

**TAVOLA 3**

**SEZIONI DI SISMICA A RIFRAZIONE**

Licence = Alberto Pagano, Ph. Dr., Environmental & Hydrogeological Geophysics +

SIPIT2 V-3.1 --- SEISMIC REFRACTION INTERPRETATION PROGRAM --- RIMROCK GEOPHYSICS, INC.

DATA FILE: lar.sip PRINT FILE: lar

TITLE: lar Title

PROBLEM CONTROL DATA

Spdts	Exit	Layers	V-Over	Elev	Printer	Plot	Scales	Datum	Over ride	Value s	Special	Control	Parameters	
				m/col	Elev	Horiz	Time	Point 1	Point 2	Equation			Trace off L	
						m/row	ms/col	X-Loc	Elev	Slope	Intcpt	BLim	Tlim	Print
1	6	2	0	.0	.0	.0	.0	.0	.0	.0	.0000	.0	.50	10.0

#### SHOTPOINT AND GEOPHONE INPUT DATA

Spread A, 5 shotpoints, 12 Geophones, X-Shift = 0, Y-Shift = 0, X-True = 0

SP	Elev	X-Loc	Y-Loc	Depth	Uphole	T	Fudge T	End SP
A	1.5	-5.0	.0	.0	.0	.0	.0	1
C	1.0	15.5	.0	.0	.0	.0	.0	0
D	4.6	21.3	.0	.0	.0	.0	.0	0
E	1.6	32.1	.0	.0	.0	.0	.0	2
B	.0	56.1	.0	.0	.0	.0	.0	

#### Geo, Arrival Times + Fudge T and Layers represented

Geo	Elev	X-Loc	Y-Loc	SP A	SP C	SP D	SP E	SP B	
1	1.5	0	.0	18.0	1	38.0	1	76.0	1
2	2.0	5.0	.0	29.0	1	60.0	1	136.0	1
3	3.0	10.0	.0	42.0	1	41.0	1	120.0	1
4	3.0	14.5	.0	53.0	1	26.0	1	106.0	1
5	4.6	18.3	.0	58.0	1	38.0	1	90.0	1
6	4.6	24.3	.0	39.0	1	22.0	1	84.0	1
7	2.5	28.1	.0	88.0	1	64.0	1	18.0	1
8	.8	33.1	.0	93.0	1	66.0	1	38.0	1
9	.8	38.1	.0	104.0	1	93.0	1	63.0	1
10	.0	43.1	.0	147.0	1	115.0	1	82.0	1
11	.0	48.1	.0	162.0	1	116.0	1	105.0	1
12	.0	53.1	.0	183.0	1	116.0	1	114.0	1

#### Layer 1 Velocity v for direct rays and direct distances DD

Layer A	Sp Geo	DD	V	Avg V
A	1	5.0	278.	
A	2	10.0	344.	
A	3	15.0	357.	
A	4	19.4	366.	
A	5	23.0	397.	
A	6	29.0	349.	
A	7	32.0	364.	
A	8	36.7	394.	
A	9	41.7	401.	
A	10	46.6	311.	
A	11	51.6	319.	
A	12	56.6	309.	

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TAVOLA 3. SEZIONE DI SISMICA. SEZ. 2 ARG

D 5	3.0	136.
D 6	3.0	67.
D 7	6.5	121.
D 8	11.5	183.
D 9	16.3	199.
D 10	21.3	282.
D 11	26.2	290.
D 12	31.1	308.
E 1	30.7	326.
E 2	25.8	315.
E 3	20.8	296.
E 4	16.4	283.
E 5	13.3	258.
E 6	7.6	84.
E 7	3.9	129.
E 8	1.2	103.
E 9	6.0	200.
E 10	11.0	279.
E 11	16.0	228.
E 12	20.9	302.
B 3	44.7	310.
B 4	40.4	299.
B 5	37.1	293.
B 6	31.1	297.
B 7	27.8	251.
B 8	22.9	194.
B 9	18.0	183.
B 10	13.0	188.
B 11	8.0	177.
B 12	3.0	166.

Wd Avg Velocity computed for Layer 1 = 324.

