AMMINISTRAZIONE PROVINCIALE DELL'AQUILA

SETTORE VIABILITA'

Via Saragat Loc. Campo di Pile, 67100 L'Aquila

DIRIGENTE DEL SETTORE Ing. Nicolino D'Amico

COESIONE ITALIA 21-27 ABRUZZO

ACCORDO PER LA COESIONE 2021-2027

FSC Fondo per lo Sviluppo e la Coesione

Fondo di Sviluppo e Coesione 2021-2027 *Delibera CIPESS n. 15 del 23/04/2024 - Accordo per la Coesione Governo - Regione Abruzzo.* **INTERVENTI DI MESSA IN SICUREZZA E DI ADEGUAMENTO FUNZIONALE DELLE STRADE PROVINCIALI.**

CUP : F37H24000030001

I Progettisti :

BRANDI SOCIETÀ D'INGEGNERIA
(mandataria)
Ing. Roberto Brandi

INGEGNERIA GEOLOGIA AMBIENTE TECNOSOIL ENGINEERING s.r.l.
(mandante)
Geol. Eustachio Pietromartire

GEOCART PROFESSIONAL SERVICE S.R.L.
(mandante)
Geom. Nicola Mantini

LIMES SOCIETA' COOPERATIVA
(mandante)
Archeol. Hermann Borghesi

STUDIO TECNICO ING. TARABORRELLI B.
(mandante)
Ing. Taraborrelli Bellafronte Angelo

STUDIO TECNICO AGRONOMICO DOTT. NICOLA TAVANO *(mandante)*
Dott. Nicola Tavano

"ORANGES & DI CARMINE ASSOCIATI"
(mandante)
Arch. Maurizio Oranges

SGAI S.R.L. di E. Forlani & C.
(ausiliaria)
Ing. Andrea Forlani

Il Responsabile del Progetto:
Ing. Ghizzoni Angela

Approvazioni:

PROGETTO ESECUTIVO (D.Lgs. 36/2023 - All. I-7)

C - ELABORATI SPECIALISTICI

SUB-INTERVENTO 5.1 - SP17 DEL PARCO NAZIONALE DI ABRUZZO

Tavola/Allegato	*C48*	**Verifiche di stabilità globale**			
Codice commessa	*T2502*	*Data di emissione* *Novembre 2025*	*Rev* *00*	*Scala*	*Formato* *doc*
Codice elaborato	*ES48*	*Redatto* *Pietromartire L.*	*Controllato* *Pietromartire L.*	*Approvato* *Brandi R.*	

	Novembre 2025	*Brandi R.*	*Emissione Progetto Esecutivo*
	Data	*Operatore*	*Descrizione*

Normative di riferimento

- Legge nr. 64 del 02/02/1974.
Provvedimenti per le costruzioni con particolari prescrizioni per le zone sismiche.
- D.M. LL.PP. del 11/03/1988.
Norme tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilità dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione e il collaudo delle opere di sostegno delle terre e delle opere di fondazione.
- D.M. 16 Gennaio 1996
Norme Tecniche per le costruzioni in zone sismiche
- Circolare Ministero LL.PP. 15 Ottobre 1996 N. 252 AA.GG./S.T.C.
Istruzioni per l'applicazione delle Norme Tecniche di cui al D.M. 9 Gennaio 1996
- Circolare Ministero LL.PP. 10 Aprile 1997 N. 65/AA.GG.
Istruzioni per l'applicazione delle Norme Tecniche per le costruzioni in zone sismiche di cui al D.M. 16 Gennaio 1996.
- Norme Tecniche per le Costruzioni 2018 (D.M. 17 Gennaio 2018).
- Circolare nr. 7 del 21/01/2019
Istruzioni per l'applicazione delle Nuove Norme Tecniche per le Costruzioni di cui al D.M. 17 gennaio 2018.

Descrizione metodo di calcolo

La verifica alla stabilità del pendio deve fornire un coefficiente di sicurezza non inferiore a γ_R.
Viene usata la tecnica della suddivisione a strisce della superficie di scorrimento da analizzare.
In particolare il programma esamina un numero di superfici che dipende dalle impostazioni fornite e che sono riportate nella corrispondente sezione. Il processo iterativo permette di determinare il coefficiente di sicurezza di tutte le superfici analizzate.
Nella descrizione dei metodi di calcolo si adotterà la seguente simbologia:

l	lunghezza della base della striscia
α	angolo della base della striscia rispetto all'orizzontale
b	larghezza della striscia b=l x cos(α)
ϕ	angolo di attrito lungo la base della striscia
c	coesione lungo la base della striscia
γ	peso di volume del terreno
u	pressione neutra
W	peso della striscia
N	sforzo normale alla base della striscia
T	sforzo di taglio alla base della striscia
$\mathbf{E_s, E_d}$	forze normali di interstriscia a sinistra e a destra
$\mathbf{X_s, X_d}$	forze tangenziali di interstriscia a sinistra e a destra
$\mathbf{E_a, E_b}$	forze normali di interstriscia alla base ed alla sommità del pendio
$\mathbf{\Delta X}$	variazione delle forze tangenziali sulla striscia $\mathbf{\Delta X = X_d - X_s}$
$\mathbf{\Delta E}$	variazione delle forze normali sulla striscia $\mathbf{\Delta E = E_d - E_s}$

