

COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)			COD. ELABORATO WPD-B-RA11-01
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REALIZZAZIONE DI UN IMPIANTO EOLICO DA 50.4 MW IN LOCALITÀ “MAMONE”

- COMUNI DI BITTI (NU) E BUDDUSÒ (SS) -



OGGETTO STUDIO DI IMPATTO AMBIENTALE	TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA
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Cod. pratica 2019/0183

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0	15/10/2021	Integrazioni documentali	IAT	GF	GF
REV.	DATA	DESCRIZIONE	ESEG.	CONTR.	APPR.

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COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 iat CONSULENZA E PROGETTI www.iatprogetti.it		TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 2 di 11

INDICE

1	PREMESSA	3
2	INDIVIDUAZIONE DEI RICETTORI CATALOGABILI COME SITI E BENI CULTURALI.....	5
3	RISULTATI.....	6
4	ANALISI DEI RISULTATI E CONCLUSIONI	7
	APPENDICE 1 - REPORT DEI RISULTATI DEL CALCOLO MODELLISTICO – SCENARIO DI PROGETTO.....	11

COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 iat CONSULENZA E PROGETTI www.iatprogetti.it		TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 3 di 11

1 DOCUMENTI DI RIFERIMENTO

La presente relazione è collegata con i documenti elencati nella tabella sottostante.



Codice	Elaborato	Categoria (*)	Data revisione
WPD-B-RA11	<i>Studio degli effetti di shadow flickering</i>	D	Giu. 2020
WPD-B-RC3	<i>Relazione archeologica e nella relativa Appendice integrativa (Elaborato WPD-B-RC3-01 dell'ottobre 2021)</i>	D	Giu. 2020
WPD-B-RC3-01	<i>Relazione archeologica -Appendice integrativa</i>	N	Ott. 2021
WPD-B-TA11-1	<i>Carta delle ore/anno di ombreggiamento intermittente</i>	A	Ott. 2021

(*)

D = Documento agli atti

A = Documento aggiornato a seguito delle richieste di integrazioni e chiarimenti

N = Documento di nuova emissione a seguito delle richieste di integrazioni e chiarimenti

COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 iat CONSULENZA E PROGETTI www.iatprogetti.it		TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 4 di 11

2 PREMESSA

Il presente documento costituisce un'appendice integrativa dell'Elaborato *WPD-B-RA11* _Studio degli effetti di shadow flickering allegato alla documentazione progettuale depositata ai fini dell'istanza di VIA statale del Parco eolico in loc. "Mamone" nei comuni di Bitti e Buddusò, proposto dalla società Wpd Italia S.r.l. attraverso la controllata Piano d'Ertilia S.r.l.

Quanto segue si propone di riscontare le richieste formulate dal Ministero della Cultura – Direzione generale belle arti e paesaggio – Servizio V prot. 35575 del 4.12.2020 (nel seguito indicata per brevità come "nota MIBACT") e segnatamente il punto 18, laddove è richiesto di estendere la valutazione degli effetti del fenomeno del *shadow-flickering* considerando quali ricettori anche i beni e siti culturali (architettonici e archeologici).



A tal fine, pertanto, si farà riferimento alla ricognizione operata nell'ambito delle verifiche archeologiche condotte dal dott. Matteo Tatti le cui risultanze sono contenute nell'Elaborato *WPD-B-RC3 - Relazione_archeologica* e nella relativa Appendice integrativa (Elaborato WPD-B-RC3-01 dell'ottobre 2021).

In coerenza con l'impostazione del documento principale inerente al fenomeno del *shadow-flickering* sugli ambienti abitativi (Elaborato WPD-B-RA11), considerata la presenza di alcuni impianti minieolici nel settore di studio, la valutazione ha considerato gli effetti cumulativi indotti dal progetto in relazione allo specifico fattore di impatto.

Per tutto ciò che attiene alla natura del fenomeno dell'ombreggiamento intermittente ed alle ipotesi alla base dei calcoli previsionali, eseguiti a mezzo di specifico software specialistico, si rimanda integralmente ai contenuti dell'Elaborato WPD-B-RA11.

In relazione all'aspetto ambientale in questione, corre peraltro l'obbligo di sottolineare fin d'ora come non esista una specifica disciplina regolatoria a livello nazionale né le attuali buone pratiche in materia¹ a livello internazionale contemplino l'opportunità di considerare, tra i potenziali ricettori, siti e beni culturali che non siano riconducibili ad ambienti abitativi.

¹ Linee Guida tedesche (Hinweise zur Ermittlung und Beurteilung der optischen Immissionen von Windkraftanlagen – Aktualisierung 2019)

COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 www.iatprogetti.it		TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 5 di 11



3 INDIVIDUAZIONE DEI RICETTORI CATALOGABILI COME SITI E BENI CULTURALI

In accordo con le indicazioni del MIBACT, ai fini delle verifiche di esposizione all'ombra intermittente, sono stati assunti come riferimento n. 4 beni archeologici e culturali, ricadenti entro un buffer di 1.000 dagli aerogeneratori in progetto ed individuati planimetricamente nell'Elaborato WPD-B-TA11-1 Carta delle ore/anno di ombreggiamento intermittente. La Tabella 3.1 riporta per ciascun bene individuato le relative coordinate, secondo il sistema Gauss Boaga, e la distanza dagli aerogeneratori più prossimi.

Tabella 3.1: Elenco dei ricettori catalogabili come siti e beni culturali

Ricettore	Comune	GB Est	GB Nord	Distanza dal più prossimo WTG [m]	Descrizione
RBP_1	Bitti	1537271	4493746	384 (AG9)	FONTANILE
RBP_2	Bitti	1539077	4493781	730 (AG7)	NURAGHE CHEDDAI
RBP_3	Bitti	1539289	4493916	776 (AG11)	AREA FUNERARIA PRANU 'E CHEDDAI
RBP_4	Bitti	1539539	4494202	591 (AG12)	INSEDIAMENTO ROMANO PRANU 'E CHEDDAI

I principali riferimenti dei beni di interesse, comprensivi di uno stralcio della ripresa aerea, sono riportati nell'Elaborato WPD-B-TA11-1 Carta delle ore/anno di ombreggiamento intermittente.

COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)	 think energy	OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 iat CONSULENZA E PROGETTI www.iatprogetti.it	TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 6 di 11	

4 RISULTATI

Il risultato dei calcoli è reso disponibile dal programma di simulazione (*Windpro*) sotto diversi formati:

- tabellare (calendario per ciascun ricettore) nel quale per ogni giorno dell'anno sono indicate le ore di luce e l'intervallo di tempo di esposizione all'ombra con l'orario in cui si verifica il fenomeno;
- grafico (per ciascun ricettore) nel quale vengono rappresentati i periodi dell'anno in cui si verifica il fenomeno, l'orario e le turbine responsabili dell'ombra;
- grafico globale con la rappresentazione di isolinee rappresentanti l'incidenza dell'ombra espressa in ore/anno.

Considerata la presenza, nel settore in esame, di alcuni impianti minieolici, ai fini di un'opportuna valutazione degli effetti cumulativi, lo scenario di calcolo ha valutato gli effetti associati all'entrata in esercizio del proposto impianto eolico della WPD Piano d'Ertilia S.r.l. in sovrapposizione alla situazione delineata dal funzionamento degli impianti minieolici.

Con riferimento allo Scenario di progetto, le isolinee d'ombra sono state rappresentate su specifica tavola grafica integrativa, in scala adeguata alla dimensione territoriale da rappresentare, per facilitarne la lettura. La tavola è stata realizzata, pertanto, su base cartografica in scala 1:10.000 (Elaborato WPD-B-TA11-1 Carta delle ore/anno di ombreggiamento intermittente).



I risultati forniti dal modello di calcolo consentono di valutare approssimativamente sia l'impatto puntuale sul singolo ricettore, 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.

Come evidenziato nell'Elaborato WPD-B-RA11, peraltro, l'output fornito dal modello è alquanto conservativo e non realistico, giacché la simulazione non tiene in considerazione i numerosi fattori sfavorevoli al verificarsi del disturbo.

Per quanto precede, nel seguito si procederà ad esaminare le risultanze dei calcoli modellistici, introducendo nella valutazione di impatto ulteriori elementi che tengano conto delle effettive condizioni di funzionamento degli impianti, in rapporto al quadro anemologico atteso, nonché delle condizioni meteorologiche caratteristiche del sito di Bitti, con particolare riferimento alle condizioni medie di copertura del cielo.

I risultati numerici delle simulazioni modellistiche sono riportati in Appendice.

COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 www.iatprogetti.it		TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 7 di 11

5 ANALISI DEI RISULTATI E CONCLUSIONI

Con riferimento allo scenario di progetto (funzionamento simultaneo degli esistenti impianti minieolici e del parco eolico di Bitti - Mamone), la Tabella 5.1 riepiloga, per ciascun ricettore rappresentativo dei beni archeologici e architettonici, le risultanze del calcolo modellistico espresse come valori totali di interferenza teorica (o potenziale) da *shadow flickering* (SF_P) in h/anno, numero di giorni in cui si verifica l'interferenza potenziale ed infine durata massima per singolo giorno.

Tabella 5.1: Durata massima del fenomeno di shadow flickering potenziale (SF_P) in corrispondenza dei beni archeologici e culturali individuati entro i 1000 metri dalle postazioni eoliche

ID	Ricettore - Beni archeologici e culturali	[h/anno]	[giorni/anno]	[h/giorno]
1	RPB_01_FONTANILE	274:51:00	259	02:09
2	RPB_02_NURAGHE CHEDDAI	44:32:00	110	00:38
3	RPB_03_AREA FUNERARIA PRANU 'E CHEDDAI	14:39:00	37	00:29
4	RPB_04_INSEDIAMENTO ROMANO PRANU 'E CHEDDAI	34:56:00	85	00:37

Ai fini di una appropriata lettura dei valori di h/anno riportati in Tabella 5.1, è opportuno richiamare, così come evidenziato nel documento del giugno 2020 (Elaborato WPD-B-RA11), le ipotesi estremamente conservative alla base del calcolo modellistico (cielo sereno, sufficiente contrasto luci-ombre, velocità del vento al mozzo degli aerogeneratori superiore ai 3 m/s - V_{CUT-IN} , piano del rotore frapposto alla congiungente sole-ricettore).

Muovendo dai risultati della simulazione, la stima dei valori di effettiva esposizione all'ombra intermittente può condursi, pertanto, introducendo quantomeno un opportuno coefficiente di riduzione che tenga conto delle condizioni medie di copertura del cielo.

Valutato che, in base ai dati copertura del cielo richiamati in Tabella 5.2, il numero medio di giorni al mese con copertura nuvolosa superiore ai 4/8 è mediamente pari al 50%, è possibile pervenire alla stima dei valori di SF al netto delle giornate con presenza di cielo coperto (SF_{NC}) attraverso la seguente espressione:

$$SF_{NC}[h/anno] = \sum_{i=1}^{12} SF_{Pi} \cdot (1 - R_{Ni})$$

Dove:

SF_{NC} = h/anno di *shadow flickering* potenziale al netto delle giornate con presenza di cielo coperto;

SF_{Pi} = ore di *shadow flickering* teorico da modello di calcolo per il mese i-esimo;

R_{Ni} = frequenza dei giorni con copertura del cielo >4/8 per il mese i-esimo.

Con riferimento ai ricettori di interesse, i dati di SF_{NC} sono riportati in Tabella 5.3.



COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 iat CONSULENZA E PROGETTI www.iatprogetti.it		TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 8 di 11

Tabella 5.2: Aeronautica Militare – Stazione di Fonna (NU). Dati medi di copertura nuvolosa >4/8 registrati nel periodo 1971÷2000 (Fonte, Aeronautica Militare Italiana)

	Ng h6 Nuv>4	Ngh18 Nuv>4	Media Nuv>4	Media Nuv>4 (%)
gen	15,6	19,2	17,4	56%
feb	16,7	21,2	19,0	68%
mar	18,3	22,8	20,6	66%
apr	18,1	21,8	20,0	67%
mag	15,3	19,5	17,4	56%
giu	9,7	12,6	11,2	37%
lug	6	7,1	6,6	21%
ago	6,2	6,9	6,6	21%
set	10,9	14,4	12,7	42%
ott	15,6	18,1	16,9	54%
nov	16,6	18,7	17,7	59%
dic	14,1	15,3	14,7	47%

Ng h6Nuv>4: Numero medio di giorni al mese con copertura nuvolosa > 4/8 alle ore 6

Ngh18Nuv>4: Numero medio di giorni al mese con copertura nuvolosa > 4/8 alle ore 18

MediaNuv>4: Media del numero medio di giorni al mese con copertura nuvolosa > 4/8 registrata alle ore 6 ed alle 18



COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 www.iatprogetti.it		TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 9 di 11

Tabella 5.3: Incidenza del fenomeno del shadow flickering al netto delle giornate con cielo coperto in corrispondenza dei beni archeologici e culturali riconosciuti all'interno dell'areale di interesse

ID	Ricettore - Beni archeologici e culturali	[h/anno]
1	RPB_01_FONTANILE	125:48:19
2	RPB_02_NURAGHE CHEDDAI	25:41:57
3	RPB_03 AREA FUNERARIA PRANU 'E CHEDDAI	9:40:22
4	RPB_04_INSEDIAMENTO ROMANO PRANU 'E CHEDDAI	18:11:20

Relativamente alla situazione potenzialmente più sfavorevole riscontrata (incidenza stimata SF>100 h/anno) la stessa si riferisce al bene classificato come "Fontanile" (RPB_01) raffigurato planimetricamente in Figura 5.1.

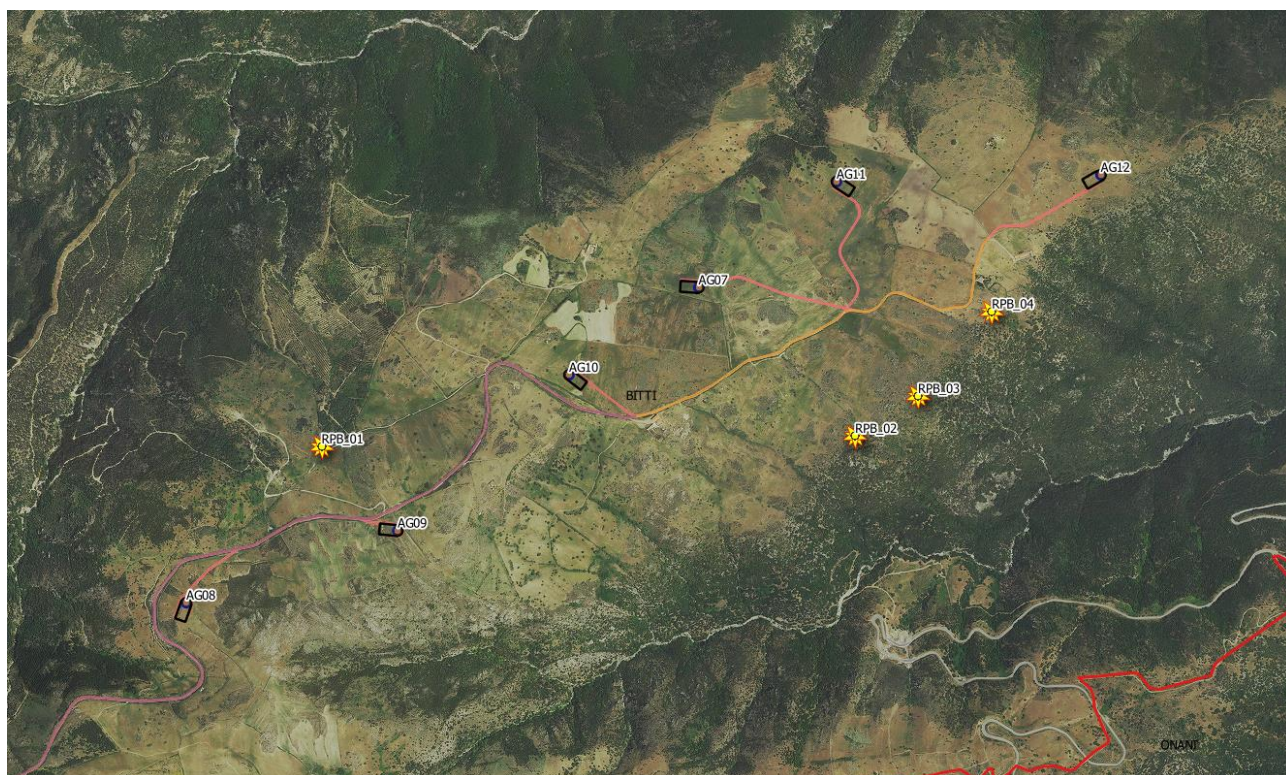




Figura 5.1 – Beni archeologici e culturali potenzialmente esposti al fenomeno dello shadow-flickering



Considerato che:

- non esiste una disciplina regolatoria a livello nazionale né le attuali buone pratiche in materia, a livello internazionale, contemplano l'opportunità di considerare, tra i potenziali ricettori, siti e beni culturali che non siano riconducibili ad ambienti abitativi;

COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
 iat CONSULENZA E PROGETTI www.iatprogetti.it	TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 10 di 11	

- non esistono conseguentemente soglie di riferimento circa l'incidenza del fenomeno che possano essere ragionevolmente assunte come indicatrici dell'entità di un potenziale disturbo a carico di eventuali saltuari visitatori dei suddetti beni;
- l'incidenza massima del fenomeno di *shadow-flickering* in corrispondenza dei ricettori considerati (riferibile al bene identificato come RBP_1 Fontanile) è temporalmente valutabile in circa l' 8% delle ore di luce in un anno per il sito di Bitti (stimabili in circa 4400 ore);
- anche in previsione di una eventuale futura valorizzazione e fruizione dei suddetti beni archeologici - attualmente non oggetto di indagini scientifiche, di fruizione o valorizzazione - ogni eventuale disturbo conseguente alla proiezione di ombre intermittenti per effetto del funzionamento degli aerogeneratori in progetto può essere efficacemente mitigato attraverso l'interposizione di ostacoli visivi di modesta altezza al perimetro dei suddetti beni (quali p.e. cortine arboree);

si può ragionevolmente affermare che gli effetti associati al fenomeno dello *shadow-flickering* sulla godibilità del patrimonio archeologico e culturale riconosciuto in un areale di 1000 metri dal parco eolico in progetto saranno di natura transitoria, scarsamente significativa ed efficacemente mitigabile.

COMMITTENTE WPD Piano d'Ertilia S.r.l. Via Aventino, 102 - Roma (RM)		OGGETTO PARCO EOLICO IN LOC. "MAMONE" PROGETTO DEFINITIVO OPERE CIVILI	COD. ELABORATO WPD-B-RA11-01
	TITOLO STUDIO DEGLI EFFETTI DI SHADOW FLICKERING – APPENDICE INTEGRATIVA	PAGINA 11 di 11	

**APPENDICE 1 - REPORT DEI RISULTATI DEL CALCOLO MODELLISTICO –
SCENARIO DI PROGETTO**

SHADOW - Main Result

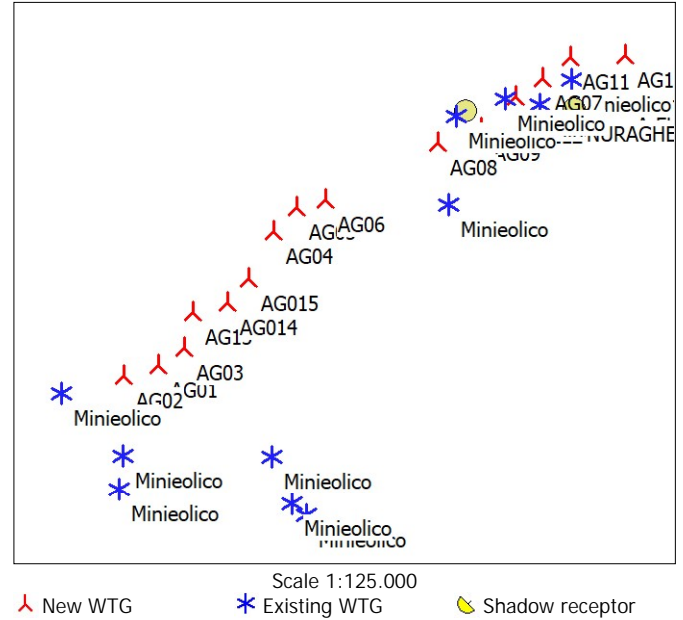
Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali
Assumptions for shadow calculations

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

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Height Contours: tin-10-12-19.wpo (1)
Obstacles used in calculation
Eye height for map: 1,5 m
Grid resolution: 10,0 m

All coordinates are in
Italian Gauss-Boaga west-ROMA40 (IT-peninsular <±4m)



WTGs

	Easting	Northing	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
AG01	1.532.206	4.489.534	876,5	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG014	1.533.337	4.490.562	890,0	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG015	1.533.685	4.490.966	900,0	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG02	1.531.634	4.489.354	870,0	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG03	1.532.634	4.489.824	883,3	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG04	1.534.103	4.491.734	970,0	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG05	1.534.484	4.492.137	987,0	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG06	1.534.965	4.492.261	981,9	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG07	1.538.547	4.494.283	763,0	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG08	1.536.813	4.493.217	926,6	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG09	1.537.528	4.493.461	889,3	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG10	1.538.109	4.493.988	812,3	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG11	1.539.014	4.494.641	716,3	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG12	1.539.908	4.494.664	716,5	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
AG13	1.532.777	4.490.408	900,0	GE WIND ENERGY 4....	Yes	GE WIND ENERGY	4.2-158-4.200	4.200	158,0	149,0	1.817	0,0
Minieolico	1.537.124	4.493.662	839,8	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.536.991	4.492.193	853,7	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.537.920	4.493.955	847,3	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.530.587	4.489.064	849,2	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.538.495	4.493.848	798,5	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.531.626	4.488.037	819,0	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.531.559	4.487.488	805,1	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.539.019	4.494.267	754,7	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.534.666	4.487.066	770,5	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.534.427	4.487.263	773,9	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0
Minieolico	1.534.082	4.488.038	794,5	KROGMANN 50 15.0 ...	No	KROGMANN	-50	50	15,0	30,0	2.500	70,0

Shadow receptor-Input

No.	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
	[m]	[m]	[m]	[m]	[m]	[m]	[°]		[m]
AREA FUNERARIA PRANU 'E CHEDDAI	1.539.289	4.493.916	740,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
FONTANILE	1.537.271	4.493.746	830,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
INSEDIAMENTO ROMANO PRANU 'E CHEDDAI	1.539.539	4.494.202	718,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
NURAGHE CHEDDAI	1.539.077	4.493.781	734,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0

SHADOW - Main Result

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali
Calculation Results

Shadow receptor

No.		Shadow, worst case		
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]
	AREA FUNERARIA PRANU 'E CHEDDAI	14:39	37	0:29
	FONTANILE	274:51	259	2:09
	INSEDIAMENTO ROMANO PRANU 'E CHEDDAI	34:56	85	0:37
	NURAGHE CHEDDAI	44:32	110	0:38

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

No.	Name	Worst case [h/year]
AG01	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (42)	0:00
AG014	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (45)	0:00
AG015	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (46)	0:00
AG02	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (41)	0:00
AG03	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (43)	0:00
AG04	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (47)	0:00
AG05	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (48)	0:00
AG06	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (49)	0:00
AG07	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (53)	53:12
AG08	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (50)	77:07
AG09	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (51)	134:53
AG10	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (52)	93:42
AG11	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (54)	0:00
AG12	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (55)	0:00
AG13	GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,0 m) (44)	0:00
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (77)	8:56
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (76)	0:00
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (78)	0:52
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (84)	0:00
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (79)	0:44
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (63)	0:00
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (62)	0:00
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (80)	0:00
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (66)	0:00
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (65)	0:00
Minieolico	KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (64)	0:00

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.