Arrival times T and distances X corrected to datum. (Datum Elev = 3.2 + -0.0556X)

Spread A	Elev . . . .	SP A	SP C	SP D	SP E	SP B
Geo	Corr T	.0	.0	.0	.0	.0
1	7.3	18.0	0	76.0	136.0	232.3
2	4.1	29.0	5.0	4.9	120.0	226.1
3	2.9	42.0	10.0	9.9	10.0	213.0
4	-2.4	53.0	14.4	13.1	38.0	9.9
5	-10.0	58.0	18.0	19.7	22.0	14.3
6	-11.4	88.0	24.0	39.0	14.2	176.0
7	-1.7	88.0	27.0	64.0	90.0	17.5
8	1.5	93.0	31.7	66.0	84.0	166.0
9	1.7	104.0	41.6	93.0	80.0	23.5
10	3.9	147.0	46.6	116.0	105.0	32.0
11	2.7	162.0	51.6	158.0	114.0	26.9
12	1.6	183.0	51.6	158.0	143.0	31.7

Layer 2 Velocity v and Intercept time Ti computed by regression:

Spread A	V	Ti	Geos	SP	Geos	Ti	V	Avg V	Avg Ti	Pts
788. 163.0	1 2	B	0 0	0	0	0	000.	788.	163.0	2.

Avg = 788. for 2. Pts  
Layer 2 Velocity V, Avg dTi and Eps computed by Hobson-Overton method:  
Not enough points.

TAVOLA 3. SEZIONE DI SISMICA. SEZ. 2ARG

Time-Distance Plot -- Raw data with no corrections applied.