Metodo di Bishop

Il coefficiente di sicurezza nel metodo di **Bishop semplificato** si esprime secondo la seguente formula:

$$F = \frac{\Sigma_i \left(\frac{c_i\, b_i + (N_i/\cos(\alpha_i) - u_i\, b_i)\, tg\phi_i}{m} \right)}{\Sigma_i\, W_i \sin\alpha_i}$$

dove il termine **m** è espresso da

$$m = \left(1 + \frac{tg\phi_i\, tg\alpha_i}{F}\right) \cos\alpha_i$$

In questa espressione **n** è il numero delle strisce considerate, $\mathbf{b_i}$ e $\mathbf{\alpha_i}$ sono la larghezza e l'inclinazione della base della striscia $\mathbf{i_{esima}}$ rispetto all'orizzontale, $\mathbf{W_i}$ è il peso della striscia $\mathbf{i_{esima}}$, $\mathbf{c_i}$ e $\mathbf{\phi_i}$ sono le caratteristiche del terreno (coesione ed angolo di attrito) lungo la base della striscia ed $\mathbf{u_i}$ è la pressione neutra lungo la base della striscia.
L'espressione del coefficiente di sicurezza di **Bishop semplificato** contiene al secondo membro il termine **m** che è funzione di **F**. Quindi essa viene risolta per successive approssimazioni assumendo un valore iniziale per **F** da inserire nell'espressione di **m** ed iterare fin quando il valore calcolato coincide con il valore assunto.

Criterio di rottura di BARTON (giunti di discontinuità)

Riportiamo di seguito le espressioni da utilizzare per calcolare angolo di attrito istantaneo e coesione istantanea riferiti ad un valore di tensione normale (valori di c_i e ϕ_i nel punto di tangenza sulla retta di inviluppo curvilinea di Barton).

JCS: Coefficiente di resistenza di giunto;
JRC: Coefficiente di rugosità del giunto;
$\mathbf{\phi_r}$: Angolo di attrito residuo;
$\mathbf{\gamma}$: Peso dell'unità di volume della roccia.

$d\tau/d\sigma_n = \tan[JRC\ Log_{10}(JCS/\sigma_n)+\phi_r] - (\pi\ JRC)/(180\ \ln 10)\ [\tan^2(JRC\ Log_{10}(JCS/\sigma_n)+\phi_r)+1]$
$\phi_i = \arctan[d\tau/d\sigma_n]$

$$\mathbf{c_i = \tau - \sigma_n \tan(\phi_i)}$$

Dati VERIFICA DI STABILITA' SEZIONE 6

Descrizione rocce

Simbologia adottata

Nr. Indice roccia
Descrizione Descrizione
JRC Coefficiente di rugosità JRC (Joint Roughness Coefficient)
JCS Coefficiente di resistenza del giunto JCS (Joint Coefficient Strength) espresso in kg/cmq
ϕ_r Angolo di attrito di base espresso in gradi

n°	Descrizione	γ	γ_{sat}	JRC	JCS	ϕ_r
		[kg/mc]	*[kg/mc]*		*[kg/cmq]*	
1	Calcari micritici	2498	2498	19.00	560.00	30.00
2	Calcari alterati	2498	2498	14.00	250.00	20.00

Profilo del piano campagna

Simbologia e convenzioni di segno adottate

L'ascissa è intesa positiva da sinistra verso destra e l'ordinata positiva verso l'alto.
Nr. Identificativo del punto
X Ascissa del punto del profilo espressa in m
Y Ordinata del punto del profilo espressa in m

n°	X	Y
	[m]	*[m]*
1	0.00	15.00
2	0.12	15.19
3	0.37	15.48
4	1.12	15.85
5	1.36	15.98
6	2.28	16.48
7	2.64	16.72
8	3.13	17.05
9	4.07	17.26
10	4.29	17.41
11	4.52	17.58
12	5.01	17.98
13	5.95	18.63
14	6.45	18.98
15	6.90	19.22
16	7.83	19.47
17	7.84	19.28
18	16.20	19.49
19	16.22	19.35
20	16.66	19.98
21	16.91	20.48
22	17.63	22.01
23	18.12	23.06
24	18.60	24.48
25	19.14	26.33
26	20.09	28.48
27	20.85	30.38
28	21.36	31.48
29	21.65	31.81
30	22.84	32.94
31	23.46	33.53
32	23.85	33.88
33	24.26	33.98
34	24.80	34.14
35	25.21	34.48
36	25.87	34.98
37	26.19	35.16
38	26.68	35.45
39	28.04	35.98
40	28.44	36.17
41	28.86	36.33
42	29.25	36.48
43	29.51	36.65
44	30.04	36.98
45	30.97	37.68
46	31.39	38.03
47	31.99	38.51
48	32.33	38.64
49	32.51	38.74
50	32.94	38.98
51	33.28	39.12
52	34.22	39.48
53	35.16	39.69
54	35.95	39.98
55	36.29	40.16
56	36.79	40.48
57	36.99	40.48
58	37.70	40.70
59	37.86	40.73
60	38.36	40.84

