	07:29 (7)	06:25	05:57	06:18 (11)	
	17:08	17:42	18:15	19:49	14 07:43 (7)	20:20	20:49	25 20:24 (15)	
2	07:48	07:35	06:59	07:09	07:27 (7)	06:24	05:57	06:18 (11)	
	17:09	17:43	18:17	19:50	17 07:44 (7)	20:21	20:49	26 20:25 (15)	
3	07:49	07:34	06:57	07:07	07:25 (7)	06:23	05:56	06:18 (11)	
	17:10	17:44	18:18	19:51	18 07:43 (7)	20:22	20:50	26 20:26 (15)	
4	07:49	07:33	06:56	07:05	07:24 (7)	06:22	06:43 (3)	05:56	06:17 (11)
	17:11	17:46	18:19	19:52	20 07:44 (7)	20:23	06:51 (3)	20:51	27 20:26 (15)
5	07:49	07:32	06:54	07:04	07:22 (7)	06:20	06:41 (3)	05:56	06:17 (11)
	17:12	17:47	18:20	19:53	21 07:43 (7)	20:24	06:53 (3)	20:51	27 20:27 (15)
6	07:49	07:30	06:53	07:02	07:23 (7)	06:19	06:40 (3)	05:55	06:17 (11)
	17:13	17:48	18:21	19:54	21 07:44 (7)	20:25	06:54 (3)	20:52	27 20:27 (15)
7	07:49	07:29	06:51	07:01	07:22 (7)	06:18	06:38 (3)	05:55	06:16 (11)
	17:14	17:49	18:22	19:55	21 07:43 (7)	20:26	06:54 (3)	20:53	27 20:27 (15)
8	07:48	07:28	06:49	06:59	07:22 (7)	06:17	06:37 (3)	05:55	06:16 (11)
	17:15	17:51	18:23	19:56	19 07:41 (7)	20:27	06:55 (3)	20:53	27 20:28 (15)
9	07:48	07:27	06:48	06:57	07:23 (7)	06:16	06:37 (3)	05:54	06:16 (11)
	17:16	17:52	18:24	19:57	18 07:41 (7)	20:28	06:55 (3)	20:54	28 20:29 (15)
10	07:48	07:26	06:46	06:56	07:24 (7)	06:15	06:36 (3)	05:54	06:16 (11)
	17:17	17:53	18:25	19:58	15 07:39 (7)	20:29	06:56 (3)	20:54	27 20:29 (15)
11	07:48	07:25	06:45	06:54	07:26 (7)	06:13	06:36 (3)	05:54	06:16 (11)
	17:18	17:54	18:26	19:59	11 07:37 (7)	20:30	06:56 (3)	20:55	27 20:30 (15)
12	07:48	07:24	06:43	06:53	07:29 (7)	06:12	06:36 (3)	05:54	06:16 (11)
	17:19	17:55	18:28	20:00	3 07:32 (7)	20:31	06:56 (3)	20:55	25 20:30 (15)
13	07:47	07:22	06:41	06:51	06:11	06:11	06:36 (3)	05:54	06:16 (11)
	17:20	17:57	18:29	20:01	20:32	20 06:56 (3)	20:56	25 20:31 (15)	
14	07:47	07:21	06:40	06:50	06:10	06:10	06:36 (3)	05:54	06:16 (11)
	17:21	17:58	18:30	20:02	20:33	20 06:56 (3)	20:56	24 20:31 (15)	
15	07:47	07:20	06:38	06:48	06:09	06:09	06:36 (3)	05:54	06:16 (11)
	17:22	17:59	18:31	20:03	20:34	19 06:55 (3)	20:57	23 06:39 (11)	
16	07:46	07:19	06:37	06:47	06:08	06:08	06:37 (3)	05:54	06:16 (11)
	17:23	18:00	18:32	20:04	20:35	19 06:56 (3)	20:57	23 06:39 (11)	
17	07:46	07:17	06:35	06:45	06:08	06:08	06:38 (3)	05:54	06:16 (11)
	17:24	18:01	18:33	20:05	20:36	17 06:55 (3)	20:58	23 06:39 (11)	
18	07:45	07:16	06:33	06:44	06:07	06:07	06:22 (11)	05:54	06:16 (11)
	17:25	18:03	18:34	20:06	20:37	17 06:54 (3)	20:58	23 06:39 (11)	
19	07:45	07:15	06:32	06:42	06:06	06:06	06:26 (11)	05:54	06:16 (11)
	17:26	18:04	18:35	20:07	20:38	18 20:14 (15)	20:58	23 06:39 (11)	
20	07:44	07:13	06:30	06:41	06:05	06:05	06:25 (11)	05:54	06:16 (11)
	17:28	18:05	18:36	20:08	20:38	19 20:14 (15)	20:58	23 06:39 (11)	
21	07:44	07:12	06:28	06:39	06:04	06:04	06:25 (11)	05:54	06:17 (11)
	17:29	18:06	18:37	20:09	20:39	20 20:16 (15)	20:59	23 06:40 (11)	
22	07:43	07:10	06:27	06:38	06:03	06:03	06:24 (11)	05:55	06:17 (11)
	17:30	18:07	18:38	20:10	20:40	18 20:16 (15)	20:59	23 06:40 (11)	
23	07:43	07:09	06:25	06:36	06:03	06:03	06:23 (11)	05:55	06:17 (11)
	17:31	18:09	18:39	20:11	20:41	14 20:17 (15)	20:59	23 06:40 (11)	
24	07:42	07:08	06:23	06:35	06:02	06:02	06:22 (11)	05:55	06:17 (11)
	17:32	18:10	18:40	20:12	20:42	15 20:17 (15)	20:59	23 06:40 (11)	
25	07:41	07:06	06:22	06:33	06:01	06:01	06:22 (11)	05:55	06:18 (11)
	17:34	18:11	18:41	20:13	20:43	17 20:19 (15)	20:59	23 06:41 (11)	
26	07:41	07:05	06:20	06:32	06:00	06:00	06:21 (11)	05:56	06:18 (11)
	17:35	18:12	18:42	20:15	20:44	18 20:19 (15)	20:59	23 06:41 (11)	
27	07:40	07:03	06:19	06:31	06:00	06:00	06:21 (11)	05:56	06:18 (11)
	17:36	18:13	18:43	20:16	20:45	20 20:21 (15)	20:59	23 06:41 (11)	
28	07:39	07:02	06:17	06:29	05:59	05:59	06:20 (11)	05:56	06:19 (11)
	17:37	18:14	18:44	20:17	20:45	21 20:21 (15)	20:59	23 06:42 (11)	
29	07:38		07:15	06:28	05:59	05:59	06:20 (11)	05:57	06:19 (11)
	17:38		19:45	20:18	20:46	22 20:22 (15)	20:59	24 20:34 (15)	
30	07:37		07:14	06:27	05:58	05:58	06:19 (11)	05:57	06:20 (11)
	17:40		19:47	8 07:32 (7)	20:19	20:47	23 20:22 (15)	20:59	26 20:35 (15)
31	07:36		07:12	06:26	05:58	05:58	06:19 (11)		
	17:41		19:48	12 07:42 (7)	20:19	20:48	23 20:23 (15)		
Potential sun hours	299	298	370	398	447	450			
Total, worst case			20	198	506	740			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

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SHADOW - Calendar

Shadow receptor: A - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:58	06:20 (11) 06:21	06:47 (3) 06:51	07:25 (7) 07:20	06:54	07:28
	20:59	26 20:34 (15) 20:41	20 07:07 (3) 19:59	11 07:36 (7) 19:09	17:23	16:59
2	05:58	06:21 (11) 06:22	06:47 (3) 06:52	07:23 (7) 07:21	06:55	07:29
	20:59	27 20:35 (15) 20:40	20 07:07 (3) 19:57	15 07:38 (7) 19:07	17:22	16:59
3	05:59	06:21 (11) 06:23	06:47 (3) 06:53	07:21 (7) 07:22	06:56	07:30
	20:59	27 20:34 (15) 20:39	19 07:06 (3) 19:55	18 07:39 (7) 19:05	17:21	16:59
4	05:59	06:22 (11) 06:24	06:47 (3) 06:54	07:20 (7) 07:23	06:57	07:31
	20:59	26 20:34 (15) 20:38	19 07:06 (3) 19:54	19 07:39 (7) 19:04	17:19	16:58
5	06:00	06:22 (11) 06:25	06:48 (3) 06:55	07:18 (7) 07:24	06:58	07:32
	20:59	27 20:34 (15) 20:36	17 07:05 (3) 19:52	21 07:39 (7) 19:02	17:18	16:58
6	06:00	06:23 (11) 06:26	06:49 (3) 06:56	07:18 (7) 07:25	07:00	07:33
	20:58	28 20:34 (15) 20:35	16 07:05 (3) 19:50	21 07:39 (7) 19:01	17:17	16:58
7	06:01	06:23 (11) 06:27	06:50 (3) 06:57	07:17 (7) 07:26	07:01	07:34
	20:58	27 20:33 (15) 20:34	14 07:04 (3) 19:49	22 07:39 (7) 18:59	17:16	16:58
8	06:02	06:24 (11) 06:28	06:50 (3) 06:58	07:18 (7) 07:28	07:02	07:35
	20:58	27 20:33 (15) 20:33	11 07:01 (3) 19:47	20 07:38 (7) 18:57	17:15	16:58
9	06:02	06:25 (11) 06:29	06:53 (3) 06:59	07:19 (7) 07:29	07:03	07:36
	20:58	26 20:33 (15) 20:32	6 06:59 (3) 19:46	19 07:38 (7) 18:56	17:14	16:58
10	06:03	06:25 (11) 06:30	07:00	07:20 (7) 07:30	07:04	07:37
	20:57	26 20:32 (15) 20:30	19:44	17 07:37 (7) 18:54	17:13	16:58
11	06:04	06:26 (11) 06:31	07:01	07:21 (7) 07:31	07:05	07:37
	20:57	25 20:32 (15) 20:29	19:42	15 07:36 (7) 18:53	17:12	16:58
12	06:04	06:27 (11) 06:32	07:02	07:22 (7) 07:32	07:07	07:38
	20:56	25 20:32 (15) 20:28	19:41	12 07:34 (7) 18:51	17:11	16:58
13	06:05	06:27 (11) 06:33	07:03	07:23 (7) 07:33	07:08	07:39
	20:56	24 20:31 (15) 20:27	19:39	9 07:32 (7) 18:49	17:10	16:58
14	06:06	06:28 (11) 06:34	07:04	07:24 (7) 07:34	07:09	07:40
	20:55	23 20:31 (15) 20:25	19:37	3 07:27 (7) 18:48	17:09	16:59
15	06:06	06:29 (11) 06:35	07:05	07:35	07:10	07:41
	20:55	22 20:30 (15) 20:24	19:36	18:46	17:08	16:59
16	06:07	06:30 (11) 06:36	07:06	07:36	07:11	07:41
	20:54	21 20:30 (15) 20:22	19:34	18:45	17:08	16:59
17	06:08	06:30 (11) 06:37	07:07	07:37	07:12	07:42
	20:54	20 20:29 (15) 20:21	19:32	18:43	17:07	16:59
18	06:09	06:31 (11) 06:38	07:08	07:38	07:14	07:43
	20:53	18 20:28 (15) 20:20	19:30	18:42	17:06	17:00
19	06:10	06:32 (11) 06:39	07:09	07:39	07:15	07:43
	20:52	17 20:28 (15) 20:18	19:29	18:40	17:05	17:00
20	06:10	06:33 (11) 06:40	07:10	07:40	07:16	07:44
	20:52	16 20:28 (15) 20:17	19:27	18:39	17:05	17:01
21	06:11	06:33 (11) 06:41	07:11	07:41	07:17	07:44
	20:51	16 20:26 (15) 20:15	19:25	18:38	17:04	17:01
22	06:12	06:34 (11) 06:41	07:11	07:42	07:18	07:45
	20:50	19 20:26 (15) 20:14	19:24	18:36	17:03	17:01
23	06:13	06:35 (11) 06:42	07:12	07:44	07:19	07:45
	20:49	19 20:25 (15) 20:12	19:22	18:35	17:03	17:02
24	06:14	06:36 (11) 06:43	07:13	07:45	07:20	07:46
	20:48	18 20:24 (15) 20:11	19:20	18:33	17:02	17:03
25	06:15	06:37 (11) 06:44	07:14	06:46	07:22	07:46
	20:48	18 20:24 (15) 20:09	19:19	17:32	17:02	17:03
26	06:16	06:49 (3) 06:45	07:15	06:47	07:23	07:47
	20:47	16 07:05 (3) 20:08	19:17	17:31	17:01	17:04
27	06:17	06:48 (3) 06:46	07:16	06:48	07:24	07:47
	20:46	18 07:06 (3) 20:06	19:15	17:29	17:01	17:04
28	06:17	06:47 (3) 06:47	07:17	06:49	07:25	07:47
	20:45	19 07:06 (3) 20:05	19:14	17:28	17:00	17:05
29	06:18	06:47 (3) 06:48	07:18	06:50	07:26	07:48
	20:44	19 07:06 (3) 20:03	19:12	17:27	17:00	17:06
30	06:19	06:47 (3) 06:49	07:19	06:51	07:27	07:48
	20:43	19 07:06 (3) 20:02	19:10	17:25	16:59	17:07
31	06:20	06:46 (3) 06:50	07:29 (7)	06:53	07:28	07:48
	20:42	21 07:07 (3) 20:00	4 07:33 (7)	17:24	17:07	17:07
Potential sun hours	457	427	375	346	299	290
Total, worst case	680	146	222			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

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335244024

SHADOW - Calendar

Shadow receptor: B - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:48	07:35	07:00	07:10	06:25	05:57	05:57	06:21	06:51	07:20	06:54	07:28
	17:08	17:42	18:15	19:48	20:20	20:48	20:59	20:41	19:58	19:09	17:23	16:59
2	07:48	07:34	06:59	07:09	06:24	05:56	05:58	06:22	06:52	07:21	06:55	07:29
	17:09	17:43	18:16	19:49	20:21	20:49	20:59	20:40	19:57	19:07	17:21	16:59
3	07:48	07:33	06:57	07:07	06:23	05:56	05:58	06:23	06:53	07:22	06:56	07:30
	17:10	17:44	18:17	19:51	20:22	20:50	20:59	20:39	19:55	19:05	17:20	16:58
4	07:49	07:32	06:56	07:05	06:21	05:56	05:59	06:24	06:54	07:23	06:57	07:31
	17:11	17:45	18:19	19:52	20:23	20:51	20:59	20:37	19:54	19:04	17:19	16:58
5	07:49	07:31	06:54	07:04	06:20	05:55	06:00	06:25	06:55	07:24	06:58	07:32
	17:12	17:47	18:20	19:53	20:24	20:51	20:59	20:36	19:52	19:02	17:18	16:58
6	07:49	07:30	06:52	07:02	06:19	05:55	06:00	06:26	06:56	07:25	07:00	07:33
	17:12	17:48	18:21	19:54	20:25	20:52	20:58	20:35	19:50	19:00	17:17	16:58
7	07:48	07:29	06:51	07:00	06:18	05:55	06:01	06:27	06:57	07:26	07:01	07:34
	17:13	17:49	18:22	19:55	20:26	20:53	20:58	20:34	19:49	18:59	17:16	16:58
8	07:48	07:28	06:49	06:59	06:17	05:54	06:01	06:28	06:58	07:27	07:02	07:35
	17:14	17:50	18:23	19:56	20:27	20:53	20:58	20:33	19:47	18:57	17:15	16:58
9	07:48	07:27	06:48	06:57	06:15	05:54	06:02	06:29	06:59	07:28	07:03	07:36
	17:15	17:52	18:24	19:57	20:28	20:54	20:57	20:32	19:45	18:56	17:14	16:58
10	07:48	07:26	06:46	06:56	06:14	05:54	06:03	06:30	07:00	07:29	07:04	07:36
	17:16	17:53	18:25	19:58	20:29	20:54	20:57	20:30	19:44	18:54	17:13	16:58
11	07:48	07:25	06:45	06:54	06:13	05:54	06:03	06:31	07:01	07:30	07:05	07:37
	17:17	17:54	18:26	19:59	20:30	20:55	20:57	20:29	19:42	18:52	17:12	16:58
12	07:48	07:24	06:43	06:53	06:12	05:54	06:04	06:32	07:02	07:32	07:07	07:38
	17:18	17:55	18:27	20:00	20:31	20:55	20:56	20:28	19:40	18:51	17:11	16:58
13	07:47	07:22	06:41	06:51	06:11	05:54	06:05	06:32	07:03	07:33	07:08	07:39
	17:20	17:56	18:28	20:01	20:32	20:56	20:56	20:26	19:39	18:49	17:10	16:58
14	07:47	07:21	06:40	06:49	06:10	05:54	06:05	06:33	07:04	07:34	07:09	07:40
	17:21	17:58	18:30	20:02	20:33	20:56	20:55	20:25	19:37	18:48	17:09	16:58
15	07:47	07:20	06:38	06:48	06:09	05:54	06:06	06:34	07:05	07:35	07:10	07:40
	17:22	17:59	18:31	20:03	20:34	20:57	20:55	20:24	19:35	18:46	17:08	16:59
16	07:46	07:18	06:36	06:46	06:08	05:54	06:07	06:35	07:05	07:36	07:11	07:41
	17:23	18:00	18:32	20:04	20:35	20:57	20:54	20:22	19:34	18:45	17:07	16:59
17	07:46	07:17	06:35	06:45	06:07	05:54	06:08	06:36	07:06	07:37	07:12	07:42
	17:24	18:01	18:33	20:05	20:36	20:57	20:54	20:21	19:32	18:43	17:06	16:59
18	07:45	07:16	06:33	06:43	06:06	05:54	06:09	06:37	07:07	07:38	07:14	07:42
	17:25	18:02	18:34	20:06	20:37	20:58	20:53	20:20	19:30	18:42	17:06	17:00
19	07:45	07:14	06:32	06:42	06:06	05:54	06:09	06:38	07:08	07:39	07:15	07:43
	17:26	18:04	18:35	20:07	20:37	20:58	20:52	20:18	19:29	18:40	17:05	17:00
20	07:44	07:13	06:30	06:40	06:05	05:54	06:10	06:39	07:09	07:40	07:16	07:44
	17:27	18:05	18:36	20:08	20:38	20:58	20:51	20:17	19:27	18:39	17:04	17:00
21	07:44	07:12	06:28	06:39	06:04	05:54	06:11	06:40	07:10	07:41	07:17	07:44
	17:29	18:06	18:37	20:09	20:39	20:59	20:51	20:15	19:25	18:37	17:04	17:01
22	07:43	07:10	06:27	06:37	06:03	05:54	06:12	06:41	07:11	07:42	07:18	07:45
	17:30	18:07	18:38	20:10	20:40	20:59	20:50	20:14	19:24	18:36	17:03	17:01
23	07:43	07:09	06:25	06:36	06:02	05:55	06:13	06:42	07:12	07:43	07:19	07:45
	17:31	18:08	18:39	20:11	20:41	20:59	20:49	20:12	19:22	18:34	17:02	17:02
24	07:42	07:07	06:23	06:35	06:02	05:55	06:14	06:43	07:13	07:45	07:20	07:46
	17:32	18:09	18:40	20:12	20:42	20:59	20:48	20:11	19:20	18:33	17:02	17:02
25	07:41	07:06	06:22	06:33	06:01	05:55	06:15	06:44	07:14	07:46	07:21	07:46
	17:33	18:11	18:41	20:13	20:43	20:59	20:48	20:09	19:19	17:32	17:01	17:03
26	07:40	07:05	06:20	06:32	06:00	05:55	06:15	06:45	07:15	07:47	07:23	07:47
	17:34	18:12	18:42	20:14	20:44	20:59	20:47	20:08	19:17	17:30	17:01	17:03
27	07:40	07:03	06:18	06:30	06:00	05:56	06:16	06:46	07:16	07:48	07:24	07:47
	17:36	18:13	18:43	20:15	20:45	20:59	20:46	20:06	19:15	17:29	17:00	17:04
28	07:39	07:02	06:17	06:29	05:59	05:56	06:17	06:47	07:17	07:49	07:25	07:47
	17:37	18:14	18:44	20:16	20:45	20:59	20:45	20:05	19:14	17:28	17:00	17:05
29	07:38		07:15	06:28	05:58	05:57	06:18	06:48	07:18	07:50	07:26	07:48
	17:38		19:45	20:18	20:46	20:59	20:44	20:03	19:12	17:26	17:00	17:06
30	07:37		07:13	06:26	05:58	05:57	06:19	06:49	07:19	07:51	07:27	07:48
	17:39		19:46	20:19	20:47	20:59	20:43	20:02	19:10	17:25	16:59	17:06
31	07:36		07:12		05:57		06:20	06:50		06:53		07:48
	17:41		19:47		20:48		20:42	20:00		17:24		17:07
Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Total, worst case												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: C - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:48	15:30 (4) 07:35		07:00		07:10
	17:08	57 16:40 (3) 17:42		18:15		19:48
2	07:48	15:32 (4) 07:34		06:59		8 19:19 (9) 06:24
	17:09	56 16:42 (3) 17:43		18:16		07:09
3	07:48	15:32 (4) 07:33		06:57		1 19:57 (8) 06:24
	17:10	56 16:42 (3) 17:44		18:17		07:07
4	07:49	15:32 (4) 07:32		06:56		19:52 (8) 06:23
	17:11	54 16:41 (3) 17:46		18:19		07:05
5	07:49	15:33 (4) 07:31		06:54		19:52 (8) 06:21
	17:12	55 16:42 (3) 17:47		18:20		07:04
6	07:49	15:34 (4) 07:30	17:24 (2) 06:52		07:02	19:53 (8) 06:20
	17:13	53 16:42 (3) 17:48	1 17:25 (2) 18:21		07:02	06:19
7	07:48	15:34 (4) 07:29	17:24 (2) 06:51		07:00	19:54 (8) 06:18
	17:13	53 16:43 (3) 17:49	2 17:26 (2) 18:22		07:00	06:18
8	07:48	15:35 (4) 07:28	17:23 (2) 06:49		06:59	19:55 (8) 06:16
	17:14	51 16:43 (3) 17:50	5 17:28 (2) 18:23		06:59	06:17
9	07:48	15:37 (4) 07:27	17:23 (2) 06:48		06:57	19:56 (8) 06:16
	17:15	50 16:43 (3) 17:52	6 17:29 (2) 18:24		06:57	06:16
10	07:48	15:38 (4) 07:26	17:22 (2) 06:46		06:56	19:57 (8) 06:14
	17:16	49 16:44 (3) 17:53	8 17:30 (2) 18:25		06:56	06:14
11	07:48	15:38 (4) 07:25	17:22 (2) 06:45		06:54	19:58 (8) 06:13
	17:17	47 16:43 (3) 17:54	9 17:31 (2) 18:26		06:54	06:13
12	07:48	15:39 (4) 07:23	17:22 (2) 06:43		06:53	20:00 (8) 06:12
	17:19	45 16:43 (3) 17:55	11 17:33 (2) 18:27		06:53	06:12
13	07:47	15:41 (4) 07:22	17:22 (2) 06:41		06:51	20:01 (8) 06:11
	17:20	42 16:44 (3) 17:57	12 17:34 (2) 18:28		06:51	06:11
14	07:47	15:42 (4) 07:21	17:22 (2) 06:40	18:07 (9) 06:49		20:01 (8) 06:10
	17:21	39 16:43 (3) 17:58	13 17:35 (2) 18:30	1 18:08 (9) 20:02		06:10
15	07:47	15:44 (4) 07:20	17:22 (2) 06:38	18:06 (9) 06:48		20:02 (8) 06:09
	17:22	35 16:43 (3) 17:59	15 17:37 (2) 18:31	4 18:10 (9) 20:03		06:09
16	07:46	15:45 (4) 07:18	17:23 (2) 06:36	18:04 (9) 06:46		20:03 (8) 06:08
	17:23	31 16:42 (3) 18:00	15 17:38 (2) 18:32	7 18:11 (9) 20:04		06:08
17	07:46	15:48 (4) 07:17	17:23 (2) 06:35	18:03 (9) 06:45		20:04 (8) 06:07
	17:24	25 16:42 (3) 18:01	16 17:39 (2) 18:33	9 18:12 (9) 20:05		06:07
18	07:45	15:51 (4) 07:16	17:24 (2) 06:33	18:03 (9) 06:43		20:05 (8) 06:06
	17:25	15 16:40 (3) 18:02	16 17:40 (2) 18:34	10 18:13 (9) 20:06		06:06
19	07:45	16:33 (3) 07:14	17:26 (2) 06:32	18:02 (9) 06:42		20:06 (8) 06:06
	17:26	5 16:38 (3) 18:04	16 17:42 (2) 18:35	12 18:14 (9) 20:07		06:06
20	07:44	07:13	17:27 (2) 06:30	18:01 (9) 06:40		20:07 (8) 06:05
	17:27	18:05	16 17:43 (2) 18:36	14 18:15 (9) 20:08		06:05
21	07:44	07:12	17:29 (2) 06:28	18:01 (9) 06:39		20:08 (8) 06:04
	17:29	18:06	13 17:42 (2) 18:37	15 18:16 (9) 20:09		06:04
22	07:43	07:10	17:33 (2) 06:27	18:00 (9) 06:37		20:09 (8) 06:03
	17:30	18:07	4 17:37 (2) 18:38	17 18:17 (9) 20:10		06:03
23	07:43	07:09	06:25	18:00 (9) 06:36		20:10 (8) 06:02
	17:31	18:08	18:39	18 18:18 (9) 20:11		06:02
24	07:42	07:07	06:23	18:00 (9) 06:35		20:11 (8) 06:01
	17:32	18:10	18:40	20 18:20 (9) 20:12		06:01
25	07:41	07:06	06:22	18:00 (9) 06:33		20:12 (8) 06:01
	17:33	18:11	18:41	20 18:20 (9) 20:13		06:01
26	07:40	07:05	06:20	18:00 (9) 06:32		20:13 (8) 06:00
	17:35	18:12	18:42	21 18:21 (9) 20:14		06:00
27	07:40	07:03	06:18	18:01 (9) 06:30		20:14 (8) 06:00
	17:36	18:13	18:43	22 18:23 (9) 20:15	1 19:52 (8) 06:00	19:52 (8) 06:00
28	07:39	07:02	06:17	18:02 (9) 06:29	1 19:53 (8) 05:59	19:53 (8) 05:59
	17:37	18:14	18:44	21 18:23 (9) 20:16	1 19:54 (8) 05:58	19:54 (8) 05:58
29	07:38		07:15	19:03 (9) 06:28	1 19:55 (8) 05:58	19:55 (8) 05:58
	17:38		19:45	21 19:24 (9) 20:17	1 19:55 (8) 05:58	19:55 (8) 05:58
30	07:37		07:13	19:05 (9) 06:26	1 19:56 (8) 05:57	19:56 (8) 05:57
	17:39		19:46	21 19:26 (9) 20:19	1 19:56 (8) 05:57	19:56 (8) 05:57
31	07:36		07:12	19:06 (9)		05:57
	17:41		19:47	17 19:23 (9)		05:57
Potential sun hours	299		370		398	447
Total, worst case	818	298	270	12	1	450