SHADOW - Calendar

Calculation: Shadow_2021_10_08_Cumulativo_Beni cultural Shadow receptor: AREA FUNERARIA PRANU 'E CHEDDAI - Shadow Receptor: 1.0 x 1,0 Azimuth: 0.0° Slope: 90.0° (230)

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	07:46 17:06	07:33 17:40	06:58 18:13	07:08 19:46	06:23 20:18	05:54 20:47	05:55 20:57	19:46 (AG07) 06:19	06:49 19:56	07:18 19:06	06:52 17:20	07:26 16:57
2	07:47 17:07	07:32 17:41	06:57 18:14	07:06 19:47	06:22 20:19	05:54 20:47	05:56 20:57	26 20:12 (AG07) 19:47 (AG07)	20:39 06:20	19:56 07:19	06:53 17:19	07:27 16:56
3	07:47 17:07	07:31 17:42	06:55 18:15	07:05 19:48	06:20 20:20	05:54 20:48	05:56 20:57	25 20:12 (AG07) 19:48 (AG07)	20:38 06:21	19:55 06:51	19:05 07:20	17:19 07:28
4	07:47 17:08	07:30 17:43	06:53 18:16	07:03 19:50	06:19 20:21	05:53 20:49	05:57 20:57	7 19:57 (AG07) 19:48 (AG07)	20:37 06:21	19:53 06:52	19:03 07:21	17:18 06:55
5	07:47 17:09	07:29 17:44	06:52 18:18	07:01 19:51	06:18 20:22	05:53 20:49	05:57 20:57	12 20:00 (AG07) 19:46 (AG07)	20:57 06:22	20:36 06:53	19:01 07:22	17:17 06:56
6	07:47 17:10	07:28 17:46	06:50 18:19	07:00 19:52	06:17 20:23	05:53 20:50	05:58 20:57	15 20:01 (AG07) 19:45 (AG07)	20:57 06:23	20:34 06:54	19:00 07:23	17:16 06:58
7	07:47 17:11	07:27 17:47	06:49 18:20	06:58 19:53	06:15 20:24	05:52 20:51	05:58 20:56	18 20:03 (AG07) 19:45 (AG07)	20:57 06:24	20:33 19:48	17:15 18:58	07:31 16:56
8	07:46 17:12	07:26 17:48	06:47 18:21	06:57 19:54	06:14 20:25	05:52 20:51	05:59 20:56	16 20:05 (AG07) 19:44 (AG07)	20:32 06:25	19:47 06:56	18:57 07:25	17:14 07:00
9	07:46 17:13	07:25 17:49	06:46 18:22	06:55 19:55	06:13 20:26	05:52 20:52	06:00 20:56	13 20:07 (AG07) 19:56 (AG07)	20:31 06:26	19:45 06:57	18:55 07:26	17:12 07:01
10	07:46 17:14	07:24 17:51	06:44 18:23	06:53 19:56	06:12 20:27	05:52 20:52	06:00 20:55	10 20:06 (AG07) 19:43 (AG07)	20:30 06:27	19:43 06:58	18:53 07:27	17:11 07:02
11	07:46 17:15	07:23 17:52	06:42 18:24	06:52 19:57	06:11 20:28	05:51 20:53	06:01 20:55	24 20:07 (AG07) 19:42 (AG07)	20:28 06:28	19:42 06:58	18:52 07:28	17:10 07:03
12	07:46 17:16	07:22 17:53	06:41 18:25	06:50 19:58	06:10 20:29	05:51 20:53	06:05 20:54	26 20:08 (AG07) 19:42 (AG07)	20:52 06:29	20:40 19:40	18:50 07:29	17:09 07:05
13	07:45 17:17	07:20 17:54	06:39 18:26	06:49 19:59	06:09 20:30	05:51 20:54	06:02 20:54	27 20:09 (AG07) 19:42 (AG07)	06:30 20:24	07:00 19:37	18:49 18:47	17:08 07:38
14	07:45 17:18	07:19 17:55	06:38 18:27	06:47 19:50	06:08 20:31	05:51 20:54	06:03 20:53	28 20:10 (AG07) 19:42 (AG07)	06:31 06:32	07:01 07:02	18:46 07:33	17:07 07:39
15	07:45 17:19	07:18 17:57	06:36 18:28	06:46 19:51	06:07 20:32	05:51 20:55	06:04 20:53	10 20:06 (AG07) 19:43 (AG07)	20:30 06:27	19:43 06:58	18:53 07:28	17:11 07:06
16	07:44 17:20	07:16 17:58	06:34 18:30	06:44 19:52	06:06 20:33	05:51 20:55	06:05 20:52	28 20:10 (AG07) 19:42 (AG07)	06:05 20:20	07:03 19:32	07:34 18:42	07:09 17:05
17	07:44 17:22	07:15 17:59	06:33 18:31	06:43 19:53	06:05 20:34	05:51 20:56	06:05 20:52	29 20:11 (AG07) 19:42 (AG07)	06:05 20:19	06:05 19:30	07:35 18:41	07:40 17:04
18	07:43 17:23	07:14 18:00	06:31 18:32	06:41 19:54	06:04 20:35	05:51 20:56	06:06 20:51	29 20:11 (AG07) 19:43 (AG07)	06:35 20:18	07:05 19:28	07:36 18:39	07:12 17:03
19	07:43 17:24	07:12 18:01	06:29 18:33	06:40 19:55	06:03 20:36	05:51 20:56	06:07 20:50	19 19:43 (AG07) 20:12 (AG07)	06:36 20:16	07:06 19:27	07:37 18:38	07:13 17:03
20	07:42 17:25	07:11 18:03	06:28 18:34	06:38 19:56	06:02 20:36	05:52 20:56	06:08 20:50	29 20:12 (AG07) 19:43 (AG07)	06:37 20:15	07:07 19:25	07:38 18:37	07:14 17:02
21	07:42 17:26	07:10 18:04	06:26 18:35	06:37 19:57	06:02 20:37	05:52 20:57	06:09 20:49	20 20:13 (AG07) 19:43 (AG07)	06:38 20:13	07:08 19:23	07:39 18:35	07:15 16:58
22	07:41 17:27	07:08 18:05	06:24 18:36	06:35 19:58	06:01 20:38	05:52 20:57	06:10 20:48	29 20:12 (AG07) 19:43 (AG07)	06:39 20:12	07:09 19:21	07:40 18:34	07:16 17:01
23	07:41 17:29	07:07 18:06	06:23 18:37	06:34 19:59	06:00 20:39	05:52 20:57	06:10 20:47	30 20:12 (AG07) 19:44 (AG07)	06:40 20:10	07:10 19:20	07:41 18:32	07:17 17:00
24	07:40 17:30	07:05 18:07	06:21 18:38	06:32 19:50	05:59 20:40	05:52 20:57	06:11 20:46	29 20:13 (AG07) 19:44 (AG07)	06:41 20:09	07:11 19:18	07:43 18:31	07:18 16:59
25	07:39 17:31	07:04 18:08	06:20 18:39	06:31 19:51	05:59 20:41	05:53 20:57	06:12 20:46	30 20:13 (AG07) 19:44 (AG07)	06:42 20:07	07:12 19:16	06:44 17:29	07:44 17:00
26	07:38 17:32	07:03 18:10	06:18 18:40	06:30 19:52	05:58 20:42	05:53 20:57	06:13 20:45	29 20:13 (AG07) 19:45 (AG07)	06:43 20:06	07:13 19:15	06:45 17:28	07:21 16:58
27	07:38 17:33	07:01 18:11	06:16 18:41	06:28 19:53	05:57 20:43	05:53 20:58	06:14 20:44	31 20:13 (AG07) 19:45 (AG07)	06:44 20:04	07:14 19:13	06:46 17:27	07:22 17:02
28	07:37 17:35	07:00 18:12	06:15 18:42	06:27 19:54	05:57 20:43	05:54 20:58	06:15 20:43	28 20:13 (AG07) 19:46 (AG07)	06:45 20:03	07:15 19:11	06:47 17:25	07:23 17:02
29	07:36 17:36	07:03 19:43	06:18 20:16	06:30 20:44	05:56 20:55	05:54 20:58	06:16 20:42	30 20:13 (AG07) 19:46 (AG07)	06:46 20:01	07:16 19:10	06:48 17:24	07:24 17:03
30	07:35 17:37	07:03 19:44	06:18 20:17	06:30 20:45	05:58 20:55	05:53 20:58	06:17 20:41	31 20:13 (AG07) 19:46 (AG07)	06:47 20:00	07:17 19:08	06:49 17:23	07:25 16:57
31	07:34 17:38	07:03 19:45	06:17 20:18	06:29 20:46	05:57 20:55	05:54 20:58	06:18 20:40	30 20:13 (AG07) 19:46 (AG07)	06:48 19:58	07:18 17:22	06:51 17:22	07:46 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Total, worst case						704	175					

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)

SHADOW - Calendar

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturalShadow receptor: FONTANILE - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (228)
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	07:46	14:49 (AG08) 07:34	09:35 (AG09) 06:58	09:28 (AG09) 07:08	06:23	06:44 (AG10) 05:55
	17:06	40 15:29 (AG08) 17:40	15:44 (AG08) 18:13	75 10:43 (AG09) 19:46	20:18	38 07:22 (AG10) 20:47
2	07:47	14:49 (AG08) 07:33	09:34 (AG09) 06:57	09:28 (AG09) 07:06	06:22	06:42 (Minieolico) 05:54
	17:07	40 15:29 (AG08) 17:41	15:43 (AG08) 18:14	73 10:41 (AG09) 19:48	20:19	41 07:23 (AG10) 20:47
3	07:47	14:49 (AG08) 07:32	09:33 (AG09) 06:55	09:29 (AG09) 07:05	06:20	06:41 (Minieolico) 05:54
	17:07	41 15:30 (AG08) 17:42	15:43 (AG08) 18:15	71 10:40 (AG09) 19:49	20:20	43 07:24 (AG10) 20:48
4	07:47	14:50 (AG08) 07:31	09:33 (AG09) 06:54	09:29 (AG09) 07:03	06:19	06:40 (Minieolico) 05:53
	17:08	41 15:31 (AG08) 17:43	15:43 (AG08) 18:16	69 10:38 (AG09) 19:50	20:21	43 07:23 (AG10) 20:49
5	07:47	14:50 (AG08) 07:30	09:32 (AG09) 06:52	09:30 (AG09) 07:02	06:18	06:41 (Minieolico) 05:53
	17:09	42 15:32 (AG08) 17:45	15:42 (AG08) 18:18	67 10:37 (AG09) 19:51	20:22	43 07:24 (AG10) 20:49
6	07:47	14:50 (AG08) 07:28	09:32 (AG09) 06:50	09:30 (AG09) 07:00	06:17	06:41 (AG10) 05:53
	17:10	43 15:33 (AG08) 17:46	15:41 (AG08) 18:19	65 10:35 (AG09) 19:52	20:23	43 07:24 (AG10) 20:50
7	07:47	14:49 (AG08) 07:27	09:31 (AG09) 06:49	09:31 (AG09) 06:58	06:16	06:35 (AG07) 05:52
	17:11	44 15:33 (AG08) 17:47	16:42 (Minieolico) 18:20	62 10:33 (AG09) 19:53	20:24	45 07:24 (AG10) 20:51
8	07:47	14:49 (AG08) 07:26	09:31 (AG09) 06:47	09:32 (AG09) 06:57	06:14	06:34 (AG07) 05:52
	17:12	45 15:34 (AG08) 17:48	16:45 (Minieolico) 18:21	59 10:31 (AG09) 19:54	20:25	48 07:24 (AG10) 20:51
9	07:46	14:50 (AG08) 07:25	09:31 (AG09) 06:46	09:32 (AG09) 06:55	06:13	06:33 (AG07) 05:52
	17:13	45 15:35 (AG08) 17:49	16:46 (Minieolico) 18:22	56 10:28 (AG09) 19:55	20:26	49 07:24 (AG10) 20:52
10	07:46	14:50 (AG08) 07:24	09:30 (AG09) 06:44	09:34 (AG09) 06:54	06:12	06:32 (AG07) 05:52
	17:14	46 15:36 (AG08) 17:51	16:47 (Minieolico) 18:23	52 10:26 (AG09) 19:56	20:27	51 07:24 (AG10) 20:53
11	07:46	14:49 (AG08) 07:23	09:29 (AG09) 06:43	09:35 (AG09) 06:52	06:11	06:31 (AG07) 05:52
	17:15	47 15:36 (AG08) 17:52	16:48 (Minieolico) 18:24	48 10:23 (AG09) 19:57	20:28	53 07:24 (AG10) 20:53
12	07:46	14:50 (AG08) 07:22	09:29 (AG09) 06:41	09:37 (AG09) 06:50	06:10	06:30 (AG07) 05:51
	17:16	47 15:37 (AG08) 17:53	16:49 (Minieolico) 18:25	43 10:20 (AG09) 19:58	20:29	54 07:24 (AG10) 20:54
13	07:46	14:50 (AG08) 07:20	09:29 (AG09) 06:39	09:38 (AG09) 06:49	06:09	06:29 (AG07) 05:51
	17:17	48 15:38 (AG08) 17:54	16:50 (Minieolico) 18:26	38 10:16 (AG09) 19:59	20:30	55 07:24 (AG10) 20:54
14	07:45	14:50 (AG08) 07:19	09:28 (AG09) 06:38	09:40 (AG09) 06:47	06:08	06:28 (AG07) 05:51
	17:18	48 15:38 (AG08) 17:56	16:49 (Minieolico) 18:27	32 10:12 (AG09) 20:00	20:31	55 07:23 (AG10) 20:54
15	07:45	14:50 (AG08) 07:18	09:28 (AG09) 06:36	09:44 (AG09) 06:46	06:07	06:27 (AG07) 05:51
	17:19	49 15:39 (AG08) 17:57	16:49 (Minieolico) 18:29	24 10:08 (AG09) 20:01	20:32	56 07:23 (AG10) 20:55
16	07:44	09:59 (AG09) 07:17	09:28 (AG09) 06:34	09:50 (AG09) 06:44	06:06	06:26 (AG07) 05:51
	17:21	60 15:39 (AG08) 17:58	16:50 (Minieolico) 18:30	10 10:00 (AG09) 20:02	20:33	56 07:23 (AG10) 20:55
17	07:44	09:55 (AG09) 07:15	09:27 (AG09) 06:33		06:05	06:25 (AG07) 05:51
	17:22	71 15:40 (AG08) 17:59	16:49 (Minieolico) 18:31		20:34	56 07:22 (AG10) 20:56
18	07:44	09:52 (AG09) 07:14	09:27 (AG09) 06:31		06:04	06:24 (AG07) 05:51
	17:23	76 15:40 (AG08) 18:00	16:48 (Minieolico) 18:32		20:35	56 07:21 (AG10) 20:56
19	07:43	09:50 (AG09) 07:13	09:28 (AG09) 06:30		06:03	06:24 (AG07) 05:52
	17:24	82 15:41 (AG08) 18:01	16:47 (Minieolico) 18:33		20:36	57 07:22 (AG10) 20:56
20	07:43	09:48 (AG09) 07:11	09:27 (AG09) 06:28		06:02	06:23 (AG07) 05:52
	17:25	87 15:42 (AG08) 18:03	16:45 (Minieolico) 18:34		20:37	55 07:21 (AG10) 20:57
21	07:42	09:47 (AG09) 07:10	09:27 (AG09) 06:26		06:02	06:22 (AG07) 05:52
	17:26	91 15:43 (AG08) 18:04	16:44 (Minieolico) 18:35		20:37	55 07:20 (AG10) 20:57
22	07:41	09:46 (AG09) 07:08	09:27 (AG09) 06:25		06:01	06:21 (AG07) 05:52
	17:27	94 15:43 (AG08) 18:05	16:39 (Minieolico) 18:36		20:38	55 07:20 (AG10) 20:57
23	07:41	09:44 (AG09) 07:07	09:27 (AG09) 06:23		06:34	06:00
	17:29	98 15:43 (AG08) 18:06	10:49 (AG09) 18:37		20:09	13 07:12 (AG10) 20:39
24	07:40	09:42 (AG09) 07:06	09:27 (AG09) 06:21		06:32	06:55 (AG10) 05:59
	17:30	102 15:43 (AG08) 18:07	10:48 (AG09) 18:38		20:10	19 07:14 (AG10) 20:40
25	07:39	09:42 (AG09) 07:04	09:27 (AG09) 06:20		06:31	06:52 (AG10) 05:59
	17:31	103 15:44 (AG08) 18:09	10:47 (AG09) 18:39		20:11	25 07:17 (AG10) 20:41
26	07:39	09:41 (AG09) 07:03	09:28 (AG09) 06:18		06:30	06:51 (AG10) 05:58
	17:32	105 15:44 (AG08) 18:10	10:47 (AG09) 18:40		20:12	27 07:18 (AG10) 20:42
27	07:38	09:40 (AG09) 07:01	09:27 (AG09) 06:16		06:28	06:49 (AG10) 05:57
	17:33	108 15:44 (AG08) 18:11	10:45 (AG09) 18:41		20:14	30 07:19 (AG10) 20:43
28	07:37	09:38 (AG09) 07:00	09:28 (AG09) 06:15		06:27	06:47 (AG10) 05:57
	17:35	111 15:44 (AG08) 18:12	10:45 (AG09) 18:42		20:15	33 07:20 (AG10) 20:44
29	07:36	09:37 (AG09) 07:00	09:28 (AG09) 06:13		06:26	06:47 (AG10) 05:56
	17:36	112 15:44 (AG08) 18:12	10:45 (AG09) 18:42		20:16	35 07:22 (AG10) 20:44
30	07:35	09:37 (AG09) 07:00	09:28 (AG09) 06:11		06:24	06:45 (AG10) 05:56
	17:37	113 15:44 (AG08) 18:13	10:45 (AG09) 18:43		20:17	37 07:22 (AG10) 20:45
31	07:34	09:36 (AG09) 07:00	09:28 (AG09) 06:10		06:23	06:46 (AG10) 05:56
	17:38	115 15:44 (AG08) 18:14	10:45 (AG09) 18:44		20:18	39 07:23 (AG10) 20:46
Potential sun hours	299					
Total, worst case	2194	298	2941	370	844	219
						447
						1535
						451
						107

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)

SHADOW - Calendar

Calculation: Shadow_2021_10_08_Cumulativo_Beni cultural Shadow receptor: FONTANILE - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (228)
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	05:55	06:19	06:41 (AG07)	06:49	07:18	10:16 (AG09)	06:52	08:59 (AG09)	07:26	14:31 (AG08)						
	20:58	20:39	07:35 (AG10)	19:56	19:07	10:57 (AG09)	17:21	129	16:17 (Minieolico)	16:57	47	15:18 (AG08)				
2	05:56	06:20	06:42 (AG07)	06:50	07:19	10:14 (AG09)	06:53	09:00 (AG09)	07:27	14:33 (AG08)						
	20:57	20:38	07:35 (AG10)	19:55	19:05	11:00 (AG09)	17:19	127	16:15 (Minieolico)	16:56	46	15:19 (AG08)				
3	05:56	06:21	06:42 (AG07)	06:51	07:20	10:12 (AG09)	06:54	09:01 (AG09)	07:28	14:34 (AG08)						
	20:57	20:37	07:34 (AG10)	19:53	19:03	11:02 (AG09)	17:18	127	16:14 (Minieolico)	16:56	45	15:19 (AG08)				
4	05:57	06:22	06:43 (AG07)	06:52	07:21	10:10 (AG09)	06:55	09:01 (AG09)	07:29	14:34 (AG08)						
	20:57	20:36	07:34 (AG10)	19:52	19:02	11:04 (AG09)	17:17	124	16:12 (Minieolico)	16:56	45	15:19 (AG08)				
5	05:57	06:23	06:44 (AG07)	06:53	07:22	10:09 (AG09)	06:56	09:02 (AG09)	07:30	14:35 (AG08)						
	20:57	20:34	07:34 (AG10)	19:50	19:00	11:06 (AG09)	17:16	116	15:11 (AG08)	16:56	44	15:19 (AG08)				
6	05:58	06:23	06:45 (AG07)	06:54	07:23	10:07 (AG09)	06:58	09:02 (AG09)	07:31	14:36 (AG08)						
	20:57	20:33	07:34 (AG10)	19:48	18:58	11:08 (AG09)	17:15	117	15:12 (AG08)	16:56	43	15:19 (AG08)				
7	05:58	07:09 (AG10)	06:24	06:55	07:24	10:06 (AG09)	06:59	09:04 (AG09)	07:32	14:36 (AG08)						
	20:56	3	07:12 (AG10)	20:32	42	07:33 (AG10)	19:47	18:57	63	11:09 (AG09)	17:14	116	15:13 (AG08)	16:56	42	15:18 (AG08)
8	05:59	07:05 (AG10)	06:25	06:56	07:25	10:05 (AG09)	07:00	09:04 (AG09)	07:33	14:37 (AG08)						
	20:56	10	07:15 (AG10)	20:31	42	07:33 (AG10)	19:45	18:55	66	11:11 (AG09)	17:13	117	15:14 (AG08)	16:56	41	15:18 (AG08)
9	06:00	06:33 (AG07)	06:26	06:57	07:26	10:04 (AG09)	07:01	09:05 (AG09)	07:34	14:37 (AG08)						
	20:56	20	07:17 (AG10)	20:30	43	07:33 (AG10)	19:43	18:53	68	11:12 (AG09)	17:12	116	15:14 (AG08)	16:56	41	15:18 (AG08)
10	06:00	06:32 (AG07)	06:27	06:58	07:27	10:04 (AG09)	07:02	09:06 (AG09)	07:35	14:38 (AG08)						
	20:55	26	07:19 (AG10)	20:28	42	07:32 (AG10)	19:42	18:52	70	11:14 (AG09)	17:10	115	15:14 (AG08)	16:56	40	15:18 (AG08)
11	06:01	06:30 (AG07)	06:28	06:59	07:29	10:03 (AG09)	07:03	09:08 (AG09)	07:36	14:39 (AG08)						
	20:55	31	07:20 (AG10)	20:27	41	07:32 (AG10)	19:40	18:50	72	11:15 (AG09)	17:10	114	15:16 (AG08)	16:56	40	15:19 (AG08)
12	06:02	06:29 (AG07)	06:29	07:00	07:30	10:02 (AG09)	07:05	09:09 (AG09)	07:36	14:40 (AG08)						
	20:54	35	07:21 (AG10)	20:26	38	07:31 (AG10)	19:38	18:49	74	11:16 (AG09)	17:09	113	15:16 (AG08)	16:56	39	15:19 (AG08)
13	06:02	06:29 (AG07)	06:30	07:01	07:31	10:01 (AG09)	07:06	09:09 (AG09)	07:37	14:41 (AG08)						
	20:54	39	07:23 (AG10)	20:25	36	07:30 (AG10)	19:37	18:47	76	11:17 (AG09)	17:08	112	15:16 (AG08)	16:56	38	15:19 (AG08)
14	06:03	06:29 (AG07)	06:31	07:01	07:32	10:00 (AG09)	07:07	09:10 (AG09)	07:38	14:41 (AG08)						
	20:53	42	07:24 (AG10)	20:23	34	07:29 (AG10)	19:35	18:46	77	11:17 (AG09)	17:07	111	15:16 (AG08)	16:56	38	15:19 (AG08)
15	06:04	06:27 (AG07)	06:32	07:02	07:33	10:00 (AG09)	07:08	09:13 (AG09)	07:39	14:42 (AG08)						
	20:53	47	07:25 (AG10)	20:22	33	07:28 (AG10)	19:33	18:44	78	11:18 (AG09)	17:06	108	15:17 (AG08)	16:56	37	15:19 (AG08)
16	06:05	06:27 (AG07)	06:33	07:03	07:34	09:59 (AG09)	07:09	09:59 (AG09)	07:39	14:43 (AG08)						
	20:52	49	07:26 (AG10)	20:20	30	07:27 (AG10)	19:32	18:43	79	11:18 (AG09)	17:05	105	15:17 (AG08)	16:57	37	15:20 (AG08)
17	06:06	06:28 (AG07)	06:34	07:04	07:35	09:58 (AG09)	07:11	09:58 (AG09)	07:40	14:43 (AG08)						
	20:52	51	07:27 (AG10)	20:19	27	07:24 (AG10)	19:30	18:41	81	11:19 (AG09)	17:04	103	15:17 (AG08)	16:57	37	15:20 (AG08)
18	06:06	06:29 (AG07)	06:35	07:05	07:36	09:58 (AG09)	07:12	09:58 (AG09)	07:41	14:44 (AG08)						
	20:51	51	07:28 (AG10)	20:18	23	07:22 (AG10)	19:28	18:40	81	11:19 (AG09)	17:03	102	15:17 (AG08)	16:57	36	15:20 (AG08)
19	06:07	06:29 (AG07)	06:36	07:06	07:37	09:58 (AG09)	07:13	09:58 (AG09)	07:41	14:45 (AG08)						
	20:50	52	07:28 (AG10)	20:16	18	07:19 (AG10)	19:27	18:38	82	11:20 (AG09)	17:03	98	15:18 (AG08)	16:58	36	15:21 (AG08)
20	06:08	06:30 (AG07)	06:37	07:07	07:38	09:58 (AG09)	07:14	09:58 (AG09)	07:42	14:45 (AG08)						
	20:50	54	07:29 (AG10)	20:15	12	07:16 (AG10)	19:25	18:37	89	17:13 (Minieolico)	17:02	94	15:18 (AG08)	16:58	36	15:21 (AG08)
21	06:09	06:31 (AG07)	06:38	07:08	07:39	09:58 (AG09)	07:15	09:58 (AG09)	07:42	14:46 (AG08)						
	20:49	55	07:30 (AG10)	20:13	19:23	18:35	95	17:15 (Minieolico)	17:01	91	15:18 (AG08)	16:58	36	15:22 (AG08)		
22	06:10	06:32 (AG07)	06:39	07:09	07:40	09:57 (AG09)	07:16	09:57 (AG09)	07:43	14:46 (AG08)						
	20:48	55	07:31 (AG10)	20:12	19:22	18:34	99	17:16 (Minieolico)	17:01	87	15:18 (AG08)	16:59	36	15:22 (AG08)		
23	06:11	06:33 (AG07)	06:40	07:10	07:42	09:57 (AG09)	07:17	09:57 (AG09)	07:43	14:46 (AG08)						
	20:47	56	07:31 (AG10)	20:10	19:20	18:32	101	17:17 (Minieolico)	17:00	83	15:18 (AG08)	16:59	36	15:22 (AG08)		
24	06:11	06:34 (AG07)	06:41	07:11	07:43	09:57 (AG09)	07:19	09:57 (AG09)	07:44	14:47 (AG08)						
	20:47	56	07:32 (AG10)	20:09	19:18	18:31	103	17:18 (Minieolico)	17:00	77	15:18 (AG08)	17:00	36	15:23 (AG08)		
25	06:12	06:34 (AG07)	06:42	07:12	06:44	08:58 (AG09)	07:20	06:44	08:58 (AG09)	07:20	15:18 (AG08)	17:00	36	15:23 (AG08)		
	20:46	56	07:32 (AG10)	20:07	19:17	17:30	104	16:19 (Minieolico)	16:59	71	15:18 (AG08)	17:01	36	15:23 (AG08)		
26	06:13	06:35 (AG07)	06:43	07:13	06:45	08:58 (AG09)	07:21	06:45	08:58 (AG09)	07:21	15:18 (AG08)	17:01	36	15:23 (AG08)		
	20:45	56	07:32 (AG10)	20:06	19:15	17:28	104	16:19 (Minieolico)	16:59	62	15:18 (AG08)	17:01	36	15:24 (AG08)		
27	06:14	06:36 (AG07)	06:44	07:14	06:46	08:58 (AG09)	07:22	06:46	08:58 (AG09)	07:22	14:29 (AG08)	07:45	14:48 (AG08)			
	20:44	57	07:33 (AG10)	20:04	19:13	17:27	105	16:19 (Minieolico)	16:58	49	15:18 (AG08)	17:02	37	15:25 (AG08)		
28	06:15	06:37 (AG07)	06:45	07:15	06:47	08:58 (AG09)	07:23	06:47	08:58 (AG09)	07:23	14:30 (AG08)	07:45	14:48 (AG08)			
	20:43	56	07:33 (AG10)	20:03	19:12	20	10:46 (AG09)	17:26	104	16:19 (Minieolico)	16:58	48	15:18 (AG08)	17:03	37	15:25 (AG08)
29	06:16	06:38 (AG07)	06:46	07:16	06:48	08:58 (AG09)	07:24	06:48	08:58 (AG09)	07:24	14:30 (AG08)	07:46	14:48 (AG08)			
	20:42	56	07:34 (AG10)	20:01	19:10	29	10:51 (AG09)	17:24	117	16:18 (Minieolico)	16:57	48	15:18 (AG08)	17:03	38	15:26 (AG08)
30	06:17	06:39 (AG07)	06:47	07:17	06:49	08:59 (AG09)	07:25	06:49	08:59 (AG09)	07:25	14:31 (AG08)	07:46	14:48 (AG08)			
	20:41	55	07:34 (AG10)	20:00	19:08	35	10:54 (AG09)	17:23	123	16:19 (Minieolico)	16:57	47	15:18 (AG08)	17:04	38	15:26 (AG08)
31	06:18	06:40 (AG07)	06:48	07:18	06:51	08:59 (AG09)	07:26	06:51	08:59 (AG09)	07:26	14:31 (AG08)	07:46	14:49 (AG08)			
	20:40	54	07:34 (AG10)	19:58	17:22	127	16:18 (Minieolico)	16:57	299	2927	17:05	39	15:28 (AG08)			
Potential sun hours	458				375			346						289		
Total, worst case	1122		758		84		2547			2927		1213				