n°	X	Y
	[m]	*[m]*
61	38.72	40.98
62	39.16	41.40
63	39.63	41.92
64	40.18	42.65
65	41.29	44.37
66	42.92	47.16
67	43.82	48.48
68	44.58	49.27
69	45.62	49.53
70	46.26	49.98
71	46.99	50.32
72	48.24	50.98
73	49.29	51.40
74	50.23	51.64
75	51.41	51.98
76	52.40	52.48
77	54.00	53.84
78	54.95	54.84
79	55.89	55.29
80	56.71	55.92
81	59.55	57.48
82	60.45	57.83
83	60.85	57.98
84	61.63	58.15
85	62.57	58.48
86	63.41	58.82
87	63.69	58.98
88	64.21	59.45
89	64.99	59.98
90	65.98	60.32
91	66.28	60.39
92	66.70	60.67
93	66.89	60.76
94	68.50	61.48
95	69.18	61.69
96	69.41	61.78
97	69.93	62.04
98	70.12	62.11
99	70.17	62.15
100	70.57	62.48
101	71.49	62.98
102	71.67	63.06
103	72.17	63.48
104	72.79	63.87
105	73.79	64.75
106	75.67	66.31
107	76.53	66.98
108	76.79	67.07
109	77.72	67.48
110	78.06	67.48
111	79.44	67.80
112	79.77	67.81
113	80.38	67.92
114	81.33	68.22
115	82.35	68.48
116	82.61	68.66
117	83.58	69.28
118	84.96	69.98
119	88.61	71.61
120	88.86	71.74
121	89.55	71.98
122	90.21	72.26
123	90.75	72.51
124	91.21	72.83
125	91.37	72.98
126	91.50	73.05
127	91.69	73.16
128	92.65	73.51
129	93.46	73.93
130	93.86	74.13
131	94.56	74.48
132	95.46	74.89
133	95.63	74.98
134	95.92	75.11
135	96.24	75.25
136	96.90	75.48
137	97.15	75.60
138	97.64	75.75
139	97.80	75.83
140	98.08	75.98
141	98.29	76.10
142	98.63	76.30
143	98.85	76.43
144	99.03	76.52
145	100.33	76.98
146	101.17	77.48
147	101.88	77.89
148	102.02	77.98
149	102.55	77.98
150	103.58	78.39
151	104.71	78.98
152	105.68	79.48
153	106.84	79.98

n°	X	Y
	[m]	*[m]*
154	107.27	80.15
155	108.61	80.55
156	109.68	80.98
157	110.00	81.48
158	110.56	82.30
159	110.77	82.48
160	111.01	82.67
161	111.17	82.79
162	111.46	83.02
163	112.23	83.48
164	113.54	83.90
165	113.75	83.94
166	114.48	84.42
167	115.30	85.03
168	116.26	85.72
169	116.71	85.98
170	116.81	86.05
171	117.10	86.22
172	117.55	86.48
173	118.00	86.79
174	118.18	86.98
175	118.95	87.98
176	122.19	90.61

Descrizione stratigrafia

Simbologia e convenzioni di segno adottate
Gli strati sono descritti mediante i punti di contorno (in senso antiorario) e l'indice del terreno di cui è costituito

Strato N° **1** costituito da terreno n° 1 (Calcari micritici)

Coordinate dei vertici dello strato n° 1

n°	X	Y
	[m]	*[m]*
1	16.91	20.48
2	16.66	19.98
3	16.22	19.35
4	16.20	19.49
5	7.84	19.28
6	7.83	19.47
7	6.90	19.22
8	6.45	18.98
9	5.95	18.63
10	5.01	17.98
11	4.52	17.58
12	4.29	17.41
13	4.07	17.26
14	3.13	17.05
15	2.64	16.72
16	2.28	16.48
17	1.36	15.98
18	1.12	15.85
19	0.37	15.48
20	0.12	15.19
21	0.00	15.00
22	0.00	0.00
23	122.19	0.00
24	122.19	64.63
25	122.19	87.01
26	122.19	90.61
27	118.95	87.98
28	118.18	86.98
29	118.00	86.79
30	117.55	86.48
31	117.10	86.22
32	116.81	86.05
33	116.71	85.98
34	116.26	85.72
35	115.30	85.03
36	114.48	84.42
37	113.75	83.94
38	113.54	83.90
39	112.23	83.48
40	111.46	83.02
41	111.17	82.79
42	111.01	82.67
43	110.77	82.48
44	110.56	82.30
45	110.00	81.48
46	109.68	80.98
47	108.61	80.55
48	107.27	80.15
49	106.84	79.98
50	105.68	79.48
51	104.71	78.98
52	103.58	78.39
53	102.55	77.98
54	102.02	77.98
55	101.88	77.89

n°	X	Y
	[m]	*[m]*
56	101.17	77.48
57	100.33	76.98
58	99.03	76.52
59	98.85	76.43
60	98.63	76.30
61	98.29	76.10
62	98.08	75.98
63	97.80	75.83
64	97.64	75.75
65	97.15	75.60
66	96.90	75.48
67	96.24	75.25
68	95.92	75.11
69	95.63	74.98
70	95.46	74.89
71	94.56	74.48
72	93.86	74.13
73	93.46	73.93
74	92.65	73.51
75	91.69	73.16
76	91.50	73.05
77	91.37	72.98
78	91.21	72.83
79	90.75	72.51
80	90.21	72.26
81	89.55	71.98
82	88.86	71.74
83	88.61	71.61
84	84.96	69.98
85	83.58	69.28
86	82.61	68.66
87	82.35	68.48
88	81.33	68.22
89	80.38	67.92
90	79.77	67.81
91	79.44	67.80
92	78.06	67.48
93	77.72	67.48
94	76.79	67.07
95	76.53	66.98
96	75.67	66.31
97	73.79	64.75
98	72.79	63.87
99	64.00	57.00
100	49.00	48.00
101	40.00	40.00
102	24.00	31.00
103	19.00	21.00