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: C - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December		
1	05:58	06:21	06:51	07:20	06:54	16:52 (2) 07:28	15:20 (4)	
	20:59	20:41	19:58	19:09	17:23	7 16:59 (2) 16:59	47 16:25 (3)	
2	05:58	06:22	06:52	07:21	06:55	16:52 (2) 07:29	15:20 (4)	
	20:59	20:40	19:57	19:07	17:22	6 16:58 (2) 16:59	49 16:26 (3)	
3	05:59	06:23	06:53	07:22	06:56	16:52 (2) 07:30	15:20 (4)	
	20:59	20:39	19:55	19:05	17:20	4 16:56 (2) 16:58	50 16:26 (3)	
4	05:59	06:24	06:54	07:23	06:57	16:54 (2) 07:31	15:20 (4)	
	20:59	20:37	19:54	19:04	17:19	2 16:56 (2) 16:58	50 16:27 (3)	
5	06:00	06:25	06:55	07:24	06:58	16:54 (2) 07:32	15:20 (4)	
	20:59	20:36	19:52	19:02	17:18	1 16:55 (2) 16:58	52 16:28 (3)	
6	06:00	06:26	06:56	07:25	06:59	07:33	15:20 (4)	
	20:58	20:35	19:50	19:00	17:17	16:58	53 16:28 (3)	
7	06:01	06:27	06:57	07:26	07:01	07:34	15:20 (4)	
	20:58	20:34	19:49	18:59	17:16	16:58	55 16:29 (3)	
8	06:01	06:28	06:58	07:27	07:02	07:35	15:20 (4)	
	20:58	20:33	19:47	18:57	17:15	16:58	54 16:29 (3)	
9	06:02	06:29	06:59	07:28	07:03	07:36	15:20 (4)	
	20:57	20:32	19:45	18:56	17:14	16:58	56 16:30 (3)	
10	06:03	06:30	07:00	07:29	07:04	07:36	15:21 (4)	
	20:57	20:30	19:44	18:54	17:13	16:58	56 16:31 (3)	
11	06:03	06:31	07:01	19:03 (9) 07:30	07:05	07:37	15:21 (4)	
	20:57	20:29	19:42	8 19:11 (9) 18:52	17:12	16:58	57 16:31 (3)	
12	06:04	06:32	20:04 (8) 07:02	15 18:59 (9) 07:32	07:07	07:38	15:22 (4)	
	20:56	20:28	1 20:05 (8) 19:40	15 19:14 (9) 18:51	17:11	16:58	56 16:32 (3)	
13	06:05	06:33	20:03 (8) 07:03	21 18:56 (9) 07:33	07:08	07:39	15:21 (4)	
	20:56	20:26	1 20:04 (8) 19:39	21 19:17 (9) 18:49	17:10	16:58	57 16:32 (3)	
14	06:06	06:34	20:02 (8) 07:04	21 18:54 (9) 07:34	07:09	07:40	15:22 (4)	
	20:55	20:25	1 20:03 (8) 19:37	21 19:15 (9) 18:48	17:09	16:58	57 16:32 (3)	
15	06:06	06:34	07:05	18:52 (9) 07:35	07:10	07:40	15:22 (4)	
	20:55	20:24	19:35	22 19:14 (9) 18:46	17:08	16:59	58 16:33 (3)	
16	06:07	06:35	07:06	18:51 (9) 07:36	07:11	07:41	15:22 (4)	
	20:54	20:22	19:34	21 19:12 (9) 18:45	17:07	16:59	58 16:33 (3)	
17	06:08	06:36	07:06	18:49 (9) 07:37	07:12	07:42	15:23 (4)	
	20:53	20:21	19:32	20 19:09 (9) 18:43	17:07	16:59	56 16:33 (3)	
18	06:09	06:37	07:07	18:48 (9) 07:38	07:14	07:42	15:24 (4)	
	20:53	20:20	19:30	20 19:08 (9) 18:42	17:06	17:00	56 16:34 (3)	
19	06:09	06:38	07:08	18:47 (9) 07:39	07:15	07:43	15:24 (4)	
	20:52	20:18	19:29	19 19:06 (9) 18:40	17:05	17:00	57 16:34 (3)	
20	06:10	06:39	07:09	18:46 (9) 07:40	18:02 (2) 07:16	07:44	15:24 (4)	
	20:51	20:17	19:27	19 19:05 (9) 18:39	9 18:11 (2) 17:04	17:00	58 16:35 (3)	
21	06:11	06:40	07:10	18:46 (9) 07:41	17:59 (2) 07:17	07:44	15:24 (4)	
	20:51	20:15	19:25	17 19:03 (9) 18:37	14 18:13 (2) 17:04	17:01	58 16:35 (3)	
22	06:12	06:41	07:11	18:45 (9) 07:42	17:57 (2) 07:18	07:45	15:25 (4)	
	20:50	20:14	19:24	16 19:01 (9) 18:36	16 18:13 (2) 17:03	17:01	58 16:36 (3)	
23	06:13	06:42	07:12	18:45 (9) 07:43	17:55 (2) 07:19	07:45	15:25 (4)	
	20:49	20:12	19:22	15 19:00 (9) 18:35	16 18:11 (2) 17:02	4 16:14 (3) 17:02	58 16:36 (3)	
24	06:14	06:43	07:13	18:45 (9) 07:45	17:54 (2) 07:20	15:28 (4) 07:46	15:27 (4)	
	20:48	20:11	19:20	13 18:58 (9) 18:33	16 18:10 (2) 17:02	15 16:17 (3) 17:02	57 16:37 (3)	
25	06:15	06:44	07:14	18:45 (9) 06:46	16:52 (2) 07:21	15:26 (4) 07:46	15:27 (4)	
	20:47	20:09	19:19	11 18:56 (9) 17:32	16 17:08 (2) 17:01	25 16:20 (3) 17:03	56 16:37 (3)	
26	06:15	06:45	07:15	18:45 (9) 06:47	16:53 (2) 07:23	15:24 (4) 07:47	15:27 (4)	
	20:47	20:08	19:17	10 18:55 (9) 17:30	15 17:08 (2) 17:01	31 16:21 (3) 17:04	56 16:37 (3)	
27	06:16	06:46	07:16	18:45 (9) 06:48	16:52 (2) 07:24	15:23 (4) 07:47	15:28 (4)	
	20:46	20:06	19:15	8 18:53 (9) 17:29	14 17:06 (2) 17:00	35 16:22 (3) 17:04	58 16:39 (3)	
28	06:17	06:47	07:17	18:46 (9) 06:49	16:51 (2) 07:25	15:22 (4) 07:47	15:28 (4)	
	20:45	20:05	19:14	5 18:51 (9) 17:28	13 17:04 (2) 17:00	39 16:23 (3) 17:05	58 16:39 (3)	
29	06:18	06:48	07:18	18:47 (9) 06:50	16:51 (2) 07:26	15:21 (4) 07:48	15:29 (4)	
	20:44	20:03	19:12	2 18:49 (9) 17:26	12 17:03 (2) 17:00	42 16:24 (3) 17:06	57 16:39 (3)	
30	06:19	06:49	07:19	06:51	16:52 (2) 07:27	15:20 (4) 07:48	15:29 (4)	
	20:43	20:02	19:10	17:25	10 17:02 (2) 16:59	44 16:24 (3) 17:06	56 16:39 (3)	
31	06:20	06:50		16:53	16:52 (2)		07:48	15:30 (4)
	20:42	20:00		17:24	9 17:01 (2)		17:07	56 16:40 (3)
Potential sun hours	457	427	375	346	299	255	290	1720
Total, worst case		3	283	160				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: D - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:48 17:08	57 15:32 (4) 07:35 16:42 (3) 17:42		07:00 18:15	07:10 19:48	19:09 (9) 06:25 19:56 (8) 05:57
2	07:48 17:09	57 15:33 (4) 07:34 16:43 (3) 17:43		06:59 18:16	15 07:09 19:50	1 19:24 (9) 20:20 19:14 (9) 06:24 19:17 (9) 20:21
3	07:48 17:10	56 15:34 (4) 07:33 16:43 (3) 17:44		06:57 18:17	3 07:07 19:51	06:23 20:22
4	07:49 17:11	56 15:34 (4) 07:32 16:43 (3) 17:46		06:56 18:19	07:05 19:52	06:21 20:23
5	07:49 17:12	55 15:34 (4) 07:31 16:43 (3) 17:47		06:54 18:20	07:04 19:53	06:20 20:24
6	07:49 17:13	56 15:35 (4) 07:30 16:44 (3) 17:48		06:52 18:21	07:02 19:54	06:19 20:25
7	07:48 17:13	54 15:36 (4) 07:29 16:44 (3) 17:49		06:51 18:22	07:00 19:55	06:18 20:26
8	07:48 17:14	53 15:37 (4) 07:28 16:45 (3) 17:50	3 17:25 (2) 06:49 17:28 (2) 18:23	06:59 19:56	06:17 20:27	05:54 20:53
9	07:48 17:15	51 15:38 (4) 07:27 16:45 (3) 17:52	4 17:25 (2) 06:48 17:29 (2) 18:24	06:57 19:57	06:16 20:28	05:54 20:54
10	07:48 17:16	52 15:39 (4) 07:26 16:46 (3) 17:53	6 17:24 (2) 06:46 17:30 (2) 18:25	06:56 19:58	06:14 20:29	05:54 20:54
11	07:48 17:17	50 15:39 (4) 07:25 16:45 (3) 17:54	7 17:24 (2) 06:45 17:31 (2) 18:26	06:54 19:59	06:13 20:30	05:54 20:55
12	07:48 17:19	48 15:40 (4) 07:23 16:45 (3) 17:55	9 17:24 (2) 06:43 17:33 (2) 18:27	06:53 20:00	06:12 20:31	05:54 20:55
13	07:47 17:20	45 15:42 (4) 07:22 16:46 (3) 17:57	10 17:24 (2) 06:41 17:34 (2) 18:28	06:51 20:01	06:11 20:32	05:54 20:56
14	07:47 17:21	43 15:42 (4) 07:21 16:45 (3) 17:58	12 17:23 (2) 06:40 17:35 (2) 18:30	06:49 20:02	06:10 20:33	05:54 20:56
15	07:47 17:22	40 15:44 (4) 07:20 16:45 (3) 17:59	13 17:24 (2) 06:38 17:37 (2) 18:31	1 18:09 (9) 06:48 18:10 (9) 20:03	06:09 20:34	05:54 20:57
16	07:46 17:23	36 15:45 (4) 07:18 16:44 (3) 18:00	14 17:24 (2) 06:36 17:38 (2) 18:32	4 18:07 (9) 06:46 18:11 (9) 20:04	06:08 20:35	05:54 20:57
17	07:46 17:24	32 15:47 (4) 07:17 16:44 (3) 18:01	15 17:24 (2) 06:35 17:39 (2) 18:33	7 18:05 (9) 06:45 18:12 (9) 20:05	06:07 20:36	05:54 20:57
18	07:45 17:25	26 15:49 (4) 07:16 16:43 (3) 18:02	16 17:25 (2) 06:33 17:40 (2) 18:34	8 18:05 (9) 06:43 18:13 (9) 20:06	06:06 20:37	05:54 20:58
19	07:45 17:26	17 15:53 (4) 07:14 16:42 (3) 18:04	17 17:26 (2) 06:32 17:42 (2) 18:35	10 18:04 (9) 06:42 18:14 (9) 20:07	06:06 20:38	05:54 20:58
20	07:44 17:27	5 16:35 (3) 07:13 16:40 (3) 18:05	18 17:27 (2) 06:30 17:43 (2) 18:36	12 18:03 (9) 06:40 18:15 (9) 20:08	06:05 20:39	05:54 20:58
21	07:44 17:29	07:12 18:06	15 17:29 (2) 06:28 17:44 (2) 18:37	13 18:03 (9) 06:39 18:16 (9) 20:09	06:04 20:40	05:54 20:59
22	07:43 17:30	07:10 18:07	11 17:31 (2) 06:27 17:42 (2) 18:38	15 18:02 (9) 06:37 18:17 (9) 20:10	06:03 20:41	05:54 20:59
23	07:43 17:31	07:09 18:08	06:25 18:39	17 18:01 (9) 06:36 18:18 (9) 20:11	06:02 20:42	05:55 20:59
24	07:42 17:32	07:07 18:10	06:23 18:40	18 18:02 (9) 06:35 18:20 (9) 20:12	06:02 20:43	05:55 20:59
25	07:41 17:33	07:06 18:11	06:22 18:41	18 18:02 (9) 06:33 18:20 (9) 20:13	06:01 20:44	05:55 20:59
26	07:40 17:35	07:05 18:12	06:20 18:42	19 18:02 (9) 06:32 18:21 (9) 20:14	06:00 20:45	05:56 20:59
27	07:40 17:36	07:03 18:13	06:18 18:43	20 18:03 (9) 06:30 18:23 (9) 20:15	06:00 20:46	05:56 20:59
28	07:39 17:37	07:02 18:14	06:17 18:44	21 18:03 (9) 06:29 18:23 (9) 20:16	05:59 20:47	05:56 20:59
29	07:38 17:38	07:01 18:15	06:16 18:45	22 18:03 (9) 06:28 19:03 (9) 06:28	05:58 20:48	05:57 20:59
30	07:37 17:39	07:00 18:16	06:15 18:46	23 19:03 (9) 06:27 19:24 (9) 20:17	05:58 20:49	05:57 20:59
31	07:36 17:41	06:59 18:17	06:14 18:47	24 19:05 (9) 06:26 19:26 (9) 20:18	05:57 20:50	05:57 20:59
Potential sun hours	299	298	370	398	447	450
Total, worst case	889	166	244	18	1	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: D - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (15)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December			
1	05:58	06:21	06:51	07:20	06:54	16:53 (2) 07:28	15:21 (4)		
	20:59	20:41	19:58	19:09	17:23	6 16:59 (2) 16:59	50 16:27 (3)		
2	05:58	06:22	06:52	07:21	06:55	16:54 (2) 07:29	15:21 (4)		
	20:59	20:40	19:57	19:07	17:22	4 16:58 (2) 16:59	51 16:28 (3)		
3	05:59	06:23	06:53	07:22	06:56	16:54 (2) 07:30	15:21 (4)		
	20:59	20:39	19:55	19:05	17:20	2 16:56 (2) 16:58	51 16:28 (3)		
4	05:59	06:24	06:54	07:23	06:57	17:19	16:58	53 16:29 (3)	
	20:59	20:37	19:54	19:04	17:19	16:58	53 16:29 (3)		
5	06:00	06:25	06:55	07:24	06:58	17:18	16:58	54 16:29 (3)	
	20:59	20:36	19:52	19:02	17:18	16:58	54 16:29 (3)		
6	06:00	06:26	06:56	07:25	06:59	17:17	16:58	56 16:30 (3)	
	20:58	20:35	19:50	19:00	17:17	16:58	56 16:30 (3)		
7	06:01	06:27	06:57	07:26	07:01	17:16	16:58	55 16:30 (3)	
	20:58	20:34	19:49	18:59	17:16	16:58	55 16:30 (3)		
8	06:01	06:28	06:58	07:27	07:02	17:15	16:58	56 16:31 (3)	
	20:58	20:33	19:47	18:57	17:15	16:58	56 16:31 (3)		
9	06:02	06:29	06:59	07:28	07:03	17:14	16:58	57 16:32 (3)	
	20:57	20:32	19:45	18:56	17:14	16:58	57 16:32 (3)		
10	06:03	06:30	07:00	07:29	07:04	17:13	16:58	57 16:32 (3)	
	20:57	20:30	19:44	18:54	17:13	16:58	57 16:32 (3)		
11	06:03	06:31	07:01	19:02 (9) 07:30	07:05	17:12	16:58	57 16:33 (3)	
	20:57	20:29	19:42	13 19:15 (9) 18:52	17:12	16:58	57 16:33 (3)		
12	06:04	06:32	07:02	18:59 (9) 07:32	07:07	17:11	16:58	57 16:33 (3)	
	20:56	20:28	19:40	19 19:18 (9) 18:51	17:11	16:58	57 16:33 (3)		
13	06:05	06:33	20:03 (8) 07:03	18:57 (9) 07:33	07:08	17:10	16:58	58 16:33 (3)	
	20:56	20:26	1 20:04 (8) 19:39	20 19:17 (9) 18:49	17:10	16:58	58 16:33 (3)		
14	06:06	06:34	20:02 (8) 07:04	18:55 (9) 07:34	07:09	17:09	16:58	56 16:33 (3)	
	20:55	20:25	1 20:03 (8) 19:37	20 19:15 (9) 18:48	17:09	16:58	56 16:33 (3)		
15	06:06	06:34	07:05	18:53 (9) 07:35	07:10	17:08	16:59	57 16:34 (3)	
	20:55	20:24	19:35	21 19:14 (9) 18:46	17:08	16:59	57 16:34 (3)		
16	06:07	06:35	07:06	18:52 (9) 07:36	07:11	17:07	16:59	56 16:33 (3)	
	20:54	20:22	19:34	20 19:12 (9) 18:45	17:07	16:59	56 16:33 (3)		
17	06:08	06:36	07:06	18:50 (9) 07:37	07:12	17:06	16:59	57 16:34 (3)	
	20:53	20:21	19:32	19 19:09 (9) 18:43	17:07	16:59	57 16:34 (3)		
18	06:09	06:37	07:07	18:49 (9) 07:38	07:14	17:06	16:59	57 16:34 (3)	
	20:53	20:20	19:30	19 19:08 (9) 18:42	17:06	16:59	57 16:34 (3)		
19	06:09	06:38	07:08	18:48 (9) 07:39	18:05 (2) 07:15	17:05	16:59	57 16:34 (3)	
	20:52	20:18	19:29	18 19:06 (9) 18:40	5 18:10 (2) 17:05	17:05	16:59	57 16:34 (3)	
20	06:10	06:39	07:09	18:48 (9) 07:40	18:01 (2) 07:16	17:04	16:59	57 16:35 (3)	
	20:51	20:17	19:27	17 19:05 (9) 18:39	14 18:15 (2) 17:04	17:04	16:59	57 16:35 (3)	
21	06:11	06:40	07:10	18:47 (9) 07:41	17:59 (2) 07:17	17:03	16:59	57 16:35 (3)	
	20:51	20:15	19:25	16 19:03 (9) 18:37	16 18:15 (2) 17:04	17:03	16:59	57 16:35 (3)	
22	06:12	06:41	07:11	18:47 (9) 07:42	17:57 (2) 07:18	16:11 (3) 07:45	16:59	57 16:35 (3)	
	20:50	20:14	19:24	14 19:01 (9) 18:36	16 18:13 (2) 17:03	4 16:15 (3) 17:01	16:59	57 16:35 (3)	
23	06:13	06:42	07:12	18:47 (9) 07:43	17:56 (2) 07:19	15:29 (4) 07:45	16:59	57 16:35 (3)	
	20:49	20:12	19:22	13 19:00 (9) 18:35	15 18:11 (2) 17:02	17 16:18 (3) 17:02	16:59	57 16:35 (3)	
24	06:14	06:43	07:13	18:47 (9) 07:45	17:55 (2) 07:20	15:26 (4) 07:46	16:59	57 16:35 (3)	
	20:48	20:11	19:20	11 18:58 (9) 18:33	15 18:10 (2) 17:02	26 15:22 (4) 07:46	16:59	57 16:35 (3)	
25	06:15	06:44	07:14	18:47 (9) 06:46	16:54 (2) 07:21	15:25 (4) 07:46	16:59	57 16:35 (3)	
	20:47	20:09	19:19	9 18:56 (9) 17:32	14 17:08 (2) 17:01	32 16:22 (3) 17:03	16:59	57 16:35 (3)	
26	06:15	06:45	07:15	18:47 (9) 06:47	16:54 (2) 07:23	15:24 (4) 07:47	16:59	57 16:35 (3)	
	20:47	20:08	19:17	8 18:55 (9) 17:30	14 17:08 (2) 17:01	36 16:23 (3) 17:04	16:59	57 16:35 (3)	
27	06:16	06:46	07:16	18:48 (9) 06:48	16:53 (2) 07:24	15:23 (4) 07:47	16:59	57 16:35 (3)	
	20:46	20:06	19:15	5 18:53 (9) 17:29	13 17:06 (2) 17:00	40 16:24 (3) 17:04	16:59	57 16:35 (3)	
28	06:17	06:47	07:17	18:49 (9) 06:49	16:53 (2) 07:25	15:23 (4) 07:47	16:59	57 16:35 (3)	
	20:45	20:05	19:14	2 18:51 (9) 17:28	11 17:04 (2) 17:00	42 16:25 (3) 17:05	16:59	57 16:35 (3)	
29	06:18	06:48	07:18	06:50	16:52 (2) 07:26	15:22 (4) 07:48	16:59	57 16:35 (3)	
	20:44	20:03	19:12	11 17:26	11 17:03 (2) 17:00	45 16:26 (3) 17:06	16:59	57 16:35 (3)	
30	06:19	06:49	07:19	06:51	16:53 (2) 07:27	15:22 (4) 07:48	16:59	57 16:35 (3)	
	20:43	20:02	19:10	9 17:25	9 17:02 (2) 16:59	46 16:26 (3) 17:06	16:59	57 16:35 (3)	
31	06:20	06:50		06:53	16:53 (2)		17:06	16:59	57 16:35 (3)
	20:42	20:00		17:24	8 17:01 (2)		17:07	16:59	58 16:41 (3)
Potential sun hours	457	427	375	346	299	300	290	1734	
Total, worst case		2	264	161					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
 IT-09047 SELARGIUS
 335244024