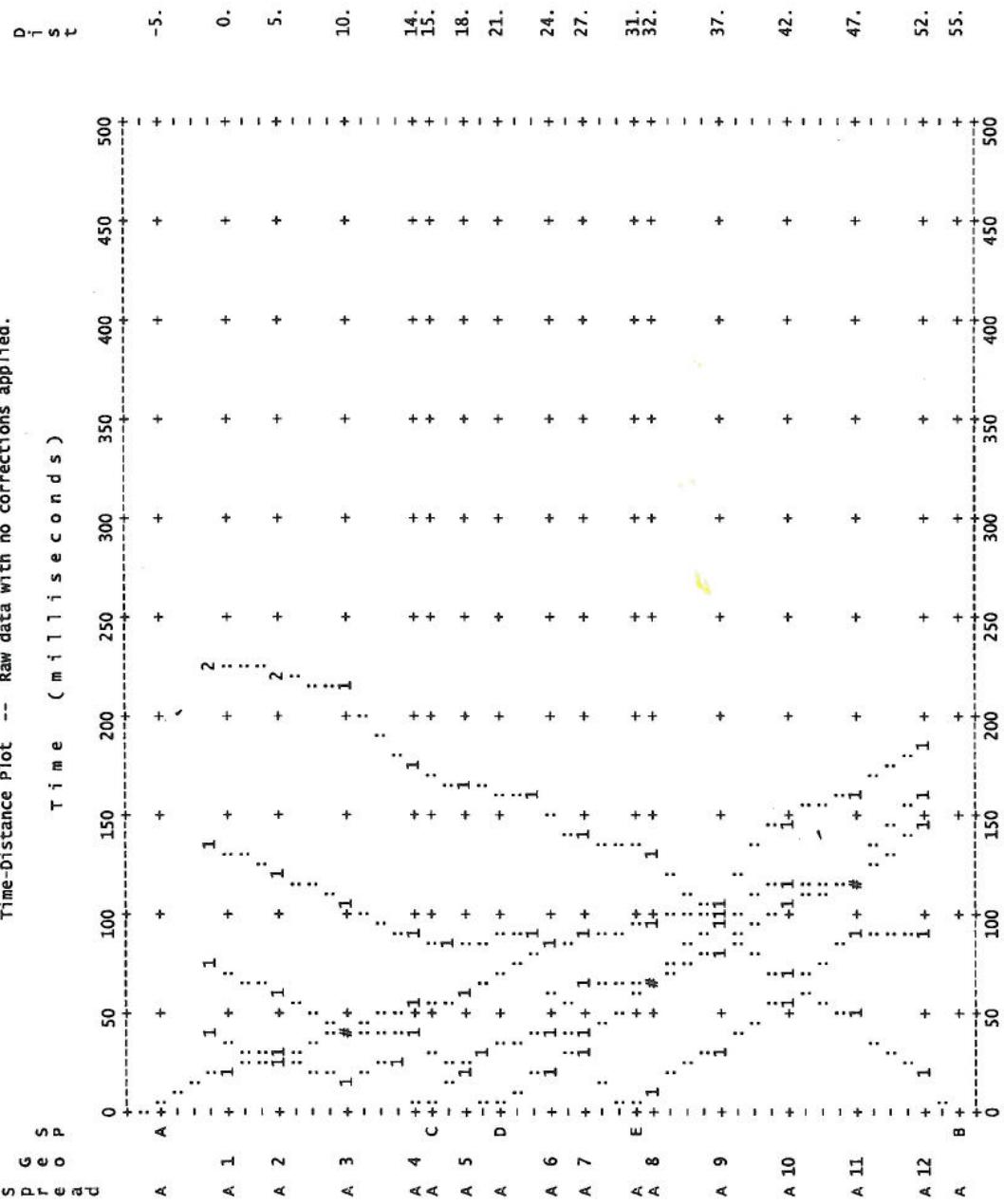


TAVOLA 3. SEZIONE DI SISMICA. SEZ. 2ARG

Wtd Avg Velocity computed for Layer 2 = 788.										
Arrival times T corrected to base of Layer 1, and Elev of base of Layer 1										
Spread A		SP A		SP C		SP D		SP E		SP B
Elev	Geo	-16.6	76.6	-17.8	79.6	-18.2	96.5	-18.9	86.7	-20.5
1	Corr T	.0	.0	.0	.0	.0	.0	.0	.0	.0
2	-16.9	78.0	.0	5.0	.0	4.9	.0	4.8	.0	60.1
3	-17.2	81.3	.0	10.0	.0	9.9	.0	9.7	.0	53.7
4	-17.4	82.3	.0	14.4	.0	13.1	.0	14.2	.0	10.0
5	-17.7	82.6	.0	18.0	.0	19.7	.0	17.8	.0	14.3
6	-18.0	82.8	.0	24.0	.0	24.5	.0	23.8	.0	17.5
7	-18.4	83.2	.0	27.0	.0	27.1	.0	27.3	.0	23.5
8	-18.6	83.4	.0	31.7	.0	31.7	.0	32.3	.0	26.9
9	-18.9	83.7	.0	36.7	.0	36.7	.0	37.1	.0	31.7
10	-19.3	84.0	.0	41.6	.0	41.6	.0	42.1	.0	36.7
11	-19.6	84.3	.0	46.6	.0	46.6	.0	47.0	.0	41.6
12	-20.0	84.6	.0	51.6	.0	51.6	.0	51.7	.0	46.6
										51.6
Spread A		Ray end points below geophones		SP C		SP D		SP E		SP B
Geo		X-Loc	Elev	.0	.1	.0	.1	.0	.1	.0
1		.0	.1	.0	.1	.0	.1	.0	.1	5.5
2		X-Loc	Elev	.0	.1	.0	.1	.0	.1	2
3		X-Loc	Elev	.0	.1	.0	.1	.0	.1	10.0
4		X-Loc	Elev	.0	.1	.0	.1	.0	.1	17.4
5		X-Loc	Elev	.0	.1	.0	.1	.0	.1	0.1
6		X-Loc	Elev	.0	.1	.0	.1	.0	.1	0.1
7		X-Loc	Elev	.0	.1	.0	.1	.0	.1	0.1
8		X-Loc	Elev	.0	.1	.0	.1	.0	.1	0.1
9		X-Loc	Elev	.0	.1	.0	.1	.0	.1	0.1
10		X-Loc	Elev	.0	.1	.0	.1	.0	.1	0.1
11		X-Loc	Elev	.0	.1	.0	.1	.0	.1	0.1
12		X-Loc	Elev	.0	.1	.0	.1	.0	.1	0.1
Spread A		Ray end points below shotpoints								
L=2	Right	X-Loc	Elev	-7.4	.0	.0	.0	.0	.0	.0
L=2	Left	Pos	Elev	-16.9	.0	.0	.0	.0	.0	46.8

TAVOLA 3. SEZIONE DI SISMICA. SEZ. 2ARG

Spread A		Depth and Elev of layers directly beneath SPS and Geos				
SP	X-Loc	Surface Elev	Layer 1 Depth	Layer 1 Elev	Layer 2 Depth	Layer 2 Elev
A	-5.0	1.5		18.1		-16.6
C	15.3	1.0		18.8		-17.8
D	20.8	4.6		22.8		-18.2
E	30.7	1.6		20.5		-18.9
B	54.6	.0		20.5		-20.5
Geo						
1	0	1.5	18.4	-16.9		
2	5.0	2.0	19.2	-17.2		
3	10.0	2.0	19.4	-17.4		
4	14.4	3.0	20.7	-17.7		
5	17.8	4.6	18.6	-18.0		
6	23.8	4.6	18.0	-18.4		
7	27.0	2.5	21.1	-18.1		
8	31.7	.8	19.7	-18.9		
9	36.7	.8	20.1	-19.3		
10	41.6	.0	19.6	-19.6		
11	46.6	.0	20.0	-20.0		
12	51.6	.0	20.3	-20.3		

Velocities used, spread A

Layer 1	Layer 2
Vertical	
Horizontal	

324.