Strato N° **2** costituito da terreno n° 2 (Calcari alterati)

Coordinate dei vertici dello strato n° 2

n°	X	Y
	[m]	*[m]*
1	72.79	63.87
2	72.17	63.48
3	71.67	63.06
4	71.49	62.98
5	70.57	62.48
6	70.17	62.15
7	70.12	62.11
8	69.93	62.04
9	69.41	61.78
10	69.18	61.69
11	68.50	61.48
12	66.89	60.76
13	66.70	60.67
14	66.28	60.39
15	65.98	60.32
16	64.99	59.98
17	64.21	59.45
18	63.69	58.98
19	63.41	58.82
20	62.57	58.48
21	61.63	58.15
22	60.85	57.98
23	60.45	57.83
24	59.55	57.48
25	56.71	55.92
26	55.89	55.29
27	54.95	54.84
28	54.00	53.84
29	52.40	52.48
30	51.41	51.98
31	50.23	51.64
32	49.29	51.40
33	48.24	50.98
34	46.99	50.32
35	46.26	49.98
36	45.62	49.53

n°	X	Y
	[m]	*[m]*
37	44.58	49.27
38	43.82	48.48
39	42.92	47.16
40	41.29	44.37
41	40.18	42.65
42	39.63	41.92
43	39.16	41.40
44	38.72	40.98
45	38.36	40.84
46	37.86	40.73
47	37.70	40.70
48	36.99	40.48
49	36.79	40.48
50	36.29	40.16
51	35.95	39.98
52	35.16	39.69
53	34.22	39.48
54	33.28	39.12
55	32.94	38.98
56	32.51	38.74
57	32.33	38.64
58	31.99	38.51
59	31.39	38.03
60	30.97	37.68
61	30.04	36.98
62	29.51	36.65
63	29.25	36.48
64	28.86	36.33
65	28.44	36.17
66	28.04	35.98
67	26.68	35.45
68	26.19	35.16
69	25.87	34.98
70	25.21	34.48
71	24.80	34.14
72	24.26	33.98
73	23.85	33.88
74	23.46	33.53
75	22.84	32.94
76	21.65	31.81
77	21.36	31.48
78	20.85	30.38
79	20.09	28.48
80	19.14	26.33
81	18.60	24.48
82	18.12	23.06
83	17.63	22.01
84	16.91	20.48
85	19.00	21.00
86	24.00	31.00
87	40.00	40.00
88	49.00	48.00
89	64.00	57.00

Interventi inseriti

Numero interventi inseriti 7

Cordolo tirantato - Tirante

Ascissa sul profilo	16.66	m
Posizione sul cordolo	19.98	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante

Ascissa sul profilo	18.12	m
Posizione sul cordolo	23.06	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m

Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante

Ascissa sul profilo	19.17	m
Posizione sul cordolo	26.40	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante

Ascissa sul profilo	20.38	m
Posizione sul cordolo	29.20	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante

Ascissa sul profilo	21.87	m
Posizione sul cordolo	32.02	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante

Ascissa sul profilo	23.46	m
Posizione sul cordolo	33.53	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante

Ascissa sul profilo	25.66	m
Posizione sul cordolo	34.82	m

Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Definizione della resistenza a taglio del singolo tirante

La resistenza a taglio delle barre è stata determinata utilizzando la seguente relazione:
$F_{v,rd} = 0.6*f_{td}*A/\gamma_{m2}$. Per una barra da 28 mm. con classe dell'acciaio pari a B450C, si ha: $F_{v,rd} = 0.6*450*615/1.15 = 14.500$ daN. Cautelativamente nelle verifiche è stato scelto di utilizzare una resistenza taglio di **13.000 daN**.

Definizione della resistenza a trazione del singolo tirante

La resistenza a trazione del tirante è stata valutata considerando la resistenza allo sfilamento della barra dal terreno. Considerando del tirante di 4 cm. una lunghezza dello stesso pari a 5 m. e un angolo di attrito del terreno pari a quello minimo degli strati in gioco, la tensione allo sfilamento potrà essere determinata con la relazione che segue:
$R_{a,c} = \pi D_d L_f q_s$
dove q_s è la resistenza ultima unitaria, assunta cautelativamente pari a 50 kN/m^2
$R_{a,c} = \pi D_d L_f q_s = 15$ kN = **1.500 daN**

Dati zona sismica

Identificazione del sito

Latitudine	41.922204
Longitudine	13.758611
Comune	Bisegna
Provincia	L'Aquila
Regione	Abruzzo
Punti di interpolazione del reticolo	28309 - 28308 - 28530 - 28531

Tipo di opera

Tipo di costruzione	Costruzioni con livelli di prestazioni ordinari
Vita nominale	50 anni
Classe d'uso	III - Affollamenti significativi e industrie non pericolose
Vita di riferimento	75 anni

	Simbolo	U.M.		SLV	SLD
Accelerazione al suolo	a_g	[m/s^2]		2.941	1.226
Accelerazione al suolo	a_g/g	[%]		0.300	0.125
Massimo fattore amplificazione spettro orizzontale	F0			2.385	2.318
Periodo inizio tratto spettro a velocità costante	Tc*			0.358	0.291
Tipo di sottosuolo - Coefficiente stratigrafico	Ss		B	1.114	1.200
Categoria topografica - Coefficiente amplificazione topografica	St		T4	1.400	1.400
Coefficiente riduzione pendio naturale	β_s			0.280	0.280
Rapporto intensità sismica verticale/orizzontale				0.50	0.50