SHADOW - Calendar

Shadow receptor: E - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:48	07:35	07:00	07:10	06:25	05:57	19:44 (7) 05:58	19:54 (7) 06:21	19:55 (7) 06:51	07:20	06:54	07:28
2	17:08	17:42	18:15	19:48	20:20	20:48	20:10 (7) 20:59	20:13 (7) 20:41	20:17 (7) 20:58	19:09	17:23	16:59
3	07:48	07:34	06:59	07:09	06:24	05:57	19:45 (7) 05:58	19:54 (7) 06:22	19:56 (7) 06:52	07:21	06:55	07:29
4	17:08	17:43	18:16	19:50	20:21	20:49	20:10 (7) 20:59	20:13 (7) 20:40	20:16 (7) 20:57	19:07	17:22	16:59
5	07:48	07:33	06:57	07:07	06:23	05:56	19:45 (7) 05:59	19:54 (7) 06:23	19:57 (7) 06:53	07:22	06:56	07:30
6	17:10	17:44	18:18	19:51	20:22	20:50	20:10 (7) 20:59	20:14 (7) 20:39	20:16 (7) 20:55	19:05	17:20	16:59
7	07:48	07:32	06:56	07:05	06:21	05:56	19:46 (7) 05:59	19:53 (7) 06:24	19:56 (7) 06:54	07:23	06:57	07:31
8	17:11	17:46	18:19	19:52	20:23	20:51	20:10 (7) 20:59	20:14 (7) 20:37	20:16 (7) 20:54	19:04	17:19	16:58
9	07:48	07:31	06:54	07:04	06:20	05:55	19:47 (7) 06:00	19:54 (7) 06:25	19:57 (7) 06:55	07:24	06:58	07:32
10	17:12	17:47	18:20	19:53	20:24	20:51	20:10 (7) 20:59	20:15 (7) 20:36	20:17 (7) 20:52	19:02	17:18	16:58
11	07:48	07:30	06:52	07:02	06:19	05:55	19:47 (7) 06:00	19:54 (7) 06:26	19:56 (7) 06:56	07:25	06:59	07:33
12	17:13	17:48	18:21	19:54	20:25	20:52	20:10 (7) 20:58	20:16 (7) 20:35	20:18 (7) 20:50	19:00	17:17	16:58
13	07:48	07:29	06:51	07:00	06:18	05:54 (7) 05:55	19:47 (7) 06:01	19:53 (7) 06:27	19:55 (7) 06:57	07:26	07:01	07:34
14	17:14	17:49	18:22	19:55	20:26	20:52	20:09 (7) 20:58	20:16 (7) 20:34	20:18 (7) 20:47	19:49	18:59	17:16
15	07:48	07:28	06:49	06:59	06:17	05:52 (7) 05:53	19:48 (7) 06:01	19:53 (7) 06:28	19:55 (7) 06:58	07:27	07:02	07:35
16	17:15	17:50	18:23	19:56	20:27	20:53	20:09 (7) 20:58	20:17 (7) 20:33	20:19 (7) 20:47	19:47	18:57	17:15
17	07:48	07:27	06:48	06:57	06:16	05:51 (7) 05:52	19:49 (7) 06:02	19:52 (7) 06:29	19:54 (7) 06:59	07:28	07:03	07:36
18	17:16	17:52	18:24	19:57	20:28	20:54	20:09 (7) 20:57	20:17 (7) 20:32	20:19 (7) 20:46	19:45	18:56	17:14
19	07:48	07:26	06:46	06:56	06:14	05:50 (7) 05:51	19:49 (7) 06:03	19:52 (7) 06:30	19:54 (7) 06:56	07:29	07:04	07:36
20	17:17	17:53	18:25	19:58	20:29	20:55	20:09 (7) 20:57	20:17 (7) 20:30	20:19 (7) 20:44	18:54	17:13	16:58
21	07:48	07:25	06:45	06:54	06:13	05:54 (7) 05:55	19:50 (7) 06:03	19:52 (7) 06:31	19:54 (7) 06:57	07:01	07:30	07:05
22	17:18	17:54	18:26	19:59	20:30	20:55	19:09 (7) 20:57	20:18 (7) 20:29	20:20 (7) 20:32	19:42	18:52	17:12
23	07:48	07:23	06:43	06:53	06:12	05:54 (7) 05:55	19:51 (7) 06:04	19:52 (7) 06:32	19:54 (7) 06:57	07:02	07:32	07:06
24	17:19	17:55	18:27	20:00	20:31	20:55	17:20 (7) 20:56	20:18 (7) 20:28	20:20 (7) 20:32	19:40	18:51	17:11
25	07:47	07:22	06:41	06:51	06:11	05:54 (7) 05:55	19:51 (7) 06:05	19:52 (7) 06:33	19:54 (7) 06:57	07:03	07:33	07:08
26	17:20	17:57	18:29	20:01	20:32	20:56	17:20 (7) 20:56	20:19 (7) 20:26	20:21 (7) 20:33	19:39	18:49	17:10
27	07:47	07:21	06:40	06:49	06:10	05:54 (7) 05:55	19:52 (7) 06:06	19:52 (7) 06:34	19:54 (7) 06:57	07:04	07:34	07:09
28	17:21	17:58	18:30	20:02	20:33	20:56	16:20 (7) 20:55	20:19 (7) 20:25	20:21 (7) 20:33	19:37	18:48	17:09
29	07:47	07:20	06:38	06:48	06:09	05:54 (7) 05:55	19:52 (7) 06:06	19:52 (7) 06:35	19:54 (7) 06:58	07:05	07:35	07:10
30	17:22	17:59	18:31	20:03	20:34	20:57	20:08 (7) 20:55	20:20 (7) 20:24	20:22 (7) 20:34	19:35	18:46	17:08
31	07:46	07:18	06:36	06:46	06:08	05:54 (7) 05:55	19:53 (7) 06:07	19:51 (7) 06:35	19:53 (7) 06:56	07:06	07:36	07:11
1	17:23	18:00	18:32	20:04	20:35	20:57	15:20 (7) 20:54	20:20 (7) 20:22	20:22 (7) 20:34	19:34	18:45	17:07
2	07:46	07:17	06:35	06:45	06:07	05:54 (7) 05:55	19:53 (7) 06:08	19:51 (7) 06:36	19:53 (7) 06:56	07:06	07:37	07:12
3	17:24	18:01	18:33	20:05	20:36	20:59	15:20 (7) 20:53	20:20 (7) 20:21	20:22 (7) 20:34	19:32	18:43	17:07
4	07:45	07:16	06:33	06:43	06:07	05:54 (7) 05:55	19:54 (7) 06:09	19:51 (7) 06:37	19:53 (7) 06:57	07:07	07:38	07:13
5	17:25	18:03	18:34	20:06	20:36	20:58	14:20 (7) 20:53	20:21 (7) 20:20	20:23 (7) 20:35	19:30	18:42	17:06
6	07:45	07:14	06:32	06:42	06:06	05:54 (7) 05:55	19:54 (7) 06:10	19:51 (7) 06:38	19:53 (7) 06:57	07:08	07:39	07:15
7	17:26	18:04	18:35	20:07	20:37	20:59	14:20 (7) 20:52	20:21 (7) 20:18	20:24 (7) 20:36	19:29	18:40	17:05
8	07:44	07:13	06:30	06:40	06:05	05:54 (7) 05:55	19:54 (7) 06:10	19:52 (7) 06:39	19:54 (7) 06:57	07:09	07:40	07:16
9	17:27	18:05	18:36	20:08	20:38	20:59	14:20 (7) 20:51	20:22 (7) 20:17	20:25 (7) 20:37	19:27	18:39	17:04
10	07:44	07:12	06:28	06:39	06:04	05:54 (7) 05:55	19:54 (7) 06:11	19:51 (7) 06:40	19:53 (7) 06:57	07:10	07:41	07:17
11	17:29	18:06	18:37	20:09	20:39	20:59	14:20 (7) 20:51	20:21 (7) 20:15	20:24 (7) 20:36	19:25	18:37	17:04
12	07:43	07:10	06:27	06:38	06:03	05:54 (7) 05:55	19:55 (7) 06:12	19:51 (7) 06:41	19:53 (7) 06:57	07:11	07:42	07:18
13	17:30	18:07	18:38	20:10	20:40	20:59	14:20 (7) 20:50	20:21 (7) 20:14	20:24 (7) 20:36	19:24	18:36	17:03
14	07:42	07:09	06:25	06:36	06:02	05:54 (7) 05:55	19:55 (7) 06:13	19:51 (7) 06:42	19:53 (7) 06:57	07:12	07:43	07:19
15	17:31	18:08	18:39	20:11	20:41	20:59	14:20 (7) 20:49	20:21 (7) 20:12	20:24 (7) 20:36	19:22	18:35	17:03
16	07:42	07:07	06:23	06:35	06:02	05:54 (7) 05:55	19:55 (7) 06:14	19:52 (7) 06:43	19:54 (7) 06:57	07:13	07:45	07:20
17	17:32	18:10	18:40	20:12	20:42	20:59	14:20 (7) 20:48	20:21 (7) 20:11	20:24 (7) 20:36	19:20	18:33	17:02
18	07:41	07:06	06:22	06:33	06:01	05:54 (7) 05:55	19:55 (7) 06:15	19:52 (7) 06:44	19:54 (7) 06:57	07:14	07:46	07:21
19	17:33	18:11	18:41	20:13	20:43	20:59	15:20 (7) 20:47	20:21 (7) 20:09	20:24 (7) 20:36	19:19	17:32	17:01
20	07:40	07:05	06:20	06:32	06:00	05:54 (7) 05:55	19:55 (7) 06:16	19:52 (7) 06:45	19:54 (7) 06:57	07:15	07:47	07:23
21	17:35	18:12	18:42	20:14	20:44	20:59	15:20 (7) 20:47	20:21 (7) 20:08	20:24 (7) 20:36	19:17	17:30	17:01
22	07:40	07:03	06:18	06:30	06:00	05:54 (7) 05:55	19:55 (7) 06:16	19:52 (7) 06:46	19:54 (7) 06:57	07:16	07:48	07:24
23	17:36	18:13	18:43	20:15	20:44	20:59	15:20 (7) 20:46	20:22 (7) 20:06	20:25 (7) 20:37	19:15	17:29	17:00
24	07:39	07:02	06:17	06:29	05:59	05:54 (7) 05:55	19:55 (7) 06:17	19:52 (7) 06:47	19:54 (7) 06:57	07:17	07:49	07:25
25	17:37	18:14	18:44	20:16	20:45	20:59	16:20 (7) 20:45	20:20 (7) 20:05	20:23 (7) 20:35	19:14	17:28	17:00
26	07:38	07:01	06:16	06:28	05:59	05:54 (7) 05:55	19:55 (7) 06:18	19:53 (7) 06:48	19:55 (7) 06:57	07:18	07:50	07:26
27	17:38	18:15	18:45	20:17	20:46	20:59	16:20 (7) 20:44	20:20 (7) 20:03	20:23 (7) 20:35	19:12	17:27	17:00
28	07:37	07:00	06:15	06:27	05:58	05:54 (7) 05:55	19:54 (7) 06:19	19:52 (7) 06:49	19:54 (7) 06:57	07:19	07:51	07:27
29	17:39	18:16	18:46	20:18	20:47	20:59	17:20 (7) 20:43	20:21 (7) 20:02	20:24 (7) 20:36	19:10	17:25	16:59
30	07:36	07:01	06:16	06:28	05:57	05:54 (7) 05:55	19:55 (7) 06:19	19:53 (7) 06:49	19:55 (7) 06:57	07:20	07:52	07:28
31	17:41	18:18	18:48	20:20	20:49	20:59	17:20 (7) 20:42	20:22 (7) 20:00	20:25 (7) 20:37	19:11	17:24	17:07
Potential sun hours	299	298	370	398	447	450	450	427	375	346	299	290
Total, worst case					635		536	811	85			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: F - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:48	15:38 (8)	07:35	07:00	07:37 (14)	07:10
	17:08	31 16:09 (8)	17:42	18:15	27 08:04 (14)	19:49
2	07:48	15:38 (8)	07:34	06:59	07:35 (14)	07:09
	17:09	31 16:09 (8)	17:43	18:16	29 08:04 (14)	19:50
3	07:49	15:39 (8)	07:33	06:57	07:35 (14)	07:07
	17:10	30 16:09 (8)	17:44	18:18	30 08:05 (14)	19:51
4	07:49	15:40 (8)	07:32	06:56	07:34 (14)	07:05
	17:11	30 16:10 (8)	17:46	18:19	31 08:05 (14)	19:52
5	07:49	15:40 (8)	07:31	06:54	07:34 (14)	07:04
	17:12	29 16:09 (8)	17:47	18:20	32 08:06 (14)	19:53
6	07:49	15:41 (8)	07:30	06:52	07:33 (14)	07:02
	17:13	28 16:09 (8)	17:48	18:21	32 08:05 (14)	19:54
7	07:49	15:42 (8)	07:29	06:51	07:33 (14)	07:00
	17:13	27 16:09 (8)	17:49	18:22	32 08:05 (14)	19:55
8	07:48	15:44 (8)	07:28	06:49	07:32 (14)	06:59
	17:14	25 16:09 (8)	17:50	18:23	33 08:05 (14)	19:56
9	07:48	15:45 (8)	07:27	06:48	07:32 (14)	06:57
	17:15	23 16:08 (8)	17:52	18:24	32 08:04 (14)	19:57
10	07:48	15:47 (8)	07:26	06:46	07:33 (14)	06:56
	17:16	21 16:08 (8)	17:53	18:25	31 08:04 (14)	19:58
11	07:48	15:48 (8)	07:25	06:45	07:33 (14)	06:54
	17:17	19 16:07 (8)	17:54	18:26	29 08:02 (14)	19:59
12	07:48	15:50 (8)	07:24	06:43	07:34 (14)	06:53
	17:19	16 16:06 (8)	17:55	18:27	28 08:02 (14)	20:00
13	07:47	15:52 (8)	07:22	06:41	07:34 (14)	06:51
	17:20	13 16:05 (8)	17:57	18:29	26 08:00 (14)	20:01
14	07:47	15:55 (8)	07:21	06:40	07:35 (14)	06:49
	17:21	7 16:02 (8)	17:58	18:30	23 07:58 (14)	20:02
15	07:47		07:20	06:38	07:37 (14)	06:48
	17:22		17:59	18:31	20 07:57 (14)	20:03
16	07:46		07:19	06:36	07:38 (14)	06:46
	17:23		18:00	18:32	16 07:54 (14)	20:04
17	07:46		07:17	06:35	07:42 (14)	06:45
	17:24		18:01	18:33	7 07:49 (14)	20:05
18	07:45		07:16	06:33		06:43
	17:25		18:03	18:34		20:06
19	07:45		07:15	06:32		06:42
	17:26		18:04	18:35		20:07
20	07:44		07:13	06:30		06:40
	17:27		18:05	18:36		20:08
21	07:44		07:12	06:28		06:39
	17:29		18:06	18:37		20:09
22	07:43		07:10	06:27		06:37
	17:30		18:07	18:38		20:10
23	07:43		07:09	06:25		06:36
	17:31		18:08	18:39		20:11
24	07:42		07:08	06:23		06:35
	17:32		18:10	18:40		20:12
25	07:41		07:06	06:22		06:33
	17:33		18:11	11 07:45 (14)		20:13
26	07:40		07:05	06:20		06:32
	17:35		18:12	17 08:00 (14)		20:14
27	07:40		07:03	06:18		06:30
	17:36		18:13	21 08:01 (14)		20:15
28	07:39		07:02	06:17		06:29
	17:37		18:14	24 08:03 (14)		20:17
29	07:38			07:15		07:38 (1)
	17:38			19:45	10	07:48 (1)
30	07:37			07:13		07:32 (1)
	17:39			19:46	21	07:53 (1)
31	07:36			07:12		07:30 (1)
	17:41			19:47	26	07:56 (1)
Potential sun hours	299	298	370	398	447	450
Total, worst case	330	73	515	1474	225	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
 IT-09047 SELARGIUS
 335244024

SHADOW - Calendar

Shadow receptor: F - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
 The sun is shining all the day, from sunrise to sunset
 The rotor plane is always perpendicular to the line from the WTG to the sun
 The WTG is always operating

	July	August	September	October	November	December				
1	05:58	06:21	06:51	07:12 (1)	07:20	08:13 (14)	06:54	07:28	15:30 (8)	
	20:59	20:41	19:58	18:06 (1)	19:09	17:23	16:59	15:49 (8)		
2	05:58	06:22	06:52	07:13 (1)	07:21	08:12 (14)	06:55	07:29	15:29 (8)	
	20:59	20:40	19:57	18:05 (1)	19:07	17:22	16:59	15:50 (8)		
3	05:59	06:23	06:53	07:13 (1)	07:22	08:11 (14)	06:56	07:30	15:28 (8)	
	20:59	20:39	19:55	18:03 (1)	19:05	17:20	16:58	15:51 (8)		
4	05:59	06:24	06:54	07:14 (1)	07:23	08:10 (14)	06:57	07:31	15:28 (8)	
	20:59	20:38	19:54	18:02 (1)	19:04	17:19	16:58	15:53 (8)		
5	06:00	06:25	07:37 (1)	06:55	07:15 (1)	07:24	08:09 (14)	06:58	07:32	15:27 (8)
	20:59	20:36	19:52	18:01 (1)	19:02	17:18	16:58	15:54 (8)		
6	06:00	06:26	07:32 (1)	06:56	07:16 (1)	07:25	08:09 (14)	07:00	07:33	15:27 (8)
	20:58	20:35	19:50	18:00 (1)	19:00	17:17	16:58	15:55 (8)		
7	06:01	06:27	07:30 (1)	06:57	07:17 (1)	07:26	08:08 (14)	07:01	07:34	15:27 (8)
	20:58	20:34	19:49	18:59	18:59	17:16	16:58	15:56 (8)		
8	06:01	06:28	07:28 (1)	06:58	07:18 (1)	07:27	08:08 (14)	07:02	07:35	15:27 (8)
	20:58	20:33	19:47	18:57	18:57	17:15	16:58	15:57 (8)		
9	06:02	06:29	07:26 (1)	06:59	07:19 (1)	07:28	08:08 (14)	07:03	07:36	15:27 (8)
	20:58	20:32	19:45	18:56	18:56	17:14	16:58	15:57 (8)		
10	06:03	06:30	07:25 (1)	07:00	07:20 (1)	07:29	08:08 (14)	07:04	07:37	15:28 (8)
	20:57	20:30	19:44	18:54	18:54	17:13	16:58	15:58 (8)		
11	06:03	06:31	07:23 (1)	07:01	07:21 (1)	07:31	08:10 (14)	07:05	07:37	15:28 (8)
	20:57	20:29	19:42	18:52	18:52	17:12	16:58	15:59 (8)		
12	06:04	06:32	07:22 (1)	07:02	07:22 (1)	07:32	08:10 (14)	07:07	07:38	15:28 (8)
	20:56	20:28	19:40	18:51	18:51	17:11	16:58	16:00 (8)		
13	06:05	06:33	07:21 (1)	07:03	07:23 (1)	07:33	08:11 (14)	07:08	07:39	15:28 (8)
	20:56	20:26	19:39	18:49	18:49	17:10	16:58	16:00 (8)		
14	06:06	06:34	07:20 (1)	07:04	07:28 (1)	07:34	08:12 (14)	07:09	07:40	15:28 (8)
	20:55	20:25	19:37	18:48	18:48	17:09	16:58	16:01 (8)		
15	06:06	06:34	07:19 (1)	07:05	07:40 (1)	07:35	08:13 (14)	07:10	07:40	15:29 (8)
	20:55	20:24	19:35	18:46	18:46	17:08	16:59	16:02 (8)		
16	06:07	06:35	07:18 (1)	07:06	07:36	07:36	08:15 (14)	07:11	07:41	15:28 (8)
	20:54	20:22	19:34	18:45	18:45	17:07	16:59	16:02 (8)		
17	06:08	06:36	07:17 (1)	07:07	07:37	07:37	08:19 (14)	07:12	07:42	15:29 (8)
	20:54	20:21	19:32	18:43	18:43	17:07	16:59	16:03 (8)		
18	06:09	06:37	07:16 (1)	07:07	07:38	07:38	07:14	07:43	15:30 (8)	
	20:53	20:20	19:30	18:42	18:42	17:06	17:00	16:04 (8)		
19	06:09	06:38	07:16 (1)	07:08	07:39	07:39	07:15	07:43	15:30 (8)	
	20:52	20:18	19:29	18:40	18:40	17:05	17:00	16:04 (8)		
20	06:10	06:39	07:14 (1)	07:09	07:40	07:40	07:16	07:44	15:30 (8)	
	20:52	20:17	19:27	18:39	18:39	17:04	17:00	16:05 (8)		
21	06:11	06:40	07:13 (1)	07:10	07:41	07:41	07:17	07:44	15:30 (8)	
	20:51	20:15	19:25	18:37	18:37	17:04	17:01	16:05 (8)		
22	06:12	06:41	07:13 (1)	07:11	07:42	07:42	07:18	07:45	15:31 (8)	
	20:50	20:14	19:24	18:36	18:36	17:03	17:01	16:06 (8)		
23	06:13	06:42	07:12 (1)	07:12	07:43	07:43	07:19	07:45	15:31 (8)	
	20:49	20:12	19:22	18:35	18:35	17:02	17:02	16:06 (8)		
24	06:14	06:43	07:12 (1)	07:13	07:45	07:45	07:20	07:46	15:32 (8)	
	20:48	20:11	19:20	18:33	18:33	17:02	17:02	16:07 (8)		
25	06:15	06:44	07:12 (1)	07:14	07:46	07:46	07:22	07:46	15:33 (8)	
	20:48	20:09	19:19	17:32	17:32	17:01	17:01	16:07 (8)		
26	06:15	06:45	07:11 (1)	07:15	07:47	07:47	07:23	07:47	15:33 (8)	
	20:47	20:08	19:17	17:30	17:30	17:01	17:01	16:07 (8)		
27	06:16	06:46	07:11 (1)	07:16	08:21 (14)	06:48	07:24	07:47	15:34 (8)	
	20:46	20:06	19:15	17:29	17:29	17:00	17:00	16:08 (8)		
28	06:17	06:47	07:11 (1)	07:17	08:18 (14)	06:49	07:25	07:47	15:34 (8)	
	20:45	20:05	19:14	17:28	17:28	17:00	7 15:42 (8)	17:05	16:08 (8)	
29	06:18	06:48	07:11 (1)	07:18	08:16 (14)	06:50	07:26	07:48	15:35 (8)	
	20:44	20:03	19:12	17:26	17:26	17:00	13 15:45 (8)	17:06	16:08 (8)	
30	06:19	06:49	07:11 (1)	07:19	08:14 (14)	06:51	07:27	07:48	15:35 (8)	
	20:43	20:02	19:10	17:25	17:25	16:59	16 15:47 (8)	17:06	16:08 (8)	
31	06:20	06:50	07:11 (1)	07:20	06:53	06:53	07:28	07:48	15:36 (8)	
	20:42	20:00	19:08	17:24	17:24	17:01	17:01	16:08 (8)		
Potential sun hours	457	427	375	346	299	290				
Total, worst case		1240	614	457	36	968				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: G - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:48 07:35		07:00	09:02 (7) 07:10	09:23 (7) 06:25	06:56 (5) 05:57
	17:08 17:42		18:15 93	10:35 (7) 19:49	161 19:28 (12) 20:20	169 11:11 (7) 20:48
2	07:48 07:34		06:59	08:59 (7) 07:09	09:22 (7) 06:24	06:56 (5) 05:57
	17:09 17:43		18:16 97	10:36 (7) 19:50	162 19:28 (12) 20:21	169 11:10 (7) 20:49
3	07:48 07:33		06:57	08:57 (7) 07:07	09:21 (7) 06:23	06:56 (5) 05:56
	17:10 17:44		18:18 102	10:39 (7) 19:51	164 19:29 (12) 20:22	167 11:08 (7) 20:50
4	07:49 07:32		06:56	08:55 (7) 07:05	09:21 (7) 06:21	06:55 (5) 05:56
	17:11 17:46		18:19 105	10:40 (7) 19:52	164 19:31 (12) 20:23	167 11:07 (7) 20:51
5	07:49 07:31		06:54	08:54 (7) 07:04	09:20 (7) 06:20	06:55 (5) 05:55
	17:12 17:47		18:20 108	10:42 (7) 19:53	165 19:31 (12) 20:24	166 11:06 (7) 20:51
6	07:49 07:30		06:53	08:51 (7) 07:02	09:19 (7) 06:19	06:54 (5) 05:55
	17:13 17:48		18:21 113	10:44 (7) 19:54	166 19:32 (12) 20:25	165 11:04 (7) 20:52
7	07:48 07:29		06:51	08:50 (7) 07:01	09:19 (7) 06:18	06:54 (5) 05:55
	17:14 17:49		18:22 116	10:46 (7) 19:55	165 19:34 (12) 20:26	164 11:03 (7) 20:53
8	07:48 07:28		06:49	08:48 (7) 06:59	09:19 (7) 06:17	06:55 (5) 05:55
	17:15 17:51		18:23 119	10:47 (7) 19:56	163 19:34 (12) 20:27	161 11:01 (7) 20:53
9	07:48 07:27		06:48	08:46 (7) 06:57	09:19 (7) 06:16	06:55 (5) 05:54
	17:16 17:52		18:24 121	10:47 (7) 19:57	162 19:35 (12) 20:28	159 11:00 (7) 20:54
10	07:48 07:26		06:46	08:45 (7) 06:56	09:18 (7) 06:14	06:55 (5) 05:54
	17:17 17:53		18:25 124	10:49 (7) 19:58	155 19:31 (12) 20:29	158 10:59 (7) 20:54
11	07:48 07:25		06:45	08:43 (7) 06:54	09:18 (7) 06:13	06:56 (5) 05:54
	17:18 17:54		18:26 127	10:50 (7) 19:59	145 11:43 (7) 20:30	155 10:58 (7) 20:55
12	07:48 07:24		06:43	08:43 (7) 06:53	09:18 (7) 06:12	06:56 (5) 05:54
	17:19 17:55		18:27 128	10:51 (7) 20:00	143 11:41 (7) 20:31	154 10:57 (7) 20:55
13	07:47 07:22		06:41	08:41 (7) 06:51	09:18 (7) 06:11	06:56 (6) 05:54
	17:20 17:57		18:29 131	10:52 (7) 20:01	142 11:40 (7) 20:32	153 10:56 (7) 20:56
14	07:47 07:21		06:40	08:39 (7) 06:50	09:17 (7) 06:10	06:56 (6) 05:54
	17:21 17:58		18:30 133	10:52 (7) 20:02	141 11:38 (7) 20:33	151 10:55 (7) 20:56
15	07:47 07:20		06:38	08:38 (7) 06:48	09:16 (7) 06:09	06:56 (6) 05:54
	17:22 17:59		18:31 136	10:54 (7) 20:03	140 11:36 (7) 20:34	149 10:53 (7) 20:57
16	07:46 07:19		06:37	08:37 (7) 06:46	09:17 (7) 06:08	06:56 (6) 05:54
	17:23 18:00		18:32 137	10:54 (7) 20:04	138 11:35 (7) 20:35	147 10:52 (7) 20:57
17	07:46 07:17		06:35	08:35 (7) 06:45	09:16 (7) 06:07	06:57 (6) 05:54
	17:24 18:01		18:33 139	10:54 (7) 20:05	137 11:33 (7) 20:36	146 10:52 (7) 20:57
18	07:45 07:16		06:33	08:35 (7) 06:43	09:16 (7) 06:07	06:57 (6) 05:54
	17:25 18:03		18:34 140	10:55 (7) 20:06	136 11:32 (7) 20:37	145 10:51 (7) 20:58
19	07:45 07:15		06:32	08:33 (7) 06:42	09:17 (7) 06:06	06:57 (6) 05:54
	17:26 18:04		18:35 142	10:55 (7) 20:07	133 11:30 (7) 20:37	142 10:50 (7) 20:58
20	07:44 07:13		09:34 (7) 06:30	08:32 (7) 06:40	09:16 (7) 06:05	06:57 (6) 05:54
	17:28 18:05	28	10:02 (7) 18:36	143 10:55 (7) 20:08	132 11:28 (7) 20:38	141 10:49 (7) 20:58
21	07:44 07:12		09:28 (7) 06:28	08:32 (7) 06:39	07:25 (6) 06:04	06:56 (6) 05:54
	17:29 18:06	41	10:09 (7) 18:37	144 10:56 (7) 20:09	139 11:27 (7) 20:39	140 10:48 (7) 20:59
22	07:43 07:10		09:22 (7) 06:27	08:30 (7) 06:38	07:18 (6) 06:03	06:57 (6) 05:55
	17:30 18:07	52	10:14 (7) 18:38	146 10:56 (7) 20:10	149 11:25 (7) 20:40	138 10:48 (7) 20:59
23	07:43 07:09		09:19 (7) 06:25	08:29 (7) 06:36	07:15 (6) 06:02	06:57 (6) 05:55
	17:31 18:08	59	10:18 (7) 18:39	147 10:56 (7) 20:11	155 11:24 (7) 20:41	136 10:47 (7) 20:59
24	07:42 07:08		09:16 (7) 06:23	08:29 (7) 06:35	07:12 (6) 06:02	06:57 (6) 05:55
	17:32 18:10	66	10:22 (7) 18:40	148 10:57 (7) 20:12	156 11:21 (7) 20:42	134 10:45 (7) 20:59
25	07:41 07:06		09:12 (7) 06:22	08:28 (7) 06:33	07:06 (5) 06:01	06:58 (6) 05:55
	17:33 18:11	73	10:25 (7) 18:41	148 10:56 (7) 20:13	163 11:20 (7) 20:43	131 10:45 (7) 20:59
26	07:40 07:05		09:10 (7) 06:20	08:26 (7) 06:32	07:03 (5) 06:00	06:58 (6) 05:56
	17:35 18:12	78	10:28 (7) 18:42	150 10:56 (7) 20:14	166 11:19 (7) 20:44	130 10:44 (7) 20:59
27	07:40 07:03		09:06 (7) 06:18	08:26 (7) 06:31	07:00 (5) 06:00	06:59 (6) 05:56
	17:36 18:13	84	10:30 (7) 18:43	150 10:56 (7) 20:15	169 11:17 (7) 20:45	128 10:44 (7) 20:59
28	07:39 07:02		09:04 (7) 06:17	08:25 (7) 06:29	06:59 (5) 05:59	06:59 (6) 05:56
	17:37 18:14	89	10:33 (7) 18:44	153 18:23 (12) 20:17	169 11:15 (7) 20:45	126 10:43 (7) 20:59
29	07:38		07:15	09:25 (7) 06:28	06:58 (5) 05:59	07:00 (6) 05:57
	17:38		19:45 155	19:25 (12) 20:18	169 11:14 (7) 20:46	125 10:43 (7) 20:59
30	07:37		07:14	09:24 (7) 06:27	06:58 (5) 05:58	07:00 (6) 05:57
	17:40		19:46 158	19:26 (12) 20:19	169 11:13 (7) 20:47	123 10:42 (7) 20:59
31	07:36		07:12	09:23 (7)	05:58	07:01 (6)
	17:41		19:47 159	19:26 (12)	20:48	121 10:42 (7)
Potential sun hours	299	298	370	398	447	450
Total, worst case	570	570	4112	4618	4560	3132