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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SHADOW - Calendar

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturalShadow receptor: INSEDIAMENTO ROMANO PRANU 'E CHEDDAI - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (231)

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	07:46 17:06	07:33 17:39	06:58 18:13		07:08 19:46		06:23 20:18	11	18:53 (AG07) 19:04 (AG07)	05:54 20:47
2	07:46 17:07	07:32 17:41	06:57 18:14		07:06 19:47		06:22 20:19			05:54 20:47
3	07:47 17:07	07:31 17:42	06:55 18:15		07:05 19:48		06:20 20:20			05:54 20:48
4	07:47 17:08	07:30 17:43	06:53 18:16		07:03 19:49		06:19 20:21			05:53 20:49
5	07:47 17:09	07:29 17:44	06:52 18:17		07:01 19:51		06:18 20:22			05:53 20:49
6	07:47 17:10	07:28 17:46	06:50 18:19		07:00 19:52	7	19:00 (AG07) 19:07 (AG07)			06:17 20:23
7	07:47 17:11	07:27 17:47	06:49 18:20		06:58 19:53	16	18:56 (AG07) 19:12 (AG07)			06:15 20:24
8	07:46 17:12	07:26 17:48	06:47 18:21		06:57 19:54	21	18:53 (AG07) 19:14 (AG07)			06:14 20:25
9	07:46 17:13	07:25 17:49	06:46 18:22		06:55 19:55	25	18:50 (AG07) 19:15 (AG07)			06:13 20:26
10	07:46 17:14	07:24 17:51	06:44 18:23		06:53 19:56	28	18:49 (AG07) 19:17 (AG07)			06:12 20:27
11	07:46 17:15	07:23 17:52	06:42 18:24		06:52 19:57	30	18:47 (AG07) 19:17 (AG07)			06:11 20:28
12	07:46 17:16	07:21 17:53	06:41 18:25		06:50 19:58	32	18:46 (AG07) 19:18 (AG07)			06:10 20:29
13	07:45 17:17	07:20 17:54	06:39 18:26	8	17:38 (AG10) 17:46 (AG10)	33	18:45 (AG07) 19:18 (AG07)			06:09 20:30
14	07:45 17:18	07:19 17:55	06:38 18:27	14	17:34 (AG10) 17:48 (AG10)	34	18:45 (AG07) 19:19 (AG07)			06:08 20:31
15	07:45 17:19	07:18 17:57	06:36 18:28	18	17:33 (AG10) 17:51 (AG10)	35	18:44 (AG07) 19:19 (AG07)			06:07 20:32
16	07:44 17:20	07:16 17:58	06:34 18:30	20	17:31 (AG10) 17:51 (AG10)	36	18:43 (AG07) 19:19 (AG07)			06:06 20:33
17	07:44 17:22	07:15 17:59	06:33 18:31	23	17:29 (AG10) 17:52 (AG10)	36	18:43 (AG07) 19:19 (AG07)			06:05 20:34
18	07:43 17:23	07:14 18:00	06:31 18:32	24	17:29 (AG10) 17:53 (AG10)	36	18:43 (AG07) 19:19 (AG07)			06:04 20:35
19	07:43 17:24	07:12 18:01	06:29 18:33	24	17:28 (AG10) 17:52 (AG10)	36	18:42 (AG07) 19:18 (AG07)			06:03 20:36
20	07:42 17:25	07:11 18:03	06:28 18:34	25	17:27 (AG10) 17:52 (AG10)	35	18:43 (AG07) 19:18 (AG07)			06:02 20:36
21	07:42 17:26	07:10 18:04	06:26 18:35	24	17:28 (AG10) 17:52 (AG10)	35	18:42 (AG07) 19:17 (AG07)			06:01 20:37
22	07:41 17:27	07:08 18:05	06:24 18:36	24	17:27 (AG10) 17:51 (AG10)	34	18:43 (AG07) 19:17 (AG07)			06:01 20:38
23	07:41 17:29	07:07 18:06	06:23 18:37	23	17:27 (AG10) 17:50 (AG10)	34	18:42 (AG07) 19:16 (AG07)			06:00 20:39
24	07:40 17:30	07:05 18:07	06:21 18:38	22	17:28 (AG10) 17:50 (AG10)	32	18:43 (AG07) 19:15 (AG07)			05:59 20:40
25	07:39 17:31	07:04 18:08	06:19 18:39	20	17:28 (AG10) 17:48 (AG10)	31	18:44 (AG07) 19:15 (AG07)			05:59 20:41
26	07:38 17:32	07:03 18:10	06:18 18:40	17	17:29 (AG10) 17:46 (AG10)	29	18:44 (AG07) 19:13 (AG07)			05:58 20:42
27	07:38 17:33	07:01 18:11	06:16 18:41	13	17:32 (AG10) 17:45 (AG10)	26	18:46 (AG07) 19:12 (AG07)			05:57 20:43
28	07:37 17:35	07:00 18:12	06:15 18:42	7	17:34 (AG10) 17:41 (AG10)	24	18:47 (AG07) 19:11 (AG07)			05:57 20:43
29	07:36 17:36		07:13 19:43		06:25 20:16	21	18:48 (AG07) 19:09 (AG07)			05:56 20:44
30	07:35 17:37		07:11 19:44		06:24 20:17	17	18:50 (AG07) 19:07 (AG07)			05:55 20:45
31	07:34 17:38		07:10 19:45				05:55 20:46			20:46
Potential sun hours	299	298	370		398		447			451
Total, worst case			306		723		11			

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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SHADOW - Calendar

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturalShadow receptor: INSEDIAMENTO ROMANO PRANU 'E CHEDDAI - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (231)

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	05:55 20:57	06:19 20:39	06:49 19:56	18:46 (AG07) 19:16 (AG07)	07:18 19:06	06:52 17:20
2	05:56 20:57	06:20 20:38	06:50 19:55	18:47 (AG07) 19:15 (AG07)	07:19 19:05	06:53 17:19
3	05:56 20:57	06:20 20:37	06:51 19:53	18:48 (AG07) 19:13 (AG07)	07:20 19:03	06:54 17:18
4	05:57 20:57	06:21 20:36	06:52 19:51	18:50 (AG07) 19:11 (AG07)	07:21 19:01	06:55 17:17
5	05:57 20:57	06:22 20:34	06:53 19:50	18:52 (AG07) 19:08 (AG07)	07:22 19:00	06:56 17:16
6	05:58 20:57	06:23 20:33	06:54 19:48	18:56 (AG07) 19:04 (AG07)	07:23 18:58	06:58 17:15
7	05:58 20:56	06:24 20:32	06:55 19:47		07:24 18:57	06:59 17:13
8	05:59 20:56	06:25 20:31	06:56 19:45		07:25 18:55	07:00 17:12
9	06:00 20:56	06:26 20:30	06:57 19:43		07:26 18:53	07:01 17:11
10	06:00 20:55	06:27 20:28	06:57 19:42		07:27 18:52	07:02 17:10
11	06:01 20:55	06:28 20:27	06:58 19:40		07:28 18:50	07:03 17:09
12	06:02 20:54	06:29 20:26	06:59 19:38		07:29 18:49	07:05 17:08
13	06:02 20:54	06:30 20:24	07:00 19:37		07:31 18:47	07:06 17:08
14	06:03 20:53	06:31 20:23	07:01 19:35		07:32 18:46	07:07 17:07
15	06:04 20:53	06:32 20:22	07:02 19:33		07:33 18:44	07:08 17:06
16	06:05 20:52	06:33 20:20	07:03 19:32		07:34 18:42	07:09 17:05
17	06:05 20:52	06:34 20:19	07:04 19:30		07:35 18:41	07:10 17:04
18	06:06 20:51	06:35 20:18	07:05 19:28		07:36 18:39	07:12 17:03
19	06:07 20:50	06:36 20:16	07:06 19:27		07:37 18:38	07:13 17:03
20	06:08 20:50	06:37 20:15	07:07 19:25		07:38 18:37	07:14 17:02
21	06:09 20:49	06:38 20:13	07:08 19:23		07:39 18:35	07:15 17:01
22	06:10 20:48	06:39 20:12	07:09 19:21		07:40 18:34	07:16 17:01
23	06:10 20:47	06:40 20:10	07:10 19:20		07:41 18:33	07:17 17:00
24	06:11 20:46	06:41 20:09	07:11 19:18		07:43 18:31	07:18 16:59
25	06:12 20:46	06:42 20:07	07:12 19:16		06:44 17:29	07:20 16:59
26	06:13 20:45	06:43 20:06	07:13 19:15		06:45 17:28	07:21 16:58
27	06:14 20:44	06:44 20:04	07:14 19:13		06:46 17:27	07:22 16:58
28	06:15 20:43	06:45 20:03	07:15 19:11		06:47 17:25	07:23 16:58
29	06:16 20:42	06:46 20:01	07:16 19:10		06:48 17:24	07:24 16:57
30	06:17 20:41	06:47 20:00	07:17 19:08		06:49 17:23	07:25 16:57
31	06:18 20:40	06:48 19:58	07:18 19:17		06:51 17:22	07:26 17:05
Potential sun hours	458	427	375	346	299	289
Total, worst case		620	436			

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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SHADOW - Calendar

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali | Shadow receptor: NURAGHE CHEDDAI - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (229)

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	07:46 17:06	07:33 17:40	06:58 18:13		07:08 19:46		06:23 20:18		18:55 (AG10) 19:26 (AG10)	05:55 20:47
2	07:47 17:07	07:32 17:41	06:57 18:14		07:06 19:47		06:22 20:19	31	18:55 (AG10) 19:27 (AG10)	05:54 20:47
3	07:47 17:07	07:31 17:42	06:55 18:15		07:05 19:48		06:20 20:20	32	18:54 (AG10) 19:28 (AG10)	05:54 20:48
4	07:47 17:08	07:30 17:43	06:53 18:16		07:03 19:50		06:19 20:21	34	18:53 (AG10) 19:27 (AG10)	05:53 20:49
5	07:47 17:09	07:29 17:44	06:52 18:18		07:01 19:51		06:18 20:22	36	18:52 (AG10) 19:28 (AG10)	05:53 20:49
6	07:47 17:10	07:28 17:46	06:50 18:19		07:00 19:52		06:17 20:23	36	18:52 (AG10) 19:28 (AG10)	05:53 20:50
7	07:47 17:11	07:27 17:47	06:49 18:20		06:58 19:53		06:15 20:24	37	18:52 (AG10) 19:29 (AG10)	05:52 20:51
8	07:46 17:12	07:26 17:48	06:47 18:21		06:57 19:54		06:14 20:25	37	18:52 (AG10) 19:29 (AG10)	05:52 20:51
9	07:46 17:13	07:25 17:49	06:46 18:22		06:55 19:55		06:13 20:26	37	18:52 (AG10) 19:29 (AG10)	05:52 20:52
10	07:46 17:14	07:24 17:51	06:44 18:23	7	17:27 (AG09) 17:34 (AG09)	06:53 19:56	06:12 20:27	37	18:52 (AG10) 19:29 (AG10)	05:52 20:52
11	07:46 17:15	07:23 17:52	06:42 18:24	14	17:23 (AG09) 17:37 (AG09)	06:52 19:57	06:11 20:28	37	18:52 (AG10) 19:29 (AG10)	05:52 20:53
12	07:46 17:16	07:22 17:53	06:41 18:25	17	17:21 (AG09) 17:38 (AG09)	06:50 19:58	06:10 20:29	37	18:52 (AG10) 19:29 (AG10)	05:51 20:53
13	07:45 17:17	07:20 17:54	06:39 18:26	19	17:20 (AG09) 17:39 (AG09)	06:49 19:59	06:09 20:30	37	18:52 (AG10) 19:29 (AG10)	05:51 20:54
14	07:45 17:18	07:19 17:55	06:38 18:27	20	17:19 (AG09) 17:39 (AG09)	06:47 20:00	06:08 20:31	36	18:52 (AG10) 19:28 (AG10)	05:51 20:54
15	07:45 17:19	07:18 17:57	06:36 18:28	21	17:19 (AG09) 17:40 (AG09)	06:46 20:01	06:07 20:32	35	18:53 (AG10) 19:28 (AG10)	05:51 20:55
16	07:44 17:20	07:16 17:58	06:34 18:30	22	17:18 (AG09) 17:40 (AG09)	06:44 20:02	06:06 20:33	35	18:53 (AG10) 19:28 (AG10)	05:51 20:55
17	07:44 17:22	07:15 17:59	06:33 18:31	23	17:17 (AG09) 17:40 (AG09)	06:43 20:03	06:05 20:34	34	18:53 (AG10) 19:27 (AG10)	05:51 20:56
18	07:43 17:23	07:14 18:00	06:31 18:32	22	17:18 (AG09) 17:40 (AG09)	06:41 20:04	06:04 20:35	34	18:53 (AG10) 19:27 (AG10)	05:51 20:56
19	07:43 17:24	07:12 18:01	06:29 18:33	22	17:17 (AG09) 17:39 (AG09)	06:40 20:05	06:03 20:36	32	18:55 (AG10) 19:27 (AG10)	05:51 20:56
20	07:42 17:25	07:11 18:03	06:28 18:34	20	17:17 (AG09) 17:37 (AG09)	06:38 20:06	06:02 20:36	31	18:55 (AG10) 19:26 (AG10)	05:52 20:56
21	07:42 17:26	07:10 18:04	06:26 18:35	18	17:19 (AG09) 17:37 (AG09)	06:37 20:07	06:02 20:37	30	18:56 (AG10) 19:26 (AG10)	05:52 20:57
22	07:41 17:27	07:08 18:05	06:24 18:36	15	17:20 (AG09) 17:35 (AG09)	06:35 20:08	06:01 20:38	29	18:56 (AG10) 19:25 (AG10)	05:52 20:57
23	07:41 17:29	07:07 18:06	06:23 18:37	11	17:21 (AG09) 17:32 (AG09)	06:34 20:09	06:00 20:39	28	18:57 (AG10) 19:25 (AG10)	05:52 20:57
24	07:40 17:30	07:05 18:07	06:21 18:38			06:32 20:10	05:59 20:40	26	18:58 (AG10) 19:24 (AG10)	05:52 20:57
25	07:39 17:31	07:04 18:08	06:20 18:39			06:31 20:11	05:59 20:41	24	18:59 (AG10) 19:23 (AG10)	05:53 20:57
26	07:39 17:32	07:03 18:10	06:18 18:40			06:30 20:12	05:58 20:42	23	19:00 (AG10) 19:23 (AG10)	05:53 20:57
27	07:38 17:33	07:01 18:11	06:16 18:41			06:28 20:13	05:57 20:43	20	19:01 (AG10) 19:21 (AG10)	05:53 20:58
28	07:37 17:35	07:00 18:12	06:15 18:42			06:27 20:14	05:57 20:43	18	19:03 (AG10) 19:21 (AG10)	05:54 20:58
29	07:36 17:36		07:13 19:43			06:25 20:16	05:56 20:44	15	18:58 (AG10) 19:19 (AG10)	05:54 20:58
30	07:35 17:37		07:11 19:44			06:24 20:17	05:55 20:45	12	18:56 (AG10) 19:18 (AG10)	05:55 20:58
31	07:34 17:38		07:10 19:45				05:55 20:46	9	19:07 (AG10) 19:16 (AG10)	
Potential sun hours	299	298	370		398		447			451
Total, worst case			251		147		933			

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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SHADOW - Calendar

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali | Shadow receptor: NURAGHE CHEDDAI - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (229)

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	05:55 20:57	06:19 20:39	19:03 (AG10) 19:40 (AG10)	06:49 19:56	07:18 19:06	18:00 (AG09) 17:20	06:52 16:57
2	05:56 20:57	06:20 20:38	19:01 (AG10) 19:39 (AG10)	06:50 19:55	07:19 19:05	18:01 (AG09) 18:16 (AG09)	06:53 17:19
3	05:56 20:57	06:21 20:37	19:01 (AG10) 19:39 (AG10)	06:51 19:53	07:20 19:03	18:03 (AG09) 18:13 (AG09)	06:54 16:56
4	05:57 20:57	06:21 20:36	19:01 (AG10) 19:39 (AG10)	06:52 19:52	07:21 19:01		06:55 17:17
5	05:57 20:57	06:22 20:34	19:02 (AG10) 19:38 (AG10)	06:53 19:50	07:22 19:00		06:56 17:16
6	05:58 20:57	06:23 20:33	19:02 (AG10) 19:38 (AG10)	06:54 19:48	07:23 18:58		06:58 17:15
7	05:58 20:56	06:24 20:32	19:02 (AG10) 19:38 (AG10)	06:55 19:47	07:24 18:57		06:59 17:14
8	05:59 20:56	06:25 20:31	19:02 (AG10) 19:37 (AG10)	06:56 19:45	07:25 18:55		07:00 17:12
9	06:00 20:56	06:26 20:30	19:03 (AG10) 19:37 (AG10)	06:57 19:43	07:26 18:53		07:01 17:11
10	06:00 20:55	06:27 20:28	19:03 (AG10) 19:36 (AG10)	06:58 19:42	07:27 18:52		07:02 17:10
11	06:01 20:55	06:28 20:27	19:04 (AG10) 19:35 (AG10)	06:58 19:40	07:28 18:50		07:03 17:09
12	06:02 20:54	19:17 (AG10) 06:29 19:23 (AG10)	06:29 20:26	19:04 (AG10) 19:35 (AG10)	06:59 19:38	07:29 18:49	07:05 17:08
13	06:02 20:54	19:15 (AG10) 06:30 19:26 (AG10)	06:30 20:24	19:05 (AG10) 19:33 (AG10)	07:00 19:37	07:31 18:47	07:06 17:08
14	06:03 20:53	19:13 (AG10) 06:31 19:27 (AG10)	06:31 20:23	19:06 (AG10) 19:32 (AG10)	07:01 19:35	07:32 18:46	07:07 17:07
15	06:04 20:53	19:12 (AG10) 06:32 19:29 (AG10)	06:32 20:22	19:08 (AG10) 19:30 (AG10)	07:02 19:33	07:33 18:44	07:08 17:06
16	06:05 20:52	19:11 (AG10) 06:33 19:30 (AG10)	06:33 20:20	19:08 (AG10) 19:27 (AG10)	07:03 19:32	07:34 18:43	07:09 17:05
17	06:05 20:52	19:10 (AG10) 06:34 19:31 (AG10)	06:34 20:19	19:11 (AG10) 19:25 (AG10)	07:04 19:30	07:35 18:41	07:10 17:04
18	06:06 20:51	19:08 (AG10) 06:35 19:32 (AG10)	06:35 20:18		07:05 19:28	07:36 18:40	07:12 17:03
19	06:07 20:50	19:08 (AG10) 06:36 19:33 (AG10)	06:36 20:16		07:06 19:27	07:37 18:38	07:13 17:03
20	06:08 20:50	19:07 (AG10) 06:37 19:34 (AG10)	06:37 20:15		07:07 19:25	18:08 (AG09) 18:18 (AG09)	07:14 17:02
21	06:09 20:49	19:07 (AG10) 06:38 19:35 (AG10)	06:38 20:13		07:08 19:23	18:06 (AG09) 18:20 (AG09)	07:15 17:01
22	06:10 20:48	19:06 (AG10) 06:39 19:36 (AG10)	06:39 20:12		07:09 19:21	18:04 (AG09) 18:21 (AG09)	07:16 17:01
23	06:10 20:47	19:06 (AG10) 06:40 19:37 (AG10)	06:40 20:10	19:13 (Minieolico) 7	07:10 19:20	18:02 (AG09) 18:22 (AG09)	07:17 17:00
24	06:11 20:46	19:05 (AG10) 06:41 19:36 (AG10)	06:41 20:09	19:12 (Minieolico) 9	07:11 19:18	18:01 (AG09) 18:22 (AG09)	07:18 17:00
25	06:12 20:46	19:04 (AG10) 06:42 19:37 (AG10)	06:42 20:07	19:12 (Minieolico) 6	07:12 19:16	18:00 (AG09) 18:22 (AG09)	06:44 17:30
26	06:13 20:45	19:04 (AG10) 06:43 19:37 (AG10)	06:43 20:06	19:12 (Minieolico) 5	07:13 19:15	18:00 (AG09) 18:22 (AG09)	06:45 17:28
27	06:14 20:44	19:04 (AG10) 06:44 19:38 (AG10)	06:44 20:04		07:14 19:13	17:59 (AG09) 18:22 (AG09)	06:46 17:27
28	06:15 20:43	19:03 (AG10) 06:45 19:38 (AG10)	06:45 20:03		07:15 19:11	17:59 (AG09) 18:21 (AG09)	06:47 17:25
29	06:16 20:42	19:03 (AG10) 06:46 19:39 (AG10)	06:46 20:01		07:16 19:10	17:59 (AG09) 18:20 (AG09)	06:48 17:24
30	06:17 20:41	19:03 (AG10) 06:47 19:39 (AG10)	06:47 20:00		07:17 19:08	17:59 (AG09) 18:19 (AG09)	06:49 17:23
31	06:18 20:40	19:03 (AG10) 06:48 19:39 (AG10)	06:48 19:58			06:51 17:22	07:46 17:05
Potential sun hours	458	427	375	346	299	289	
Total, worst case	527	559	212	43			