Pendio naturale

	Simbolo	SLV	SLD
Coefficiente di intensità sismica orizzontale (percento)	$k_h=(a_g/g*\beta_s*St*S)$	13.09	5.88
Coefficiente di intensità sismica verticale (percento)	$k_v=0.50 * k_h$	6.55	2.94

Dati normativa

Normativa :
Norme Tecniche sulle Costruzioni 2018 - D.M. 17/01/2018

Coefficienti parziali per le azioni o per l'effetto delle azioni:

Carichi	Effetto	Simbologia	A2 Statico	A2 Sismico
Permanenti	Favorevole	γ_{Gfav}	1.00	1.00
Permanenti	Sfavorevole	γ_{Gsfav}	1.00	1.00
Variabili	Favorevole	γ_{Qfav}	0.00	0.00
Variabili	Sfavorevole	γ_{Qsfav}	1.30	1.00

Coefficienti parziali per i parametri geotecnici del terreno:

Parametri	Simbologia	M2 Statico	M2 Sismico
Tangente dell'angolo di attrito	$\gamma_{tan\phi'}$	1.25	1.00
Coesione efficace	$\gamma_{c'}$	1.25	1.00
Resistenza non drenata	γ_{cu}	1.40	1.00
Peso dell'unità di volume	γ_{γ}	1.00	1.00

Coefficiente di sicurezza richiesto

Tipo calcolo	Simbolo	Statico	Sismico
Pendio naturale	γ_R	1.00	1.00
Fronte di scavo	γ_R	1.10	1.20

Impostazioni delle superfici di rottura

Superfici di rottura circolari

Si considerano delle superfici di rottura circolari generate tramite la seguente maglia dei centri

Origine maglia	[m]	X_0 = -7.00	Y_0 = 50.00
Passo maglia	[m]	dX = 1.00	dY = 1.00
Numero passi		Nx = 12	Ny = 11
Raggio	[m]	R = 23.00	

Si utilizza un raggio variabile con passo dR=0.50 [m] ed un numero di incrementi pari a 20

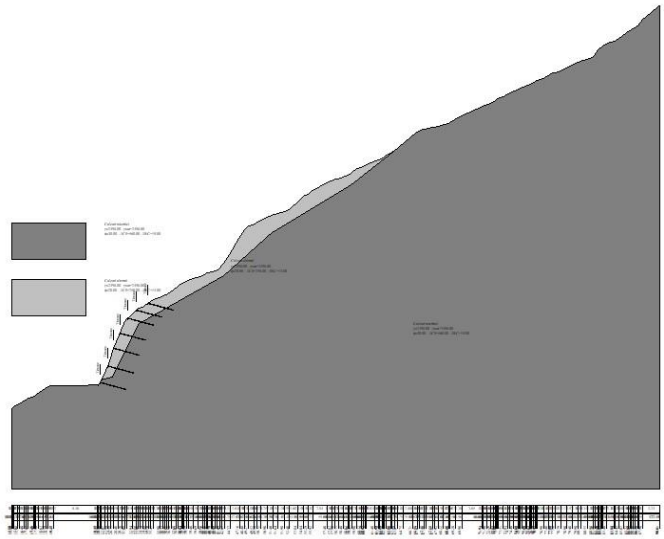


Fig. 1 - Profilo

Opzioni di calcolo

Per l'analisi sono stati utilizzati i seguenti metodi di calcolo:
- BISHOP

Le superfici sono state analizzate sia in condizioni **statiche** che **sismiche**.
Le superfici sono state analizzate per i casi:
- Pendio naturale [PC] - Parametri caratteristici
- Sisma orizzontale e Sisma verticale (verso il basso e verso l'alto)

Criterio di rottura adottato: **Barton**

Condizioni di esclusione

Sono state escluse dall'analisi le superfici aventi:

- lunghezza di corda inferiore a	1.00	m
- freccia inferiore a	0.50	m
- volume inferiore a	2.00	mc
- pendenza media della superficie inferiore a	1.00	[%]

Risultati analisi

Numero di superfici analizzate	635
Coefficiente di sicurezza minimo	1.130
Superficie con coefficiente di sicurezza minimo	1

Quadro sintetico coefficienti di sicurezza

Metodo	Nr. superfici	FS_{min}	S_{min}	FS_{max}	S_{max}
BISHOP	635	1.130	1	4.162	635

Caratteristiche delle superfici analizzate

Simbologia adottata

Le ascisse X sono considerate positive verso monte
Le ordinate Y sono considerate positive verso l'alto
N° numero d'ordine della superficie cerchio
F forma (C: circolare, S: spirale logaritmica, G: generica)
C_x ascissa x del centro [m]
C_y ordinata y del centro [m]
R raggio del cerchio espresso in m
x_v ascissa del punto di intersezione con il profilo (valle) espresse in m
x_m ascissa del punto di intersezione con il profilo (monte) espresse in m
V volume interessato dalla superficie espresso [mc]
FS coefficiente di sicurezza. Tra parentesi il metodo di calcolo usato (F: Fellenius, B: Bishop, J: Janbu, C: Janbu completo, L: Bell, M: Morgenstern-Price P: Spencer, S: Sarma, V: Maksimovic, G: GLE)
Caso caso di calcolo
Sisma H sisma orizzontale, V sisma verticale (+ verso l'alto, - verso il basso)
La colonna FS (fattore di sicurezza) potrebbe contenere più valori. Questo è dovuto alla presenza degli interventi quando considerati come incremento delle forze di interstriscia. In questo caso vengono analizzate più superfici di scorrimento ed ogni superficie è separata dalla successiva dall'intervento.