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: G - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December				
1	05:58	07:10 (6)	06:21	07:06 (5)	06:51	09:17 (7) 07:20	09:21 (7) 06:54	07:28		
	20:59	104	10:42 (7) 20:41	156	11:08 (7) 19:58	145	11:42 (7) 19:09	129	11:30 (7) 17:23	16:59
2	05:58	07:09 (6)	06:22	07:06 (5)	06:52	09:17 (7) 07:21	09:21 (7) 06:55	07:29		
	20:59	106	10:42 (7) 20:40	157	11:09 (7) 19:57	155	19:30 (12) 19:07	128	11:29 (7) 17:22	16:59
3	05:59	07:10 (6)	06:23	07:06 (5)	06:53	09:17 (7) 07:22	09:22 (7) 06:56	07:30		
	20:59	106	10:43 (7) 20:39	158	11:10 (7) 19:55	162	19:33 (12) 19:05	125	11:27 (7) 17:20	16:59
4	05:59	07:10 (6)	06:24	07:05 (5)	06:54	09:16 (7) 07:23	09:23 (7) 06:57	07:31		
	20:59	107	10:44 (7) 20:38	161	11:11 (7) 19:54	163	19:31 (12) 19:04	123	11:26 (7) 17:19	16:58
5	06:00	07:09 (6)	06:25	07:05 (5)	06:55	09:15 (7) 07:24	09:24 (7) 06:58	07:32		
	20:59	109	10:44 (7) 20:36	163	11:13 (7) 19:52	165	19:30 (12) 19:02	120	11:24 (7) 17:18	16:58
6	06:00	07:10 (6)	06:26	07:05 (5)	06:56	09:15 (7) 07:25	09:25 (7) 07:00	07:33		
	20:58	110	10:45 (7) 20:35	164	11:14 (7) 19:50	166	19:28 (12) 19:00	117	11:22 (7) 17:17	16:58
7	06:01	07:09 (6)	06:27	07:04 (5)	06:57	09:15 (7) 07:26	09:26 (7) 07:01	07:34		
	20:58	111	10:45 (7) 20:34	165	11:14 (7) 19:49	164	19:26 (12) 18:59	114	11:20 (7) 17:16	16:58
8	06:02	07:09 (6)	06:28	07:04 (5)	06:58	09:15 (7) 07:27	09:28 (7) 07:02	07:35		
	20:58	113	10:46 (7) 20:33	166	11:15 (7) 19:47	164	19:25 (12) 18:57	110	11:18 (7) 17:15	16:58
9	06:02	07:08 (6)	06:29	07:04 (5)	06:59	09:15 (7) 07:28	09:29 (7) 07:03	07:36		
	20:57	115	10:46 (7) 20:32	167	11:16 (7) 19:45	164	19:23 (12) 18:56	107	11:16 (7) 17:14	16:58
10	06:03	07:09 (6)	06:30	07:04 (5)	07:00	09:15 (7) 07:30	09:31 (7) 07:04	07:36		
	20:57	117	10:48 (7) 20:30	168	11:17 (7) 19:44	163	19:22 (12) 18:54	104	11:15 (7) 17:13	16:58
11	06:04	07:09 (6)	06:31	07:05 (5)	07:01	09:15 (7) 07:31	09:33 (7) 07:05	07:37		
	20:57	119	10:49 (7) 20:29	169	11:19 (7) 19:42	161	19:20 (12) 18:53	99	11:12 (7) 17:12	16:58
12	06:04	07:09 (6)	06:32	07:05 (5)	07:02	09:15 (7) 07:32	09:34 (7) 07:07	07:38		
	20:56	120	10:50 (7) 20:28	170	11:20 (7) 19:40	160	19:19 (12) 18:51	96	11:10 (7) 17:11	16:58
13	06:05	07:08 (6)	06:33	07:06 (5)	07:03	09:15 (7) 07:33	09:36 (7) 07:08	07:39		
	20:56	122	10:50 (7) 20:26	169	11:21 (7) 19:39	158	19:17 (12) 18:49	91	11:07 (7) 17:10	16:58
14	06:06	07:08 (6)	06:34	07:06 (5)	07:04	09:15 (7) 07:34	09:38 (7) 07:09	07:40		
	20:55	124	10:51 (7) 20:25	169	11:22 (7) 19:37	155	19:15 (12) 18:48	87	11:05 (7) 17:09	16:59
15	06:06	07:08 (6)	06:35	07:07 (5)	07:05	09:15 (7) 07:35	09:40 (7) 07:10	07:40		
	20:55	126	10:52 (7) 20:24	169	11:23 (7) 19:35	154	19:14 (12) 18:46	82	11:02 (7) 17:08	16:59
16	06:07	07:08 (6)	06:36	07:09 (5)	07:06	09:15 (7) 07:36	09:42 (7) 07:11	07:41		
	20:54	126	10:52 (7) 20:22	167	11:25 (7) 19:34	151	11:46 (7) 18:45	77	10:59 (7) 17:07	16:59
17	06:08	07:08 (6)	06:37	07:10 (5)	07:07	09:16 (7) 07:37	09:45 (7) 07:12	07:42		
	20:54	129	10:53 (7) 20:21	167	11:26 (7) 19:32	149	11:45 (7) 18:43	70	10:55 (7) 17:07	16:59
18	06:09	07:08 (6)	06:37	07:13 (5)	07:08	09:15 (7) 07:38	09:47 (7) 07:14	07:42		
	20:53	131	10:54 (7) 20:20	163	11:27 (7) 19:30	149	11:44 (7) 18:42	64	10:51 (7) 17:06	17:00
19	06:10	07:08 (6)	06:38	07:19 (6)	07:08	09:15 (7) 07:39	09:52 (7) 07:15	07:43		
	20:52	132	10:55 (7) 20:18	156	11:28 (7) 19:29	148	11:43 (7) 18:40	56	10:48 (7) 17:05	17:00
20	06:10	07:08 (6)	06:39	07:22 (6)	07:09	09:15 (7) 07:40	09:56 (7) 07:16	07:44		
	20:51	135	10:57 (7) 20:17	153	11:30 (7) 19:27	147	11:42 (7) 18:39	48	10:44 (7) 17:04	17:00
21	06:11	07:07 (6)	06:40	07:24 (6)	07:10	09:16 (7) 07:41	10:00 (7) 07:17	07:44		
	20:51	137	10:57 (7) 20:15	147	11:30 (7) 19:25	146	11:42 (7) 18:37	38	10:38 (7) 17:04	17:01
22	06:12	07:07 (6)	06:41	07:31 (6)	07:11	09:16 (7) 07:42	10:08 (7) 07:18	07:45		
	20:50	139	10:58 (7) 20:14	135	11:31 (7) 19:24	145	11:41 (7) 18:36	22	10:30 (7) 17:03	17:01
23	06:13	07:07 (6)	06:42	09:20 (7)	07:12	09:16 (7) 07:43	10:19 (7) 07:19	07:45		
	20:49	140	10:59 (7) 20:12	132	11:32 (7) 19:22	144	11:40 (7) 18:35	17:03	17:02	
24	06:14	07:07 (6)	06:43	09:20 (7)	07:13	09:17 (7) 07:45	10:20 (7) 07:20	07:46		
	20:48	143	11:00 (7) 20:11	133	11:33 (7) 19:20	142	11:39 (7) 18:33	17:02	17:02	
25	06:15	07:07 (6)	06:44	09:19 (7)	07:14	09:17 (7) 07:46	10:22 (7) 07:22	07:46		
	20:48	144	11:01 (7) 20:09	136	11:35 (7) 19:19	141	11:38 (7) 17:32	17:01	17:03	
26	06:16	07:07 (6)	06:45	09:19 (7)	07:15	09:18 (7) 07:47	10:23 (7) 07:23	07:47		
	20:47	145	11:02 (7) 20:08	137	11:36 (7) 19:17	139	11:37 (7) 17:31	17:01	17:04	
27	06:16	07:06 (6)	06:46	09:19 (7)	07:16	09:18 (7) 07:48	10:24 (7) 07:24	07:47		
	20:46	148	11:02 (7) 20:06	138	11:37 (7) 19:15	138	11:36 (7) 17:29	17:01	17:04	
28	06:17	07:06 (6)	06:47	09:18 (7)	07:17	09:19 (7) 07:49	10:25 (7) 07:25	07:47		
	20:45	149	11:03 (7) 20:05	140	11:38 (7) 19:14	136	11:35 (7) 17:28	17:00	17:05	
29	06:18	07:07 (6)	06:48	09:18 (7)	07:18	09:19 (7) 07:50	10:26 (7) 07:26	07:48		
	20:44	150	11:05 (7) 20:03	141	11:39 (7) 19:12	134	11:33 (7) 17:27	17:00	17:06	
30	06:19	07:07 (6)	06:49	09:18 (7)	07:19	09:20 (7) 07:51	10:27 (7) 07:27	07:48		
	20:43	152	11:06 (7) 20:02	142	11:40 (7) 19:10	132	11:32 (7) 17:25	16:59	17:06	
31	06:20	07:07 (5)	06:50	09:17 (7)			06:53	07:48		
	20:42	153	11:07 (7) 20:00	144	11:41 (7)		17:24	17:07		
Potential sun hours	457		427		375		346		299	290
Total, worst case	3962		4802		4540		2007			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: H - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:48	08:41 (6) 07:35	09:01 (6) 07:00	07:33 (5) 07:10	11:10 (3) 06:25	08:12 (4) 05:57
	17:08	60 09:41 (6) 17:42	106 12:01 (3) 18:15	231 17:53 (11) 19:49	120 13:10 (3) 20:20	58 09:10 (4) 20:48
2	07:48	08:42 (6) 07:34	09:03 (6) 06:59	07:30 (5) 07:09	11:10 (3) 06:24	08:13 (4) 05:57
	17:09	61 09:43 (6) 17:43	120 17:19 (11) 18:16	237 17:52 (11) 19:50	115 13:05 (3) 20:21	57 09:10 (4) 20:49
3	07:49	08:42 (6) 07:33	09:04 (6) 06:57	07:29 (5) 07:07	11:09 (3) 06:23	08:13 (4) 05:56
	17:10	61 09:43 (6) 17:44	128 17:21 (11) 18:18	240 17:52 (11) 19:51	111 13:00 (3) 20:22	56 09:09 (4) 20:50
4	07:49	08:43 (6) 07:32	09:07 (6) 06:56	07:28 (5) 07:05	11:09 (3) 06:21	08:14 (4) 05:56
	17:11	60 09:43 (6) 17:46	130 17:22 (11) 18:19	242 17:51 (11) 19:52	122 12:55 (3) 20:23	55 09:09 (4) 20:51
5	07:49	08:42 (6) 07:31	09:09 (6) 06:54	07:27 (5) 07:04	11:08 (3) 06:20	08:14 (4) 05:55
	17:12	61 09:43 (6) 17:47	132 17:23 (11) 18:20	245 17:52 (11) 19:53	125 12:50 (3) 20:24	54 09:08 (4) 20:51
6	07:49	08:43 (6) 07:30	09:13 (6) 06:53	07:26 (5) 07:02	11:08 (3) 06:19	08:14 (4) 05:55
	17:13	60 09:43 (6) 17:48	132 17:25 (11) 18:21	246 17:51 (11) 19:54	126 12:44 (3) 20:25	52 09:06 (4) 20:52
7	07:49	08:43 (6) 07:29	10:44 (3) 06:51	07:26 (5) 07:01	11:08 (3) 06:18	08:14 (4) 05:55
	17:14	61 09:44 (6) 17:49	123 17:26 (11) 18:22	247 17:51 (11) 19:55	125 12:40 (3) 20:26	52 09:06 (4) 20:53
8	07:48	08:44 (6) 07:28	10:42 (3) 06:49	07:25 (5) 06:59	11:08 (3) 06:17	08:15 (4) 05:55
	17:15	61 09:45 (6) 17:51	130 17:28 (11) 18:23	248 17:50 (11) 19:56	123 12:34 (3) 20:27	50 09:05 (4) 20:53
9	07:48	08:45 (6) 07:27	10:41 (3) 06:48	07:24 (5) 06:57	11:08 (3) 06:16	08:15 (4) 05:54
	17:16	60 09:45 (6) 17:52	135 17:29 (11) 18:24	247 17:49 (11) 19:57	121 12:30 (3) 20:28	49 09:04 (4) 20:54
10	07:48	08:45 (6) 07:26	10:39 (3) 06:46	07:24 (5) 06:56	11:08 (3) 06:14	08:16 (4) 05:54
	17:17	61 09:46 (6) 17:53	141 17:30 (11) 18:25	246 17:48 (11) 19:58	120 12:25 (3) 20:29	47 09:03 (4) 20:54
11	07:48	08:45 (6) 07:25	10:38 (3) 06:45	07:24 (5) 06:54	11:08 (3) 06:13	08:17 (4) 05:54
	17:18	60 09:45 (6) 17:54	146 17:31 (11) 18:26	245 17:47 (11) 19:59	117 12:21 (3) 20:30	45 09:02 (4) 20:55
12	07:48	08:46 (6) 07:24	10:37 (3) 06:43	07:25 (5) 06:53	11:08 (3) 06:12	08:18 (4) 05:54
	17:19	60 09:46 (6) 17:55	152 17:33 (11) 18:27	243 17:47 (11) 20:00	114 12:16 (3) 20:31	43 09:01 (4) 20:55
13	07:47	08:47 (6) 07:22	10:36 (3) 06:41	07:24 (5) 06:51	11:08 (3) 06:11	08:18 (4) 05:54
	17:20	60 09:47 (6) 17:57	156 17:34 (11) 18:29	241 17:45 (11) 20:01	111 12:12 (3) 20:32	42 09:00 (4) 20:56
14	07:47	08:47 (6) 07:21	10:34 (3) 06:40	07:24 (5) 06:50	11:08 (3) 06:10	08:19 (4) 05:54
	17:21	59 09:46 (6) 17:58	161 17:35 (11) 18:30	238 17:44 (11) 20:02	108 12:08 (3) 20:33	40 08:59 (4) 20:56
15	07:47	08:48 (6) 07:20	10:33 (3) 06:38	07:26 (5) 06:48	11:08 (3) 06:09	08:20 (4) 05:54
	17:22	59 09:47 (6) 17:59	166 17:37 (11) 18:31	232 17:43 (11) 20:03	102 12:03 (3) 20:34	37 08:57 (4) 20:57
16	07:46	08:48 (6) 07:19	10:32 (3) 06:37	07:26 (5) 06:46	11:08 (3) 06:08	08:21 (4) 05:54
	17:23	58 09:46 (6) 18:00	171 17:38 (11) 18:32	229 17:41 (11) 20:04	100 12:00 (3) 20:35	35 08:56 (4) 20:57
17	07:46	08:49 (6) 07:17	10:31 (3) 06:35	07:27 (5) 06:45	11:08 (3) 06:07	08:23 (4) 05:54
	17:24	58 09:47 (6) 18:01	174 17:39 (11) 18:33	224 17:40 (11) 20:05	95 11:55 (3) 20:36	33 08:56 (4) 20:57
18	07:45	08:49 (6) 07:16	10:30 (3) 06:33	07:29 (5) 06:43	11:08 (3) 06:07	08:24 (4) 05:54
	17:25	58 09:47 (6) 18:03	179 17:40 (11) 18:34	216 17:39 (11) 20:06	89 11:51 (3) 20:37	30 08:54 (4) 20:58
19	07:45	08:50 (6) 07:15	10:29 (3) 06:32	07:32 (5) 06:42	11:08 (3) 06:06	08:26 (4) 05:54
	17:26	57 09:47 (6) 18:04	183 17:42 (11) 18:35	206 17:36 (11) 20:07	82 11:46 (3) 20:37	26 08:52 (4) 20:58
20	07:44	08:50 (6) 07:13	10:28 (3) 06:30	10:10 (3) 06:40	11:08 (3) 06:05	08:27 (4) 05:54
	17:28	57 09:47 (6) 18:05	186 17:43 (11) 18:36	192 17:34 (11) 20:08	72 11:39 (3) 20:38	23 08:50 (4) 20:58
21	07:44	08:50 (6) 07:12	10:27 (3) 06:28	10:11 (3) 06:39	11:08 (3) 06:04	08:29 (4) 05:54
	17:29	56 09:46 (6) 18:06	190 17:44 (11) 18:37	186 17:32 (11) 20:09	60 09:15 (4) 20:39	19 08:48 (4) 20:59
22	07:43	08:52 (6) 07:10	10:26 (3) 06:27	10:10 (3) 06:38	11:08 (3) 06:03	08:32 (4) 05:55
	17:30	55 09:47 (6) 18:07	193 17:45 (11) 18:38	182 17:30 (11) 20:10	61 09:15 (4) 20:40	14 08:46 (4) 20:59
23	07:43	08:52 (6) 07:09	10:25 (3) 06:25	10:09 (3) 06:36	11:08 (3) 06:02	08:36 (4) 05:55
	17:31	54 09:46 (6) 18:08	197 17:47 (11) 18:39	175 17:26 (11) 20:11	61 09:15 (4) 20:41	6 08:42 (4) 20:59
24	07:42	08:53 (6) 07:08	10:25 (3) 06:23	10:10 (3) 06:35	11:08 (3) 06:02	08:36 (4) 05:55
	17:32	58 11:28 (3) 18:10	199 17:48 (11) 18:40	167 17:23 (11) 20:12	61 09:14 (4) 20:42	20:59
25	07:41	08:54 (6) 07:06	10:24 (3) 06:22	10:09 (3) 06:33	11:08 (3) 06:01	08:36 (4) 05:55
	17:33	76 11:38 (3) 18:11	202 17:49 (11) 18:41	155 17:17 (11) 20:13	61 09:14 (4) 20:43	20:59
26	07:40	08:55 (6) 07:05	10:23 (3) 06:20	10:09 (3) 06:32	11:08 (3) 06:00	08:36 (4) 05:56
	17:35	84 11:43 (3) 18:12	207 17:51 (11) 18:42	138 12:27 (3) 20:14	61 09:14 (4) 20:44	20:59
27	07:40	08:56 (6) 07:03	10:22 (3) 06:18	10:10 (3) 06:31	11:08 (3) 06:00	08:36 (4) 05:56
	17:36	90 11:47 (3) 18:13	210 17:52 (11) 18:43	136 12:26 (3) 20:15	60 09:12 (4) 20:45	20:59
28	07:39	08:56 (6) 07:02	10:21 (3) 06:17	10:09 (3) 06:29	11:08 (3) 06:00	08:36 (4) 05:56
	17:37	96 11:51 (3) 18:14	224 17:53 (11) 18:44	134 12:23 (3) 20:17	60 09:12 (4) 20:45	20:59
29	07:38	08:57 (6) 07:01	10:20 (3) 06:15	11:10 (3) 06:28	11:08 (3) 06:00	08:36 (4) 05:57
	17:38	100 11:54 (3) 18:15	228 17:54 (11) 18:45	132 12:22 (3) 20:18	59 09:12 (4) 20:46	20:59
30	07:37	08:58 (6) 07:00	10:19 (3) 06:14	11:09 (3) 06:27	11:08 (3) 06:00	08:36 (4) 05:57
	17:39	103 11:56 (3) 18:16	232 17:55 (11) 18:46	129 13:18 (3) 20:19	59 09:12 (4) 20:47	20:59
31	07:36	09:00 (6) 07:00	10:18 (3) 06:13	11:09 (3) 06:26	11:08 (3) 06:00	08:36 (4) 05:57
	17:41	105 11:59 (3) 18:17	236 17:56 (11) 18:47	125 13:14 (3) 20:20	58 09:12 (4) 20:48	20:59
Potential sun hours	299	298	370	398	447	450
Total, worst case	2069	4573	6353	2801	923	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: H - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:58	06:21	08:28 (4) 06:51	08:23 (4) 07:20	08:03 (5) 06:54	10:09 (3) 07:28	08:27 (6)
	20:59	20:41	09:12 (4) 19:58	12:20 (3) 19:09	18:25 (11) 17:23	16:59 (11) 16:59	60 09:27 (6)
2	05:58	06:22	08:27 (4) 06:52	08:24 (4) 07:21	08:03 (5) 06:55	10:10 (3) 07:29	08:27 (6)
	20:59	20:40	09:13 (4) 19:57	12:24 (3) 19:07	18:25 (11) 17:22	16:58 (11) 16:59	61 09:28 (6)
3	05:59	06:23	08:26 (4) 06:53	08:26 (4) 07:22	08:02 (5) 06:56	10:12 (3) 07:30	08:28 (6)
	20:59	20:39	09:14 (4) 19:55	12:28 (3) 19:05	18:26 (11) 17:20	16:57 (11) 16:59	60 09:28 (6)
4	05:59	06:24	08:26 (4) 06:54	08:26 (4) 07:23	08:02 (5) 06:57	10:14 (3) 07:31	08:28 (6)
	20:59	20:38	09:15 (4) 19:54	12:31 (3) 19:04	18:26 (11) 17:19	16:56 (11) 16:58	61 09:29 (6)
5	06:00	06:25	08:25 (4) 06:55	08:28 (4) 07:24	08:01 (5) 06:58	10:14 (3) 07:32	08:28 (6)
	20:59	20:36	09:16 (4) 19:52	12:35 (3) 19:02	18:26 (11) 17:18	16:55 (11) 16:58	61 09:29 (6)
6	06:00	06:26	08:25 (4) 06:56	08:30 (4) 07:25	08:01 (5) 07:00	10:15 (3) 07:33	08:29 (6)
	20:58	20:35	09:16 (4) 19:50	12:40 (3) 19:00	18:26 (11) 17:17	16:53 (11) 16:58	61 09:30 (6)
7	06:01	06:27	08:23 (4) 06:57	08:33 (4) 07:26	08:01 (5) 07:01	10:16 (3) 07:34	08:29 (6)
	20:58	20:34	09:16 (4) 19:49	12:45 (3) 18:59	18:26 (11) 17:16	16:53 (11) 16:58	61 09:30 (6)
8	06:01	06:28	08:23 (4) 06:58	08:37 (4) 07:27	08:01 (5) 07:02	10:17 (3) 07:35	08:30 (6)
	20:58	20:33	09:17 (4) 19:47	12:49 (3) 18:57	18:26 (11) 17:15	16:51 (11) 16:58	60 09:30 (6)
9	06:02	06:29	08:22 (4) 06:59	11:03 (3) 07:28	08:02 (5) 07:03	10:18 (3) 07:36	08:30 (6)
	20:57	20:32	09:17 (4) 19:45	12:54 (3) 18:56	18:26 (11) 17:14	16:50 (11) 16:58	61 09:31 (6)
10	06:03	06:30	08:22 (4) 07:00	11:03 (3) 07:30	08:03 (5) 07:04	10:19 (3) 07:37	08:31 (6)
	20:57	20:30	09:18 (4) 19:44	12:58 (3) 18:54	18:27 (11) 17:13	16:52 (11) 16:58	61 09:32 (6)
11	06:03	06:31	08:21 (4) 07:01	11:02 (3) 07:31	08:04 (5) 07:05	10:20 (3) 07:37	08:32 (6)
	20:57	20:29	09:19 (4) 19:42	13:02 (3) 18:53	18:27 (11) 17:12	16:51 (11) 16:58	60 09:32 (6)
12	06:04	06:32	08:21 (4) 07:02	11:01 (3) 07:32	08:06 (5) 07:07	10:21 (3) 07:38	08:32 (6)
	20:56	20:28	09:19 (4) 19:40	13:03 (3) 18:51	18:26 (11) 17:11	16:50 (11) 16:58	61 09:33 (6)
13	06:05	06:33	08:21 (4) 07:03	11:01 (3) 07:33	08:07 (5) 07:08	10:22 (3) 07:39	08:32 (6)
	20:56	20:26	09:19 (4) 19:39	13:09 (3) 18:49	18:26 (11) 17:10	16:49 (11) 16:58	60 09:32 (6)
14	06:06	06:34	08:20 (4) 07:04	11:00 (3) 07:34	08:10 (5) 07:09	10:23 (3) 07:40	08:33 (6)
	20:55	20:25	09:20 (4) 19:37	13:11 (3) 18:48	18:25 (11) 17:09	16:48 (11) 16:59	60 09:33 (6)
15	06:06	06:35	08:20 (4) 07:05	10:59 (3) 07:35	08:11 (5) 07:10	10:24 (3) 07:40	08:34 (6)
	20:55	20:24	09:20 (4) 19:35	13:13 (3) 18:46	18:24 (11) 17:08	16:47 (11) 16:59	60 09:34 (6)
16	06:07	06:36	08:20 (4) 07:06	10:59 (3) 07:36	08:12 (5) 07:11	10:25 (3) 07:41	08:34 (6)
	20:54	20:22	09:20 (4) 19:34	13:15 (3) 18:45	18:22 (11) 17:07	16:46 (11) 16:59	61 09:34 (6)
17	06:08	06:37	08:20 (4) 07:07	10:58 (3) 07:37	08:13 (5) 07:12	10:26 (3) 07:42	08:34 (6)
	20:54	20:21	09:20 (4) 19:32	13:16 (3) 18:43	18:20 (11) 17:07	16:45 (11) 16:59	60 09:34 (6)
18	06:09	06:37	08:20 (4) 07:08	10:57 (3) 07:38	08:14 (5) 07:14	10:27 (3) 07:42	08:35 (6)
	20:53	20:20	09:20 (4) 19:30	15:18 (3) 18:42	18:19 (11) 17:06	16:44 (11) 16:59	60 09:35 (6)
19	06:10	06:38	08:20 (4) 07:08	10:56 (3) 07:39	08:15 (5) 07:15	10:28 (3) 07:43	08:35 (6)
	20:52	20:18	09:20 (4) 19:29	16:48 (3) 18:40	18:18 (11) 17:05	16:43 (11) 16:59	60 09:35 (6)
20	06:10	06:39	08:20 (4) 07:09	10:56 (3) 07:40	08:16 (5) 07:16	10:29 (3) 07:44	08:36 (6)
	20:51	20:17	09:20 (4) 19:27	18:12 (11) 18:39	18:16 (11) 17:04	16:42 (11) 16:59	60 09:36 (6)
21	06:11	06:40	08:19 (4) 07:10	10:55 (3) 07:41	08:17 (5) 07:17	10:30 (3) 07:44	08:36 (6)
	20:51	11 08:54 (4) 20:15	09:19 (4) 19:25	18:14 (11) 18:37	18:15 (11) 17:04	16:41 (11) 16:59	60 09:36 (6)
22	06:12	08:40 (4) 06:41	08:19 (4) 07:11	10:55 (3) 07:42	08:18 (5) 07:18	10:31 (3) 07:45	08:37 (6)
	20:50	17 08:57 (4) 20:14	09:19 (4) 19:24	18:16 (11) 18:36	18:15 (11) 17:03	16:40 (11) 16:59	60 09:37 (6)
23	06:13	08:38 (4) 06:42	08:19 (4) 07:12	10:55 (3) 07:43	08:19 (5) 07:19	10:32 (3) 07:46	08:37 (6)
	20:49	22 09:00 (4) 20:12	11:44 (3) 19:22	18:18 (11) 18:35	18:11 (11) 17:03	16:39 (11) 16:59	60 09:37 (6)
24	06:14	08:37 (4) 06:43	08:19 (4) 07:13	10:54 (3) 07:44	08:20 (5) 07:20	10:33 (3) 07:47	08:38 (6)
	20:48	25 09:02 (4) 20:11	11:50 (3) 19:20	18:19 (11) 18:33	18:10 (11) 17:02	16:38 (11) 16:59	60 09:38 (6)
25	06:15	08:36 (4) 06:44	08:19 (4) 07:14	10:53 (3) 07:45	08:21 (5) 07:21	10:34 (3) 07:48	08:38 (6)
	20:48	28 09:04 (4) 20:09	11:54 (3) 19:19	18:21 (11) 17:32	17:09 (11) 17:01	16:37 (11) 16:59	60 09:38 (6)
26	06:16	08:34 (4) 06:45	08:20 (4) 07:15	10:52 (3) 07:46	08:22 (5) 07:22	10:35 (3) 07:49	08:39 (6)
	20:47	31 09:05 (4) 20:08	11:58 (3) 19:17	18:22 (11) 17:30	17:08 (11) 17:01	16:36 (11) 16:59	60 09:39 (6)
27	06:16	08:32 (4) 06:46	08:20 (4) 07:16	10:51 (3) 07:47	08:23 (5) 07:23	10:36 (3) 07:50	08:39 (6)
	20:46	34 09:06 (4) 20:06	12:02 (3) 19:15	18:23 (11) 17:29	17:06 (11) 17:01	16:35 (11) 16:59	60 09:39 (6)
28	06:17	08:31 (4) 06:47	08:20 (4) 07:17	10:50 (3) 07:48	08:24 (5) 07:24	10:37 (3) 07:51	08:40 (6)
	20:45	36 09:07 (4) 20:05	12:05 (3) 19:14	18:24 (11) 17:28	17:04 (11) 17:00	16:34 (11) 16:59	61 09:40 (6)
29	06:18	08:30 (4) 06:48	08:21 (4) 07:18	10:49 (3) 07:49	08:25 (5) 07:25	10:38 (3) 07:52	08:40 (6)
	20:44	38 09:08 (4) 20:03	12:09 (3) 19:12	18:24 (11) 17:27	17:03 (11) 17:00	16:33 (11) 16:59	60 09:40 (6)
30	06:19	08:29 (4) 06:49	08:22 (4) 07:19	10:48 (3) 07:50	08:26 (5) 07:26	10:39 (3) 07:53	08:40 (6)
	20:43	41 09:10 (4) 20:02	12:13 (3) 19:10	18:25 (11) 17:25	17:02 (11) 16:59	16:32 (11) 16:59	60 09:40 (6)
31	06:20	08:29 (4) 06:50	08:23 (4) 07:20	10:47 (3) 07:51	08:27 (5) 07:27	10:40 (3) 07:54	08:40 (6)
	20:42	42 09:11 (4) 20:00	12:16 (3) 19:09	17:24 (11) 17:24	17:01 (11) 16:59	16:31 (11) 16:59	61 09:41 (6)
Potential sun hours	457		375	346		299	1871
Total, worst case	325	2098	4731	6432	2669		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: I - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:48	07:35	08:13 (7) 07:00	08:07 (7) 07:10	07:36 (5) 06:25	06:59 (11) 05:57 06:28 (11)
	17:08	17:42	8 08:21 (7) 18:15	49 17:54 (12) 19:49	19 07:55 (5) 20:20	57 07:56 (3) 20:49 94 08:02 (11)
2	07:48	07:34	08:09 (7) 06:59	08:12 (7) 07:09	07:36 (5) 06:24	06:56 (11) 05:57 06:28 (11)
	17:09	17:43	16 08:25 (7) 18:16	42 17:56 (12) 19:50	19 07:55 (5) 20:21	59 07:55 (3) 20:49 94 08:02 (11)
3	07:49	07:34	08:07 (7) 06:57	17:22 (12) 07:07	07:35 (5) 06:23	06:53 (11) 05:56 06:29 (11)
	17:10	17:44	21 08:28 (7) 18:18	34 17:56 (12) 19:51	19 07:54 (5) 20:22	62 07:55 (3) 20:50 94 08:03 (11)
4	07:49	07:33	08:05 (7) 06:56	17:21 (12) 07:05	07:36 (5) 06:21	06:51 (11) 05:56 06:28 (11)
	17:11	17:46	25 08:30 (7) 18:19	36 17:57 (12) 19:52	17 07:53 (5) 20:23	64 07:55 (3) 20:51 95 08:03 (11)
5	07:49	07:31	08:04 (7) 06:54	17:22 (12) 07:04	07:37 (5) 06:20	06:49 (11) 05:55 06:28 (11)
	17:12	17:47	28 08:32 (7) 18:20	37 17:59 (12) 19:53	14 07:51 (5) 20:24	65 07:54 (3) 20:51 95 08:03 (11)
6	07:49	07:30	08:03 (7) 06:53	17:21 (12) 07:02	07:38 (5) 06:19	06:46 (11) 05:55 06:28 (11)
	17:13	17:48	30 08:33 (7) 18:21	39 18:00 (12) 19:54	12 07:50 (5) 20:25	67 07:53 (3) 20:52 96 08:04 (11)
7	07:49	07:29	08:02 (7) 06:51	17:22 (12) 07:01	07:41 (5) 06:18	06:44 (11) 05:55 06:28 (11)
	17:14	17:49	32 08:34 (7) 18:22	39 18:01 (12) 19:55	6 07:47 (5) 20:26	68 07:52 (3) 20:53 95 08:03 (11)
8	07:48	07:28	08:01 (7) 06:49	17:21 (12) 06:59	06:17	06:43 (11) 05:55 06:28 (11)
	17:15	17:51	35 08:36 (7) 18:23	41 18:02 (12) 19:56	20:27	69 07:52 (3) 20:53 96 08:04 (11)
9	07:48	07:27	08:00 (7) 06:48	17:21 (12) 06:57	06:16	06:42 (11) 05:54 06:28 (11)
	17:16	17:52	37 08:37 (7) 18:24	41 18:02 (12) 19:57	20:28	69 07:51 (3) 20:54 96 08:04 (11)
10	07:48	07:26	07:59 (7) 06:46	17:22 (12) 06:56	06:15	06:40 (11) 05:54 06:28 (11)
	17:17	17:53	38 08:37 (7) 18:25	40 18:02 (12) 19:58	20:29	70 07:50 (3) 20:54 97 08:05 (11)
11	07:48	07:25	07:59 (7) 06:45	07:08 (6) 06:54	06:13	06:39 (11) 05:54 06:29 (11)
	17:18	17:54	38 08:37 (7) 18:26	50 18:01 (12) 19:59	20:30	70 07:49 (3) 20:55 96 08:05 (11)
12	07:48	07:24	07:58 (7) 06:43	07:06 (6) 06:53	06:12	06:38 (11) 05:54 06:29 (11)
	17:19	17:55	40 08:38 (7) 18:28	54 18:00 (12) 20:00	20:31	72 07:50 (11) 20:55 96 08:05 (11)
13	07:47	07:22	07:58 (7) 06:41	07:04 (6) 06:51	06:11	06:37 (11) 05:54 06:29 (11)
	17:20	17:57	41 08:39 (7) 18:29	55 17:59 (12) 20:01	20:32	74 07:51 (11) 20:56 97 08:06 (11)
14	07:47	07:21	07:57 (7) 06:40	07:02 (6) 06:50	07:38 (3) 06:10	06:36 (11) 05:54 06:29 (11)
	17:21	17:58	41 08:38 (7) 18:30	55 17:57 (12) 20:02	3 07:41 (3) 20:33	76 07:52 (11) 20:56 97 08:06 (11)
15	07:47	07:20	07:57 (7) 06:38	07:01 (6) 06:48	07:31 (3) 06:09	06:35 (11) 05:54 06:29 (11)
	17:22	17:59	42 08:39 (7) 18:31	54 17:55 (12) 20:03	16 07:47 (3) 20:34	78 07:53 (11) 20:57 97 08:06 (11)
16	07:46	07:19	07:58 (7) 06:37	06:59 (6) 06:46	07:28 (3) 06:08	06:34 (11) 05:54 06:29 (11)
	17:23	18:00	41 08:39 (7) 18:32	52 17:53 (12) 20:04	22 07:50 (3) 20:35	79 07:53 (11) 20:57 97 08:06 (11)
17	07:46	07:17	07:57 (7) 06:35	06:58 (6) 06:45	07:27 (3) 06:07	06:34 (11) 05:54 06:29 (11)
	17:24	18:01	41 08:38 (7) 18:33	48 17:50 (12) 20:05	25 07:52 (3) 20:36	81 07:55 (11) 20:57 97 08:06 (11)
18	07:45	07:16	07:57 (7) 06:33	06:58 (6) 06:43	07:24 (3) 06:07	06:33 (11) 05:54 06:30 (11)
	17:25	18:03	41 08:38 (7) 18:34	42 17:47 (12) 20:06	29 07:53 (3) 20:37	83 07:56 (11) 20:58 97 08:07 (11)
19	07:45	07:15	07:58 (7) 06:32	06:57 (6) 06:42	07:23 (3) 06:06	06:32 (11) 05:54 06:30 (11)
	17:26	18:04	43 17:42 (12) 18:35	29 07:26 (6) 20:07	31 07:54 (3) 20:38	84 07:56 (11) 20:58 97 08:07 (11)
20	07:44	07:13	07:57 (7) 06:30	06:57 (6) 06:41	07:21 (3) 06:05	06:32 (11) 05:54 06:30 (11)
	17:28	18:05	48 17:43 (12) 18:36	28 07:25 (6) 20:08	34 07:55 (3) 20:38	84 07:56 (11) 20:58 97 08:07 (11)
21	07:44	07:12	07:58 (7) 06:28	06:57 (6) 06:39	07:20 (3) 06:04	06:31 (11) 05:54 06:31 (11)
	17:29	18:06	50 17:44 (12) 18:37	28 07:25 (6) 20:09	36 07:56 (3) 20:39	86 07:57 (11) 20:59 97 08:08 (11)
22	07:43	07:10	07:58 (7) 06:27	06:57 (6) 06:38	07:19 (3) 06:03	06:31 (11) 05:55 06:31 (11)
	17:30	18:07	53 17:45 (12) 18:38	27 07:24 (6) 20:10	37 07:56 (3) 20:40	87 07:58 (11) 20:59 97 08:08 (11)
23	07:43	07:09	07:59 (7) 06:25	06:57 (6) 06:36	07:18 (3) 06:02	06:30 (11) 05:55 06:31 (11)
	17:31	18:08	55 17:47 (12) 18:39	26 07:23 (6) 20:11	39 07:57 (3) 20:41	88 07:58 (11) 20:59 97 08:08 (11)
24	07:42	07:08	08:00 (7) 06:23	06:58 (6) 06:35	07:18 (3) 06:02	06:30 (11) 05:55 06:31 (11)
	17:32	18:10	55 17:48 (12) 18:40	25 07:23 (6) 20:12	39 07:57 (3) 20:42	88 07:58 (11) 20:59 97 08:08 (11)
25	07:41	07:06	08:01 (7) 06:22	06:59 (6) 06:33	07:16 (4) 06:01	06:30 (11) 05:55 06:31 (11)
	17:33	18:11	55 17:49 (12) 18:41	22 07:21 (6) 20:13	41 07:57 (3) 20:43	89 07:59 (11) 20:59 97 08:08 (11)
26	07:40	07:05	08:02 (7) 06:20	06:46 (5) 06:32	07:15 (4) 06:00	06:29 (11) 05:56 06:31 (11)
	17:35	18:12	55 17:51 (12) 18:42	24 07:20 (6) 20:14	42 07:57 (3) 20:44	90 07:59 (11) 20:59 97 08:08 (11)
27	07:40	07:03	08:03 (7) 06:18	06:42 (5) 06:31	07:13 (4) 06:00	06:29 (11) 05:56 06:31 (11)
	17:36	18:13	55 17:52 (12) 18:43	26 07:17 (6) 20:16	43 07:56 (3) 20:45	91 08:00 (11) 20:59 97 08:08 (11)
28	07:39	07:02	08:05 (7) 06:17	06:39 (5) 06:29	07:13 (4) 05:59	06:29 (11) 05:56 06:32 (11)
	17:37	18:14	52 17:53 (12) 18:44	24 07:13 (6) 20:17	44 07:57 (3) 20:45	91 08:00 (11) 20:59 97 08:09 (11)
29	07:38		07:15	07:39 (5) 06:28	07:12 (4) 05:59	06:29 (11) 05:57 06:32 (11)
	17:38		19:45	16 07:55 (5) 20:18	45 07:57 (3) 20:46	92 08:01 (11) 20:59 97 08:09 (11)
30	07:37		07:14	07:37 (5) 06:27	07:05 (11) 05:58	06:28 (11) 05:57 06:33 (11)
	17:40		19:46	18 07:55 (5) 20:19	52 07:57 (3) 20:47	93 08:01 (11) 20:59 96 08:09 (11)
31	07:36		07:12	07:36 (5)	05:58	06:29 (11)
	17:41		19:48	19 07:55 (5)	20:48	93 08:02 (11)
Potential sun hours	299	298	370	398	447	450
Total, worst case		1116	1120	684	2419	2889