788.

TAVOLA 3. SEZIONE DI SISMICA. SEZ. 2ARG

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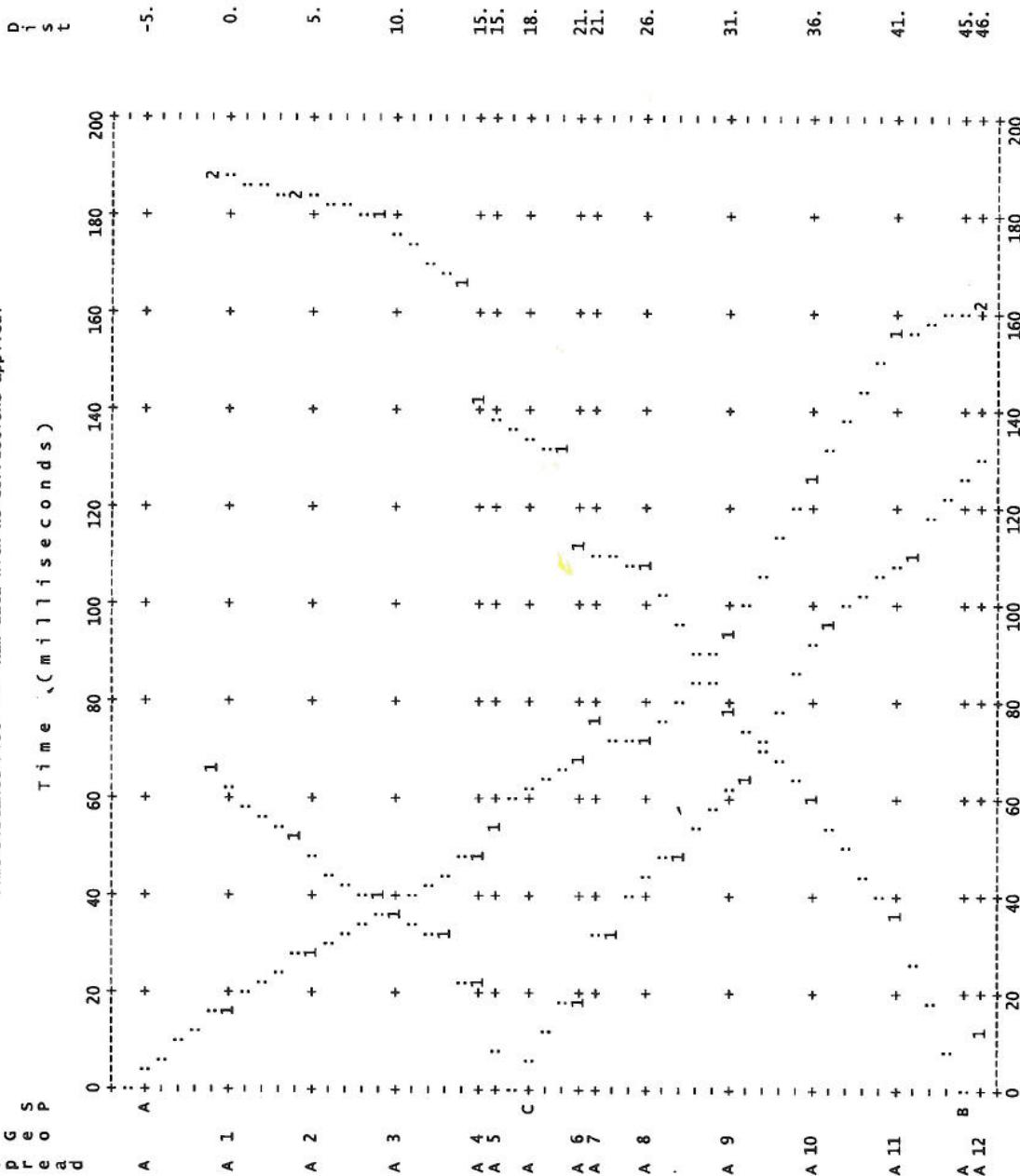


B 11 4.0 114.  
B 12 1.0 85. 296.