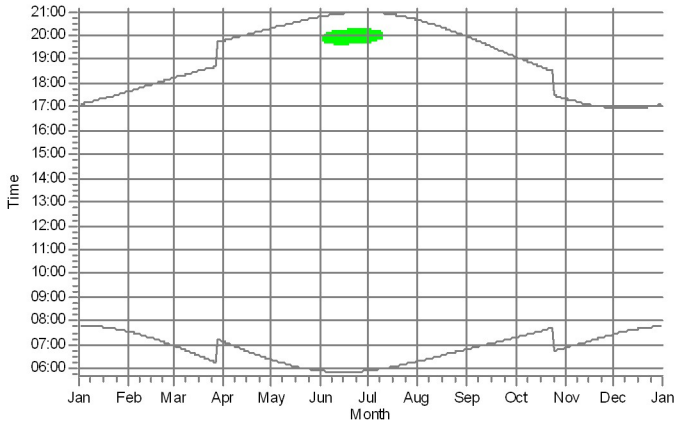
Table layout: For each day in each month the following matrix apply

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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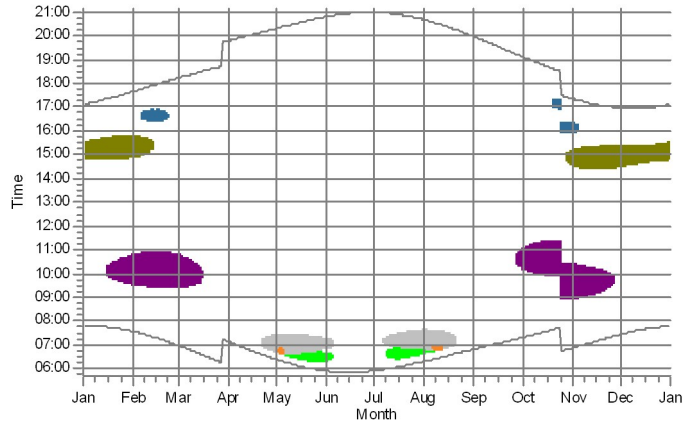
SHADOW - Calendar, graphical

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali

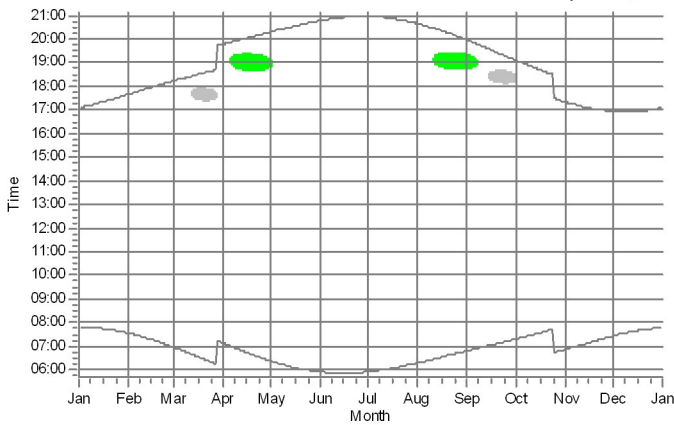
AREA FUNERARIA PRANU'E CHEDDA: Shadow Receptor: 1,0 × 1,0 Azir



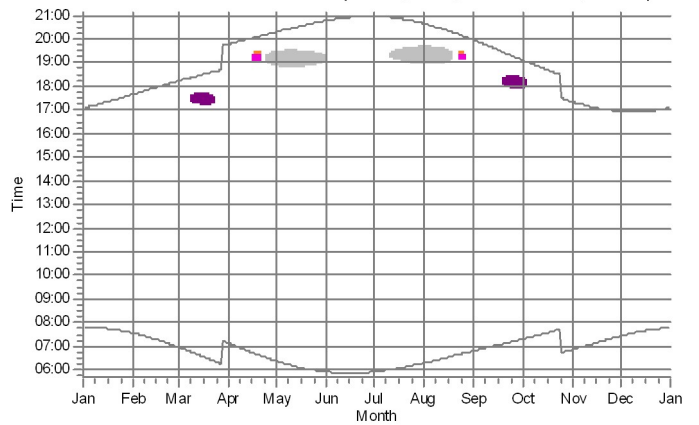
FONTANILE: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22



INSEDIAMENTO ROMANO PRANU'E CHEDDA: Shadow Receptor: 1,0 × 1



NURAGHE CHEDDA: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 9



WTGs

- AG07: GE WIND ENERGY 4.2-158 4200 158.0 IOf hub: 149,0 m (TOT: 228,0 m) (53)
- AG08: GE WIND ENERGY 4.2-158 4200 158.0 IOf hub: 149,0 m (TOT: 228,0 m) (50)
- AG09: GE WIND ENERGY 4.2-158 4200 158.0 IOf hub: 149,0 m (TOT: 228,0 m) (51)
- AG10: GE WIND ENERGY 4.2-158 4200 158.0 IOf hub: 149,0 m (TOT: 228,0 m) (52)

- Minieolico: KROGMANN 50 15.0 I#1 hub: 30,0 m (TOT: 37,5 m) (77)
- Minieolico: KROGMANN 50 15.0 I#1 hub: 30,0 m (TOT: 37,5 m) (78)
- Minieolico: KROGMANN 50 15.0 I#1 hub: 30,0 m (TOT: 37,5 m) (79)

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\MTG: AG01 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (42)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:56 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
2	07:47 17:07	07:33 17:41	06:57 18:15	07:07 19:48	06:22 20:19	05:55 20:48	05:56 20:58	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:20	07:27 16:57
3	07:47 17:08	07:32 17:42	06:55 18:16	07:05 19:49	06:21 20:20	05:54 20:48	05:57 20:57	06:21 20:37	06:51 19:53	07:20 19:03	06:54 17:18	07:28 16:57
4	07:47 17:09	07:31 17:44	06:54 18:17	07:03 19:50	06:19 20:21	05:54 20:49	05:57 20:57	06:22 20:36	06:52 19:52	07:21 19:02	06:55 17:17	07:29 16:56
5	07:47 17:10	07:30 17:45	06:52 18:18	07:02 19:51	06:18 20:22	05:53 20:50	05:58 20:57	06:23 20:35	06:53 19:50	07:23 19:00	06:57 17:16	07:30 16:56
6	07:47 17:11	07:29 17:46	06:51 18:19	07:00 19:52	06:17 20:23	05:53 20:50	05:58 20:57	06:24 20:33	06:54 19:49	07:24 18:59	06:58 17:15	07:31 16:56
7	07:47 17:12	07:28 17:47	06:49 18:20	06:59 19:53	06:16 20:24	05:53 20:51	05:59 20:56	06:25 20:32	06:55 19:47	07:25 18:57	06:59 17:14	07:32 16:56
8	07:47 17:12	07:26 17:49	06:48 18:21	06:57 19:54	06:15 20:25	05:53 20:52	05:59 20:56	06:26 20:31	06:56 19:45	07:26 18:55	07:00 17:13	07:33 16:56
9	07:47 17:13	07:25 17:50	06:46 18:22	06:55 19:55	06:14 20:26	05:52 20:52	06:00 20:56	06:27 20:30	06:57 19:44	07:27 18:54	07:01 17:12	07:34 16:56
10	07:46 17:14	07:24 17:51	06:44 18:23	06:54 19:56	06:12 20:27	05:52 20:53	06:01 20:55	06:28 20:29	06:58 19:42	07:28 18:52	07:02 17:11	07:35 16:56
11	07:46 17:16	07:23 17:52	06:43 18:24	06:52 19:57	06:11 20:28	05:52 20:53	06:01 20:55	06:29 20:27	06:59 19:40	07:29 18:51	07:04 17:10	07:36 16:56
12	07:46 17:17	07:22 17:53	06:41 18:26	06:51 19:58	06:10 20:29	05:52 20:54	06:02 20:55	06:30 20:26	07:00 19:39	07:30 18:49	07:05 17:09	07:36 16:56
13	07:46 17:18	07:21 17:55	06:40 18:27	06:49 19:59	06:09 20:30	05:52 20:54	06:03 20:54	06:31 20:25	07:01 19:37	07:31 18:47	07:06 17:08	07:37 16:56
14	07:45 17:19	07:19 17:56	06:38 18:28	06:48 20:00	06:08 20:31	05:52 20:55	06:04 20:54	06:32 20:23	07:02 19:35	07:32 18:46	07:07 17:07	07:38 16:56
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31	07:35 17:39		07:10 19:46		05:55 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali WTG: AG014 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (45)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:55 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
2	07:47 17:07	07:33 17:41	06:57 18:14	07:07 19:48	06:22 20:19	05:54 20:48	05:56 20:57	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:20	07:27 16:57
3	07:47 17:08	07:32 17:42	06:55 18:16	07:05 19:49	06:21 20:20	05:54 20:48	05:56 20:57	06:21 20:37	06:51 19:53	07:20 19:03	06:54 17:18	07:28 16:56
4	07:47 17:09	07:31 17:44	06:54 18:17	07:03 19:50	06:19 20:21	05:54 20:49	05:57 20:57	06:22 20:36	06:52 19:52	07:21 19:02	06:55 17:17	07:29 16:56
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29	07:36 17:36		07:13 19:44	06:26 20:16	05:56 20:44	05:55 20:58	06:16 20:42	06:46 20:01	07:16 19:10	06:48 17:25	07:24 16:58	07:46 17:04
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31	07:35 17:39		07:10 19:46		05:55 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali WTG: AG015 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (46)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:55 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
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Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\MTG: AG02 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (41)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:56 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
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Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\MTG: AG03 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (43)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:56 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
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Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\WTG: AG04 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (47)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:55 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
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26	07:39 17:32	07:03 18:10	06:18 18:40	06:30 20:13	05:58 20:42	05:53 20:58	06:13 20:45	06:43 20:06	07:13 19:15	06:45 17:28	07:21 16:59	07:45 17:01
27	07:38 17:34	07:01 18:11	06:16 18:41	06:28 20:14	05:58 20:43	05:54 20:58	06:14 20:44	06:44 20:04	07:14 19:13	06:46 17:27	07:22 16:58	07:45 17:02
28	07:37 17:35	07:00 18:12	06:15 18:42	06:27 20:15	05:57 20:44	05:54 20:58	06:15 20:43	06:45 20:03	07:15 19:12	06:47 17:26	07:23 16:58	07:46 17:03
29	07:36 17:36		07:13 19:43	06:26 20:16	05:56 20:44	05:54 20:58	06:16 20:42	06:46 20:01	07:16 19:10	06:48 17:24	07:24 16:58	07:46 17:03
30	07:35 17:37		07:12 19:45	06:24 20:17	05:56 20:45	05:55 20:58	06:17 20:41	06:47 20:00	07:17 19:08	06:50 17:23	07:25 16:57	07:46 17:04
31	07:35 17:39		07:10 19:46		05:55 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\WTG: AG05 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (48)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:55 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
2	07:47 17:07	07:33 17:41	06:57 18:14	07:07 19:48	06:22 20:19	05:54 20:47	05:56 20:57	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:19	07:27 16:57
3	07:47 17:08	07:32 17:42	06:55 18:16	07:05 19:49	06:21 20:20	05:54 20:48	05:56 20:57	06:21 20:37	06:51 19:53	07:20 19:03	06:54 17:18	07:28 16:56
4	07:47 17:09	07:31 17:43	06:54 18:17	07:03 19:50	06:19 20:21	05:54 20:49	05:57 20:57	06:22 20:36	06:52 19:52	07:21 19:02	06:55 17:17	07:29 16:56
5	07:47 17:09	07:30 17:45	06:52 18:18	07:02 19:51	06:18 20:22	05:53 20:50	05:57 20:57	06:23 20:35	06:53 19:50	07:22 19:00	06:57 17:16	07:30 16:56
6	07:47 17:10	07:29 17:46	06:51 18:19	07:00 19:52	06:17 20:23	05:53 20:50	05:58 20:57	06:24 20:33	06:54 19:48	07:23 18:58	06:58 17:15	07:31 16:56
7	07:47 17:11	07:27 17:47	06:49 18:20	06:58 19:53	06:16 20:24	05:53 20:51	05:59 20:56	06:25 20:32	06:55 19:47	07:24 18:57	06:59 17:14	07:32 16:56
8	07:47 17:12	07:26 17:48	06:47 18:21	06:57 19:54	06:15 20:25	05:52 20:51	05:59 20:56	06:26 20:31	06:56 19:45	07:25 18:55	07:00 17:13	07:33 16:56
9	07:47 17:13	07:25 17:50	06:46 18:22	06:55 19:55	06:13 20:26	05:52 20:52	06:00 20:56	06:27 20:30	06:57 19:44	07:27 18:54	07:01 17:12	07:34 16:56
10	07:46 17:14	07:24 17:51	06:44 18:23	06:54 19:56	06:12 20:27	05:52 20:53	06:01 20:55	06:28 20:29	06:58 19:42	07:28 18:52	07:02 17:11	07:35 16:56
11	07:46 17:15	07:23 17:52	06:43 18:24	06:52 19:57	06:11 20:28	05:52 20:53	06:01 20:55	06:29 20:27	06:59 19:40	07:29 18:50	07:04 17:10	07:36 16:56
12	07:46 17:16	07:22 17:53	06:41 18:25	06:51 19:58	06:10 20:29	05:52 20:54	06:02 20:55	06:29 20:26	07:00 19:39	07:30 18:49	07:05 17:09	07:36 16:56
13	07:46 17:17	07:20 17:54	06:39 18:27	06:49 19:59	06:09 20:30	05:52 20:54	06:03 20:54	06:30 20:25	07:01 19:37	07:31 18:47	07:06 17:08	07:37 16:56
14	07:45 17:19	07:19 17:56	06:38 18:28	06:47 20:00	06:08 20:31	05:52 20:55	06:03 20:54	06:31 20:23	07:02 19:35	07:32 18:46	07:07 17:07	07:38 16:56
15	07:45 17:20	07:18 17:57	06:36 18:29	06:46 20:01	06:07 20:32	05:51 20:55	06:04 20:53	06:32 20:22	07:03 19:33	07:33 18:44	07:08 17:06	07:39 16:57
16	07:45 17:21	07:17 17:58	06:35 18:30	06:44 20:02	06:06 20:33	05:52 20:55	06:05 20:52	06:33 20:21	07:04 19:32	07:34 18:43	07:09 17:05	07:39 16:57
17	07:44 17:22	07:15 17:59	06:33 18:31	06:43 20:03	06:05 20:34	05:52 20:56	06:06 20:52	06:34 20:19	07:05 19:30	07:35 18:41	07:11 17:04	07:40 16:57
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20	07:43 17:25	07:11 18:03	06:28 18:34	06:38 20:06	06:03 20:37	05:52 20:57	06:08 20:50	06:37 20:15	07:07 19:25	07:38 18:37	07:14 17:02	07:42 16:58
21	07:42 17:26	07:10 18:04	06:26 18:35	06:37 20:07	06:02 20:38	05:52 20:57	06:09 20:49	06:38 20:13	07:08 19:23	07:39 18:35	07:15 17:02	07:43 16:59
22	07:41 17:28	07:09 18:05	06:25 18:36	06:35 20:08	06:01 20:38	05:52 20:57	06:10 20:48	06:39 20:12	07:09 19:22	07:41 18:34	07:16 17:01	07:43 16:59
23	07:41 17:29	07:07 18:06	06:23 18:37	06:34 20:09	06:00 20:39	05:52 20:57	06:11 20:47	06:40 20:10	07:10 19:20	07:42 18:33	07:18 17:00	07:44 17:00
24	07:40 17:30	07:06 18:08	06:21 18:38	06:33 20:11	05:59 20:40	05:53 20:57	06:12 20:47	06:41 20:09	07:11 19:18	07:43 18:31	07:19 17:00	07:44 17:00
25	07:39 17:31	07:04 18:09	06:20 18:39	06:31 20:12	05:59 20:41	05:53 20:58	06:12 20:46	06:42 20:07	07:12 19:17	07:44 17:30	07:20 16:59	07:44 17:01
26	07:39 17:32	07:03 18:10	06:18 18:40	06:30 20:13	05:58 20:42	05:53 20:58	06:13 20:45	06:43 20:06	07:13 19:15	07:45 17:28	07:21 16:59	07:45 17:01
27	07:38 17:34	07:01 18:11	06:16 18:41	06:28 20:14	05:57 20:43	05:54 20:58	06:14 20:44	06:44 20:04	07:14 19:13	07:46 17:27	07:22 16:58	07:45 17:02
28	07:37 17:35	07:00 18:12	06:15 18:42	06:27 20:15	05:57 20:44	05:54 20:58	06:15 20:43	06:45 20:03	07:15 19:12	07:47 17:26	07:23 16:58	07:46 17:03
29	07:36 17:36		07:13 19:43	06:26 20:16	05:56 20:44	05:54 20:58	06:16 20:42	06:46 20:01	07:16 19:10	07:48 17:24	07:24 16:57	07:46 17:03
30	07:35 17:37		07:11 19:45	06:24 20:17	05:56 20:45	05:55 20:58	06:17 20:41	06:47 20:00	07:17 19:08	07:50 17:23	07:25 16:57	07:46 17:04
31	07:35 17:39		07:10 19:46		05:55 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\WTG: AG06 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (49)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:55 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
2	07:47 17:07	07:33 17:41	06:57 18:14	07:07 19:48	06:22 20:19	05:54 20:47	05:56 20:57	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:19	07:27 16:57
3	07:47 17:08	07:32 17:42	06:55 18:15	07:05 19:49	06:21 20:20	05:54 20:48	05:56 20:57	06:21 20:37	06:51 19:53	07:20 19:03	06:54 17:18	07:28 16:56
4	07:47 17:09	07:31 17:43	06:54 18:17	07:03 19:50	06:19 20:21	05:54 20:49	05:57 20:57	06:22 20:36	06:52 19:52	07:21 19:02	06:55 17:17	07:29 16:56
5	07:47 17:09	07:30 17:45	06:52 18:18	07:02 19:51	06:18 20:22	05:53 20:50	05:57 20:57	06:23 20:35	06:53 19:50	07:22 19:00	06:57 17:16	07:30 16:56
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7	07:47 17:11	07:27 17:47	06:49 18:20	06:58 19:53	06:16 20:24	05:53 20:51	05:59 20:56	06:25 20:32	06:55 19:47	07:24 18:57	06:59 17:14	07:32 16:56
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12	07:46 17:16	07:22 17:53	06:41 18:25	06:51 19:58	06:10 20:29	05:52 20:54	06:02 20:54	06:29 20:26	07:00 19:38	07:30 18:49	07:05 17:09	07:36 16:56
13	07:46 17:17	07:20 17:54	06:39 18:27	06:49 19:59	06:09 20:30	05:52 20:54	06:03 20:54	06:30 20:25	07:01 19:37	07:31 18:47	07:06 17:08	07:37 16:56
14	07:45 17:19	07:19 17:56	06:38 18:28	06:47 20:00	06:08 20:31	05:51 20:55	06:03 20:54	06:31 20:23	07:02 19:35	07:32 18:46	07:07 17:07	07:38 16:56
15	07:45 17:20	07:18 17:57	06:36 18:29	06:46 20:01	06:07 20:32	05:51 20:55	06:04 20:53	06:32 20:22	07:03 19:33	07:33 18:44	07:08 17:06	07:39 16:56
16	07:45 17:21	07:17 17:58	06:35 18:30	06:44 20:02	06:06 20:33	05:51 20:55	06:05 20:52	06:33 20:21	07:04 19:32	07:34 18:43	07:09 17:05	07:39 16:57
17	07:44 17:22	07:15 17:59	06:33 18:31	06:43 20:03	06:05 20:34	05:52 20:56	06:06 20:52	06:34 20:19	07:05 19:30	07:35 18:41	07:11 17:04	07:40 16:57
18	07:44 17:23	07:14 18:00	06:31 18:32	06:41 20:04	06:04 20:35	05:52 20:56	06:06 20:51	06:35 20:18	07:05 19:28	07:36 18:40	07:12 17:04	07:41 16:57
19	07:43 17:24	07:13 18:02	06:30 18:33	06:40 20:05	06:03 20:36	05:52 20:56	06:07 20:50	06:36 20:16	07:06 19:27	07:37 18:38	07:13 17:03	07:41 16:58
20	07:43 17:25	07:11 18:03	06:28 18:34	06:38 20:06	06:03 20:37	05:52 20:57	06:08 20:50	06:37 20:15	07:07 19:25	07:38 18:37	07:14 17:02	07:42 16:58
21	07:42 17:26	07:10 18:04	06:26 18:35	06:37 20:07	06:02 20:38	05:52 20:57	06:09 20:49	06:38 20:13	07:08 19:23	07:39 18:35	07:15 17:02	07:43 16:59
22	07:41 17:28	07:08 18:05	06:25 18:36	06:35 20:08	06:01 20:38	05:52 20:57	06:10 20:48	06:39 20:12	07:09 19:22	07:40 18:34	07:16 17:01	07:43 16:59
23	07:41 17:29	07:07 18:06	06:23 18:37	06:34 20:09	06:00 20:39	05:52 20:57	06:11 20:47	06:40 20:10	07:10 19:20	07:42 18:32	07:17 17:00	07:44 17:00
24	07:40 17:30	07:06 18:07	06:21 18:38	06:33 20:10	05:59 20:40	05:53 20:57	06:12 20:47	06:41 20:09	07:11 19:18	07:43 18:31	07:19 17:00	07:44 17:00
25	07:39 17:31	07:04 18:09	06:20 18:39	06:31 20:12	05:59 20:41	05:53 20:58	06:12 20:46	06:42 20:07	07:12 19:17	07:44 17:30	07:20 16:59	07:44 17:01
26	07:39 17:32	07:03 18:10	06:18 18:40	06:30 20:13	05:58 20:42	05:53 20:58	06:13 20:45	06:43 20:06	07:13 19:15	07:45 17:28	07:21 16:59	07:45 17:01
27	07:38 17:34	07:01 18:11	06:16 18:41	06:28 20:14	05:57 20:43	05:54 20:58	06:14 20:44	06:44 20:04	07:14 19:13	07:46 17:27	07:22 16:58	07:45 17:02
28	07:37 17:35	07:00 18:12	06:15 18:42	06:27 20:15	05:57 20:44	05:54 20:58	06:15 20:43	06:45 20:03	07:15 19:12	07:47 17:26	07:23 16:58	07:46 17:03
29	07:36 17:36		07:13 19:43	06:26 20:16	05:56 20:44	05:54 20:58	06:16 20:42	06:46 20:01	07:16 19:10	07:48 17:24	07:24 16:57	07:46 17:03
30	07:35 17:37		07:11 19:44	06:24 20:17	05:56 20:45	05:55 20:58	06:17 20:41	06:47 20:00	07:17 19:08	07:50 17:23	07:25 16:57	07:46 17:04
31	07:35 17:39		07:10 19:46		05:55 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali MTG: AG07 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (53)