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: I - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	05:58	06:33 (11) 06:21	06:49 (11) 06:51	07:20	07:44 (6) 06:54	07:29 (7) 07:28
	20:59	96 08:09 (11) 20:41	72 08:01 (11) 19:58	19:09	54 18:38 (12) 17:23	37 08:06 (7) 16:59
2	05:58	06:32 (11) 06:22	06:50 (11) 06:52	07:21	07:46 (6) 06:55	07:29 (7) 07:29
	20:59	97 08:09 (11) 20:40	70 08:00 (3) 19:57	19:07	51 18:39 (12) 17:22	36 08:05 (7) 16:59
3	05:59	06:33 (11) 06:23	06:51 (11) 06:53	07:22	07:50 (6) 06:56	07:31 (7) 07:30
	20:59	96 08:09 (11) 20:39	70 08:01 (3) 19:55	19:05	44 18:39 (12) 17:20	34 08:05 (7) 16:59
4	05:59	06:34 (11) 06:24	06:53 (11) 06:54	07:23	07:51 (6) 06:57	07:32 (7) 07:31
	20:59	96 08:10 (11) 20:38	69 08:02 (3) 19:54	19:04	41 18:40 (12) 17:19	32 08:04 (7) 16:58
5	06:00	06:34 (11) 06:25	06:54 (11) 06:55	07:37 (5) 07:24	07:58 (12) 06:58	07:33 (7) 07:32
	20:59	95 08:09 (11) 20:36	68 08:02 (3) 19:52	6 07:43 (5) 19:02	41 18:39 (12) 17:18	30 08:03 (7) 16:58
6	06:00	06:35 (11) 06:26	06:56 (11) 06:56	07:34 (5) 07:25	07:59 (12) 07:00	07:34 (7) 07:33
	20:58	95 08:10 (11) 20:35	67 08:03 (3) 19:50	11 07:45 (5) 19:01	41 18:38 (12) 17:17	27 08:01 (7) 16:58
7	06:01	06:34 (11) 06:27	06:56 (11) 06:57	07:32 (5) 07:26	07:57 (12) 07:01	07:35 (7) 07:34
	20:58	95 08:09 (11) 20:34	67 08:03 (3) 19:49	14 07:46 (5) 18:59	39 18:36 (12) 17:16	24 08:00 (7) 16:58
8	06:02	06:35 (11) 06:28	06:58 (11) 06:58	07:30 (5) 07:27	07:56 (12) 07:02	07:38 (7) 07:35
	20:58	95 08:10 (11) 20:33	65 08:03 (3) 19:47	17 07:47 (5) 18:57	38 18:34 (12) 17:15	20 07:58 (7) 16:58
9	06:02	06:36 (11) 06:29	07:00 (11) 06:59	07:30 (5) 07:29	07:56 (12) 07:03	07:40 (7) 07:36
	20:58	94 08:10 (11) 20:32	64 08:04 (3) 19:45	18 07:48 (5) 18:56	37 18:33 (12) 17:14	16 07:56 (7) 16:58
10	06:03	06:35 (11) 06:30	07:03 (11) 07:00	07:29 (5) 07:30	07:57 (12) 07:04	07:37 (7) 07:37
	20:57	95 08:10 (11) 20:30	61 08:04 (3) 19:44	19 07:48 (5) 18:54	35 18:32 (12) 17:13	8 07:44 (7) 16:58
11	06:04	06:36 (11) 06:31	07:06 (11) 07:01	07:28 (5) 07:31	07:56 (12) 07:05	07:37 (7) 07:37
	20:57	94 08:10 (11) 20:29	58 08:04 (3) 19:42	20 07:48 (5) 18:53	34 18:30 (12) 17:12	16:58
12	06:04	06:37 (11) 06:32	07:09 (11) 07:02	07:28 (5) 07:32	08:43 (7) 07:07	07:38
	20:56	93 08:10 (11) 20:28	55 08:04 (3) 19:40	19 07:47 (5) 18:51	47 18:29 (12) 17:11	16:58
13	06:05	06:37 (11) 06:33	07:15 (11) 07:03	07:28 (5) 07:33	08:40 (7) 07:08	07:39
	20:56	92 08:09 (11) 20:26	49 08:04 (3) 19:39	19 07:47 (5) 18:49	50 18:27 (12) 17:10	16:58
14	06:06	06:37 (11) 06:34	07:20 (4) 07:04	07:29 (5) 07:34	08:37 (7) 07:09	07:40
	20:55	93 08:10 (11) 20:25	44 08:04 (3) 19:37	17 07:46 (5) 18:48	53 18:25 (12) 17:09	16:59
15	06:06	06:38 (11) 06:35	07:21 (4) 07:05	07:29 (5) 07:35	08:35 (7) 07:10	07:40
	20:55	92 08:10 (11) 20:24	43 08:04 (3) 19:35	22 08:02 (6) 18:46	55 18:24 (12) 17:08	16:59
16	06:07	06:38 (11) 06:36	07:21 (4) 07:06	07:31 (5) 07:36	08:33 (7) 07:11	07:41
	20:54	91 08:09 (11) 20:22	43 08:04 (3) 19:34	26 08:06 (6) 18:45	55 18:22 (12) 17:07	16:59
17	06:08	06:38 (11) 06:37	07:22 (4) 07:07	07:33 (5) 07:37	08:32 (7) 07:12	07:42
	20:54	91 08:09 (11) 20:21	42 08:04 (3) 19:32	25 08:08 (6) 18:43	55 18:20 (12) 17:07	16:59
18	06:09	06:39 (11) 06:38	07:23 (4) 07:08	07:47 (6) 07:38	08:31 (7) 07:14	07:43
	20:53	90 08:09 (11) 20:20	40 08:03 (3) 19:30	22 08:09 (6) 18:42	55 18:19 (12) 17:06	17:00
19	06:10	06:40 (11) 06:38	07:24 (3) 07:09	07:45 (6) 07:39	08:30 (7) 07:15	07:43
	20:52	89 08:09 (11) 20:18	39 08:03 (3) 19:29	24 08:09 (6) 18:40	54 18:18 (12) 17:05	17:00
20	06:10	06:40 (11) 06:39	07:24 (3) 07:09	07:44 (6) 07:40	08:29 (7) 07:16	07:44
	20:52	89 08:09 (11) 20:17	38 08:02 (3) 19:27	25 08:09 (6) 18:39	52 18:16 (12) 17:04	17:00
21	06:11	06:40 (11) 06:40	07:25 (3) 07:10	07:43 (6) 07:41	08:29 (7) 07:17	07:44
	20:51	88 08:08 (11) 20:15	36 08:01 (3) 19:25	27 08:10 (6) 18:37	50 18:15 (12) 17:04	17:01
22	06:12	06:41 (11) 06:41	07:24 (3) 07:11	07:42 (6) 07:42	08:28 (7) 07:18	07:45
	20:50	86 08:07 (11) 20:14	36 08:00 (3) 19:24	28 08:10 (6) 18:36	46 18:13 (12) 17:03	17:01
23	06:13	06:42 (11) 06:42	07:25 (3) 07:12	07:41 (6) 07:44	08:27 (7) 07:19	07:45
	20:49	85 08:07 (11) 20:12	33 07:58 (3) 19:22	29 08:10 (6) 18:35	41 09:08 (7) 17:03	17:02
24	06:14	06:42 (11) 06:43	07:26 (3) 07:13	07:41 (6) 07:45	08:27 (7) 07:20	07:46
	20:48	85 08:07 (11) 20:11	31 07:57 (3) 19:20	28 08:09 (6) 18:33	41 09:08 (7) 17:02	17:02
25	06:15	06:43 (11) 06:44	07:27 (3) 07:14	07:41 (6) 07:46	07:28 (7) 07:22	07:46
	20:48	83 08:06 (11) 20:09	29 07:56 (3) 19:19	37 18:27 (12) 17:32	41 08:09 (7) 17:01	17:03
26	06:16	06:44 (11) 06:45	07:29 (3) 07:15	07:41 (6) 07:47	07:27 (7) 07:23	07:47
	20:47	82 08:06 (11) 20:08	25 07:54 (3) 19:17	45 18:31 (12) 17:31	42 08:09 (7) 17:01	17:04
27	06:16	06:45 (11) 06:46	07:31 (3) 07:16	07:41 (6) 07:48	07:27 (7) 07:24	07:47
	20:46	80 08:05 (11) 20:06	20 07:51 (3) 19:15	51 18:34 (12) 17:29	41 08:08 (7) 17:01	17:04
28	06:17	06:45 (11) 06:47	07:33 (3) 07:17	07:41 (6) 07:49	07:27 (7) 07:25	07:47
	20:45	79 08:04 (11) 20:05	15 07:48 (3) 19:14	53 18:35 (12) 17:28	41 08:08 (7) 17:00	17:05
29	06:18	06:46 (11) 06:48	07:18	07:42 (6) 06:50	07:27 (7) 07:26	07:48
	20:44	77 08:03 (11) 20:03	19:12	54 18:37 (12) 17:27	40 08:07 (7) 17:00	17:06
30	06:19	06:47 (11) 06:49	07:19	07:42 (6) 06:51	07:28 (7) 07:27	07:48
	20:43	75 08:02 (11) 20:02	19:10	56 18:38 (12) 17:25	40 08:08 (7) 16:59	17:06
31	06:20	06:48 (11) 06:50		06:53	07:28 (7)	07:48
	20:42	73 08:01 (11) 20:00		17:24	39 08:07 (7)	17:07
Potential sun hours	457	427	375	346	299	290
Total, worst case	2761	1349	712	1393	264	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user: S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: J - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:48	09:45 (11) 07:35	08:38 (6) 07:00	07:35 (10) 07:10	08:35 (10) 06:25	07:02 (9) 05:57
	17:08	31 10:16 (11) 17:42	31 09:09 (3) 18:15	78 17:52 (17) 19:49	102 19:28 (18) 20:20	31 07:33 (9) 20:49
2	07:48	09:46 (11) 07:35	08:39 (3) 06:59	07:34 (10) 07:09	08:36 (10) 06:24	07:02 (9) 05:57
	17:09	30 10:16 (11) 17:43	30 09:09 (3) 18:16	76 17:51 (17) 19:50	96 19:28 (18) 20:21	31 07:33 (9) 20:49
3	07:49	09:46 (11) 07:34	08:39 (3) 06:57	07:33 (10) 07:07	08:38 (10) 06:23	07:02 (9) 05:56
	17:10	29 10:15 (11) 17:44	31 09:10 (3) 18:18	69 17:46 (17) 19:51	88 19:29 (18) 20:22	31 07:33 (9) 20:50
4	07:49	09:48 (11) 07:33	08:39 (3) 06:56	07:32 (10) 07:05	08:42 (10) 06:21	07:02 (9) 05:56
	17:11	27 10:15 (11) 17:46	31 09:10 (3) 18:19	65 08:37 (10) 19:52	76 19:29 (18) 20:23	31 07:33 (9) 20:51
5	07:49	09:49 (11) 07:32	08:39 (3) 06:54	07:31 (10) 07:04	08:47 (10) 06:20	07:03 (9) 05:55
	17:12	26 10:15 (11) 17:47	31 09:10 (3) 18:20	67 08:38 (10) 19:53	60 19:27 (18) 20:24	29 07:32 (9) 20:51
6	07:49	09:49 (11) 07:30	08:39 (3) 06:53	07:30 (10) 07:02	18:30 (13) 06:19	07:02 (9) 05:55
	17:13	25 10:14 (11) 17:48	32 09:11 (3) 18:21	68 08:38 (10) 19:54	38 19:25 (18) 20:25	29 07:31 (9) 20:52
7	07:49	08:32 (6) 07:29	08:39 (3) 06:51	07:30 (10) 07:01	18:32 (13) 06:18	07:03 (9) 05:55
	17:14	27 10:13 (11) 17:49	32 09:11 (3) 18:22	69 08:39 (10) 19:55	25 19:21 (18) 20:26	27 07:30 (9) 20:53
8	07:48	08:31 (6) 07:28	08:40 (3) 06:49	07:29 (10) 06:59	18:37 (13) 06:17	07:03 (9) 05:55
	17:15	28 10:12 (11) 17:51	31 09:11 (3) 18:23	81 17:55 (13) 19:56	7 18:44 (13) 20:27	27 07:30 (9) 20:53
9	07:48	08:30 (6) 07:27	08:40 (3) 06:48	07:28 (10) 06:57	06:16 06:16	07:04 (9) 05:54
	17:16	27 10:11 (11) 17:52	31 09:11 (3) 18:24	91 17:59 (13) 19:57	20:28	25 07:29 (9) 20:54
10	07:48	08:30 (6) 07:26	08:40 (3) 06:46	07:28 (2) 06:56	06:15	07:05 (9) 05:54
	17:17	26 10:10 (11) 17:53	29 09:09 (3) 18:25	98 18:02 (13) 19:58	20:29	23 07:28 (9) 20:54
11	07:48	08:29 (6) 07:25	08:41 (3) 06:45	07:25 (2) 06:54	06:13	07:06 (9) 05:54
	17:18	21 10:06 (11) 17:54	28 09:09 (3) 18:26	104 18:04 (13) 19:59	20:30	21 07:27 (9) 20:55
12	07:48	08:29 (6) 07:24	08:42 (3) 06:43	07:24 (2) 06:53	06:12	07:07 (9) 05:54
	17:19	16 08:45 (6) 17:55	27 09:09 (3) 18:28	110 18:07 (16) 20:00	20:31	19 07:26 (9) 20:55
13	07:47	08:29 (6) 07:22	08:43 (3) 06:41	07:23 (2) 06:51	06:11	07:08 (9) 05:54
	17:20	18 08:47 (6) 17:57	25 09:08 (3) 18:29	114 18:08 (16) 20:01	20:32	16 07:24 (9) 20:56
14	07:47	08:28 (6) 07:21	08:43 (3) 06:40	07:21 (2) 06:50	06:10	07:10 (9) 05:54
	17:21	19 08:47 (6) 17:58	23 09:06 (3) 18:30	117 18:08 (16) 20:02	20:33	12 07:22 (9) 20:56
15	07:47	08:28 (6) 07:20	08:45 (3) 06:38	07:21 (2) 06:48	06:09	07:14 (9) 05:54
	17:22	20 08:48 (6) 17:59	20 09:05 (3) 18:31	119 18:10 (16) 20:03	20:34	4 07:18 (9) 20:57
16	07:46	08:28 (6) 07:19	08:47 (3) 06:37	07:19 (2) 06:46	06:08	05:54
	17:23	20 08:48 (6) 18:00	16 09:03 (3) 18:32	123 18:11 (16) 20:04	20:35	20:57
17	07:46	08:28 (6) 07:17	08:50 (3) 06:35	07:18 (2) 06:45	06:07	05:54
	17:24	22 08:50 (6) 18:01	11 17:39 (17) 18:33	125 18:12 (16) 20:05	20:36	20:58
18	07:45	08:28 (6) 07:16	08:50 (10) 06:33	07:19 (2) 06:43	06:07	05:54
	17:25	22 08:50 (6) 18:03	6 17:40 (17) 18:34	126 18:13 (16) 20:06	20:37	20:58
19	07:45	08:28 (6) 07:15	07:57 (10) 06:32	07:18 (2) 06:42	06:06	05:54
	17:26	23 08:51 (6) 18:04	27 17:42 (17) 18:35	128 18:14 (16) 20:07	20:38	20:58
20	07:44	08:28 (6) 07:13	07:52 (10) 06:30	07:17 (2) 06:40	06:05	05:54
	17:28	23 08:51 (6) 18:05	39 17:43 (17) 18:36	130 18:15 (16) 20:08	8 07:16 (9) 06:05	20:58
21	07:44	08:28 (6) 07:12	07:49 (10) 06:28	07:18 (2) 06:39	06:04	05:54
	17:29	23 08:51 (6) 18:06	46 17:44 (17) 18:37	129 18:16 (18) 20:09	15 07:27 (9) 20:39	20:59
22	07:43	08:29 (6) 07:10	07:46 (10) 06:27	07:17 (2) 06:38	06:03	05:55
	17:30	23 08:52 (6) 18:07	53 17:45 (17) 18:38	127 18:17 (18) 20:10	19 07:29 (9) 20:40	20:59
23	07:43	08:29 (6) 07:09	07:44 (10) 06:25	07:17 (2) 06:36	06:02	05:55
	17:31	23 08:52 (6) 18:08	58 17:47 (17) 18:39	130 18:18 (18) 20:11	22 07:30 (9) 20:41	20:59
24	07:42	08:29 (6) 07:08	07:43 (10) 06:23	07:18 (2) 06:35	06:01	05:55
	17:32	28 08:57 (3) 18:10	62 17:48 (17) 18:40	131 18:20 (18) 20:12	25 07:32 (9) 20:42	20:59
25	07:41	08:30 (6) 07:06	07:41 (10) 06:22	07:18 (2) 06:33	06:01	05:55
	17:33	31 09:01 (3) 18:11	66 17:49 (17) 18:41	129 18:20 (18) 20:13	27 07:32 (9) 20:43	20:59
26	07:41	08:31 (6) 07:05	07:40 (10) 06:20	07:20 (2) 06:32	06:00	05:56
	17:35	31 09:02 (3) 18:12	71 17:51 (17) 18:42	127 18:22 (18) 20:14	28 07:33 (9) 20:44	20:59
27	07:40	08:31 (6) 07:03	07:38 (10) 06:18	07:20 (2) 06:31	06:00	05:56
	17:36	33 09:04 (3) 18:13	75 17:52 (17) 18:43	128 18:23 (18) 20:16	29 07:32 (9) 20:45	20:59
28	07:39	08:32 (6) 07:02	07:37 (10) 06:17	07:21 (2) 06:29	06:00	05:56
	17:37	33 09:05 (3) 18:14	76 17:53 (17) 18:44	125 18:23 (18) 20:17	30 07:33 (9) 20:45	20:59
29	07:38	08:33 (6) 07:01	07:15	08:24 (2) 06:28	06:00	05:57
	17:38	33 09:06 (3) 18:15	121 19:25 (18) 20:18	30 07:33 (9) 20:46	20:59	20:59
30	07:37	08:34 (6) 07:00	07:14	08:26 (2) 06:27	06:00	05:57
	17:40	33 09:07 (3) 18:16	118 19:26 (18) 20:19	31 07:34 (9) 20:47	20:59	20:59
31	07:36	08:35 (6) 07:00	07:12	08:33 (10) 06:26	06:00	05:58
	17:41	33 09:08 (3) 18:17	108 19:26 (18) 20:20	398	447	450
Potential sun hours	299	298	370	398	447	450
Total, worst case	804	1038	3331	756	356	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: J - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December	
1 05:58	06:21	07:17 (9) 06:51	07:20	08:02 (2) 06:54	08:10 (3) 07:28	08:11 (6)	
20:59	20:41	20 07:37 (9) 19:58	19:09	112 18:46 (16) 17:23	29 08:39 (3) 16:59	19 09:47 (11)	
2 05:58	06:22	07:16 (9) 06:52	07:21	08:03 (2) 06:55	08:09 (3) 07:29	08:12 (6)	
20:59	20:40	22 07:38 (9) 19:57	19:07	107 18:43 (13) 17:22	31 08:40 (3) 16:59	26 09:52 (11)	
3 05:59	06:23	07:15 (9) 06:53	07:22	08:05 (2) 06:56	08:10 (3) 07:30	08:13 (6)	
20:59	20:39	24 07:39 (9) 19:55	19:05	100 18:41 (13) 17:20	31 08:41 (3) 16:59	28 09:54 (11)	
4 05:59	06:24	07:14 (9) 06:54	7 18:35 (13) 07:23	08:05 (10) 06:57	08:09 (3) 07:31	08:15 (6)	
20:59	20:38	26 07:40 (9) 19:54	7 18:42 (13) 19:04	95 18:38 (13) 17:19	32 08:41 (3) 16:58	28 09:56 (11)	
5 06:00	06:25	07:14 (9) 06:55	18:28 (13) 07:24	08:05 (10) 06:58	08:09 (3) 07:32	08:17 (6)	
20:59	20:36	27 07:41 (9) 19:52	25 19:17 (18) 19:02	87 18:34 (13) 17:18	31 08:40 (3) 16:58	27 09:58 (11)	
6 06:00	06:26	07:13 (9) 06:56	18:25 (13) 07:25	08:05 (10) 07:00	08:09 (3) 07:33	09:35 (11)	
20:58	20:35	28 07:41 (9) 19:50	38 19:20 (18) 19:01	71 18:26 (13) 17:17	31 08:40 (3) 16:58	24 09:59 (11)	
7 06:01	06:27	07:12 (9) 06:57	08:42 (10) 07:26	08:05 (10) 07:01	08:10 (3) 07:34	09:35 (11)	
20:58	20:34	29 07:41 (9) 19:49	58 19:22 (18) 18:59	69 09:14 (10) 17:16	31 08:41 (3) 16:58	26 10:01 (11)	
8 06:02	06:28	07:11 (9) 06:58	08:36 (10) 07:27	08:06 (10) 07:02	08:10 (3) 07:35	09:35 (11)	
20:58	20:33	30 07:41 (9) 19:47	76 19:23 (18) 18:57	67 09:13 (10) 17:15	31 08:41 (3) 16:58	27 10:02 (11)	
9 06:02	06:29	07:11 (9) 06:59	08:33 (10) 07:29	08:06 (10) 07:03	08:10 (3) 07:36	09:35 (11)	
20:58	20:32	30 07:41 (9) 19:45	87 19:23 (18) 18:56	66 09:12 (10) 17:14	30 08:40 (3) 16:58	28 10:03 (11)	
10 06:03	06:30	07:11 (9) 07:00	08:30 (10) 07:30	08:07 (10) 07:04	08:08 (6) 07:37	09:35 (11)	
20:57	20:30	31 07:42 (9) 19:44	95 19:22 (18) 18:54	65 09:12 (10) 17:13	31 08:39 (3) 16:58	30 10:05 (11)	
11 06:04	06:31	07:11 (9) 07:01	08:27 (10) 07:31	08:08 (10) 07:05	08:07 (6) 07:37	09:35 (11)	
20:57	20:29	31 07:42 (9) 19:42	102 19:20 (18) 18:53	73 18:23 (17) 17:12	33 08:40 (3) 16:58	31 10:06 (11)	
12 06:04	06:32	07:10 (9) 07:02	08:25 (10) 07:32	08:08 (10) 07:07	08:06 (6) 07:38	09:35 (11)	
20:56	20:28	32 07:42 (9) 19:40	107 19:19 (18) 18:51	77 18:25 (17) 17:11	33 08:39 (3) 16:58	32 10:07 (11)	
13 06:05	06:33	07:11 (9) 07:03	08:18 (2) 07:33	08:09 (10) 07:08	08:05 (6) 07:39	09:34 (11)	
20:56	20:27	30 07:41 (9) 19:39	115 19:17 (18) 18:49	78 18:26 (17) 17:10	33 08:38 (3) 16:58	33 10:07 (11)	
14 06:06	06:34	07:11 (9) 07:04	08:14 (2) 07:34	08:10 (10) 07:09	08:04 (6) 07:40	09:35 (11)	
20:55	20:25	30 07:41 (9) 19:37	120 19:15 (18) 18:48	75 18:25 (17) 17:09	33 08:37 (3) 16:59	33 10:08 (11)	
15 06:06	06:35	07:11 (9) 07:05	08:12 (2) 07:35	08:11 (10) 07:10	08:04 (6) 07:41	09:35 (11)	
20:55	20:24	30 07:41 (9) 19:35	123 19:14 (18) 18:46	72 18:23 (17) 17:08	33 08:37 (3) 16:59	34 10:09 (11)	
16 06:07	06:36	07:11 (9) 07:06	08:10 (2) 07:36	08:12 (10) 07:11	08:03 (6) 07:41	09:35 (11)	
20:54	20:22	29 07:40 (9) 19:34	126 19:12 (18) 18:45	69 18:22 (17) 17:07	32 08:35 (3) 16:59	34 10:09 (11)	
17 06:08	06:37	07:12 (9) 07:07	08:08 (2) 07:37	08:13 (10) 07:12	08:03 (6) 07:42	09:35 (11)	
20:54	20:21	27 07:39 (9) 19:32	127 19:10 (18) 18:43	65 18:20 (17) 17:07	30 08:33 (3) 16:59	35 10:10 (11)	
18 06:09	06:38	07:12 (9) 07:08	08:07 (2) 07:38	08:14 (10) 07:14	08:03 (6) 07:43	09:36 (11)	
20:53	20:20	26 07:38 (9) 19:30	129 19:09 (18) 18:42	62 18:19 (17) 17:06	28 08:31 (3) 17:00	35 10:11 (11)	
19 06:10	06:38	07:13 (9) 07:09	08:05 (2) 07:39	08:17 (10) 07:15	08:04 (6) 07:43	09:36 (11)	
20:52	20:18	24 07:37 (9) 19:29	129 19:06 (18) 18:40	56 18:18 (17) 17:05	23 08:27 (6) 17:00	35 10:11 (11)	
20 06:10	06:39	07:14 (9) 07:09	08:04 (2) 07:40	08:19 (10) 07:16	08:04 (6) 07:44	09:37 (11)	
20:52	20:17	22 07:36 (9) 19:27	131 19:05 (18) 18:39	50 18:16 (17) 17:04	23 08:27 (6) 17:00	35 10:12 (11)	
21 06:11	06:40	07:16 (9) 07:10	08:03 (2) 07:41	08:21 (10) 07:17	08:04 (6) 07:44	09:37 (11)	
20:51	20:15	18 07:34 (9) 19:25	128 19:03 (18) 18:37	44 18:15 (17) 17:04	23 08:27 (6) 17:01	35 10:12 (11)	
22 06:12	06:41	07:17 (9) 07:11	08:02 (2) 07:42	08:24 (10) 07:18	08:04 (6) 07:45	09:38 (11)	
20:50	20:14	14 07:31 (9) 19:24	129 19:01 (18) 18:36	35 18:13 (17) 17:03	23 08:27 (6) 17:01	35 10:13 (11)	
23 06:13	06:42	07:20 (9) 07:12	08:02 (2) 07:44	08:28 (10) 07:19	08:04 (6) 07:45	09:38 (11)	
20:49	20:12	7 07:27 (9) 19:22	129 19:00 (16) 18:35	23 18:11 (17) 17:03	23 08:27 (6) 17:02	35 10:13 (11)	
24 06:14	06:43	07:13 (9) 07:13	08:01 (2) 07:45	08:10 (10) 07:20	08:06 (6) 07:46	09:39 (11)	
20:48	20:11	19:20	128 18:58 (16) 18:33	5 18:10 (17) 17:02	22 08:28 (6) 17:02	35 10:14 (11)	
25 06:15	06:44	07:14	08:01 (2) 06:46	08:19 (10) 07:22	08:06 (6) 07:46	09:39 (11)	
20:48	20:09	19:19	126 18:56 (16) 17:32	13 17:09 (17) 17:01	22 08:28 (6) 17:03	35 10:14 (11)	
26 06:16	06:45	07:15	08:01 (2) 06:47	08:16 (10) 07:23	08:07 (6) 07:47	09:39 (11)	
20:47	20:08	19:17	126 18:55 (16) 17:31	17 08:33 (3) 17:01	21 08:28 (6) 17:04	35 10:14 (11)	
27 06:16	06:46	07:16	08:01 (2) 06:48	08:14 (10) 07:24	08:07 (6) 07:47	09:41 (11)	
20:46	20:06	19:15	124 18:53 (16) 17:29	21 08:35 (3) 17:01	20 08:27 (6) 17:04	34 10:15 (11)	
28 06:17	06:47	07:17	08:01 (2) 06:49	08:13 (10) 07:25	08:08 (6) 07:47	09:41 (11)	
20:45	20:05	19:14	121 18:51 (16) 17:28	23 08:36 (3) 17:00	19 08:27 (6) 17:05	34 10:15 (11)	
29 06:18	06:48	07:18	08:01 (2) 06:50	08:11 (10) 07:26	08:09 (6) 07:48	09:41 (11)	
20:44	8 07:31 (9) 20:03	19:12	118 18:49 (16) 17:27	26 08:37 (3) 17:00	18 08:27 (6) 17:06	34 10:15 (11)	
30 06:19	06:49	07:19	08:02 (2) 06:51	08:11 (10) 07:27	08:10 (6) 07:48	09:42 (11)	
20:43	14 07:34 (9) 20:02	19:10	115 18:48 (16) 17:25	27 08:38 (3) 16:59	16 08:26 (6) 17:06	33 10:15 (11)	
31 06:20	06:50			06:53	08:10 (3)		09:43 (11)
20:42	18 07:36 (9) 20:00			17:24	29 08:39 (3)		10:15 (11)
Potential sun hours	457	427	375	346	299	290	290
Total, worst case	40	587	2839	1779	816	977	977