TAVOLA 3. SEZIONE DI SISMICA. SEZ. 2 ARG

Wrd Avg Velocity computed for Layer 1 = 330.

Time-Distance Plot -- Raw data with no corrections applied.



## PRINTER PLOT SCALES

Time: 2.00 ms/co  
Dist: 1.00 m/row

Arrival times T and distances X corrected to datum. (datum Elev = 1.6 + -0.0304x)

Spread A		SP A	SP C	SP B	
Elev . . . .	Corr T	.0	.0	.0	.0
Geo 1	1.6	4.6	16.0	65.0	-4
2	1.5	3.9	27.0	52.0	4.4
3	1.3	3.3	36.0	9.0	187.9
4	1.2	2.7	47.0	15.0	13.0
5	1.2	-13.3	54.0	15.4	15.0
6	1.0	-14.1	67.0	21.3	17.0
7	1.0	2.0	75.0	21.0	21.0
8	.8	3.4	71.0	26.0	31.0
9	.7	2.8	94.0	31.0	48.0
10	.5	2.2	126.0	36.0	64.0
11	.4	1.6	155.0	41.0	78.0
12	.2	.9	162.9	46.0	12.0

Layer 2 Velocity V and Intercept time Ti computed by regression:

Spread A		V	Ti	Geos	SP	Geos	Ti	V	Avg V	Avg Ti	Pts
10084.	151.1	1	2	B	0	0	0	000.	1084.	151.1	2.

Avg = 1084. for 2. pts

Layer 2 Velocity V, Avg dTi and Eps computed by Hobson-Oertzon method:

Not enough points.

Wtd Avg Velocity computed for Layer 2 = 1084.

Arrival times T corrected to base of Layer 1, and Elev of base of Layer 1

Spread A		SP A	SP C	SP B	
Elev . . . .	Corr T	.0	.0	.0	.0
Geo 1	-15.1	62.6	0	0	-15.6
2	-15.1	63.2	0	5.0	-16.2
3	-15.4	63.9	0	10.0	
4	-15.5	64.5	0	15.0	
5	-15.5	60.5	0	15.4	
6	-15.7	81.3	0	21.3	
7	-15.7	65.2	0	21.0	
8	-15.9	63.8	0	26.0	
9	-16.0	64.4	0	31.0	
10	-16.2	65.0	0	36.0	
11	-15.1	60.6	0	41.0	
12	-16.5	66.2	33.7	46.0	.0

Ray end points below geophones

Geo	SP A	SP C	SP B
1	X-LOC Elev	.0	.0
2	X-LOC	.0	.2

TAVOLA 3. SEZIONE DI SISMICA. SEZ. 2 ARG

	Elev	.0	.0	-10.3 ?
3	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
4	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
5	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
6	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
7	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
8	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
9	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
10	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
11	X-Loc Elev	.0 .1 .0	.0 .1 .0	.0 .1 .0
12	X-Loc Elev	41.6 2 -15.1	.0 .1 .0	.0 .1 .0

## Spread A Ray end points below shotpoints

L=2	Right	X-Loc Elev	-4.9 -8.9	.0 .0	.0 .0
L=2	Left	Pos Elev	.0 .0	.0 .0	40.6 -15.1 ?