N°	F	C_x [m]	C_y [m]	R [m]	x_v [m]	x_m [m]	V [mc]	FS	Caso	Sisma
1	C	4.00	52.00	32.50	17.92	33.95	80.73	1.130 (B)	[PC]	[SLV] H -V
2	C	4.00	52.00	32.50	17.92	33.95	80.73	1.137 (B)	[PC]	[SLV] H +V
3	C	4.00	51.00	31.50	17.99	33.15	73.10	1.144 (B)	[PC]	[SLV] H -V
4	C	3.00	51.00	31.50	18.25	31.88	57.45	1.154 (B)	[PC]	[SLV] H -V
5	C	4.00	51.00	31.50	17.99	33.15	73.10	1.154 (B)	[PC]	[SLV] H +V
6	C	3.00	52.00	32.50	18.19	32.73	64.54	1.161 (B)	[PC]	[SLV] H -V
7	C	3.00	51.00	31.50	18.25	31.88	57.45	1.168 (B)	[PC]	[SLV] H +V
8	C	3.00	52.00	32.50	18.19	32.73	64.54	1.173 (B)	[PC]	[SLV] H +V
9	C	4.00	50.00	30.50	18.06	32.30	65.60	1.173 (B)	[PC]	[SLV] H -V
10	C	4.00	51.00	31.00	18.26	32.46	62.10	1.175 (B)	[PC]	[SLV] H -V
11	C	2.00	51.00	32.00	18.25	31.17	52.82	1.175 (B)	[PC]	[SLV] H -V
12	C	4.00	52.00	32.00	18.21	33.30	69.24	1.179 (B)	[PC]	[SLV] H -V
13	C	4.00	51.00	31.00	18.26	32.46	62.10	1.187 (B)	[PC]	[SLV] H +V
14	C	4.00	50.00	30.50	18.06	32.30	65.60	1.190 (B)	[PC]	[SLV] H +V
15	C	4.00	52.00	32.00	18.21	33.30	69.24	1.191 (B)	[PC]	[SLV] H +V
16	C	2.00	51.00	32.00	18.25	31.17	52.82	1.193 (B)	[PC]	[SLV] H +V
17	C	4.00	50.00	30.00	18.31	31.57	55.15	1.202 (B)	[PC]	[SLV] H -V
18	C	4.00	52.00	31.50	18.44	32.60	58.45	1.212 (B)	[PC]	[SLV] H -V
19	C	4.00	53.00	32.50	18.39	33.41	65.22	1.214 (B)	[PC]	[SLV] H -V
20	C	4.00	50.00	30.00	18.31	31.57	55.15	1.221 (B)	[PC]	[SLV] H +V
21	C	2.00	50.00	31.00	18.32	30.18	46.30	1.222 (B)	[PC]	[SLV] H -V
22	C	4.00	52.00	31.50	18.44	32.60	58.45	1.225 (B)	[PC]	[SLV] H +V
23	C	4.00	53.00	32.50	18.39	33.41	65.22	1.226 (B)	[PC]	[SLV] H +V
24	C	3.00	52.00	32.00	18.43	32.02	54.06	1.230 (B)	[PC]	[SLV] H -V
25	C	3.00	50.00	30.50	18.31	30.87	50.68	1.236 (B)	[PC]	[SLV] H -V
26	C	3.00	52.00	32.00	18.43	32.02	54.06	1.249 (B)	[PC]	[SLV] H +V
27	C	4.00	51.00	30.50	18.49	31.73	51.85	1.250 (B)	[PC]	[SLV] H -V
28	C	2.00	50.00	31.00	18.32	30.18	46.30	1.250 (B)	[PC]	[SLV] H +V
29	C	4.00	53.00	32.00	18.62	32.70	54.65	1.252 (B)	[PC]	[SLV] H -V
30	C	3.00	50.00	30.50	18.31	30.87	50.68	1.263 (B)	[PC]	[SLV] H +V
31	C	4.00	52.00	32.50	17.92	33.95	80.73	1.266 (B)	[PC]	[SLD] H -V
32	C	4.00	53.00	32.00	18.62	32.70	54.65	1.267 (B)	[PC]	[SLV] H +V
33	C	2.00	52.00	32.50	18.42	31.31	49.66	1.271 (B)	[PC]	[SLV] H -V
34	C	4.00	51.00	30.50	18.49	31.73	51.85	1.271 (B)	[PC]	[SLV] H +V
35	C	1.00	51.00	32.00	18.51	29.64	39.39	1.274 (B)	[PC]	[SLV] H -V
36	C	2.00	51.00	31.50	18.49	30.31	43.46	1.278 (B)	[PC]	[SLV] H -V
37	C	4.00	52.00	32.50	17.92	33.95	80.73	1.279 (B)	[PC]	[SLD] H +V
38	C	4.00	51.00	31.50	17.99	33.15	73.10	1.286 (B)	[PC]	[SLD] H -V
39	C	3.00	51.00	31.00	18.49	31.01	47.61	1.289 (B)	[PC]	[SLV] H -V
40	C	2.00	50.00	30.50	18.57	29.38	37.63	1.296 (B)	[PC]	[SLV] H -V
41	C	4.00	51.00	31.50	17.99	33.15	73.10	1.300 (B)	[PC]	[SLD] H +V