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: K - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:48	07:35	08:38 (9) 07:00	08:10 (8) 07:10	06:25	05:57
	17:08	17:42	16 08:54 (9) 18:15	15 08:25 (8) 19:49	20:20	20:49
2	07:48	07:35	08:40 (9) 06:59	08:15 (8) 07:09	06:24	05:57
	17:09	17:43	12 08:52 (9) 18:16	5 08:20 (8) 19:50	20:21	20:49
3	07:49	07:34	08:44 (9) 06:57		07:07	05:56
	17:10	17:44	4 08:48 (9) 18:18		19:51	20:50
4	07:49	07:33			07:05	05:56
	17:11	17:46			19:52	20:51
5	07:49	07:32			07:04	05:55
	17:12	17:47			19:53	20:51
6	07:49	08:37 (9) 07:30	08:13 (8) 06:53		07:02	05:55
	17:13	2 08:39 (9) 17:48	12 08:25 (8) 18:21		19:54	20:52
7	07:49	08:35 (9) 07:29	08:10 (8) 06:51		07:01	05:55
	17:14	7 08:42 (9) 17:49	18 08:28 (8) 18:22		19:55	20:53
8	07:49	08:34 (9) 07:28	08:09 (8) 06:49		06:59	05:55
	17:15	10 08:44 (9) 17:51	22 08:31 (8) 18:23		19:56	20:53
9	07:48	08:33 (9) 07:27	08:07 (8) 06:48		06:57	05:54
	17:16	13 08:46 (9) 17:52	25 08:32 (8) 18:24		19:57	20:54
10	07:48	08:33 (9) 07:26	08:05 (8) 06:46		06:56	05:54
	17:17	15 08:48 (9) 17:53	28 08:33 (8) 18:25		19:58	20:54
11	07:48	08:32 (9) 07:25	08:05 (8) 06:45		06:54	05:54
	17:18	16 08:48 (9) 17:54	29 08:34 (8) 18:26		19:59	20:55
12	07:48	08:32 (9) 07:24	08:04 (8) 06:43		06:53	05:54
	17:19	18 08:50 (9) 17:55	31 08:35 (8) 18:28		20:00	20:55
13	07:47	08:32 (9) 07:22	08:04 (8) 06:41		06:51	05:54
	17:20	19 08:51 (9) 17:57	32 08:36 (8) 18:29		20:01	20:56
14	07:47	08:31 (9) 07:21	08:02 (8) 06:40		06:50	05:54
	17:21	21 08:52 (9) 17:58	34 08:36 (8) 18:30		20:02	20:56
15	07:47	08:31 (9) 07:20	08:02 (8) 06:38		06:48	05:54
	17:22	22 08:53 (9) 17:59	35 08:37 (8) 18:31		20:03	20:57
16	07:46	08:31 (9) 07:19	08:02 (8) 06:37		06:46	05:54
	17:23	22 08:53 (9) 18:00	35 08:37 (8) 18:32		20:04	20:57
17	07:46	08:31 (9) 07:17	08:01 (8) 06:35		06:45	05:54
	17:24	23 08:54 (9) 18:01	36 08:37 (8) 18:33		20:05	20:58
18	07:46	08:31 (9) 07:16	08:01 (8) 06:33		06:43	05:54
	17:25	24 08:55 (9) 18:03	36 08:37 (8) 18:34		20:06	20:58
19	07:45	08:31 (9) 07:15	08:02 (8) 06:32		06:42	05:54
	17:26	25 08:56 (9) 18:04	35 08:37 (8) 18:35		20:07	20:58
20	07:44	08:31 (9) 07:13	08:01 (8) 06:30		06:40	05:54
	17:28	25 08:56 (9) 18:05	35 08:36 (8) 18:36		20:08	20:58
21	07:44	08:31 (9) 07:12	08:02 (8) 06:28		06:39	05:54
	17:29	25 08:56 (9) 18:06	34 08:36 (8) 18:37		20:09	20:59
22	07:43	08:31 (9) 07:10	08:02 (8) 06:27		06:38	05:54
	17:30	26 08:57 (9) 18:07	33 08:35 (8) 18:38		20:10	20:59
23	07:43	08:31 (9) 07:09	08:02 (8) 06:25		06:36	05:55
	17:31	26 08:57 (9) 18:08	33 08:35 (8) 18:39		20:11	20:59
24	07:42	08:31 (9) 07:08	08:04 (8) 06:23		06:35	05:55
	17:32	26 08:57 (9) 18:10	31 08:35 (8) 18:40		20:12	20:59
25	07:41	08:33 (9) 07:06	08:04 (8) 06:22		06:33	05:55
	17:33	25 08:58 (9) 18:11	29 08:33 (8) 18:41		20:13	20:59
26	07:41	08:33 (9) 07:05	08:05 (8) 06:20		06:32	05:56
	17:35	25 08:58 (9) 18:12	27 08:32 (8) 18:42		20:15	20:59
27	07:40	08:33 (9) 07:03	08:06 (8) 06:18		06:31	05:56
	17:36	24 08:57 (9) 18:13	24 08:30 (8) 18:43		20:16	21:00
28	07:39	08:34 (9) 07:02	08:08 (8) 06:17		06:29	05:56
	17:37	23 08:57 (9) 18:14	20 08:28 (8) 18:44		20:17	21:00
29	07:38	08:35 (9)			06:28	05:57
	17:38	21 08:56 (9)			20:18	21:00
30	07:37	08:35 (9)			06:27	05:57
	17:39	21 08:56 (9)			20:19	20:59
31	07:36	08:37 (9)				05:57
	17:41	18 08:55 (9)				20:48
Potential sun hours	299	298	370	398	447	450
Total, worst case	522	706	20			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: K - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:58 20:59	06:21 20:41	06:51 19:59	07:20 19:09	06:54 17:23	07:35 (8) 16:59	08:14 (9) 16
2	05:58 20:59	06:22 20:40	06:52 19:57	07:21 19:07	06:55 17:22	07:36 (8) 16:59	08:15 (9) 15
3	05:59 20:59	06:23 20:39	06:53 19:55	07:22 19:05	06:56 17:20	07:39 (8) 16:59	08:16 (9) 13
4	05:59 20:59	06:24 20:38	06:54 19:54	07:23 19:04	06:57 17:19	07:41 (8) 16:58	08:18 (9) 11
5	06:00 20:59	06:25 20:36	06:55 19:52	07:24 19:02	06:58 17:18	07:43 (8) 16:58	08:20 (9) 7
6	06:00 20:59	06:26 20:35	06:56 19:50	07:25 19:01	07:00 17:17	07:33 16:58	08:23 (9) 2
7	06:01 20:58	06:27 20:34	06:57 19:49	07:26 18:59	07:01 17:16	07:34 16:58	
8	06:01 20:58	06:28 20:33	06:58 19:47	07:27 18:57	07:02 17:15	08:14 (9) 08:20 (9)	07:35 16:58
9	06:02 20:58	06:29 20:32	06:59 19:45	07:29 18:56	07:03 17:14	08:11 (9) 08:23 (9)	07:36 16:58
10	06:03 20:57	06:30 20:30	07:00 19:44	07:30 18:54	07:04 17:13	08:09 (9) 08:25 (9)	07:37 16:58
11	06:03 20:57	06:31 20:29	07:01 19:42	07:31 18:53	07:05 17:12	08:08 (9) 08:27 (9)	07:37 16:58
12	06:04 20:56	06:32 20:28	07:02 19:41	07:32 18:51	08:46 (8) 08:57 (8)	07:07 17:11	08:07 (9) 16:58
13	06:05 20:56	06:33 20:27	07:03 19:39	07:33 18:49	08:42 (8) 09:00 (8)	07:08 17:10	08:06 (9) 16:58
14	06:06 20:55	06:34 20:25	07:04 19:37	07:34 18:48	08:40 (8) 09:02 (8)	07:09 17:09	08:06 (9) 16:59
15	06:06 20:55	06:35 20:24	07:05 19:35	07:35 18:46	08:38 (8) 09:03 (8)	07:10 17:08	08:06 (9) 16:59
16	06:07 20:54	06:36 20:22	07:06 19:34	07:36 18:45	08:36 (8) 09:04 (8)	07:11 17:07	08:06 (9) 16:59
17	06:08 20:54	06:37 20:21	07:07 19:32	07:37 18:43	08:35 (8) 09:05 (8)	07:12 17:07	08:06 (9) 16:59
18	06:09 20:53	06:37 20:20	07:08 19:30	07:38 18:42	08:34 (8) 09:05 (8)	07:14 17:06	08:05 (9) 17:00
19	06:10 20:52	06:38 20:18	07:09 19:29	07:39 18:40	08:34 (8) 09:07 (8)	07:15 17:05	08:06 (9) 17:00
20	06:10 20:52	06:39 20:17	07:09 19:27	07:40 18:39	08:33 (8) 09:07 (8)	07:16 17:04	08:06 (9) 17:00
21	06:11 20:51	06:40 20:15	07:10 19:25	07:41 18:37	08:32 (8) 09:07 (8)	07:17 17:04	08:07 (9) 17:01
22	06:12 20:50	06:41 20:14	07:11 19:24	07:42 18:36	08:32 (8) 09:07 (8)	07:18 17:03	08:07 (9) 17:01
23	06:13 20:49	06:42 20:12	07:12 19:22	07:44 18:35	08:31 (8) 09:07 (8)	07:19 17:03	08:07 (9) 17:02
24	06:14 20:48	06:43 20:11	07:13 19:20	07:45 18:33	08:31 (8) 09:07 (8)	07:20 17:02	08:09 (9) 17:02
25	06:15 20:48	06:44 20:09	07:14 19:19	07:46 18:32	07:32 (8) 08:07 (8)	07:22 17:01	08:09 (9) 17:03
26	06:16 20:47	06:45 20:08	07:15 19:17	07:47 18:31	07:32 (8) 08:07 (8)	07:23 17:01	08:10 (9) 17:04
27	06:16 20:46	06:46 20:06	07:16 19:15	07:48 18:30	07:32 (8) 08:06 (8)	07:24 17:01	08:10 (9) 17:04
28	06:17 20:45	06:47 20:05	07:17 19:14	07:49 18:29	07:32 (8) 08:06 (8)	07:25 17:00	08:11 (9) 17:05
29	06:18 20:44	06:48 20:03	07:18 19:12	07:50 18:28	07:32 (8) 08:05 (8)	07:26 17:00	08:12 (9) 17:06
30	06:19 20:43	06:49 20:02	07:19 19:10	07:51 18:27	07:34 (8) 08:05 (8)	07:27 16:59	08:13 (9) 17:06
31	06:20 20:42	06:50 20:00	07:20 19:09	07:52 18:26	07:35 (8) 08:04 (8)	07:28 16:58	08:14 (9) 17:07
Potential sun hours	457	427	375	346	299	290	64
Total, worst case				605	597		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: MORES_shadows Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: L - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:48	13:46 (13) 07:35	08:07 (10) 07:00	07:10	06:25	07:05 (8) 05:57
	17:08	83 16:42 (15) 17:42	81 17:15 (18) 18:15	19:49	20:20	18 07:23 (8) 20:49
2	07:49	13:47 (13) 07:35	08:07 (10) 06:59	07:09	06:24	07:07 (8) 05:57
	17:09	81 16:43 (15) 17:43	75 17:16 (18) 18:16	19:50	20:21	15 07:22 (8) 20:49
3	07:49	13:49 (13) 07:34	08:07 (10) 06:57	07:07	06:23	07:09 (8) 05:56
	17:10	78 16:43 (15) 17:44	78 17:21 (16) 18:18	19:51	20:22	11 07:20 (8) 20:50
4	07:49	13:50 (13) 07:33	08:07 (10) 06:56	07:05	06:22	07:13 (8) 05:56
	17:11	75 16:43 (15) 17:46	80 17:22 (16) 18:19	19:52	20:23	3 07:16 (8) 20:51
5	07:49	13:51 (13) 07:32	08:07 (10) 06:54	07:04	06:20	05:55
	17:12	73 16:44 (15) 17:47	81 17:23 (16) 18:20	19:53	20:24	20:51
6	07:49	13:52 (13) 07:30	08:07 (10) 06:53	07:02	06:19	05:55
	17:13	69 16:43 (15) 17:48	83 17:25 (16) 18:21	19:54	20:25	20:52
7	07:49	13:54 (13) 07:29	08:08 (10) 06:51	07:01	06:18	05:55
	17:14	63 16:44 (15) 17:49	83 17:26 (16) 18:22	19:55	20:26	20:53
8	07:49	13:56 (13) 07:28	08:08 (10) 06:49	06:59	06:17	05:55
	17:15	58 16:44 (15) 17:51	85 17:28 (16) 18:23	19:56	20:27	20:53
9	07:48	13:59 (13) 07:27	08:09 (10) 06:48	06:57	06:16	05:54
	17:16	49 16:45 (15) 17:52	85 17:29 (16) 18:24	19:57	20:28	20:54
10	07:48	14:02 (13) 07:26	08:08 (10) 06:46	06:56	06:15	05:54
	17:17	38 16:45 (15) 17:53	86 17:30 (16) 18:25	19:58	20:29	20:54
11	07:48	14:05 (13) 07:25	08:09 (10) 06:45	06:54	06:13	05:54
	17:18	31 16:44 (15) 17:54	85 17:31 (16) 18:26	19:59	20:30	20:55
12	07:48	08:41 (3) 07:24	08:10 (10) 06:43	06:53	06:12	05:54
	17:19	22 16:45 (15) 17:55	85 17:33 (16) 18:28	20:00	20:31	20:55
13	07:47	08:40 (3) 07:22	08:01 (2) 06:41	06:51	06:11	05:54
	17:20	24 16:45 (15) 17:57	89 17:34 (16) 18:29	20:01	20:32	20:56
14	07:47	08:38 (3) 07:21	07:57 (2) 06:40	06:50	06:10	05:54
	17:21	26 16:44 (15) 17:58	92 17:33 (16) 18:30	20:02	20:33	20:56
15	07:47	08:38 (3) 07:20	07:55 (2) 06:38	06:48	06:09	05:54
	17:22	26 16:44 (15) 17:59	91 17:33 (16) 18:31	20:03	6 07:16 (8) 06:09	20:34
16	07:46	08:37 (3) 07:19	07:54 (2) 06:37	06:47	07:11 (8) 06:08	05:54
	17:23	26 16:43 (15) 18:00	89 17:33 (16) 18:32	3 07:13 (9) 20:04	14 07:25 (8) 20:35	20:57
17	07:46	08:37 (3) 07:17	07:53 (2) 06:35	07:05 (9) 06:45	07:10 (8) 06:07	05:54
	17:24	24 16:42 (15) 18:01	81 17:32 (16) 18:33	12 07:17 (9) 20:05	17 07:27 (8) 20:36	20:58
18	07:46	08:36 (3) 07:16	07:52 (2) 06:33	07:04 (9) 06:43	07:08 (8) 06:07	05:54
	17:25	18 08:54 (3) 18:03	74 17:31 (16) 18:34	15 07:19 (9) 20:06	19 07:27 (8) 20:37	20:58
19	07:45	08:36 (3) 07:15	07:52 (2) 06:32	07:02 (9) 06:42	07:07 (8) 06:06	05:54
	17:26	19 08:55 (3) 18:04	72 17:30 (16) 18:35	18 07:20 (9) 20:07	22 07:29 (8) 20:38	20:58
20	07:44	08:36 (3) 07:13	07:51 (2) 06:30	07:00 (9) 06:41	07:05 (8) 06:05	05:54
	17:28	19 08:55 (3) 18:05	65 17:27 (16) 18:36	20 07:20 (9) 20:08	24 07:29 (8) 20:39	20:58
21	07:44	08:36 (3) 07:12	07:52 (2) 06:28	07:00 (9) 06:39	07:05 (8) 06:04	05:54
	17:29	26 16:56 (18) 18:06	52 17:22 (16) 18:37	21 07:21 (9) 20:09	24 07:29 (8) 20:39	20:59
22	07:43	08:17 (10) 07:10	07:52 (2) 06:27	06:59 (9) 06:38	07:04 (8) 06:03	05:55
	17:30	44 17:01 (18) 18:07	47 17:10 (18) 18:38	21 07:20 (9) 20:10	25 07:29 (8) 20:40	20:59
23	07:43	08:14 (10) 07:09	07:52 (2) 06:25	07:00 (9) 06:36	07:04 (8) 06:02	05:55
	17:31	54 17:03 (18) 18:08	40 17:06 (18) 18:39	21 07:21 (9) 20:11	25 07:29 (8) 20:41	20:59
24	07:42	08:12 (10) 07:08	07:53 (2) 06:23	06:59 (9) 06:35	07:04 (8) 06:02	05:55
	17:32	61 17:05 (18) 18:10	30 17:03 (18) 18:40	21 07:20 (9) 20:12	26 07:30 (8) 20:42	20:59
25	07:41	08:12 (10) 07:06	07:53 (2) 06:22	06:59 (9) 06:33	07:03 (8) 06:01	05:55
	17:33	68 17:08 (18) 18:11	19 08:12 (2) 18:41	20 07:19 (9) 20:13	26 07:29 (8) 20:43	20:59
26	07:41	08:11 (10) 07:05	07:54 (2) 06:20	07:00 (9) 06:32	07:03 (8) 06:00	05:56
	17:35	71 17:09 (18) 18:12	17 08:11 (2) 18:42	18 07:18 (9) 20:15	25 07:28 (8) 20:44	20:59
27	07:40	08:10 (10) 07:03	07:55 (2) 06:19	07:00 (9) 06:31	07:04 (8) 06:00	05:56
	17:36	75 17:10 (18) 18:13	14 08:09 (2) 18:43	17 07:17 (9) 20:16	24 07:28 (8) 20:45	21:00
28	07:39	08:09 (10) 07:02	07:59 (2) 06:17	07:01 (9) 06:29	07:03 (8) 05:59	05:56
	17:37	79 17:12 (18) 18:14	7 08:06 (2) 18:44	13 07:14 (9) 20:17	24 07:27 (8) 20:45	21:00
29	07:38	08:08 (10)	07:15	08:04 (9) 06:28	07:04 (8) 05:59	05:57
	17:38	82 17:13 (18)	19:45	8 08:12 (9) 20:18	22 07:26 (8) 20:46	21:00
30	07:37	08:08 (10)	07:14	06:27	07:05 (8) 05:58	05:57
	17:40	82 17:14 (18)	19:47	20:19	21 07:26 (8) 20:47	20:59
31	07:36	08:07 (10)	07:12			
	17:41	83 17:15 (18)	19:48			
Potential sun hours	299	298	370	398	447	450
Total, worst case	1627	1866	228	344	47	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
Via Cavalcanti 1
IT-09047 SELARGIUS
335244024