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	07:46 17:06	07:33 17:40	06:58 18:13	07:08 19:46	06:23 18:53-19:04/11 20:18	05:55 06:22-06:36/14 20:47
2	07:47 17:07	07:33 17:41	06:57 18:14	07:06 19:47	06:22 20:19	05:54 06:23-06:34/11 20:47
3	07:47 17:07	07:32 17:42	06:55 18:15	07:05 19:48	06:20 20:20	05:54 06:25-06:33/8 20:48 19:50-19:57/7
4	07:47 17:08	07:31 17:43	06:54 18:16	07:03 19:50	06:19 20:21	05:53 06:28-06:31/3 20:49 19:48-20:00/12
5	07:47 17:09	07:29 17:44	06:52 18:18	07:01 19:51	06:18 20:22	05:53 19:46-20:01/15 20:49
6	07:47 17:10	07:28 17:46	06:50 18:19	07:00 19:00-19:07/7 19:52	06:17 20:23	05:53 19:45-20:03/18 20:50
7	07:47 17:11	07:27 17:47	06:49 18:20	06:58 18:56-19:12/16 19:53	06:15 06:35-06:37/2 20:24	05:52 19:45-20:05/20 20:51
8	07:47 17:12	07:26 17:48	06:47 18:21	06:57 18:53-19:14/21 19:54	06:14 06:34-06:39/5 20:25	05:52 19:44-20:06/22 20:51
9	07:46 17:13	07:25 17:49	06:46 18:22	06:55 18:50-19:15/25 19:55	06:13 06:33-06:39/6 20:26	05:52 19:44-20:07/23 20:52
10	07:46 17:14	07:24 17:51	06:44 18:23	06:53 18:49-19:17/28 19:56	06:12 06:32-06:40/8 20:27	05:52 19:43-20:07/24 20:52
11	07:46 17:15	07:23 17:52	06:42 18:24	06:52 18:47-19:17/30 19:57	06:11 06:31-06:41/10 20:28	05:52 19:42-20:08/26 20:53
12	07:46 17:16	07:22 17:53	06:41 18:25	06:50 18:46-19:18/32 19:58	06:10 06:30-06:41/11 20:29	05:51 19:42-20:08/26 20:54
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14	07:45 17:18	07:19 17:55	06:38 18:27	06:47 18:45-19:19/34 20:00	06:08 06:28-06:41/13 20:31	05:51 19:42-20:10/28 20:54
15	07:45 17:19	07:18 17:57	06:36 18:29	06:46 18:44-19:19/35 20:01	06:07 06:27-06:41/14 20:32	05:51 19:42-20:10/28 20:55
16	07:44 17:21	07:16 17:58	06:34 18:30	06:44 18:43-19:19/36 20:02	06:06 06:26-06:41/15 20:33	05:51 19:42-20:10/28 20:55
17	07:44 17:22	07:15 17:59	06:33 18:31	06:43 18:43-19:19/36 20:03	06:05 06:25-06:41/16 20:34	05:51 19:42-20:11/29 20:56
18	07:44 17:23	07:14 18:00	06:31 18:32	06:41 18:43-19:19/36 20:04	06:04 06:24-06:41/17 20:35	05:51 19:42-20:11/29 20:56
19	07:43 17:24	07:13 18:01	06:29 18:33	06:40 18:42-19:18/36 20:05	06:03 06:24-06:42/18 20:36	05:51 19:43-20:12/29 20:56
20	07:42 17:25	07:11 18:03	06:28 18:34	06:38 18:43-19:18/35 20:06	06:02 06:23-06:41/18 20:37	05:52 19:43-20:12/29 20:57
21	07:42 17:26	07:10 18:04	06:26 18:35	06:37 18:42-19:17/35 20:07	06:02 06:22-06:41/19 20:37	05:52 19:43-20:12/29 20:57
22	07:41 17:27	07:08 18:05	06:24 18:36	06:35 18:43-19:17/34 20:08	06:01 06:21-06:40/19 20:38	05:52 19:43-20:12/29 20:57
23	07:41 17:29	07:07 18:06	06:23 18:37	06:34 18:42-19:16/34 20:09	06:00 06:21-06:41/20 20:39	05:52 19:43-20:12/29 20:57
24	07:40 17:30	07:05 18:07	06:21 18:38	06:32 18:43-19:15/32 20:10	05:59 06:20-06:40/20 20:40	05:52 19:44-20:13/29 20:57
25	07:39 17:31	07:04 18:08	06:20 18:39	06:31 18:44-19:15/31 20:11	05:59 06:19-06:39/20 20:41	05:53 19:44-20:13/29 20:57
26	07:39 17:32	07:03 18:10	06:18 18:40	06:30 18:44-19:13/29 20:12	05:58 06:19-06:40/21 20:42	05:53 19:44-20:13/29 20:58
27	07:38 17:33	07:01 18:11	06:16 18:41	06:28 18:46-19:12/26 20:13	05:57 06:18-06:39/21 20:43	05:53 19:45-20:13/28 20:58
28	07:37 17:35	07:00 18:12	06:15 18:42	06:27 18:47-19:11/24 20:15	05:57 06:19-06:39/20 20:43	05:54 19:45-20:13/28 20:58
29	07:36 17:36		07:13 19:43	06:25 18:48-19:09/21 20:16	05:56 06:19-06:38/19 20:44	05:54 19:46-20:13/27 20:58
30	07:35 17:37		07:11 19:44	06:24 18:50-19:07/17 20:17	05:56 06:20-06:37/17 20:45	05:55 19:46-20:13/27 20:58
31	07:34 17:38		07:10 19:45		05:55 06:21-06:36/15 20:46	
Potential sun hours	299	298	370	398	447	451
Sum of minutes with flicker	0	0	0	723	387	740

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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SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturaliWTG: AG07 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (53)

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	05:55 19:46-20:12/26 20:57	06:19 06:41-06:51/10 20:39	06:49 18:46-19:16/30 19:56	07:18 19:06	06:52 17:20	07:26 16:57
2	05:56 19:47-20:12/25 20:57	06:20 06:42-06:51/9 20:38	06:50 18:47-19:15/28 19:55	07:19 19:05	06:53 17:19	07:27 16:56
3	05:56 19:48-20:11/23 20:57	06:21 06:42-06:50/8 20:37	06:51 18:48-19:13/25 19:53	07:20 19:03	06:54 17:18	07:28 16:56
4	05:57 19:49-20:11/22 20:57	06:21 06:43-06:49/6 20:36	06:52 18:50-19:11/21 19:52	07:21 19:02	06:55 17:17	07:29 16:56
5	05:57 19:50-20:11/21 20:57	06:22 06:44-06:48/4 20:34	06:53 18:52-19:08/16 19:50	07:22 19:00	06:56 17:16	07:30 16:56
6	05:58 19:51-20:10/19 20:57	06:23 06:45-06:47/2 20:33	06:54 18:56-19:04/8 19:48	07:23 18:58	06:58 17:15	07:31 16:56
7	05:58 19:53-20:09/16 20:56	06:24 20:32	06:55 19:47	07:24 18:57	06:59 17:14	07:32 16:56
8	05:59 19:54-20:07/13 20:56	06:25 20:31	06:56 19:45	07:25 18:55	07:00 17:12	07:33 16:55
9	06:00 06:33-06:40/7 20:56	06:26 20:30	06:57 19:43	07:26 18:53	07:01 17:11	07:34 16:55
10	06:00 06:32-06:42/10 20:55	06:27 20:28	06:58 19:42	07:27 18:52	07:02 17:10	07:35 16:56
11	06:01 06:30-06:42/12 20:55	06:28 19:06-19:09/3 20:27	06:59 19:40	07:28 18:50	07:03 17:09	07:35 16:56
12	06:02 06:29-06:44/15 20:54	06:29 19:01-19:14/13 20:26	06:59 19:38	07:30 18:49	07:05 17:08	07:36 16:56
13	06:02 06:29-06:45/16 20:54	06:30 18:58-19:16/18 20:24	07:00 19:37	07:31 18:47	07:06 17:08	07:37 16:56
14	06:03 06:29-06:47/18 20:53	06:31 18:56-19:18/22 20:23	07:01 19:35	07:32 18:46	07:07 17:07	07:38 16:56
15	06:04 06:27-06:47/20 20:53	06:32 18:54-19:19/25 20:22	07:02 19:33	07:33 18:44	07:08 17:06	07:39 16:56
16	06:05 06:27-06:48/21 20:52	06:33 18:52-19:19/27 20:20	07:03 19:32	07:34 18:43	07:09 17:05	07:39 16:57
17	06:05 06:28-06:49/21 20:52	06:34 18:51-19:20/29 20:19	07:04 19:30	07:35 18:41	07:10 17:04	07:40 16:57
18	06:06 06:29-06:49/20 20:51	06:35 18:50-19:21/31 20:18	07:05 19:28	07:36 18:40	07:12 17:03	07:41 16:57
19	06:07 06:29-06:49/20 20:50	06:36 18:49-19:21/32 20:16	07:06 19:27	07:37 18:38	07:13 17:03	07:41 16:58
20	06:08 06:30-06:50/20 20:50	06:37 18:48-19:22/34 20:15	07:07 19:25	07:38 18:37	07:14 17:02	07:42 16:58
21	06:09 06:31-06:51/20 20:49	06:38 18:47-19:22/35 20:13	07:08 19:23	07:39 18:35	07:15 17:01	07:42 16:58
22	06:10 06:32-06:51/19 20:48	06:39 18:47-19:22/35 20:12	07:09 19:22	07:40 18:34	07:16 17:01	07:43 16:59
23	06:10 06:33-06:52/19 20:47	06:40 18:46-19:22/36 20:10	07:10 19:20	07:41 18:32	07:17 17:00	07:43 16:59
24	06:11 06:34-06:52/18 20:46	06:41 18:46-19:22/36 20:09	07:11 19:18	07:43 18:31	07:18 17:00	07:44 17:00
25	06:12 06:34-06:51/17 20:46	06:42 18:46-19:22/36 20:07	07:12 19:16	06:44 17:30	07:20 16:59	07:44 17:01
26	06:13 06:35-06:52/17 20:45	06:43 18:45-19:22/37 20:06	07:13 19:15	06:45 17:28	07:21 16:59	07:45 17:01
27	06:14 06:36-06:52/16 20:44	06:44 18:45-19:21/36 20:04	07:14 19:13	06:46 17:27	07:22 16:58	07:45 17:02
28	06:15 06:37-06:52/15 20:43	06:45 18:45-19:21/36 20:03	07:15 19:11	06:47 17:26	07:23 16:58	07:45 17:02
29	06:16 06:38-06:52/14 20:42	06:46 18:46-19:20/34 20:01	07:16 19:10	06:48 17:24	07:24 16:57	07:46 17:03
30	06:17 06:39-06:52/13 20:41	06:47 18:46-19:19/33 20:00	07:17 19:08	06:49 17:23	07:25 16:57	07:46 17:04
31	06:18 06:40-06:52/12 20:40	06:48 18:45-19:17/32 19:58		06:51 17:22		07:46 17:05
Potential sun hours	458	427	375	346	299	289
Sum of minutes with flicker	555	659	128	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali MTG: AG08 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (50 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	07:46 14:49-15:29/40	07:34 14:56-15:44/48	06:58	07:08	06:23	05:55	05:55	06:19	06:49	07:18	06:52 14:36-15:07/31	07:26 14:31-15:18/47
2	07:47 14:49-15:29/40	07:33 14:56-15:43/47	06:57	07:06	06:22	05:54	05:56	06:20	06:50	07:19	06:53 14:34-15:08/34	07:27 14:33-15:19/46
3	07:47 14:49-15:30/41	07:32 14:57-15:43/46	06:55	07:05	06:20	05:54	05:56	06:21	06:51	07:20	06:54 14:33-15:10/37	07:28 14:34-15:19/45
4	07:47 14:50-15:31/41	07:31 14:58-15:43/45	06:54	07:03	06:19	05:53	05:57	06:22	06:52	07:21	06:55 14:32-15:11/39	07:29 14:34-15:19/45
5	07:47 14:50-15:32/42	07:30 14:59-15:42/43	06:52	07:02	06:18	05:53	05:57	06:23	06:53	07:22	06:56 14:30-15:11/41	07:30 14:35-15:19/44
6	07:47 14:50-15:33/43	07:28 15:01-15:41/40	06:50	07:00	06:17	05:53	05:58	06:24	06:54	07:23	06:58 14:29-15:12/43	07:31 14:36-15:19/43
7	07:47 14:49-15:33/44	07:27 15:02-15:41/39	06:49	06:58	06:16	05:52	05:58	06:24	06:55	07:24	06:59 14:29-15:13/44	07:32 14:36-15:18/42
8	07:47 14:49-15:34/45	07:26 15:04-15:40/36	06:47	06:57	06:14	05:52	05:59	06:25	06:56	07:25	07:00 14:28-15:14/46	07:33 14:37-15:18/41
9	07:46 14:50-15:35/45	07:25 15:06-15:39/33	06:46	06:55	06:13	05:52	06:00	06:26	06:57	07:26	07:01 14:27-15:14/47	07:34 14:37-15:18/41
10	07:46 14:50-15:36/46	07:24 15:07-15:37/30	06:44	06:54	06:12	05:52	06:00	06:27	06:58	07:27	07:02 14:26-15:14/48	07:35 14:38-15:18/40
11	07:46 14:49-15:36/47	07:23 15:10-15:35/25	06:43	06:52	06:11	05:52	06:01	06:28	06:59	07:29	07:04 14:27-15:16/49	07:36 14:39-15:19/40
12	07:46 14:50-15:37/47	07:22 15:13-15:33/20	06:41	06:50	06:10	05:52	06:02	06:29	07:00	07:30	07:05 14:26-15:16/50	07:36 14:40-15:19/39
13	07:46 14:50-15:38/48	07:20 15:17-15:29/12	06:39	06:49	06:09	05:51	06:03	06:30	07:01	07:31	07:06 14:26-15:16/50	07:37 14:41-15:19/38
14	07:45 14:50-15:38/48	07:19	06:38	06:47	06:08	05:51	06:03	06:31	07:02	07:32	07:07 14:25-15:16/51	07:38 14:41-15:19/38
15	07:45 14:50-15:39/49	07:18	06:36	06:46	06:07	05:51	06:04	06:32	07:02	07:33	07:08 14:26-15:17/51	07:39 14:42-15:19/37
16	07:44 14:50-15:39/49	07:17	06:34	06:44	06:06	05:51	06:05	06:33	07:03	07:34	07:09 14:26-15:17/51	07:39 14:43-15:20/37
17	07:44 14:50-15:40/50	07:15	06:33	06:43	06:05	05:51	06:06	06:34	07:04	07:35	07:11 14:26-15:17/51	07:40 14:43-15:20/37
18	07:44 14:50-15:40/50	07:14	06:31	06:41	06:04	05:51	06:06	06:35	07:05	07:36	07:12 14:25-15:17/52	07:41 14:44-15:20/36
19	07:43 14:51-15:41/50	07:13	06:30	06:40	06:03	05:52	06:07	06:36	07:06	07:37	07:13 14:26-15:18/52	07:41 14:45-15:21/36
20	07:43 14:51-15:42/51	07:11	06:28	06:38	06:02	05:52	06:08	06:37	07:07	07:38	07:14 14:26-15:18/52	07:42 14:45-15:21/36
21	07:42 14:52-15:43/51	07:10	06:26	06:37	06:02	05:52	06:09	06:38	07:08	07:39	07:15 14:27-15:18/51	07:42 14:46-15:22/36
22	07:41 14:51-15:43/52	07:08	06:25	06:35	06:01	05:52	06:10	06:39	07:09	07:40	07:16 14:27-15:18/51	07:43 14:46-15:22/36
23	07:41 14:51-15:43/52	07:07	06:23	06:34	06:00	05:52	06:11	06:40	07:10	07:42	07:17 14:27-15:18/51	07:43 14:46-15:22/36
24	07:40 14:51-15:43/52	07:06	06:21	06:32	05:59	05:53	06:11	06:41	07:11	07:43	07:19 14:28-15:18/50	07:44 14:47-15:23/36
25	07:39 14:53-15:44/51	07:04	06:20	06:31	05:59	05:53	06:12	06:42	07:12	07:44	07:20 14:28-15:18/50	07:44 14:47-15:23/36
26	07:39 14:53-15:44/51	07:03	06:18	06:30	05:58	05:53	06:13	06:43	07:13	07:45	07:21 14:29-15:18/49	07:45 14:48-15:24/36
27	07:38 14:53-15:44/51	07:01	06:16	06:28	05:57	05:54	06:14	06:44	07:14	07:46	07:22 14:29-15:18/49	07:45 14:48-15:25/37
28	07:37 14:53-15:44/51	07:00	06:15	06:27	05:57	05:54	06:15	06:45	07:15	07:47	07:23 14:30-15:18/48	07:45 14:48-15:25/37
29	07:36 14:54-15:44/50	07:00	06:14	06:26	05:56	05:54	06:16	06:46	07:16	07:48	07:24 14:30-15:18/48	07:46 14:48-15:26/38
30	07:35 14:54-15:44/50	07:00	06:13	06:25	05:55	05:53	06:17	06:47	07:17	07:49	07:25 14:31-15:18/47	07:46 14:48-15:26/38
31	07:34 14:55-15:44/49	07:00	06:12	06:24	05:54	05:52	06:18	06:48	07:18	07:50	07:26 14:31-15:18/47	07:46 14:48-15:26/38
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	1476	464	0	0	0	0	0	0	0	61	1413	1213

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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni cultural\WTG: AG09 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (51)

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	07:46 17:06	07:33 09:35-10:43/68 17:40	06:58 09:28-10:43/75 18:13	07:08 19:46	06:23 20:18	05:55 20:47
2	07:47 17:07	07:33 09:34-10:44/70 17:41	06:57 09:28-10:41/73 18:14	07:06 19:47	06:22 20:19	05:54 20:47
3	07:47 17:07	07:32 09:33-10:45/72 17:42	06:55 09:29-10:40/71 18:15	07:05 19:49	06:20 20:20	05:54 20:48
4	07:47 17:08	07:31 09:33-10:46/73 17:43	06:54 09:29-10:38/69 18:16	07:03 19:50	06:19 20:21	05:53 20:49
5	07:47 17:09	07:30 09:32-10:46/74 17:45	06:52 09:30-10:37/67 18:18	07:02 19:51	06:18 20:22	05:53 20:49
6	07:47 17:10	07:28 09:32-10:47/75 17:46	06:50 09:30-10:35/65 18:19	07:00 19:52	06:17 20:23	05:53 20:50
7	07:47 17:11	07:27 09:31-10:48/77 17:47	06:49 09:31-10:33/62 18:20	06:58 19:53	06:16 20:24	05:52 20:51
8	07:47 17:12	07:26 09:31-10:49/78 17:48	06:47 09:32-10:31/59 18:21	06:57 19:54	06:14 20:25	05:52 20:51
9	07:46 17:13	07:25 09:31-10:50/79 17:49	06:46 09:32-10:28/56 18:22	06:55 19:55	06:13 20:26	05:52 20:52
10	07:46 17:14	07:24 09:30-10:49/79 17:51	06:44 17:27-17:34/7 18:23 09:34-10:26/52	06:54 19:56	06:12 20:27	05:52 20:53
11	07:46 17:15	07:23 09:29-10:50/81 17:52	06:43 17:23-17:37/14 18:24 09:35-10:23/48	06:52 19:57	06:11 20:28	05:52 20:53
12	07:46 17:16	07:22 09:29-10:50/81 17:53	06:41 17:21-17:38/17 18:25 09:37-10:20/43	06:50 19:58	06:10 20:29	05:51 20:54
13	07:46 17:17	07:20 09:29-10:51/82 17:54	06:39 17:20-17:39/19 18:26 09:38-10:16/38	06:49 19:59	06:09 20:30	05:51 20:54
14	07:45 17:18	07:19 09:28-10:50/82 17:56	06:38 17:19-17:39/20 18:27 09:40-10:12/32	06:47 20:00	06:08 20:31	05:51 20:54
15	07:45 17:19	07:18 09:28-10:51/83 17:57	06:36 17:19-17:40/21 18:29 09:44-10:08/24	06:46 20:01	06:07 20:32	05:51 20:55
16	07:44 09:59-10:10/11 17:21	07:17 09:28-10:51/83 17:58	06:34 17:18-17:40/22 18:30 09:50-10:00/10	06:44 20:02	06:06 20:33	05:51 20:55
17	07:44 09:55-10:16/21 17:22	07:15 09:27-10:50/83 17:59	06:33 17:17-17:40/23 18:31	06:43 20:03	06:05 20:34	05:51 20:56
18	07:44 09:52-10:18/26 17:23	07:14 09:27-10:51/84 18:00	06:31 17:18-17:40/22 18:32	06:41 20:04	06:04 20:35	05:51 20:56
19	07:43 09:50-10:22/32 17:24	07:13 09:28-10:51/83 18:01	06:29 17:17-17:39/22 18:33	06:40 20:05	06:03 20:36	05:52 20:56
20	07:43 09:48-10:24/36 17:25	07:11 09:27-10:50/83 18:03	06:28 17:17-17:37/20 18:34	06:38 20:06	06:02 20:37	05:52 20:57
21	07:42 09:47-10:27/40 17:26	07:10 09:27-10:50/83 18:04	06:26 17:19-17:37/18 18:35	06:37 20:07	06:02 20:37	05:52 20:57
22	07:41 09:46-10:28/42 17:27	07:08 09:27-10:49/82 18:05	06:25 17:20-17:35/15 18:36	06:35 20:08	06:01 20:38	05:52 20:57
23	07:41 09:44-10:30/46 17:29	07:07 09:27-10:49/82 18:06	06:23 17:21-17:32/11 18:37	06:34 20:09	06:00 20:39	05:52 20:57
24	07:40 09:42-10:32/50 17:30	07:06 09:27-10:48/81 18:07	06:21 18:38	06:32 20:10	05:59 20:40	05:53 20:57
25	07:39 09:42-10:34/52 17:31	07:04 09:27-10:47/80 18:09	06:20 18:39	06:31 20:11	05:59 20:41	05:53 20:57
26	07:39 09:41-10:35/54 17:32	07:03 09:28-10:47/79 18:10	06:18 18:40	06:30 20:12	05:58 20:42	05:53 20:58
27	07:38 09:40-10:37/57 17:33	07:01 09:27-10:45/78 18:11	06:16 18:41	06:28 20:14	05:57 20:43	05:54 20:58
28	07:37 09:38-10:38/60 17:35	07:00 09:28-10:45/77 18:12	06:15 18:42	06:27 20:15	05:57 20:44	05:54 20:58
29	07:36 09:37-10:39/62 17:36		07:13 19:43	06:26 20:16	05:56 20:44	05:54 20:58
30	07:35 09:37-10:40/63 17:37		07:11 19:44	06:24 20:17	05:56 20:45	05:55 20:58
31	07:34 09:36-10:42/66 17:38		07:10 19:45		05:55 20:46	
Potential sun hours	299	298	370	398	447	451
Sum of minutes with flicker	718	2212	1095	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni cultural|WTG: AG09 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (51)