42	C	2.00	52.00	32.50	18.42	31.31	49.66	1.301 (B)	[PC]	[SLV] H +V
43	C	1.00	50.00	31.00	18.60	28.81	33.71	1.301 (B)	[PC]	[SLV] H -V
44	C	3.00	51.00	31.50	18.25	31.88	57.45	1.302 (B)	[PC]	[SLD] H -V
45	C	4.00	50.00	29.50	18.55	30.72	45.60	1.303 (B)	[PC]	[SLV] H -V
46	C	3.00	50.00	30.00	18.56	30.02	41.59	1.305 (B)	[PC]	[SLV] H -V
47	C	3.00	52.00	32.50	18.19	32.73	64.54	1.309 (B)	[PC]	[SLD] H -V
48	C	1.00	51.00	32.00	18.51	29.64	39.39	1.311 (B)	[PC]	[SLV] H +V
49	C	2.00	51.00	31.50	18.49	30.31	43.46	1.311 (B)	[PC]	[SLV] H +V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	[m]	[m]	[m]	[m]	[mc]			
50	C	3.00	51.00	31.50	18.25	31.88	57.45	1.318 (B)	[PC]	[SLD] H +V
51	C	0.00	50.00	31.50	18.64	28.26	29.78	1.319 (B)	[PC]	[SLV] H -V
52	C	3.00	51.00	31.00	18.49	31.01	47.61	1.320 (B)	[PC]	[SLV] H +V
53	C	4.00	50.00	30.50	18.06	32.30	65.60	1.323 (B)	[PC]	[SLD] H -V
54	C	4.00	51.00	31.00	18.26	32.46	62.10	1.324 (B)	[PC]	[SLD] H -V
55	C	3.00	52.00	32.50	18.19	32.73	64.54	1.324 (B)	[PC]	[SLD] H +V
56	C	4.00	52.00	32.00	18.21	33.30	69.24	1.329 (B)	[PC]	[SLD] H -V
57	C	3.00	53.00	32.50	18.60	32.11	50.52	1.332 (B)	[PC]	[SLV] H -V
58	C	2.00	51.00	32.00	18.25	31.17	52.82	1.332 (B)	[PC]	[SLD] H -V
59	C	4.00	50.00	29.50	18.55	30.72	45.60	1.332 (B)	[PC]	[SLV] H +V
60	C	2.00	50.00	30.50	18.57	29.38	37.63	1.336 (B)	[PC]	[SLV] H +V
61	C	4.00	51.00	31.00	18.26	32.46	62.10	1.340 (B)	[PC]	[SLD] H +V
62	C	3.00	50.00	30.00	18.56	30.02	41.59	1.341 (B)	[PC]	[SLV] H +V
63	C	4.00	50.00	30.50	18.06	32.30	65.60	1.342 (B)	[PC]	[SLD] H +V
64	C	4.00	52.00	32.00	18.21	33.30	69.24	1.344 (B)	[PC]	[SLD] H +V
65	C	1.00	52.00	32.50	18.67	29.71	36.67	1.345 (B)	[PC]	[SLV] H -V
66	C	1.00	50.00	31.00	18.60	28.81	33.71	1.347 (B)	[PC]	[SLV] H +V
67	C	2.00	52.00	32.00	18.66	30.40	40.49	1.347 (B)	[PC]	[SLV] H -V
68	C	2.00	51.00	32.00	18.25	31.17	52.82	1.352 (B)	[PC]	[SLD] H +V
69	C	3.00	52.00	31.50	18.65	31.12	44.40	1.354 (B)	[PC]	[SLV] H -V
70	C	4.00	52.00	31.00	18.66	31.86	48.40	1.358 (B)	[PC]	[SLV] H -V
71	C	4.00	50.00	30.00	18.31	31.57	55.15	1.362 (B)	[PC]	[SLD] H -V
72	C	3.00	53.00	32.50	18.60	32.11	50.52	1.363 (B)	[PC]	[SLV] H +V
73	C	2.00	51.00	31.00	18.72	29.46	35.00	1.368 (B)	[PC]	[SLV] H -V
74	C	4.00	52.00	31.50	18.44	32.60	58.45	1.369 (B)	[PC]	[SLD] H -V
75	C	4.00	53.00	32.50	18.39	33.41	65.22	1.371 (B)	[PC]	[SLD] H -V
76	C	0.00	50.00	31.50	18.64	28.26	29.78	1.371 (B)	[PC]	[SLV] H +V
77	C	3.00	51.00	30.50	18.71	30.12	38.70	1.373 (B)	[PC]	[SLV] H -V
78	C	4.00	51.00	30.00	18.71	30.83	42.47	1.377 (B)	[PC]	[SLV] H -V
79	C	1.00	51.00	31.50	18.74	28.88	31.33	1.381 (B)	[PC]	[SLV] H -V
80	C	4.00	50.00	30.00	18.31	31.57	55.15	1.382 (B)	[PC]	[SLD] H +V
81	C	2.00	52.00	32.00	18.66	30.40	40.49	1.386 (B)	[PC]	[SLV] H +V
82	C	4.00	52.00	31.50	18.44	32.60	58.45	1.386 (B)	[PC]	[SLD] H +V