SHADOW - Calendar

Shadow receptor: L - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:58 20:59	06:21 20:41	06:51 19:59	07:20 19:09	06:54 17:23	07:28 16:59
2	05:58 20:59	06:22 20:40	06:52 19:57	07:21 19:07	85 17:22	16:59 16:59
3	05:59 20:59	06:23 20:39	06:53 19:55	07:22 19:05	86 17:20	16:59 16:59
4	05:59 20:59	06:24 20:38	06:54 19:54	07:23 19:04	84 17:19	16:59 16:58
5	06:00 20:59	06:25 20:36	06:55 19:52	07:24 19:02	84 17:18	16:58 16:58
6	06:00 20:59	06:26 20:35	06:56 19:50	07:25 19:01	81 17:17	16:58 16:58
7	06:01 20:58	06:27 20:34	06:57 19:49	07:26 18:59	80 17:16	16:58 16:58
8	06:02 20:58	06:28 20:33	06:58 19:47	07:28 18:57	80 17:15	16:58 16:58
9	06:02 20:58	06:29 20:32	07:20 (8) 19:46	06:59 18:56	76 17:14	16:58 16:58
10	06:03 20:57	06:30 20:30	07:17 (8) 19:44	07:00 18:54	80 17:13	16:58 16:58
11	06:04 20:57	06:31 20:29	07:15 (8) 19:42	07:01 18:53	82 17:12	16:58 16:58
12	06:04 20:56	06:32 20:28	07:14 (8) 19:41	07:02 18:51	82 17:11	16:58 16:58
13	06:05 20:56	06:33 20:27	07:13 (8) 19:39	07:03 18:49	81 17:10	16:58 16:58
14	06:06 20:55	06:34 20:25	07:12 (8) 19:37	07:04 18:48	81 17:09	16:58 16:59
15	06:06 20:55	06:35 20:24	07:11 (8) 19:36	07:05 18:46	81 17:08	16:59 16:59
16	06:07 20:54	06:36 20:22	07:10 (8) 19:34	07:06 18:45	81 17:07	16:59 16:59
17	06:08 20:54	06:37 20:21	07:10 (8) 19:32	07:07 18:43	81 17:06	16:59 16:59
18	06:09 20:53	06:38 20:20	07:10 (8) 19:30	07:08 18:42	81 17:05	16:59 16:59
19	06:10 20:52	06:39 20:18	07:09 (8) 19:29	07:09 18:40	81 17:04	16:59 16:59
20	06:10 20:52	06:39 20:17	07:09 (8) 19:27	07:09 18:39	81 17:03	16:59 16:59
21	06:11 20:51	06:40 20:15	07:09 (8) 19:25	07:10 18:38	81 17:02	16:59 16:59
22	06:12 20:50	06:41 20:14	07:09 (8) 19:24	07:11 18:36	81 17:01	16:59 16:59
23	06:13 20:49	06:42 20:12	07:09 (8) 19:22	07:12 18:35	81 17:00	16:59 16:59
24	06:14 20:48	06:43 20:11	07:10 (8) 19:21	07:13 18:33	81 16:59	16:59 16:59
25	06:15 20:48	06:44 20:09	07:11 (8) 19:19	07:14 18:32	81 16:58	16:59 16:59
26	06:16 20:47	06:45 20:08	07:12 (8) 19:17	07:15 18:31	81 16:57	16:59 16:59
27	06:16 20:46	06:46 20:06	07:13 (8) 19:15	07:16 18:30	81 16:56	16:59 16:59
28	06:17 20:45	06:47 20:05	07:14 (8) 19:14	07:17 18:29	81 16:55	16:59 16:59
29	06:18 20:44	06:48 20:03	07:15 (8) 19:12	07:18 18:28	81 16:54	16:59 16:59
30	06:19 20:43	06:49 20:02	07:16 (8) 19:10	07:19 18:27	81 16:53	16:59 16:59
31	06:20 20:42	06:50 20:00		07:20 18:26	81 16:52	16:59 16:59
Potential sun hours	457	427	396	375	346	299
Total, worst case			231	1068	1740	2468

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project:
MORES_shadows

Description:
 Sa Costa Shadow Flickering

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
 IT-09047 SELARGIUS
 335244024

SHADOW - Calendar

Shadow receptor: M - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:48	15:05 (15) 07:36	08:07 (12) 07:00	15:42 (15) 07:10	07:29 (17) 06:25	06:44 (13) 05:57
	17:08	79 16:24 (15) 17:42	119 16:40 (15) 18:15	34 16:16 (15) 19:49	84 08:53 (17) 20:20	130 08:55 (17) 20:49
2	07:49	15:05 (15) 07:35	08:07 (12) 06:59	15:47 (15) 07:09	07:27 (17) 06:24	06:43 (13) 05:57
	17:09	80 16:25 (15) 17:43	118 16:40 (15) 18:17	26 16:13 (15) 19:50	87 08:54 (17) 20:21	132 08:55 (17) 20:49
3	07:49	15:05 (15) 07:34	08:06 (12) 06:57	15:52 (15) 07:07	07:25 (17) 06:23	06:42 (13) 05:56
	17:10	81 16:26 (15) 17:45	120 16:40 (15) 18:18	14 16:06 (15) 19:51	89 08:54 (17) 20:22	133 08:55 (17) 20:50
4	07:49	15:06 (15) 07:33	08:06 (12) 06:56	07:05	07:24 (17) 06:22	06:41 (13) 05:56
	17:11	80 16:26 (15) 17:46	122 16:41 (15) 18:19	19:52	91 08:55 (17) 20:23	134 08:55 (17) 20:51
5	07:49	15:06 (15) 07:32	08:06 (12) 06:54	07:04	07:22 (17) 06:20	06:40 (13) 05:56
	17:12	81 16:27 (15) 17:47	121 16:41 (15) 18:20	19:53	94 08:56 (17) 20:24	134 08:54 (17) 20:51
6	07:49	15:05 (15) 07:31	08:06 (12) 06:53	07:02	07:21 (17) 06:19	06:39 (13) 05:55
	17:13	82 16:27 (15) 17:48	121 16:41 (15) 18:21	19:54	96 08:57 (17) 20:25	135 08:54 (17) 20:52
7	07:49	15:06 (15) 07:29	08:06 (12) 06:51	07:01	07:19 (17) 06:18	06:37 (13) 05:55
	17:14	82 16:28 (15) 17:49	121 16:41 (15) 18:22	19:55	98 08:57 (17) 20:26	136 08:53 (17) 20:53
8	07:49	15:06 (15) 07:28	08:06 (12) 06:50	06:59	07:17 (17) 06:17	06:36 (13) 05:55
	17:15	83 16:29 (15) 17:51	120 16:41 (15) 18:23	19:56	100 08:57 (17) 20:27	136 08:52 (17) 20:53
9	07:48	15:06 (15) 07:27	08:06 (12) 06:48	06:57	07:16 (17) 06:16	06:35 (13) 05:54
	17:16	84 16:30 (15) 17:52	118 16:40 (15) 18:24	19:57	102 08:58 (17) 20:28	137 08:52 (17) 20:54
10	07:48	15:07 (15) 07:26	08:06 (12) 06:46	06:56	07:14 (17) 06:15	06:34 (13) 05:54
	17:17	84 16:31 (15) 17:53	117 16:39 (15) 18:25	19:58	104 08:58 (17) 20:29	138 08:52 (17) 20:54
11	07:48	15:06 (15) 07:25	08:06 (12) 06:45	06:54	07:13 (17) 06:14	06:33 (13) 05:54
	17:18	84 16:30 (15) 17:54	116 16:39 (15) 18:27	19:59	106 08:59 (17) 20:30	138 08:51 (17) 20:55
12	07:48	15:06 (15) 07:24	08:07 (12) 06:43	06:53	07:11 (17) 06:12	06:32 (13) 05:54
	17:19	85 16:31 (15) 17:56	114 16:39 (15) 18:28	20:00	108 08:59 (17) 20:31	139 08:51 (17) 20:55
13	07:48	15:07 (15) 07:22	08:08 (12) 06:42	06:51	07:10 (17) 06:11	06:31 (13) 05:54
	17:20	86 16:33 (15) 17:57	112 16:39 (15) 18:29	20:01	109 08:59 (17) 20:32	139 08:50 (17) 20:56
14	07:47	15:06 (15) 07:21	08:08 (12) 06:40	06:50	07:08 (17) 06:10	06:31 (13) 05:56
	17:21	87 16:33 (15) 17:58	109 16:38 (15) 18:30	20:02	111 08:59 (17) 20:33	138 08:49 (17) 20:56
15	07:47	15:07 (15) 07:20	08:09 (12) 06:38	06:48	07:07 (17) 06:09	06:31 (13) 05:54
	17:22	87 16:34 (15) 17:59	105 16:37 (15) 18:31	20:03	113 09:00 (17) 20:34	138 08:49 (17) 20:57
16	07:46	15:06 (15) 07:19	08:10 (12) 06:37	06:47	07:06 (17) 06:08	06:32 (13) 05:54
	17:23	88 16:34 (15) 18:00	102 16:37 (15) 18:32	20:04	113 08:59 (17) 20:35	137 08:49 (17) 20:57
17	07:46	15:07 (15) 07:17	08:12 (12) 06:35	06:45	07:06 (17) 06:08	06:32 (13) 05:54
	17:24	88 16:35 (15) 18:02	97 16:36 (15) 18:33	20:05	114 09:00 (17) 20:36	137 08:49 (17) 20:58
18	07:46	15:07 (15) 07:16	08:14 (12) 06:33	06:44	07:05 (17) 06:07	06:32 (13) 05:54
	17:25	88 16:35 (15) 18:03	90 16:35 (15) 18:34	20:06	114 08:59 (17) 20:37	136 08:48 (17) 20:58
19	07:45	15:07 (15) 07:15	08:17 (12) 06:32	06:42	07:04 (17) 06:06	06:32 (13) 05:54
	17:26	89 16:36 (15) 18:04	82 16:34 (15) 18:35	20:07	115 08:59 (17) 20:38	135 08:47 (17) 20:58
20	07:45	15:07 (15) 07:13	15:23 (15) 06:30	06:59 (17) 06:41	07:03 (17) 06:05	06:32 (13) 05:54
	17:28	89 16:36 (15) 18:05	70 16:33 (15) 18:36	26 07:25 (17) 20:08	116 08:59 (17) 20:39	135 08:47 (17) 20:58
21	07:44	15:08 (15) 07:12	15:25 (15) 06:28	06:53 (17) 06:39	07:03 (17) 06:04	06:33 (13) 05:54
	17:29	89 16:37 (15) 18:06	67 16:32 (15) 18:37	37 07:30 (17) 20:09	116 08:59 (17) 20:39	134 08:47 (17) 20:59
22	07:43	15:08 (15) 07:11	15:27 (15) 06:27	06:48 (17) 06:38	07:02 (17) 06:03	06:34 (13) 05:55
	17:30	90 16:38 (15) 18:07	64 16:31 (15) 18:38	46 07:34 (17) 20:10	116 08:58 (17) 20:40	131 08:46 (17) 20:59
23	07:43	15:08 (15) 07:09	15:28 (15) 06:25	06:45 (17) 06:36	07:02 (17) 06:03	06:34 (13) 05:55
	17:31	90 16:38 (15) 18:09	61 16:29 (15) 18:39	52 07:37 (17) 20:11	116 08:58 (17) 20:41	130 08:46 (17) 20:59
24	07:42	15:07 (15) 07:08	15:30 (15) 06:24	06:42 (17) 06:35	07:02 (17) 06:02	06:35 (13) 05:55
	17:32	91 16:38 (15) 18:10	58 16:28 (15) 18:40	58 07:40 (17) 20:12	117 08:59 (17) 20:42	128 08:46 (17) 20:59
25	07:41	15:08 (15) 07:06	15:32 (15) 06:22	06:40 (17) 06:33	07:01 (17) 06:01	06:35 (13) 05:55
	17:34	91 16:39 (15) 18:11	54 16:26 (15) 18:41	62 07:42 (17) 20:14	117 08:58 (17) 20:43	127 08:45 (17) 20:59
26	07:41	08:15 (12) 07:05	15:34 (15) 06:20	06:39 (17) 06:32	07:01 (17) 06:00	06:36 (13) 05:56
	17:35	101 16:39 (15) 18:12	50 16:24 (15) 18:42	66 07:45 (17) 20:15	117 08:58 (17) 20:44	124 08:44 (17) 20:59
27	07:40	08:13 (12) 07:03	15:36 (15) 06:19	06:37 (17) 06:31	07:01 (17) 06:00	06:37 (13) 05:56
	17:36	107 16:40 (15) 18:13	46 16:22 (15) 18:43	69 07:46 (17) 20:16	117 08:58 (17) 20:45	122 08:44 (17) 21:00
28	07:39	08:11 (12) 07:02	15:39 (15) 06:17	06:35 (17) 06:29	07:00 (17) 05:59	06:38 (13) 05:56
	17:37	111 16:40 (15) 18:14	41 16:20 (15) 18:45	72 07:47 (17) 20:17	117 08:57 (17) 20:45	120 08:44 (17) 21:00
29	07:38	08:10 (12) 07:01	07:15	07:34 (17) 06:28	06:47 (13) 05:59	06:39 (13) 05:57
	17:38	112 16:40 (15) 18:15	07:14	75 08:49 (17) 20:18	124 08:57 (17) 20:46	117 08:44 (17) 21:00
30	07:37	08:09 (12) 07:00	07:14	07:32 (17) 06:27	06:46 (13) 05:58	06:39 (13) 05:57
	17:40	114 16:40 (15) 18:16	07:13	78 08:50 (17) 20:19	127 08:56 (17) 20:47	115 08:43 (17) 21:00
31	07:36	08:08 (12) 07:00	07:12	07:30 (17) 06:26	06:45 (13) 05:58	06:41 (13) 05:58
	17:41	117 16:40 (15) 18:17	07:11	81 08:51 (17) 20:20	127 08:56 (17) 20:48	112 08:43 (17) 21:00
Potential sun hours	299	298	370	398	447	450
Total, worst case	2800	2635	796	3248	4077	2638