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	05:55 20:57	06:19 20:39	06:49 19:56	07:18 18:00-18:18/18 19:07 10:16-10:57/41	06:52 08:59-10:19/80 17:21	07:26 16:57
2	05:56 20:57	06:20 20:38	06:50 19:55	07:19 18:01-18:16/15 19:05 10:14-11:00/46	06:53 09:00-10:18/78 17:19	07:27 16:56
3	05:56 20:57	06:21 20:37	06:51 19:53	07:20 18:03-18:13/10 19:03 10:12-11:02/50	06:54 09:01-10:19/78 17:18	07:28 16:56
4	05:57 20:57	06:22 20:36	06:52 19:52	07:21 10:10-11:04/54 19:02	06:55 09:01-10:18/77 17:17	07:29 16:56
5	05:57 20:57	06:23 20:34	06:53 19:50	07:22 10:09-11:06/57 19:00	06:56 09:02-10:17/75 17:16	07:30 16:56
6	05:58 20:57	06:23 20:33	06:54 19:48	07:23 10:07-11:08/61 18:58	06:58 09:02-10:16/74 17:15	07:31 16:56
7	05:58 20:56	06:24 20:32	06:55 19:47	07:24 10:06-11:09/63 18:57	06:59 09:04-10:16/72 17:14	07:32 16:56
8	05:59 20:56	06:25 20:31	06:56 19:45	07:25 10:05-11:11/66 18:55	07:00 09:04-10:15/71 17:13	07:33 16:56
9	06:00 20:56	06:26 20:30	06:57 19:43	07:26 10:04-11:12/68 18:53	07:01 09:05-10:14/69 17:11	07:34 16:56
10	06:00 20:55	06:27 20:28	06:58 19:42	07:27 10:04-11:14/70 18:52	07:02 09:06-10:13/67 17:10	07:35 16:56
11	06:01 20:55	06:28 20:27	06:59 19:40	07:28 10:03-11:15/72 18:50	07:03 09:08-10:13/65 17:10	07:36 16:56
12	06:02 20:54	06:29 20:26	07:00 19:38	07:30 10:02-11:16/74 18:49	07:05 09:09-10:12/63 17:09	07:36 16:56
13	06:02 20:54	06:30 20:25	07:00 19:37	07:31 10:01-11:17/76 18:47	07:06 09:09-10:11/62 17:08	07:37 16:56
14	06:03 20:53	06:31 20:23	07:01 19:35	07:32 10:00-11:17/77 18:46	07:07 09:10-10:10/60 17:07	07:38 16:56
15	06:04 20:53	06:32 20:22	07:02 19:33	07:33 10:00-11:18/78 18:44	07:08 09:13-10:10/57 17:06	07:39 16:56
16	06:05 20:52	06:33 20:20	07:03 19:32	07:34 09:59-11:18/79 18:43	07:09 09:14-10:08/54 17:05	07:39 16:57
17	06:06 20:52	06:34 20:19	07:04 19:30	07:35 09:58-11:19/81 18:41	07:11 09:15-10:07/52 17:04	07:40 16:57
18	06:06 20:51	06:35 20:18	07:05 19:28	07:36 09:58-11:19/81 18:40	07:12 09:16-10:06/50 17:03	07:41 16:57
19	06:07 20:50	06:36 20:16	07:06 19:27	07:37 09:58-11:20/82 18:38	07:13 09:19-10:05/46 17:03	07:41 16:58
20	06:08 20:50	06:37 20:15	07:07 18:08-18:18/10 19:25	07:38 09:58-11:21/83 18:37	07:14 09:21-10:03/42 17:02	07:42 16:58
21	06:09 20:49	06:38 20:13	07:08 18:06-18:20/14 19:23	07:39 09:58-11:21/83 18:35	07:15 09:22-10:02/40 17:01	07:42 16:58
22	06:10 20:48	06:39 20:12	07:09 18:04-18:21/17 19:22	07:40 09:57-11:21/84 18:34	07:16 09:24-10:00/36 17:01	07:43 16:59
23	06:11 20:47	06:40 20:10	07:10 18:02-18:22/20 19:20	07:41 09:57-11:21/84 18:32	07:17 09:26-09:58/32 17:00	07:43 16:59
24	06:11 20:47	06:41 20:09	07:11 18:01-18:22/21 19:18	07:43 09:57-11:20/83 18:31	07:19 09:30-09:57/27 17:00	07:44 17:00
25	06:12 20:46	06:42 20:07	07:12 18:00-18:22/22 19:17	06:44 08:58-10:21/83 17:30	07:20 09:33-09:54/21 16:59	07:44 17:01
26	06:13 20:45	06:43 20:06	07:13 18:00-18:22/22 19:15	06:45 08:58-10:21/83 17:28	07:21 09:37-09:50/13 16:59	07:45 17:01
27	06:14 20:44	06:44 20:04	07:14 17:59-18:22/23 19:13	06:46 08:58-10:21/83 17:27	07:22 16:58	07:45 17:02
28	06:15 20:43	06:45 20:03	07:15 17:59-18:21/22 19:11	06:47 08:58-10:20/82 17:26	07:23 16:58	07:45 17:03
29	06:16 20:42	06:46 20:01	07:16 17:59-18:20/21 19:10	06:48 08:58-10:20/82 17:24	07:24 16:57	07:46 17:03
30	06:17 20:41	06:47 20:00	07:17 17:59-18:19/20 19:08	06:49 08:59-10:20/81 17:23	07:25 16:57	07:46 17:04
31	06:18 20:40	06:48 19:58		06:51 08:59-10:20/81 17:22		07:46 17:05
Potential sun hours	458	427	375	346	299	289
Sum of minutes with flicker	0	0	296	2311	1461	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni cultural\WTG: AG10 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (52)

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	07:46 17:06	07:33 17:40	06:58 18:13	07:08 19:46	06:23 18:55-19:26/31 20:18 06:44-07:22/38	05:55 06:54-07:13/19 20:47
2	07:47 17:07	07:33 17:41	06:57 18:14	07:06 19:47	06:22 18:55-19:27/32 20:19 06:44-07:23/39	05:54 06:54-07:12/18 20:47
3	07:47 17:07	07:32 17:42	06:55 18:15	07:05 19:49	06:20 18:54-19:28/34 20:20 06:43-07:24/41	05:54 06:56-07:11/15 20:48
4	07:47 17:08	07:31 17:43	06:54 18:16	07:03 19:50	06:19 18:53-19:27/34 20:21 06:42-07:23/41	05:53 06:58-07:10/12 20:49
5	07:47 17:09	07:29 17:44	06:52 18:18	07:02 19:51	06:18 18:52-19:28/36 20:22 06:42-07:24/42	05:53 07:00-07:07/7 20:49
6	07:47 17:10	07:28 17:46	06:50 18:19	07:00 19:52	06:17 18:52-19:28/36 20:23 06:41-07:24/43	05:53 20:50
7	07:47 17:11	07:27 17:47	06:49 18:20	06:58 19:53	06:15 18:52-19:29/37 20:24 06:41-07:24/43	05:52 20:51
8	07:47 17:12	07:26 17:48	06:47 18:21	06:57 19:54	06:14 18:52-19:29/37 20:25 06:41-07:24/43	05:52 20:51
9	07:46 17:13	07:25 17:49	06:46 18:22	06:55 19:55	06:13 18:52-19:29/37 20:26 06:41-07:24/43	05:52 20:52
10	07:46 17:14	07:24 17:51	06:44 18:23	06:53 19:56	06:12 18:52-19:29/37 20:27 06:41-07:24/43	05:52 20:52
11	07:46 17:15	07:23 17:52	06:42 18:24	06:52 19:57	06:11 18:52-19:29/37 20:28 06:41-07:24/43	05:52 20:53
12	07:46 17:16	07:22 17:53	06:41 18:25	06:50 19:58	06:10 18:52-19:29/37 20:29 06:41-07:24/43	05:51 20:54
13	07:46 17:17	07:20 17:54	06:39 17:38-17:46/8 18:26	06:49 19:59	06:09 18:52-19:29/37 20:30 06:41-07:24/43	05:51 20:54
14	07:45 17:18	07:19 17:55	06:38 17:34-17:48/14 18:27	06:47 20:00	06:08 18:52-19:28/36 20:31 06:41-07:23/42	05:51 20:54
15	07:45 17:19	07:18 17:57	06:36 17:33-17:51/18 18:29	06:46 20:01	06:07 18:53-19:28/35 20:32 06:41-07:23/42	05:51 20:55
16	07:44 17:21	07:17 17:58	06:34 17:31-17:51/20 18:30	06:44 20:02	06:06 18:53-19:28/35 20:33 06:42-07:23/41	05:51 20:55
17	07:44 17:22	07:15 17:59	06:33 17:29-17:52/23 18:31	06:43 20:03	06:05 18:53-19:27/34 20:34 06:42-07:22/40	05:51 20:56
18	07:44 17:23	07:14 18:00	06:31 17:29-17:53/24 18:32	06:41 20:04	06:04 18:53-19:27/34 20:35 06:42-07:21/39	05:51 20:56
19	07:43 17:24	07:13 18:01	06:29 17:28-17:52/24 18:33	06:40 20:05	06:03 18:55-19:27/32 20:36 06:43-07:22/39	05:52 20:56
20	07:42 17:25	07:11 18:03	06:28 17:27-17:52/25 18:34	06:38 20:06	06:02 18:55-19:26/31 20:37 06:44-07:21/37	05:52 20:57
21	07:42 17:26	07:10 18:04	06:26 17:28-17:52/24 18:35	06:37 20:07	06:02 18:56-19:26/30 20:37 06:44-07:20/36	05:52 20:57
22	07:41 17:27	07:08 18:05	06:25 17:27-17:51/24 18:36	06:35 20:08	06:01 18:56-19:25/29 20:38 06:44-07:20/36	05:52 20:57
23	07:41 17:29	07:07 18:06	06:23 17:27-17:50/23 18:37	06:34 06:59-07:12/13 20:09	06:00 18:57-19:25/28 20:39 06:46-07:20/34	05:52 20:57
24	07:40 17:30	07:06 18:07	06:21 17:28-17:50/22 18:38	06:32 06:55-07:14/19 20:10	05:59 18:58-19:24/26 20:40 06:46-07:19/33	05:53 20:57
25	07:39 17:31	07:04 18:08	06:20 17:28-17:48/20 18:39	06:31 19:09-19:15/6 20:11 06:52-07:17/25	05:59 18:59-19:23/24 20:41 06:46-07:18/32	05:53 20:57
26	07:39 17:32	07:03 18:10	06:18 17:29-17:46/17 18:40	06:30 19:04-19:18/14 20:12 06:51-07:18/27	05:58 19:00-19:23/23 20:42 06:48-07:18/30	05:53 20:58
27	07:38 17:33	07:01 18:11	06:16 17:32-17:45/13 18:41	06:28 19:01-19:21/20 20:13 06:49-07:19/30	05:57 19:01-19:21/20 20:43 06:48-07:17/29	05:53 20:58
28	07:37 17:35	07:00 18:12	06:15 17:34-17:41/7 18:42	06:27 19:00-19:23/23 20:15 06:47-07:20/33	05:57 19:03-19:21/18 20:44 06:50-07:17/27	05:54 20:58
29	07:36 17:36		07:13 19:43	06:25 18:58-19:25/27 20:16 06:47-07:22/35	05:56 19:04-19:19/15 20:44 06:50-07:15/25	05:54 20:58
30	07:35 17:37		07:11 19:44	06:24 18:56-19:25/29 20:17 06:45-07:22/37	05:56 19:06-19:18/12 20:45 06:52-07:15/23	05:55 20:58
31	07:34 17:38		07:10 19:45		05:55 19:07-19:16/9 20:46 06:52-07:14/22	
Potential sun hours	299	298	370	398	447	451
Sum of minutes with flicker	0	0	306	338	2085	71

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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\WTG: AG10 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (52)

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	05:55 20:57	06:19 19:03-19:40/37 20:39 06:52-07:35/43	06:49 19:56	07:18 19:06	06:52 17:20	07:26 16:57
2	05:56 20:57	06:20 19:01-19:39/38 20:38 06:52-07:35/43	06:50 19:55	07:19 19:05	06:53 17:19	07:27 16:56
3	05:56 20:57	06:21 19:01-19:39/38 20:37 06:51-07:34/43	06:51 19:53	07:20 19:03	06:54 17:18	07:28 16:56
4	05:57 20:57	06:22 19:01-19:39/38 20:36 06:51-07:34/43	06:52 19:52	07:21 19:02	06:55 17:17	07:29 16:56
5	05:57 20:57	06:22 19:02-19:38/36 20:34 06:51-07:34/43	06:53 19:50	07:22 19:00	06:56 17:16	07:30 16:56
6	05:58 20:57	06:23 19:02-19:38/36 20:33 06:51-07:34/43	06:54 19:48	07:23 18:58	06:58 17:15	07:31 16:56
7	05:58 07:09-07:12/3 20:56	06:24 19:02-19:38/36 20:32 06:51-07:33/42	06:55 19:47	07:24 18:57	06:59 17:14	07:32 16:56
8	05:59 07:05-07:15/10 20:56	06:25 19:02-19:37/35 20:31 06:51-07:33/42	06:56 19:45	07:25 18:55	07:00 17:12	07:33 16:56
9	06:00 07:04-07:17/13 20:56	06:26 19:03-19:37/34 20:30 06:52-07:33/41	06:57 19:43	07:26 18:53	07:01 17:11	07:34 16:56
10	06:00 07:03-07:19/16 20:55	06:27 19:03-19:36/33 20:28 06:52-07:32/40	06:58 19:42	07:27 18:52	07:02 17:10	07:35 16:56
11	06:01 07:01-07:20/19 20:55	06:28 19:04-19:35/31 20:27 06:53-07:32/39	06:59 19:40	07:28 18:50	07:03 17:09	07:35 16:56
12	06:02 19:17-19:23/6 07:01-07:21/20	06:29 19:04-19:35/31 20:26 06:53-07:31/38	07:00 19:38	07:30 18:49	07:05 17:09	07:36 16:56
13	06:02 19:15-19:26/11 07:00-07:23/23	06:30 19:05-19:33/28 20:24 06:54-07:30/36	07:00 19:37	07:31 18:47	07:06 17:08	07:37 16:56
14	06:03 19:13-19:27/14 07:00-07:24/24	06:31 19:06-19:32/26 20:23 06:55-07:29/34	07:01 19:35	07:32 18:46	07:07 17:07	07:38 16:56
15	06:04 19:12-19:29/17 06:58-07:25/27	06:32 19:08-19:30/22 20:22 06:55-07:28/33	07:02 18:25-18:29/4 19:33	07:33 18:44	07:08 17:06	07:39 16:56
16	06:05 19:11-19:30/19 06:58-07:26/28	06:33 19:08-19:27/19 20:20 06:57-07:27/30	07:03 18:20-18:33/13 19:32	07:34 18:43	07:09 17:05	07:39 16:57
17	06:05 19:10-19:31/21 06:57-07:27/30	06:34 19:11-19:25/14 20:19 06:57-07:24/27	07:04 18:18-18:34/16 19:30	07:35 18:41	07:10 17:04	07:40 16:57
18	06:06 19:08-19:32/24 06:57-07:28/31	06:35 06:59-07:22/23 20:18	07:05 18:16-18:35/19 19:28	07:36 18:40	07:12 17:03	07:41 16:57
19	06:07 19:08-19:33/25 06:56-07:28/32	06:36 07:01-07:19/18 20:16	07:06 18:15-18:36/21 19:27	07:37 18:38	07:13 17:03	07:41 16:58
20	06:08 19:07-19:34/27 06:55-07:29/34	06:37 07:04-07:16/12 20:15	07:07 18:14-18:37/23 19:25	07:38 18:37	07:14 17:02	07:42 16:58
21	06:09 19:07-19:35/28 06:55-07:30/35	06:38 20:13	07:08 18:13-18:37/24 19:23	07:39 18:35	07:15 17:01	07:42 16:58
22	06:10 19:06-19:36/30 06:55-07:31/36	06:39 20:12	07:09 18:12-18:37/25 19:22	07:40 18:34	07:16 17:01	07:43 16:59
23	06:10 19:06-19:37/31 06:54-07:31/37	06:40 20:10	07:10 18:12-18:36/24 19:20	07:41 18:32	07:17 17:00	07:43 16:59
24	06:11 19:05-19:36/31 06:54-07:32/38	06:41 20:09	07:11 18:11-18:36/25 19:18	07:43 18:31	07:19 17:00	07:44 17:00
25	06:12 19:04-19:37/33 06:53-07:32/39	06:42 20:07	07:12 18:11-18:35/24 19:16	06:44 17:30	07:20 16:59	07:44 17:01
26	06:13 19:04-19:37/33 06:53-07:32/39	06:43 20:06	07:13 18:11-18:34/23 19:15	06:45 17:28	07:21 16:59	07:45 17:01
27	06:14 19:04-19:38/34 06:52-07:33/41	06:44 20:04	07:14 18:12-18:33/21 19:13	06:46 17:27	07:22 16:58	07:45 17:02
28	06:15 19:03-19:38/35 06:52-07:33/41	06:45 20:03	07:15 18:13-18:32/19 19:11	06:47 17:26	07:23 16:58	07:45 17:02
29	06:16 19:03-19:39/36 06:52-07:34/42	06:46 20:01	07:16 18:14-18:30/16 19:10	06:48 17:24	07:24 16:57	07:46 17:03
30	06:17 19:03-19:39/36 06:52-07:34/42	06:47 20:00	07:17 18:16-18:27/11 19:08	06:49 17:23	07:25 16:57	07:46 17:04
31	06:18 19:03-19:39/36 06:52-07:34/42	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	458	427	375	346	299	289
Sum of minutes with flicker	1269	1245	308	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\MTG: AG11 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (54)

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	07:46 17:06	07:33 17:40	06:58 18:13	07:08 19:46	06:23 20:18	05:54 20:47	05:55 20:57	06:19 20:39	06:49 19:56	07:18 19:06	06:52 17:20	07:26 16:57
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Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\WTG: AG12 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (55)

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	07:46 17:06	07:33 17:39	06:58 18:13	07:08 19:46	06:23 20:18	05:54 20:47	05:55 20:57	06:19 20:39	06:49 19:56	07:18 19:06	06:52 17:20	07:26 16:57
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Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\MTG: AG13 - GE WIND ENERGY 4.2-158 4200 158.0 !OI hub: 149,0 m (TOT: 228,0 m) (44)

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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:55 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
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26	07:39 17:33	07:03 18:10	06:18 18:40	06:30 20:13	05:58 20:42	05:53 20:58	06:13 20:45	06:43 20:06	07:13 19:15	06:45 17:28	07:21 16:59	07:45 17:02
27	07:38 17:34	07:01 18:11	06:17 18:41	06:29 20:14	05:58 20:43	05:54 20:58	06:14 20:44	06:44 20:04	07:14 19:13	06:46 17:27	07:22 16:58	07:45 17:02
28	07:37 17:35	07:00 18:12	06:15 18:42	06:27 20:15	05:57 20:44	05:54 20:58	06:15 20:43	06:45 20:03	07:15 19:12	06:47 17:26	07:23 16:58	07:46 17:03
29	07:36 17:36		07:13 19:44	06:26 20:16	05:56 20:44	05:55 20:58	06:16 20:42	06:46 20:01	07:16 19:10	06:48 17:25	07:24 16:58	07:46 17:04
30	07:35 17:37		07:12 19:45	06:24 20:17	05:56 20:45	05:55 20:58	06:17 20:41	06:47 20:00	07:17 19:08	06:50 17:23	07:25 16:57	07:46 17:04
31	07:35 17:39		07:10 19:46		05:55 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	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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SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#| hub: 30,0 m (TOT: 37,5 m) (62)
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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:56 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
2	07:47 17:07	07:33 17:41	06:57 18:15	07:07 19:48	06:22 20:19	05:55 20:48	05:56 20:57	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:20	07:27 16:57
3	07:47 17:08	07:32 17:42	06:55 18:16	07:05 19:49	06:21 20:20	05:54 20:48	05:57 20:57	06:21 20:37	06:51 19:53	07:20 19:04	06:54 17:18	07:28 16:57
4	07:47 17:09	07:31 17:44	06:54 18:17	07:03 19:50	06:20 20:21	05:54 20:49	05:57 20:57	06:22 20:36	06:52 19:52	07:22 19:02	06:55 17:17	07:29 16:56
5	07:47 17:10	07:30 17:45	06:52 18:18	07:02 19:51	06:18 20:22	05:53 20:50	05:58 20:57	06:23 20:35	06:53 19:50	07:23 19:00	06:57 17:16	07:30 16:56
6	07:47 17:11	07:29 17:46	06:51 18:19	07:00 19:52	06:17 20:23	05:53 20:50	05:58 20:57	06:24 20:33	06:54 19:49	07:24 18:59	06:58 17:15	07:31 16:56
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8	07:47 17:13	07:26 17:49	06:48 18:21	06:57 19:54	06:15 20:25	05:53 20:51	06:00 20:56	06:26 20:31	06:56 19:45	07:26 18:55	07:00 17:13	07:33 16:56
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31	07:35 17:39		07:10 19:46		05:56 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#| hub: 30,0 m (TOT: 37,5 m) (63)
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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:56 20:58	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
2	07:47 17:07	07:33 17:41	06:57 18:15	07:07 19:48	06:22 20:19	05:55 20:48	05:56 20:58	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:20	07:27 16:57
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21	07:42 17:27	07:10 18:04	06:26 18:35	06:37 20:07	06:02 20:38	05:52 20:57	06:09 20:49	06:38 20:14	07:09 19:24	07:39 18:36	07:15 17:02	07:43 16:59
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31	07:35 17:39		07:10 19:46		05:55 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#| hub: 30,0 m (TOT: 37,5 m) (64)
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	07:46 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:55 20:57	06:19 20:39	06:49 19:57	07:18 19:07	06:52 17:21	07:26 16:57
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Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#| hub: 30,0 m (TOT: 37,5 m) (65)
Assumptions for shadow calculations

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Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#| hub: 30,0 m (TOT: 37,5 m) (66)
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The calculated times are "worst case" given by the following assumptions:

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	January	February	March	April	May	June	July	August	September	October	November	December
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SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#| hub: 30,0 m (TOT: 37,5 m) (76)
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4	07:47 17:08	07:31 17:43	06:54 18:17	07:03 19:50	06:19 20:21	05:53 20:49	05:57 20:57	06:22 20:36	06:52 19:52	07:21 19:02	06:55 17:17	07:29 16:56
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31	07:34 17:38		07:10 19:45		06:24 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali\WTG: Minieolico - KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (77)
 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	07:46 17:06	07:34 17:40	06:58 18:13	07:08 19:46	06:23 20:18	05:55 20:47	05:55 20:58	06:19 20:39	06:49 19:56	07:18 19:07	06:52 17:21	15:59-16:17/18 16:57
2	07:47 17:07	07:33 17:41	06:57 18:14	07:06 19:48	06:22 20:19	05:54 20:47	05:56 20:57	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:19	16:00-16:15/15 16:56
3	07:47 17:07	07:32 17:42	06:55 18:15	07:05 19:49	06:20 20:20	05:54 20:48	05:56 20:57	06:21 20:37	06:51 19:53	07:20 19:03	06:54 17:18	16:02-16:14/12 16:56
4	07:47 17:08	07:31 17:43	06:54 18:16	07:03 19:50	06:19 20:21	05:53 20:49	05:57 20:57	06:22 20:36	06:52 19:52	07:21 19:02	06:55 17:17	16:04-16:12/8 16:56
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18	07:44 17:23	07:14 18:00	06:31 18:32	06:41 20:04	06:04 20:35	05:51 20:56	06:06 20:51	06:35 20:18	07:05 19:28	07:36 18:40	07:12 17:03	07:41 16:57
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21	07:42 17:26	07:10 18:04	06:26 18:35	06:37 20:07	06:02 20:37	05:52 20:57	06:09 20:49	06:38 20:13	07:08 19:23	07:39 18:35	17:03-17:15/12 17:01	07:42 16:58
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	Potential sun hours	299	298	370	398	447	451	458	427	375	346	299
	Sum of minutes with flicker	0	265	0	0	0	0	0	0	0	218	53