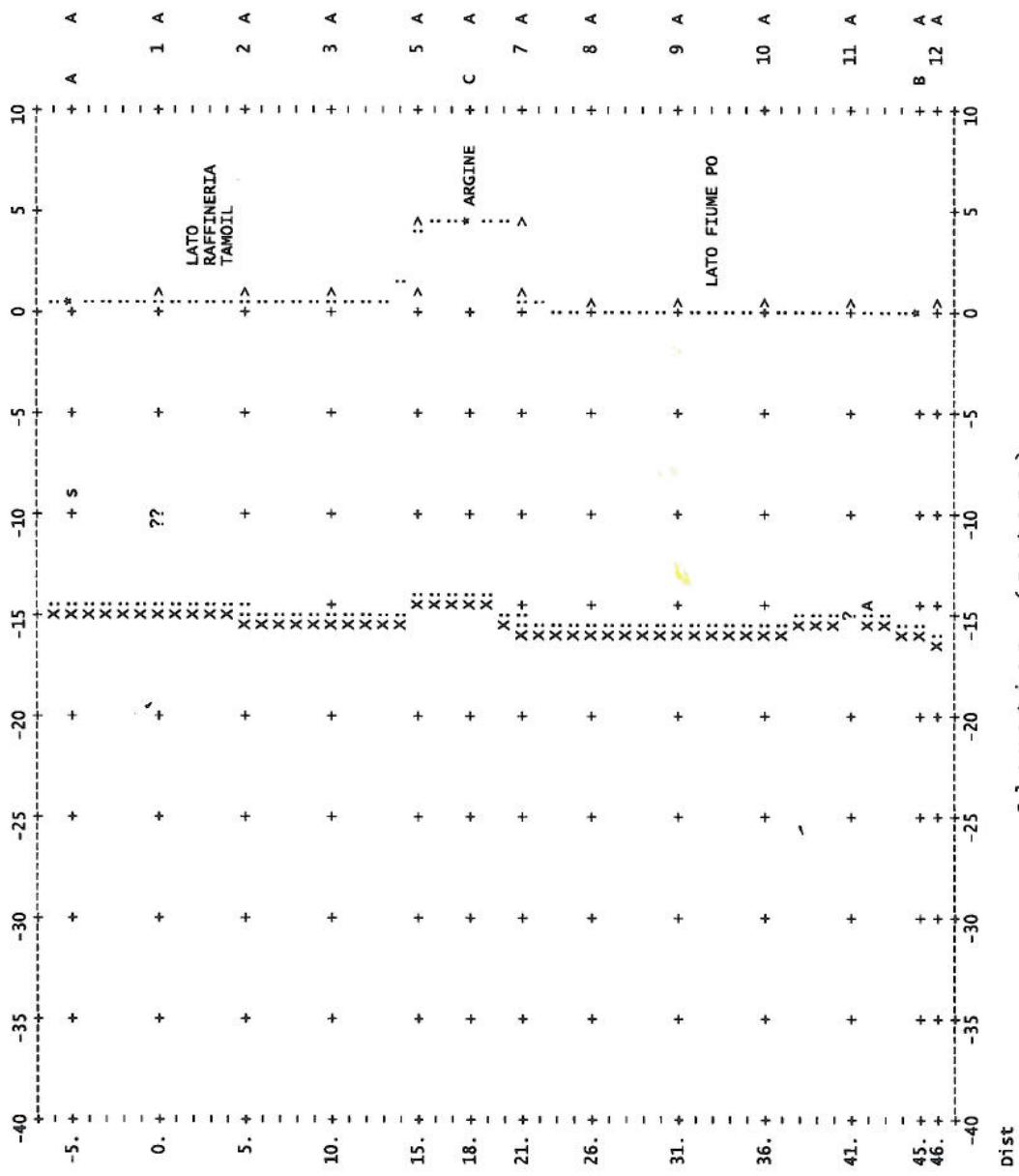
## Spread A Depth and Elev of layers directly beneath Sps and Geos

SP	X-Loc	Surface Elev	Layer 2	
			Depth	Elev
A	-5.0	.5	15.4	-14.9
C	18.0	4.5	20.1	-15.6
B	44.9	.0	16.2	-16.2
Geo				
1	0	.5	15.6	-15.1
2	5.0	.5	15.7	-15.2
3	10.0	.5	15.9	-15.4
4	15.0	.5	16.0	-15.5
5	15.0	4.5	18.0	-15.5
6	21.0	4.5	18.2	-15.7
7	21.0	.5	16.2	-15.7
8	26.0	.0	15.9	-15.9
9	31.0	.0	16.0	-16.0
10	36.0	.0	16.2	-16.2
11	41.0	.0	15.1	-15.1
12	46.0	.0	16.5	-16.5

## Velocities used, Spread A

Vertical	Layer 1	Layer 2
Horizontal	330.	1084.

TAVOLA 3. SEZIONE DI SISMICA. SEZ. 2ARG



PRINTER PLOT SCALES

**LEGEND**

**L E G E N D**

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> Geophone Location - *	Shotpoint Location - A,B,C	Emergent Raypoint	Location
? Questionable Raypoint - s	Ray Entry Point	Beneath SP	
# More Than One Symbol to Plot Here - +	Grid Mark	- X: SUBSTRATE	