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: **Sa Costa Shadow Flickering**

Licensed user:
S.I.G.E.A.
 Via Cavalcanti 1
 IT-09047 SELARGIUS
 335244024

SHADOW - Calendar

Shadow receptor: M - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December												
1	05:58	07:19 (17)	06:21	06:43 (13)	06:51	07:12 (17)	07:20	06:54	07:35 (12)	07:28	14:48 (15)							
	20:59	86	08:45 (17)	20:41	138	09:01 (17)	19:59	106	08:58 (17)	19:09	17:23	118	16:09 (15)	16:59	85	16:13 (15)		
2	05:58	07:19 (17)	06:22	06:44 (13)	06:52	07:13 (17)	07:21	06:55	07:35 (12)	07:29	14:49 (15)							
	20:59	87	08:46 (17)	20:40	138	09:02 (17)	19:57	104	08:57 (17)	19:07	17:22	119	16:09 (15)	16:59	84	16:13 (15)		
3	05:59	07:18 (17)	06:23	06:45 (13)	06:53	07:14 (17)	07:22	06:56	07:36 (12)	07:30	14:49 (15)							
	20:59	88	08:46 (17)	20:39	137	09:02 (17)	19:55	102	08:56 (17)	19:05	17:21	119	16:10 (15)	16:59	84	16:13 (15)		
4	05:59	07:19 (17)	06:24	06:46 (13)	06:54	07:15 (17)	07:23	06:57	07:36 (12)	07:31	14:51 (15)							
	20:59	88	08:47 (17)	20:38	137	09:03 (17)	19:54	100	08:55 (17)	19:04	17:19	120	16:10 (15)	16:59	83	16:14 (15)		
5	06:00	07:18 (17)	06:25	06:47 (13)	06:55	07:16 (17)	07:24	06:59	07:36 (12)	07:32	14:51 (15)							
	20:59	89	08:47 (17)	20:37	136	09:03 (17)	19:52	98	08:54 (17)	19:02	17:18	121	16:10 (15)	16:58	82	16:13 (15)		
6	06:00	07:19 (17)	06:26	06:48 (13)	06:56	07:16 (17)	07:26	07:00	07:36 (12)	07:33	14:51 (15)							
	20:59	89	08:48 (17)	20:35	136	09:04 (17)	19:50	96	08:52 (17)	19:01	17:17	120	16:10 (15)	16:58	82	16:13 (15)		
7	06:01	07:18 (17)	06:27	06:49 (13)	06:57	07:17 (17)	07:27	07:01	07:37 (12)	07:34	14:52 (15)							
	20:58	90	08:48 (17)	20:34	135	09:04 (17)	19:49	94	08:51 (17)	18:59	17:16	121	16:11 (15)	16:58	81	16:13 (15)		
8	06:02	06:56 (13)	06:28	06:49 (13)	06:58	07:18 (17)	07:28	07:02	07:37 (12)	07:35	14:53 (15)							
	20:58	92	08:48 (17)	20:33	134	09:03 (17)	19:47	92	08:50 (17)	18:57	17:15	120	16:11 (15)	16:58	80	16:13 (15)		
9	06:02	06:53 (13)	06:29	06:50 (13)	06:59	07:19 (17)	07:29	07:03	07:37 (12)	07:36	14:54 (15)							
	20:58	100	08:49 (17)	20:32	133	09:03 (17)	19:46	89	08:48 (17)	18:56	17:14	120	16:11 (15)	16:58	80	16:14 (15)		
10	06:03	06:51 (13)	06:30	06:51 (13)	07:00	07:20 (17)	07:30	07:04	07:38 (12)	07:37	14:54 (15)							
	20:57	104	08:49 (17)	20:30	133	09:04 (17)	19:44	87	08:47 (17)	18:54	17:13	118	16:11 (15)	16:58	80	16:14 (15)		
11	06:04	06:50 (13)	06:31	06:52 (13)	07:01	07:21 (17)	07:31	16:23 (15)	07:06	07:40 (12)	07:37	14:55 (15)						
	20:57	107	08:50 (17)	20:29	132	09:04 (17)	19:42	84	08:45 (17)	18:53	21	16:44 (15)	17:12	116	16:12 (15)	16:58	79	16:14 (15)
12	06:04	06:50 (13)	06:32	06:53 (13)	07:02	07:22 (17)	07:32	16:18 (15)	07:07	07:41 (12)	07:38	14:56 (15)						
	20:56	109	08:51 (17)	20:28	130	09:04 (17)	19:41	82	08:44 (17)	18:51	30	16:48 (15)	17:11	114	16:12 (15)	16:58	79	16:15 (15)
13	06:05	06:48 (13)	06:33	06:54 (13)	07:03	07:23 (17)	07:33	16:14 (15)	07:08	07:42 (12)	07:39	14:56 (15)						
	20:56	113	08:51 (17)	20:27	127	09:04 (17)	19:39	79	08:42 (17)	18:50	37	16:51 (15)	17:10	112	16:12 (15)	16:58	78	16:14 (15)
14	06:06	06:48 (13)	06:34	06:55 (13)	07:04	07:24 (17)	07:34	16:10 (15)	07:09	07:43 (12)	07:40	14:57 (15)						
	20:55	115	08:52 (17)	20:25	123	09:04 (17)	19:37	76	08:40 (17)	18:48	43	16:53 (15)	17:09	111	16:12 (15)	16:59	78	16:15 (15)
15	06:07	06:47 (13)	06:35	07:08 (17)	07:05	07:25 (17)	07:35	16:07 (15)	07:10	07:46 (12)	07:41	14:58 (15)						
	20:55	118	08:53 (17)	20:24	116	09:04 (17)	19:36	73	08:38 (17)	18:46	48	16:55 (15)	17:08	106	16:12 (15)	16:59	78	16:16 (15)
16	06:07	06:47 (13)	06:36	07:08 (17)	07:06	07:26 (17)	07:36	16:05 (15)	07:11	07:48 (12)	07:41	14:58 (15)						
	20:54	120	08:53 (17)	20:23	116	09:04 (17)	19:34	70	08:36 (17)	18:45	51	16:56 (15)	17:08	101	16:12 (15)	16:59	78	16:16 (15)
17	06:08	06:45 (13)	06:37	07:08 (17)	07:07	07:27 (17)	07:37	16:02 (15)	07:13	14:41 (15)	07:42	14:58 (15)						
	20:54	123	08:53 (17)	20:21	116	09:04 (17)	19:32	66	08:33 (17)	18:43	56	16:58 (15)	17:07	91	16:12 (15)	16:59	78	16:16 (15)
18	06:09	06:45 (13)	06:38	07:08 (17)	07:08	07:28 (17)	07:38	16:00 (15)	07:14	14:41 (15)	07:43	14:59 (15)						
	20:53	125	08:54 (17)	20:20	116	09:04 (17)	19:31	63	08:31 (17)	18:42	59	16:59 (15)	17:06	91	16:12 (15)	17:00	78	16:17 (15)
19	06:10	06:45 (13)	06:39	07:08 (17)	07:09	07:29 (17)	07:39	15:59 (15)	07:15	14:43 (15)	07:43	14:59 (15)						
	20:52	127	08:55 (17)	20:18	116	09:04 (17)	19:29	59	08:28 (17)	18:40	62	17:01 (15)	17:05	90	16:13 (15)	17:00	77	16:16 (15)
20	06:10	06:45 (13)	06:40	07:08 (17)	07:10	07:30 (17)	07:40	15:57 (15)	07:16	14:43 (15)	07:44	15:00 (15)						
	20:52	128	08:56 (17)	20:17	116	09:04 (17)	19:27	55	08:25 (17)	18:39	65	17:02 (15)	17:05	90	16:13 (15)	17:01	77	16:17 (15)
21	06:11	06:43 (13)	06:41	07:08 (17)	07:11	07:32 (17)	07:41	15:55 (15)	07:17	14:43 (15)	07:44	15:00 (15)						
	20:51	130	08:55 (17)	20:15	116	09:04 (17)	19:25	48	08:20 (17)	18:38	68	17:03 (15)	17:04	89	16:12 (15)	17:01	77	16:17 (15)
22	06:12	06:43 (13)	06:42	07:08 (17)	07:12	07:36 (17)	07:43	15:53 (15)	07:18	14:43 (15)	07:45	15:01 (15)						
	20:50	133	08:56 (17)	20:14	116	09:04 (17)	19:24	40	08:16 (17)	18:36	71	17:04 (15)	17:03	89	16:12 (15)	17:02	77	16:18 (15)
23	06:13	06:43 (13)	06:42	07:07 (17)	07:13	07:41 (17)	07:44	15:51 (15)	07:19	14:43 (15)	07:45	15:01 (15)						
	20:49	134	08:57 (17)	20:12	116	09:03 (17)	19:22	29	08:10 (17)	18:35	84	17:04 (15)	17:03	89	16:12 (15)	17:02	77	16:18 (15)
24	06:14	06:43 (13)	06:43	07:07 (17)	07:13	07:49 (17)	07:45	15:49 (15)	07:21	14:45 (15)	07:46	15:02 (15)						
	20:49	135	08:58 (17)	20:11	115	09:02 (17)	19:20	12	08:01 (17)	18:33	92	17:05 (15)	17:02	88	16:13 (15)	17:03	77	16:19 (15)
25	06:15	06:43 (13)	06:44	07:07 (17)	07:14	06:46	07:46	15:47 (15)	07:22	14:45 (15)	07:46	15:02 (15)						
	20:48	135	08:58 (17)	20:09	115	09:02 (17)	19:19	17:32	98	16:06 (15)	17:02	88	16:13 (15)	17:03	78	16:20 (15)		
26	06:16	06:43 (13)	06:45	07:08 (17)	07:15	06:47	07:47	15:46 (15)	07:23	14:45 (15)	07:47	15:02 (15)						
	20:47	136	08:59 (17)	20:08	113	09:01 (17)	19:17	17:31	103	16:07 (15)	17:01	88	16:13 (15)	17:04	78	16:20 (15)		
27	06:17	06:42 (13)	06:46	07:08 (17)	07:16	06:48	07:48	15:45 (15)	07:24	14:46 (15)	07:47	15:03 (15)						
	20:46	138	09:00 (17)	20:06	113	09:01 (17)	19:15	17:29	107	16:07 (15)	17:01	87	16:13 (15)	17:04	78	16:21 (15)		
28	06:17	06:41 (13)	06:47	07:08 (17)	07:17	06:49	07:49	15:44 (15)	07:25	14:46 (15)	07:47	15:04 (15)						
	20:45	138	08:59 (17)	20:05	112	09:00 (17)	19:14	17:28	109	16:07 (15)	17:00	87	16:13 (15)	17:05	77	16:21 (15)		
29	06:18	06:41 (13)	06:48	07:09 (17)	07:18	06:50	07:50	15:43 (15)	07:26	14:47 (15)	07:48	15:04 (15)						
	20:44	139	09:00 (17)	20:03	111	09:00 (17)	19:12	17:27	113	16:08 (15)	17:00	86	16:13 (15)	17:06	78	16:22 (15)		
30	06:19	06:41 (13)	06:49	07:10 (17)	07:19	06:52	07:51	15:42 (15)	07:27	14:47 (15)	07:48	15:04 (15)						
	20:43	139	09:00 (17)	20:02	109	08:59 (17)	19:10	17:25	114	16:09 (15)	16:59	86	16:13 (15)	17:07	78	16:22 (15)		
31	06:20	06:42 (13)	06:50	07:11 (17)	07:19	06:53	07:52	15:41 (15)	07:28	14:47 (15)	07:48	15:05 (15)						
	20:42	139	09:01 (17)	20:00	108	08:59 (17)	19:09	17:24	116	16:09 (15)	16:59	86	16:13 (15)	17:07	79	16:24 (15)		
Potential sun hours	457		427		375		346		299		3095		290		2455			
Total, worst case	3594		3809		1804		1547		3095		2455							

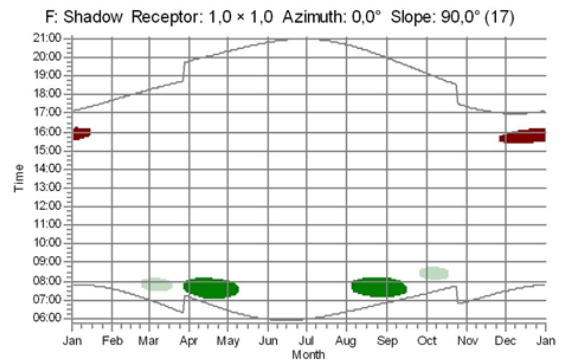
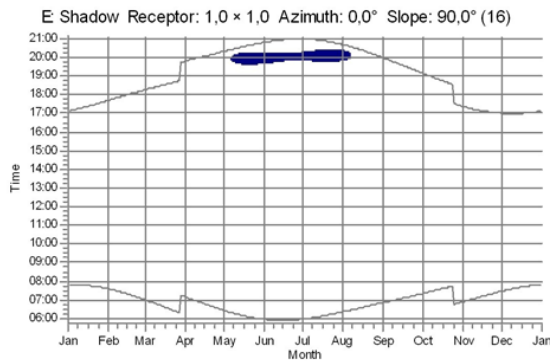
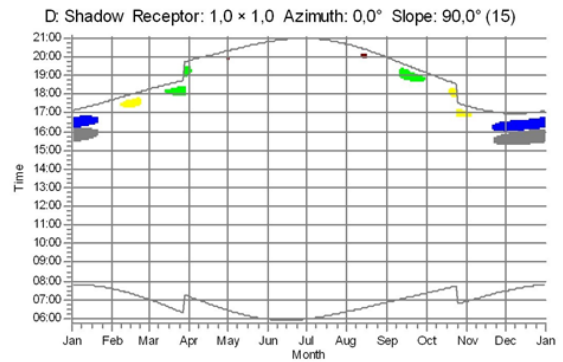
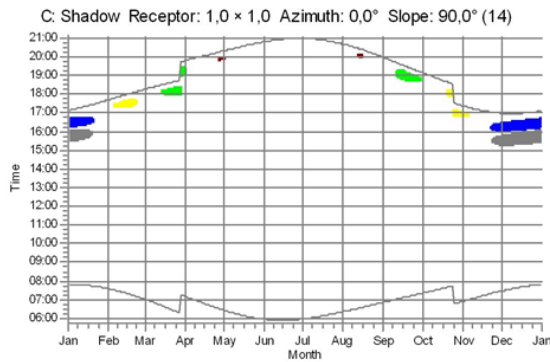
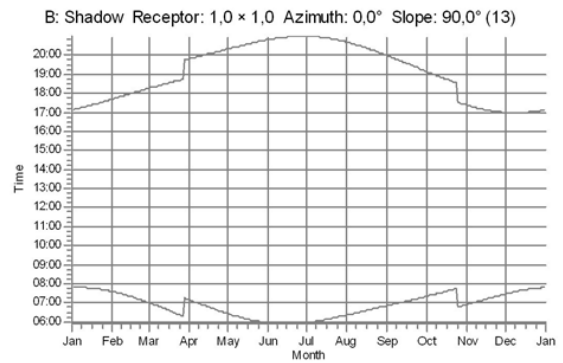
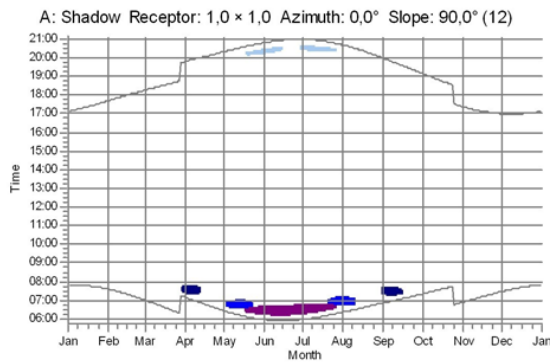
Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

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335244024

SHADOW - Calendar, graphical



WTGs

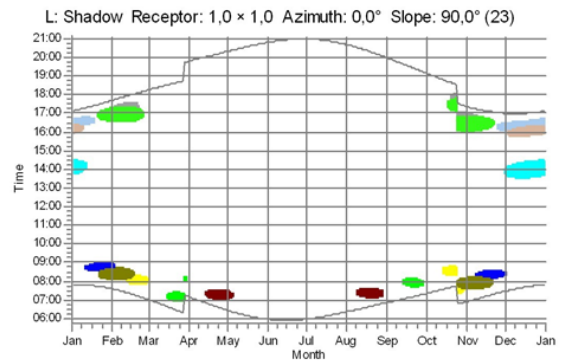
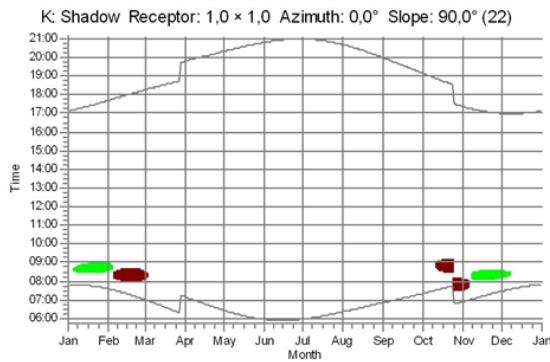
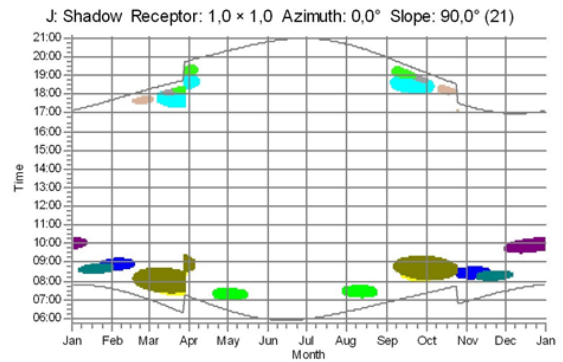
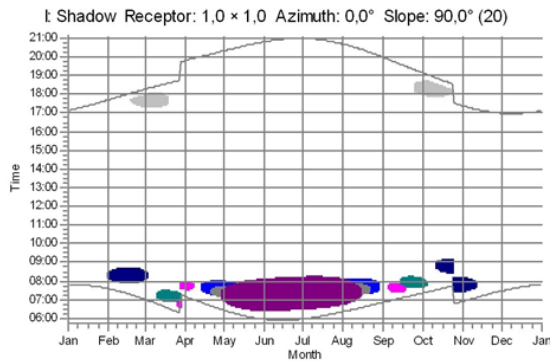
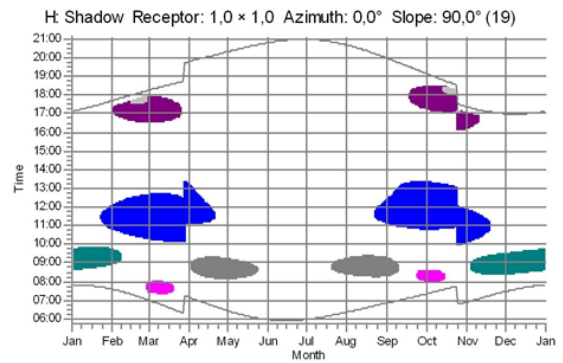
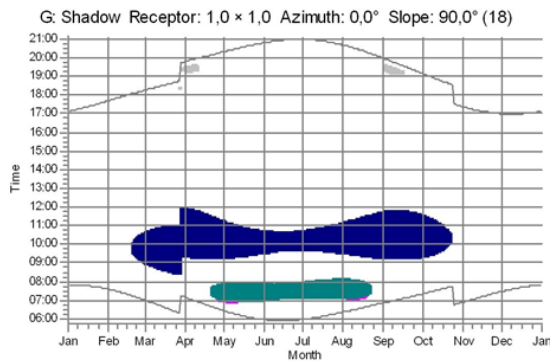
- 1: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (4)
- 2: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (5)
- 3: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (6)
- 4: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (7)
- 7: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (10)

- 8: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (11)
- 9: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (12)
- 11: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (14)
- 14: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (18)
- 15: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (19)

Project: MORES_shadows
Description: Sa Costa Shadow Flickering

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SHADOW - Calendar, graphical



WTGs

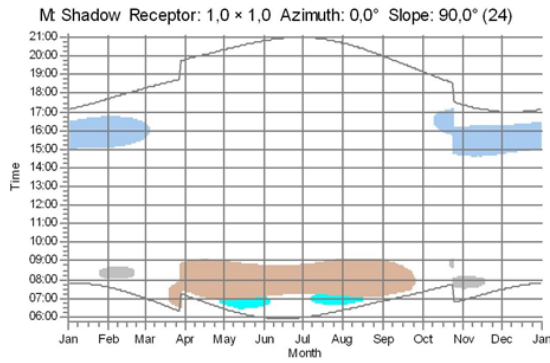
- 2: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (5)
- 3: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (6)
- 4: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (7)
- 5: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (8)
- 6: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (9)
- 7: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (10)
- 8: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (11)
- 9: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (12)

- 10: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (13)
- 11: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (14)
- 12: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (15)
- 13: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (16)
- 15: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (19)
- 16: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (20)
- 17: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (21)
- 18: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (22)

Project: **MORES_shadows** Description: Sa Costa Shadow Flickering

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SHADOW - Calendar, graphical



WTGs

12: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (15)
13: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (16)

15: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (19)
17: VESTAS V162-7.2 7200 162.0 !0! hub: 119,0 m (TOT: 200,0 m) (21)