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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (78)
 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	07:46 17:06	07:33 17:40	06:58 18:13	07:08 19:46	06:23 20:18	05:55 20:47	05:55 20:57	06:19 20:39	06:49 19:56	07:18 19:06	06:52 17:20	07:26 16:57
2	07:47 17:07	07:33 17:41	06:57 18:14	07:06 19:47	06:22 20:19	06:42-06:46/4 20:19	05:54 20:47	05:56 20:57	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:19
3	07:47 17:07	07:32 17:42	06:55 18:15	07:05 19:49	06:20 20:20	06:41-06:47/6 20:20	05:54 20:48	05:56 20:57	06:21 20:37	06:51 19:53	07:20 19:03	06:54 17:18
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23	07:41 17:29	07:07 18:06	06:23 18:37	06:34 20:09	06:00 20:39	06:00 20:39	05:52 20:57	06:10 20:47	06:40 20:10	19:26-19:28/2 19:20	07:10 18:32	07:17 17:00
24	07:40 17:30	07:06 18:07	06:21 18:38	06:32 20:10	05:59 20:40	05:59 20:40	05:53 20:57	06:11 20:47	06:41 20:09	19:25-19:28/3 19:18	07:11 18:31	07:19 17:00
25	07:39 17:31	07:04 18:08	06:20 18:39	06:31 20:11	05:59 20:41	05:59 20:41	05:53 20:57	06:12 20:46	06:42 20:07	07:12 19:16	06:44 17:30	07:20 16:59
26	07:39 17:32	07:03 18:10	06:18 18:40	06:30 20:12	05:58 20:42	05:58 20:42	05:53 20:58	06:13 20:45	06:43 20:06	07:13 19:15	06:45 17:28	07:21 16:59
27	07:38 17:33	07:01 18:11	06:16 18:41	06:28 20:14	05:57 20:43	05:57 20:43	05:53 20:58	06:14 20:44	06:44 20:04	07:14 19:13	06:46 17:27	07:22 16:58
28	07:37 17:35	07:00 18:12	06:15 18:42	06:27 20:15	05:57 20:44	05:57 20:44	05:54 20:58	06:15 20:43	06:45 20:03	07:15 19:11	06:47 17:26	07:23 16:58
29	07:36 17:36		07:13 19:43	06:26 20:16	05:56 20:44	05:56 20:44	05:54 20:58	06:16 20:42	06:46 20:01	07:16 19:10	06:48 17:24	07:24 16:57
30	07:35 17:37		07:11 19:44	06:24 20:17	05:56 20:45	05:56 20:45	05:55 20:58	06:17 20:41	06:47 20:00	07:17 19:08	06:49 17:23	07:25 16:57
31	07:34 17:38		07:10 19:45		05:55 20:46	05:55 20:46		06:18 20:40	06:48 19:58		06:51 17:22	07:04 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	6	20	0	0	26	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#! hub: 30,0 m (TOT: 37,5 m) (79)
 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	07:46	07:33	06:58	07:08	06:23	05:55	05:55	06:19	06:49	07:18	06:52	07:26	
	17:06	17:40	18:13	19:46	20:18	20:47	20:57	20:39	19:56	19:06	17:20	16:57	
2	07:47	07:32	06:57	07:06	06:22	05:54	05:56	06:20	06:50	07:19	06:53	07:27	
	17:07	17:41	18:14	19:47	20:19	20:47	20:57	20:38	19:55	19:05	17:19	16:56	
3	07:47	07:32	06:55	07:05	06:20	05:54	05:56	06:21	06:51	07:20	06:54	07:28	
	17:07	17:42	18:15	19:48	20:20	20:48	20:57	20:37	19:53	19:03	17:18	16:56	
4	07:47	07:31	06:54	07:03	06:19	05:53	05:57	06:22	06:52	07:21	06:55	07:29	
	17:08	17:43	18:16	19:50	20:21	20:49	20:57	20:36	19:52	19:02	17:17	16:56	
5	07:47	07:29	06:52	07:01	06:18	05:53	05:57	06:22	06:53	07:22	06:56	07:30	
	17:09	17:44	18:18	19:51	20:22	20:49	20:57	20:34	19:50	19:00	17:16	16:56	
6	07:47	07:28	06:50	07:00	06:17	05:53	05:58	06:23	06:54	07:23	06:58	07:31	
	17:10	17:46	18:19	19:52	20:23	20:50	20:57	20:33	19:48	18:58	17:15	16:56	
7	07:47	07:27	06:49	06:58	06:15	05:52	05:58	06:24	06:55	07:24	06:59	07:32	
	17:11	17:47	18:20	19:53	20:24	20:51	20:56	20:32	19:47	18:57	17:14	16:56	
8	07:47	07:26	06:47	06:57	06:14	05:52	05:59	06:25	06:56	07:25	07:00	07:33	
	17:12	17:48	18:21	19:54	20:25	20:51	20:56	20:31	19:45	18:55	17:12	16:56	
9	07:46	07:25	06:46	06:55	06:13	05:52	06:00	06:26	06:57	07:26	07:01	07:34	
	17:13	17:49	18:22	19:55	20:26	20:52	20:56	20:30	19:43	18:53	17:11	16:56	
10	07:46	07:24	06:44	06:53	06:12	05:52	06:00	06:27	06:58	07:27	07:02	07:35	
	17:14	17:51	18:23	19:56	20:27	20:52	20:55	20:28	19:42	18:52	17:10	16:56	
11	07:46	07:23	06:42	06:52	06:11	05:52	06:01	06:28	06:59	07:28	07:03	07:35	
	17:15	17:52	18:24	19:57	20:28	20:53	20:55	20:27	19:40	18:50	17:09	16:56	
12	07:46	07:22	06:41	06:50	06:10	05:51	06:02	06:29	06:59	07:30	07:05	07:36	
	17:16	17:53	18:25	19:58	20:29	20:54	20:54	20:26	19:38	18:49	17:09	16:56	
13	07:45	07:20	06:39	06:49	06:09	05:51	06:02	06:30	07:00	07:31	07:06	07:37	
	17:17	17:54	18:26	19:59	20:30	20:54	20:54	20:24	19:37	18:47	17:08	16:56	
14	07:45	07:19	06:38	06:47	06:08	05:51	06:03	06:31	07:01	07:32	07:07	07:38	
	17:18	17:55	18:27	20:00	20:31	20:54	20:53	20:23	19:35	18:46	17:07	16:56	
15	07:45	07:18	06:36	06:46	06:07	05:51	06:04	06:32	07:02	07:33	07:08	07:39	
	17:19	17:57	18:29	20:01	20:32	20:55	20:53	20:22	19:33	18:44	17:06	16:56	
16	07:44	07:16	06:34	06:44	06:06	05:51	06:05	06:33	07:03	07:34	07:09	07:39	
	17:21	17:58	18:30	20:02	20:33	20:55	20:52	20:20	19:32	18:43	17:05	16:57	
17	07:44	07:15	06:33	06:43	19:09-19:14/5	06:05	05:51	06:05	06:34	07:04	07:35	07:10	07:40
	17:22	17:59	18:31	20:03	20:34	20:56	20:52	20:19	19:30	18:41	17:04	16:57	
18	07:44	07:14	06:31	06:41	19:09-19:15/6	06:04	05:51	06:06	06:35	07:05	07:36	07:12	07:41
	17:23	18:00	18:32	20:04	20:35	20:56	20:51	20:18	19:28	18:40	17:03	16:57	
19	07:43	07:12	06:29	06:40	19:08-19:14/6	06:03	05:51	06:07	06:36	07:06	07:37	07:13	07:41
	17:24	18:01	18:33	20:05	20:36	20:56	20:50	20:16	19:27	18:38	17:03	16:58	
20	07:42	07:11	06:28	06:38	19:09-19:14/5	06:02	05:52	06:08	06:37	07:07	07:38	07:14	07:42
	17:25	18:03	18:34	20:06	20:37	20:57	20:50	20:15	19:25	18:37	17:02	16:58	
21	07:42	07:10	06:26	06:37	06:02	05:52	06:09	06:38	07:08	07:39	07:15	07:42	
	17:26	18:04	18:35	20:07	20:37	20:57	20:49	20:13	19:23	18:35	17:01	16:58	
22	07:41	07:08	06:24	06:35	06:01	05:52	06:10	06:39	07:09	07:40	07:16	07:43	
	17:27	18:05	18:36	20:08	20:38	20:57	20:48	20:12	19:22	18:34	17:01	16:59	
23	07:41	07:07	06:23	06:34	06:00	05:52	06:10	06:40	19:13-19:18/5	07:10	07:41	07:17	07:43
	17:29	18:06	18:37	20:09	20:39	20:57	20:47	20:10	19:20	18:32	17:00	16:59	
24	07:40	07:05	06:21	06:32	05:59	05:52	06:11	06:41	19:12-19:18/6	07:11	07:43	07:18	07:44
	17:30	18:07	18:38	20:10	20:40	20:57	20:46	20:09	19:18	18:31	17:00	17:00	
25	07:39	07:04	06:20	06:31	05:59	05:53	06:12	06:42	19:12-19:18/6	07:12	06:44	07:20	07:44
	17:31	18:08	18:39	20:11	20:41	20:57	20:46	20:07	19:16	17:30	16:59	17:01	
26	07:39	07:03	06:18	06:30	05:58	05:53	06:13	06:43	19:12-19:17/5	07:13	06:45	07:21	07:45
	17:32	18:10	18:40	20:12	20:42	20:58	20:45	20:06	19:15	17:28	16:59	17:01	
27	07:38	07:01	06:16	06:28	05:57	05:53	06:14	06:44	07:14	06:46	07:22	07:45	
	17:33	18:11	18:41	20:13	20:43	20:58	20:44	20:04	19:13	17:27	16:58	17:02	
28	07:37	07:00	06:15	06:27	05:57	05:54	06:15	06:45	07:15	06:47	07:23	07:45	
	17:35	18:12	18:42	20:15	20:43	20:58	20:43	20:03	19:11	17:26	16:58	17:02	
29	07:36		07:13	06:25	05:56	05:54	06:16	06:46	07:16	06:48	07:24	07:46	
	17:36		19:43	20:16	20:44	20:58	20:42	20:01	19:10	17:24	16:57	17:03	
30	07:35		07:11	06:24	05:56	05:55	06:17	06:47	07:17	06:49	07:25	07:46	
	17:37		19:44	20:17	20:45	20:58	20:41	20:00	19:08	17:23	16:57	17:04	
31	07:34		07:10		05:55		06:18	06:48		06:51		07:46	
	17:38		19:45		20:46		20:40	19:58		17:22		17:05	
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289	
Sum of minutes with flicker	0	0	0	22	0	0	0	22	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#| hub: 30,0 m (TOT: 37,5 m) (80)
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	07:46 17:06	07:33 17:40	06:58 18:13	07:08 19:46	06:23 20:18	05:54 20:47	05:55 20:57	06:19 20:39	06:49 19:56	07:18 19:06	06:52 17:20	07:26 16:57
2	07:47 17:07	07:32 17:41	06:57 18:14	07:06 19:47	06:22 20:19	05:54 20:47	05:56 20:57	06:20 20:38	06:50 19:55	07:19 19:05	06:53 17:19	07:27 16:56
3	07:47 17:07	07:32 17:42	06:55 18:15	07:05 19:48	06:20 20:20	05:54 20:48	05:56 20:57	06:21 20:37	06:51 19:53	07:20 19:03	06:54 17:18	07:28 16:56
4	07:47 17:08	07:30 17:43	06:53 18:16	07:03 19:50	06:19 20:21	05:53 20:49	05:57 20:57	06:21 20:36	06:52 19:52	07:21 19:01	06:55 17:17	07:29 16:56
5	07:47 17:09	07:29 17:44	06:52 18:18	07:01 19:51	06:18 20:22	05:53 20:49	05:57 20:57	06:22 20:34	06:53 19:50	07:22 19:00	06:56 17:16	07:30 16:56
6	07:47 17:10	07:28 17:46	06:50 18:19	07:00 19:52	06:17 20:23	05:53 20:50	05:58 20:57	06:23 20:33	06:54 19:48	07:23 18:58	06:58 17:15	07:31 16:56
7	07:47 17:11	07:27 17:47	06:49 18:20	06:58 19:53	06:15 20:24	05:52 20:51	05:58 20:56	06:24 20:32	06:55 19:47	07:24 18:57	06:59 17:14	07:32 16:56
8	07:47 17:12	07:26 17:48	06:47 18:21	06:57 19:54	06:14 20:25	05:52 20:51	05:59 20:56	06:25 20:31	06:56 19:45	07:25 18:55	07:00 17:12	07:33 16:55
9	07:46 17:13	07:25 17:49	06:46 18:22	06:55 19:55	06:13 20:26	05:52 20:52	06:00 20:56	06:26 20:30	06:57 19:43	07:26 18:53	07:01 17:11	07:34 16:55
10	07:46 17:14	07:24 17:51	06:44 18:23	06:53 19:56	06:12 20:27	05:52 20:52	06:00 20:55	06:27 20:28	06:58 19:42	07:27 18:52	07:02 17:10	07:35 16:56
11	07:46 17:15	07:23 17:52	06:42 18:24	06:52 19:57	06:11 20:28	05:52 20:53	06:01 20:55	06:28 20:27	06:58 19:40	07:28 18:50	07:03 17:09	07:35 16:56
12	07:46 17:16	07:22 17:53	06:41 18:25	06:50 19:58	06:10 20:29	05:51 20:53	06:02 20:54	06:29 20:26	06:59 19:38	07:29 18:49	07:05 17:08	07:36 16:56
13	07:45 17:17	07:20 17:54	06:39 18:26	06:49 19:59	06:09 20:30	05:51 20:54	06:02 20:54	06:30 20:24	07:00 19:37	07:31 18:47	07:06 17:08	07:37 16:56
14	07:45 17:18	07:19 17:55	06:38 18:27	06:47 20:00	06:08 20:31	05:51 20:54	06:03 20:53	06:31 20:23	07:01 19:35	07:32 18:46	07:07 17:07	07:38 16:56
15	07:45 17:19	07:18 17:57	06:36 18:28	06:46 20:01	06:07 20:32	05:51 20:55	06:04 20:53	06:32 20:22	07:02 19:33	07:33 18:44	07:08 17:06	07:39 16:56
16	07:44 17:20	07:16 17:58	06:34 18:30	06:44 20:02	06:06 20:33	05:51 20:55	06:05 20:52	06:33 20:20	07:03 19:32	07:34 18:43	07:09 17:05	07:39 16:57
17	07:44 17:22	07:15 17:59	06:33 18:31	06:43 20:03	06:05 20:34	05:51 20:56	06:05 20:52	06:34 20:19	07:04 19:30	07:35 18:41	07:10 17:04	07:40 16:57
18	07:44 17:23	07:14 18:00	06:31 18:32	06:41 20:04	06:04 20:35	05:51 20:56	06:06 20:51	06:35 20:18	07:05 19:28	07:36 18:40	07:12 17:03	07:41 16:57
19	07:43 17:24	07:12 18:01	06:29 18:33	06:40 20:05	06:03 20:36	05:51 20:56	06:07 20:50	06:36 20:16	07:06 19:27	07:37 18:38	07:13 17:03	07:41 16:58
20	07:42 17:25	07:11 18:03	06:28 18:34	06:38 20:06	06:02 20:36	05:52 20:57	06:08 20:50	06:37 20:15	07:07 19:25	07:38 18:37	07:14 17:02	07:42 16:58
21	07:42 17:26	07:10 18:04	06:26 18:35	06:37 20:07	06:02 20:37	05:52 20:57	06:09 20:49	06:38 20:13	07:08 19:23	07:39 18:35	07:15 17:01	07:42 16:58
22	07:41 17:27	07:08 18:05	06:24 18:36	06:35 20:08	06:01 20:38	05:52 20:57	06:10 20:48	06:39 20:12	07:09 19:21	07:40 18:34	07:16 17:01	07:43 16:59
23	07:41 17:29	07:07 18:06	06:23 18:37	06:34 20:09	06:00 20:39	05:52 20:57	06:10 20:47	06:40 20:10	07:10 19:20	07:41 18:32	07:17 17:00	07:43 16:59
24	07:40 17:30	07:05 18:07	06:21 18:38	06:32 20:10	06:32 20:40	05:52 20:57	06:11 20:46	06:41 20:09	07:11 19:18	07:43 18:31	07:18 17:00	07:44 17:00
25	07:39 17:31	07:04 18:08	06:20 18:39	06:31 20:11	06:31 20:41	05:53 20:57	06:12 20:46	06:42 20:09	07:12 19:16	07:44 17:30	07:20 16:59	07:44 17:00
26	07:39 17:32	07:03 18:10	06:18 18:40	06:30 20:12	06:30 20:42	05:53 20:58	06:13 20:45	06:43 20:06	07:13 19:15	07:45 17:28	07:21 16:58	07:45 17:01
27	07:38 17:33	07:01 18:11	06:16 18:41	06:28 20:13	06:28 20:43	05:53 20:58	06:14 20:44	06:44 20:04	07:14 19:13	07:46 17:27	07:22 16:58	07:45 17:02
28	07:37 17:35	07:00 18:12	06:15 18:42	06:27 20:14	06:27 20:43	05:54 20:58	06:15 20:43	06:45 20:03	07:15 19:11	07:47 17:25	07:23 16:58	07:45 17:02
29	07:36 17:36		07:13 19:43	06:25 20:16	06:25 20:44	05:54 20:58	06:16 20:42	06:46 20:01	07:16 19:10	07:48 17:24	07:24 16:57	07:46 17:03
30	07:35 17:37		07:11 19:44	06:24 20:17	06:24 20:45	05:55 20:58	06:17 20:41	06:47 20:00	07:17 19:08	07:49 17:23	07:25 16:57	07:46 17:04
31	07:34 17:38		07:10 19:45		06:24 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	458	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	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

SHADOW - Calendar per WTG

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali|WTG: Minieolico - KROGMANN 50 15.0 !#| hub: 30,0 m (TOT: 37,5 m) (84)
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	07:47 17:06	07:34 17:40	06:58 18:13	07:08 19:47	06:23 20:18	05:55 20:47	05:56 20:58	06:19 20:39	06:49 19:57	07:19 19:07	06:52 17:21	07:26 16:57
2	07:47 17:07	07:33 17:41	06:57 18:15	07:07 19:48	06:22 20:19	05:55 20:48	05:56 20:58	06:20 20:38	06:50 19:55	07:20 19:05	06:53 17:20	07:27 16:57
3	07:47 17:08	07:32 17:42	06:55 18:16	07:05 19:49	06:21 20:20	05:54 20:48	05:57 20:57	06:21 20:37	06:51 19:53	07:21 19:04	06:54 17:19	07:28 16:57
4	07:47 17:09	07:31 17:44	06:54 18:17	07:04 19:50	06:20 20:21	05:54 20:49	05:57 20:57	06:22 20:36	06:52 19:52	07:22 19:02	06:56 17:17	07:29 16:56
5	07:47 17:10	07:30 17:45	06:52 18:18	07:02 19:51	06:18 20:22	05:53 20:50	05:58 20:57	06:23 20:35	06:53 19:50	07:23 19:00	06:57 17:16	07:30 16:56
6	07:47 17:11	07:29 17:46	06:51 18:19	07:00 19:52	06:17 20:23	05:53 20:50	05:58 20:57	06:24 20:34	06:54 19:49	07:24 18:59	06:58 17:15	07:31 16:56
7	07:47 17:12	07:28 17:47	06:49 18:20	06:59 19:53	06:16 20:24	05:53 20:51	05:59 20:57	06:25 20:32	06:55 19:47	07:25 18:57	06:59 17:14	07:32 16:56
8	07:47 17:13	07:27 17:49	06:48 18:21	06:57 19:54	06:15 20:25	05:53 20:52	06:00 20:56	06:26 20:31	06:56 19:45	07:26 18:55	07:00 17:13	07:33 16:56
9	07:47 17:14	07:25 17:50	06:46 18:22	06:55 19:55	06:14 20:26	05:52 20:52	06:00 20:56	06:27 20:30	06:57 19:44	07:27 18:54	07:01 17:12	07:34 16:56
10	07:46 17:15	07:24 17:51	06:44 18:23	06:54 19:56	06:13 20:27	05:52 20:53	06:01 20:55	06:28 20:29	06:58 19:42	07:28 18:52	07:03 17:11	07:35 16:56
11	07:46 17:16	07:23 17:52	06:43 18:25	06:52 19:57	06:11 20:28	05:52 20:53	06:01 20:55	06:29 20:27	06:59 19:40	07:29 18:51	07:04 17:10	07:36 16:56
12	07:46 17:17	07:22 17:53	06:41 18:26	06:51 19:58	06:10 20:29	05:52 20:54	06:02 20:55	06:30 20:26	07:00 19:39	07:30 18:49	07:05 17:09	07:37 16:56
13	07:46 17:18	07:21 17:55	06:40 18:27	06:49 19:59	06:09 20:30	05:52 20:54	06:03 20:54	06:31 20:25	07:01 19:37	07:31 18:48	07:06 17:08	07:37 16:56
14	07:45 17:19	07:19 17:56	06:38 18:28	06:48 20:00	06:08 20:31	05:52 20:55	06:04 20:54	06:32 20:23	07:02 19:35	07:32 18:46	07:07 17:07	07:38 16:57
15	07:45 17:20	07:18 17:57	06:36 18:29	06:46 20:01	06:07 20:32	05:52 20:55	06:04 20:53	06:33 20:22	07:03 19:34	07:33 18:44	07:08 17:06	07:39 16:57
16	07:45 17:21	07:17 17:58	06:35 18:30	06:45 20:02	06:06 20:33	05:52 20:55	06:05 20:52	06:34 20:21	07:04 19:32	07:34 18:43	07:10 17:05	07:40 16:57
17	07:44 17:22	07:15 17:59	06:33 18:31	06:43 20:03	06:05 20:34	05:52 20:56	06:06 20:52	06:35 20:19	07:05 19:30	07:35 18:41	07:11 17:05	07:40 16:57
18	07:44 17:23	07:14 18:01	06:31 18:32	06:42 20:04	06:05 20:35	05:52 20:56	06:07 20:51	06:36 20:18	07:06 19:29	07:36 18:40	07:12 17:04	07:41 16:58
19	07:43 17:24	07:13 18:02	06:30 18:33	06:40 20:05	06:04 20:36	05:52 20:56	06:08 20:51	06:37 20:16	07:07 19:27	07:37 18:38	07:13 17:03	07:41 16:58
20	07:43 17:26	07:11 18:03	06:28 18:34	06:39 20:07	06:03 20:37	05:52 20:57	06:08 20:50	06:38 20:15	07:08 19:25	07:38 18:37	07:14 17:02	07:42 16:58
21	07:42 17:27	07:10 18:04	06:27 18:35	06:37 20:08	06:02 20:38	05:52 20:57	06:09 20:49	06:39 20:14	07:09 19:24	07:40 18:36	07:15 17:02	07:43 16:59
22	07:42 17:28	07:09 18:05	06:25 18:36	06:36 20:09	06:01 20:39	05:53 20:57	06:10 20:48	06:39 20:12	07:10 19:22	07:41 18:34	07:16 17:01	07:43 16:59
23	07:41 17:29	07:07 18:07	06:23 18:37	06:34 20:10	06:00 20:39	05:53 20:57	06:11 20:48	06:40 20:11	07:11 19:20	07:42 18:33	07:18 17:01	07:44 17:00
24	07:40 17:30	07:06 18:08	06:22 18:38	06:33 20:11	06:00 20:40	05:53 20:58	06:12 20:47	06:41 20:09	07:12 19:19	07:43 18:31	07:19 17:00	07:44 17:00
25	07:40 17:31	07:04 18:09	06:20 18:39	06:31 20:12	05:59 20:41	05:53 20:58	06:13 20:46	06:42 20:08	07:13 19:17	06:44 17:30	07:20 16:59	07:45 17:01
26	07:39 17:33	07:03 18:10	06:18 18:41	06:30 20:13	05:58 20:42	05:54 20:58	06:14 20:45	06:43 20:06	07:14 19:15	06:45 17:29	07:21 16:59	07:45 17:02
27	07:38 17:34	07:01 18:11	06:17 18:42	06:29 20:14	05:58 20:43	05:54 20:58	06:14 20:44	06:44 20:05	07:15 19:13	06:46 17:27	07:22 16:59	07:45 17:02
28	07:37 17:35	07:00 18:12	06:15 18:43	06:27 20:15	05:57 20:44	05:54 20:58	06:15 20:43	06:45 20:03	07:16 19:12	06:47 17:26	07:23 16:58	07:46 17:03
29	07:36 17:36		07:13 19:44	06:26 20:16	05:57 20:45	05:55 20:58	06:16 20:42	06:46 20:01	07:17 19:10	06:49 17:25	07:24 16:58	07:46 17:04
30	07:36 17:38		07:12 19:45	06:25 20:17	05:56 20:45	05:55 20:58	06:17 20:41	06:47 20:00	07:18 19:09	06:50 17:23	07:25 16:57	07:46 17:04
31	07:35 17:39		07:10 19:46		05:56 20:46		06:18 20:40	06:48 19:58		06:51 17:22		07:46 17:05
Potential sun hours	299	298	370	398	447	451	457	427	375	346	299	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

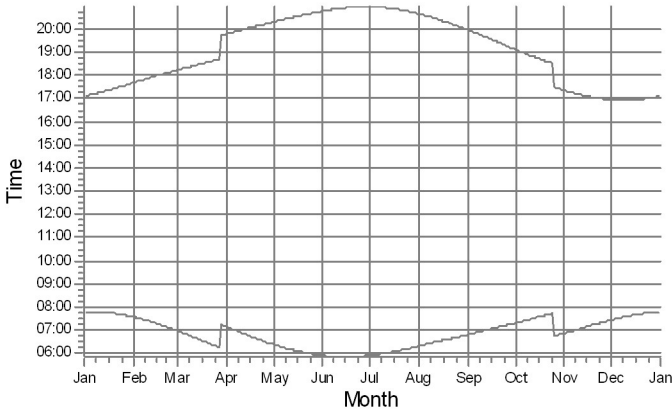
Table layout: For each day in each month the following matrix apply

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

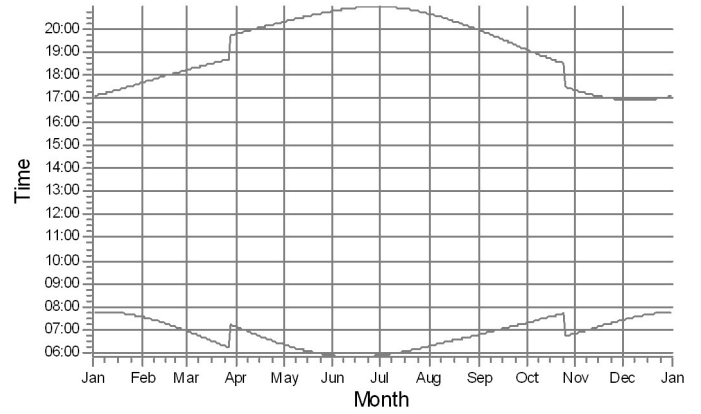
SHADOW - Calendar per WTG, graphical

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali

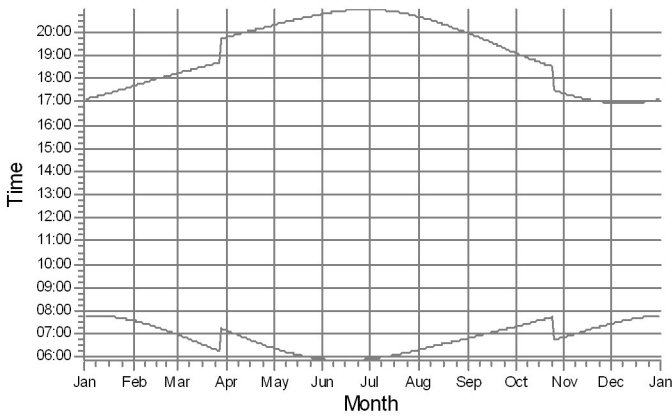
AG01: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



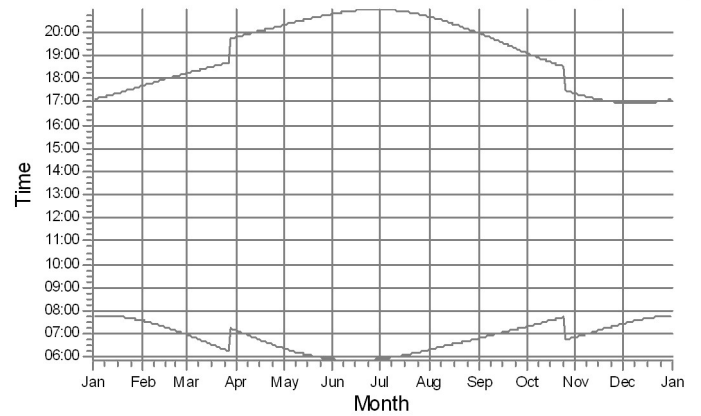
AG014: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



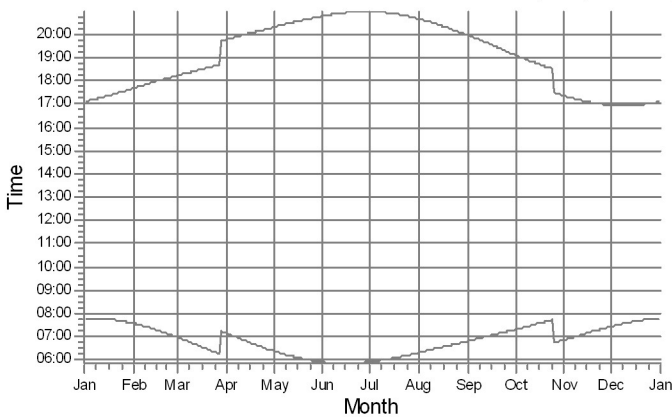
AG015: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



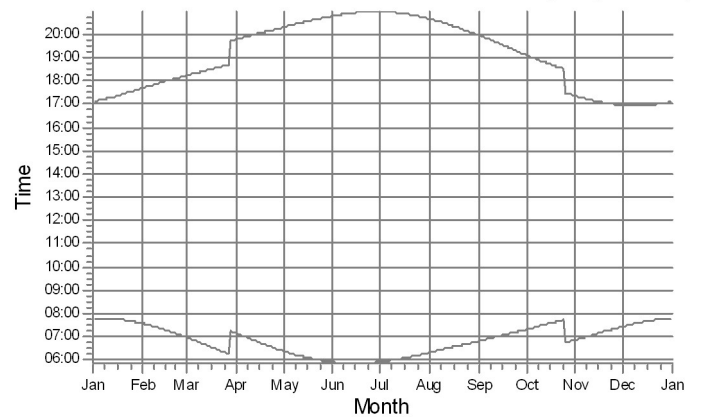
AG02: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



AG03: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



AG04: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,

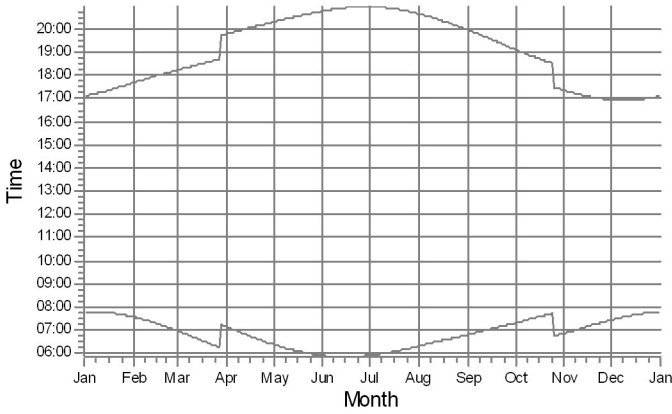


Shadow receptors

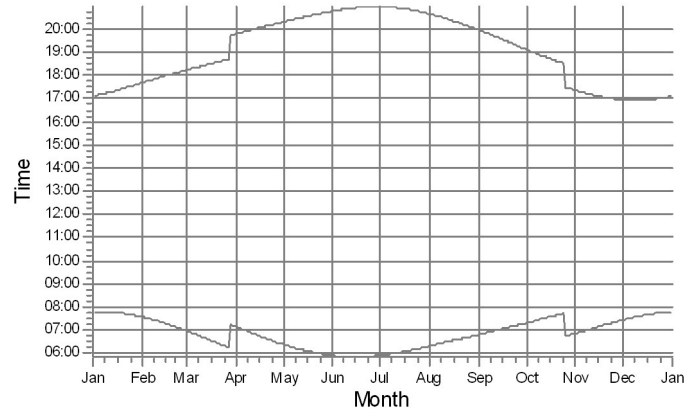
SHADOW - Calendar per WTG, graphical

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali

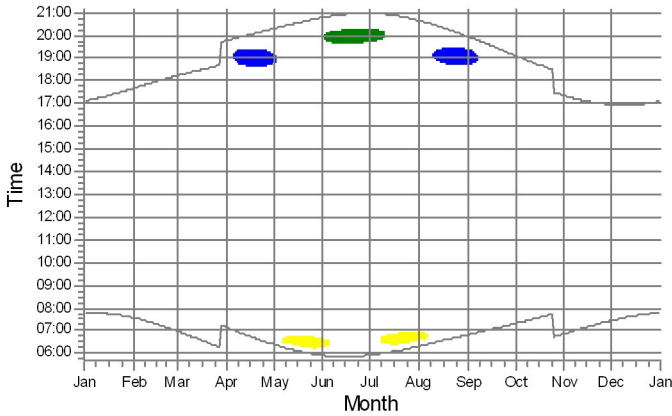
AG05: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



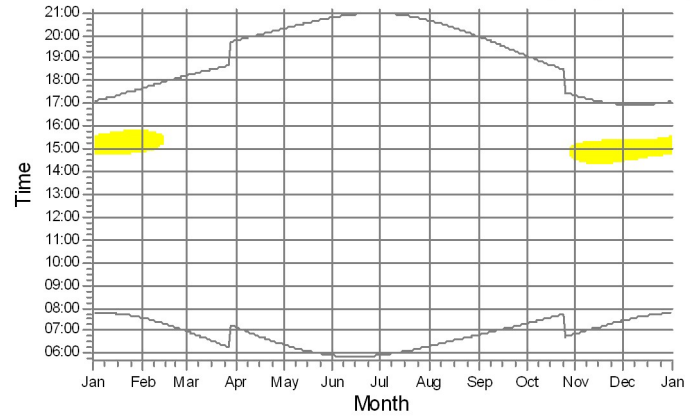
AG06: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



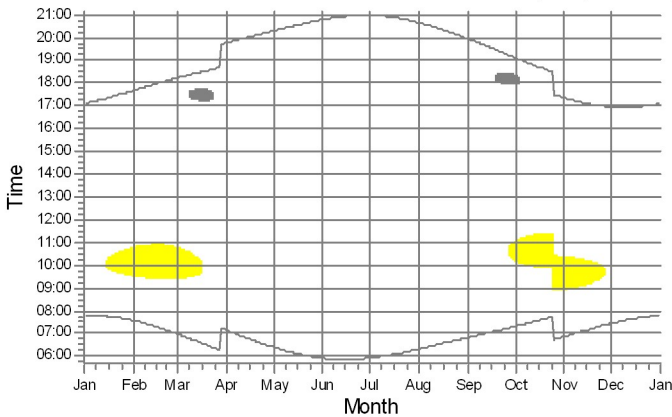
AG07: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



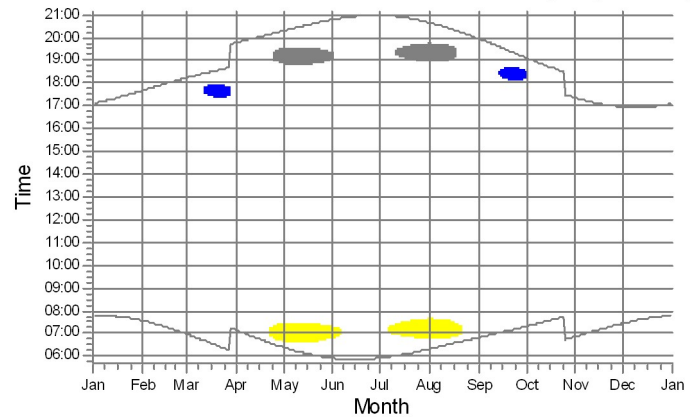
AG08: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



AG09: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



AG10: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



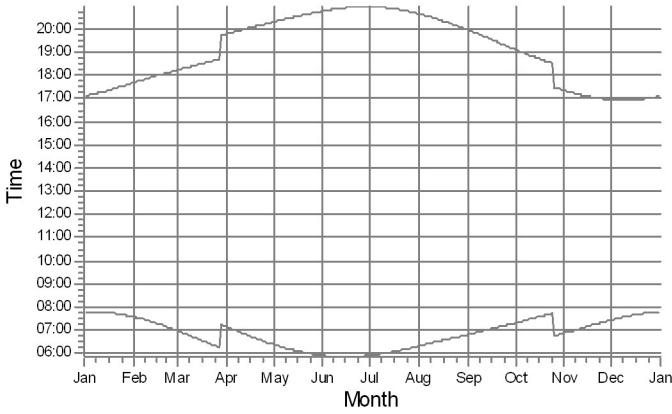
Shadow receptors

- AREA FUNERARIA PRANU 'E CHEDDAI: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (230)
- FONTANILE: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (228)
- INSEDIAMENTO ROMANO PRANU 'E CHEDDAI: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (231)
- NURAGHE CHEDDAI: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (229)

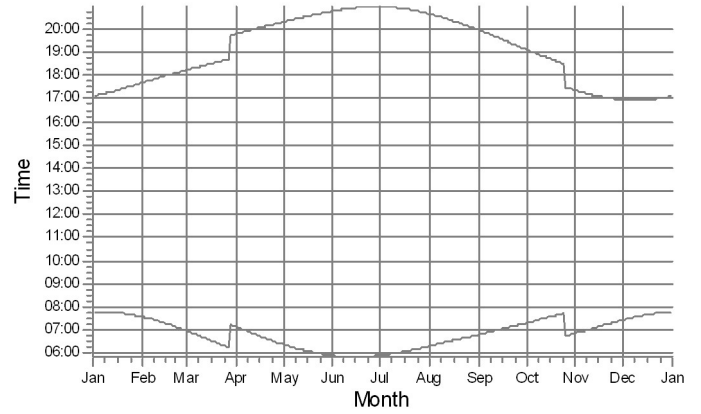
SHADOW - Calendar per WTG, graphical

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali

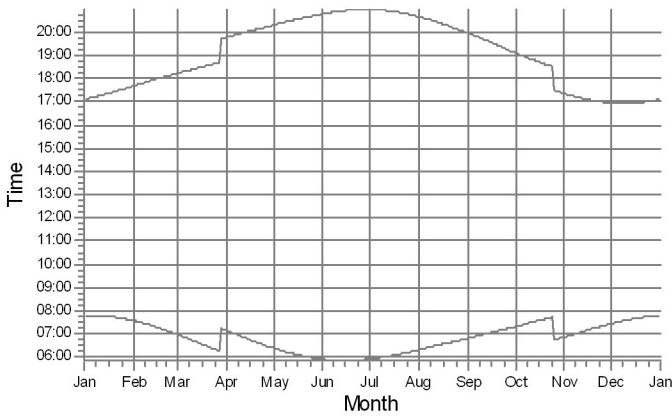
AG11: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



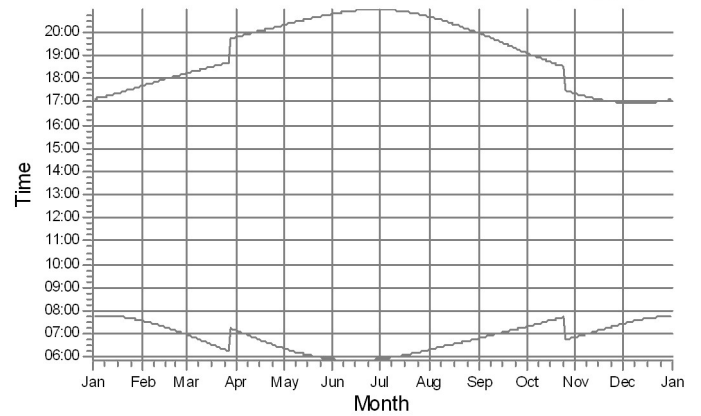
AG12: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



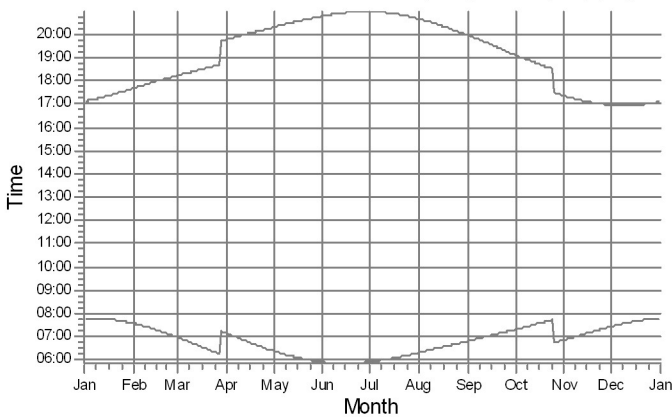
AG13: GE WIND ENERGY 4.2-158 4200 158.0 !O! hub: 149,0 m (TOT: 228,



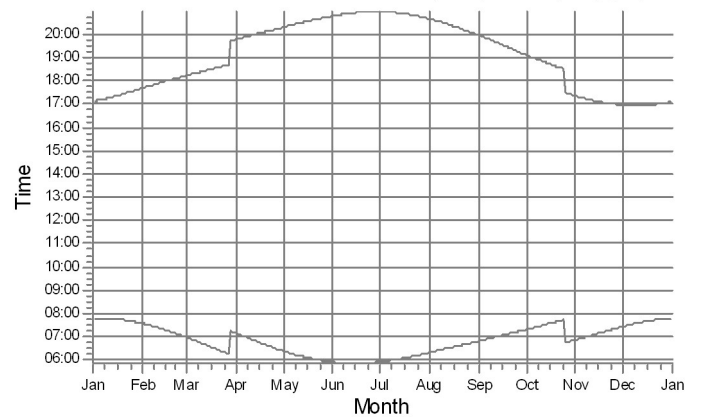
Minieolico: KROGMANN 50 15.0 #! hub: 30,0 m (TOT: 37,5 m) (62)



Minieolico: KROGMANN 50 15.0 #! hub: 30,0 m (TOT: 37,5 m) (63)



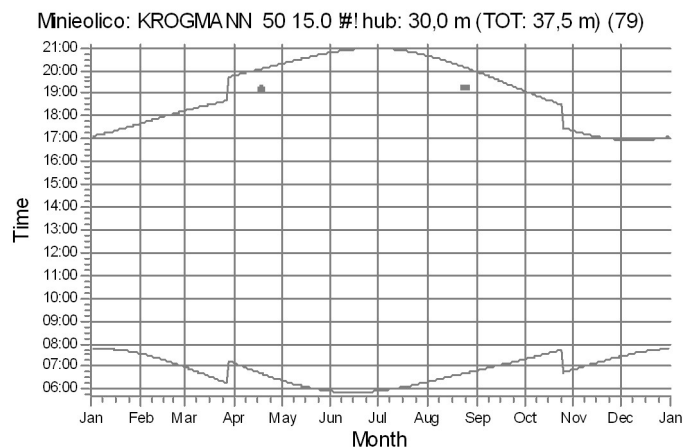
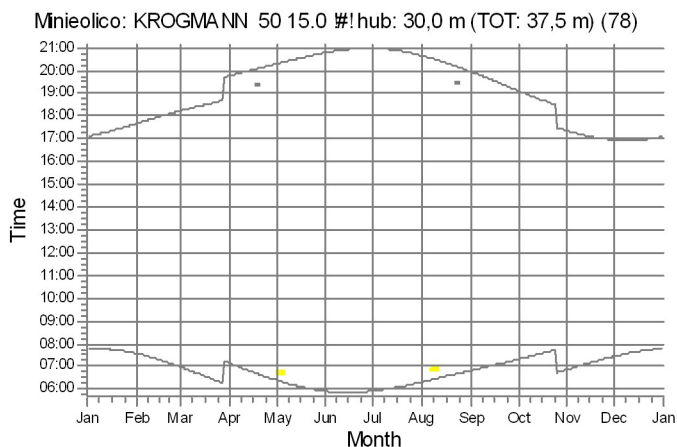
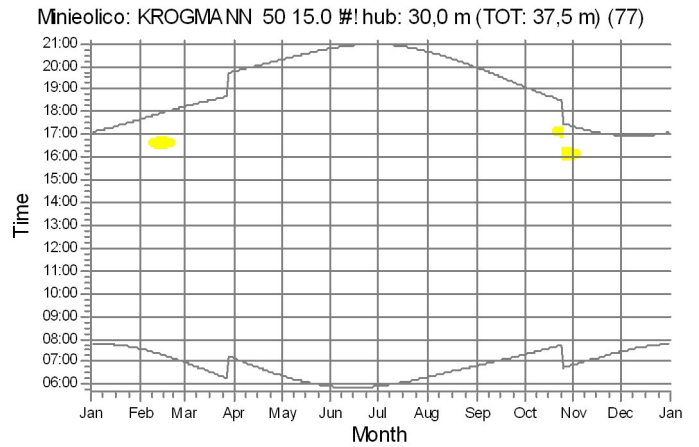
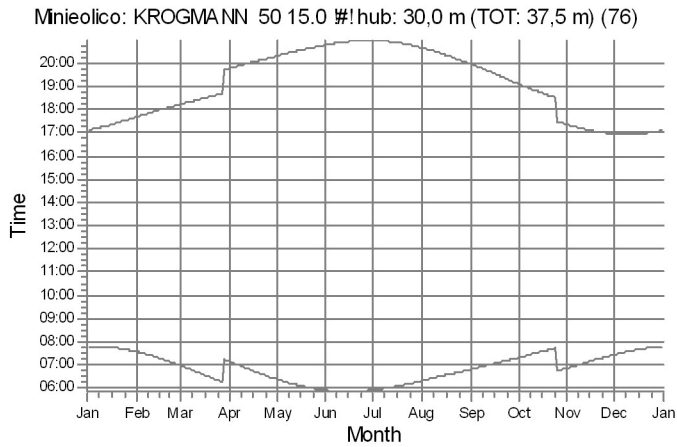
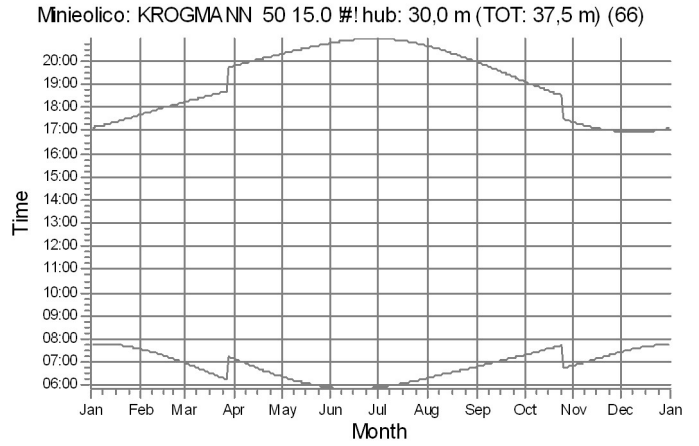
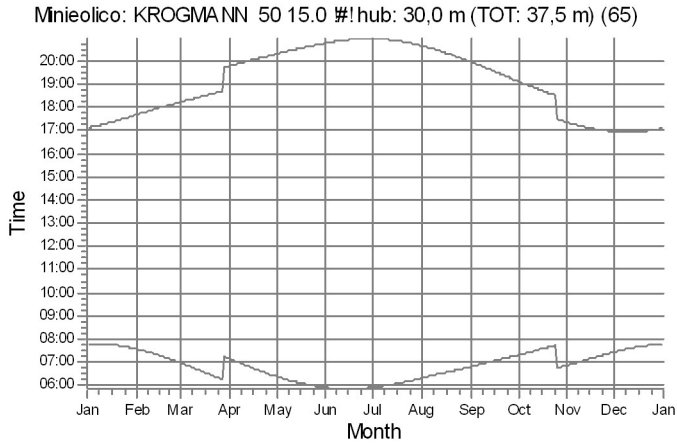
Minieolico: KROGMANN 50 15.0 #! hub: 30,0 m (TOT: 37,5 m) (64)



Shadow receptors

SHADOW - Calendar per WTG, graphical

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali

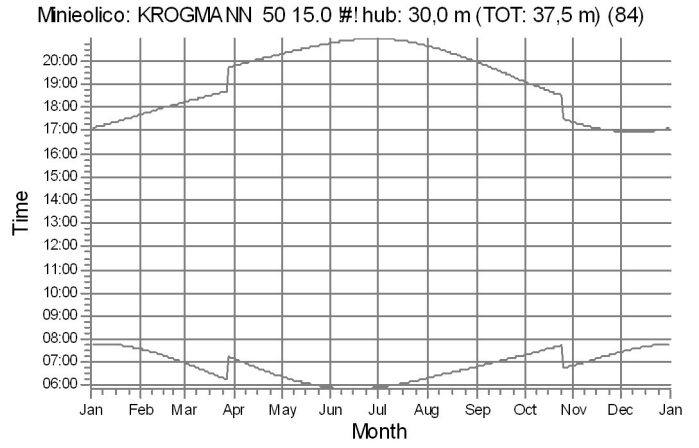
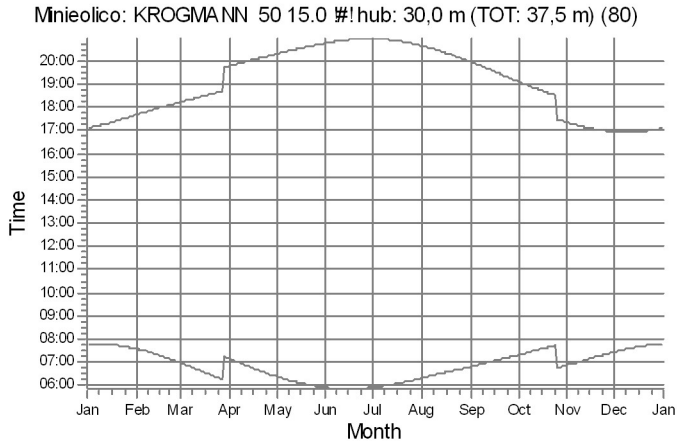


Shadow receptors

- FONTANILE: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (228)
- NURAGHE CHEDDAI: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (229)

SHADOW - Calendar per WTG, graphical

Calculation: Shadow_2021_10_08_Cumulativo_Beni culturali



Shadow receptors