83	C	4.00	53.00	32.50	18.39	33.41	65.22	1.387 (B)	[PC]	[SLD] H +V
84	C	1.00	52.00	32.50	18.67	29.71	36.67	1.388 (B)	[PC]	[SLV] H +V
85	C	4.00	52.00	31.00	18.66	31.86	48.40	1.390 (B)	[PC]	[SLV] H +V
86	C	3.00	52.00	31.50	18.65	31.12	44.40	1.391 (B)	[PC]	[SLV] H +V
87	C	3.00	50.00	29.50	18.77	29.21	33.36	1.396 (B)	[PC]	[SLV] H -V
88	C	2.00	50.00	31.00	18.32	30.18	46.30	1.396 (B)	[PC]	[SLD] H -V
89	C	4.00	50.00	29.00	18.76	29.85	36.95	1.396 (B)	[PC]	[SLV] H -V
90	C	3.00	52.00	32.00	18.43	32.02	54.06	1.396 (B)	[PC]	[SLD] H -V
91	C	4.00	54.00	32.50	18.77	32.77	50.71	1.400 (B)	[PC]	[SLV] H -V
92	C	0.00	51.00	32.00	18.78	28.33	27.66	1.400 (B)	[PC]	[SLV] H -V
93	C	4.00	52.00	32.50	17.92	33.95	80.73	1.401 (B)	[PC]	--
94	C	2.00	50.00	30.00	18.79	28.67	29.77	1.407 (B)	[PC]	[SLV] H -V
95	C	3.00	50.00	30.50	18.31	30.87	50.68	1.409 (B)	[PC]	[SLD] H -V
96	C	2.00	51.00	31.00	18.72	29.46	35.00	1.415 (B)	[PC]	[SLV] H +V
97	C	3.00	51.00	30.50	18.71	30.12	38.70	1.415 (B)	[PC]	[SLV] H +V
98	C	4.00	51.00	30.00	18.71	30.83	42.47	1.415 (B)	[PC]	[SLV] H +V
99	C	3.00	52.00	32.00	18.43	32.02	54.06	1.418 (B)	[PC]	[SLD] H +V
100	C	4.00	53.00	32.00	18.62	32.70	54.65	1.418 (B)	[PC]	[SLD] H -V
101	C	4.00	51.00	30.50	18.49	31.73	51.85	1.420 (B)	[PC]	[SLD] H -V
102	C	2.00	50.00	31.00	18.32	30.18	46.30	1.422 (B)	[PC]	[SLD] H +V
103	C	2.00	53.00	32.50	18.80	30.45	37.40	1.422 (B)	[PC]	[SLV] H -V
104	C	3.00	53.00	32.00	18.80	31.20	41.05	1.425 (B)	[PC]	[SLV] H -V
105	C	4.00	51.00	31.50	17.99	33.15	73.10	1.426 (B)	[PC]	--
106	C	4.00	53.00	31.50	18.81	31.95	44.81	1.427 (B)	[PC]	[SLV] H -V
107	C	1.00	50.00	30.50	18.83	28.10	26.17	1.429 (B)	[PC]	[SLV] H -V
108	C	4.00	54.00	32.50	18.77	32.77	50.71	1.431 (B)	[PC]	[SLV] H +V
109	C	1.00	51.00	31.50	18.74	28.88	31.33	1.434 (B)	[PC]	[SLV] H +V
110	C	3.00	50.00	30.50	18.31	30.87	50.68	1.435 (B)	[PC]	[SLD] H +V
111	C	4.00	53.00	32.00	18.62	32.70	54.65	1.436 (B)	[PC]	[SLD] H +V
112	C	4.00	50.00	29.00	18.76	29.85	36.95	1.441 (B)	[PC]	[SLV] H +V
113	C	4.00	51.00	30.50	18.49	31.73	51.85	1.442 (B)	[PC]	[SLD] H +V
114	C	-1.00	51.00	32.50	18.82	27.76	24.01	1.443 (B)	[PC]	[SLV] H -V
115	C	3.00	50.00	29.50	18.77	29.21	33.36	1.446 (B)	[PC]	[SLV] H +V
116	C	3.00	51.00	31.50	18.25	31.88	57.45	1.448 (B)	[PC]	--
117	C	3.00	52.00	31.00	18.86	30.17	35.69	1.450 (B)	[PC]	[SLV] H -V
118	C	2.00	52.00	31.50	18.87	29.51	32.24	1.451 (B)	[PC]	[SLV] H -V
119	C	2.00	52.00	32.50	18.42	31.31	49.66	1.453 (B)	[PC]	[SLD] H -V
120	C	4.00	52.00	30.50	18.86	30.90	39.20	1.454 (B)	[PC]	[SLV] H -V
121	C	3.00	52.00	32.50	18.19	32.73	64.54	1.455 (B)	[PC]	--
122	C	0.00	51.00	32.00	18.78	28.33	27.66	1.463 (B)	[PC]	[SLV] H +V
123	C	1.00	51.00	32.00	18.51	29.64	39.39	1.465 (B)	[PC]	[SLD] H -V
124	C	2.00	51.00	31.50	18.49	30.31	43.46	1.465 (B)	[PC]	[SLD] H -V
125	C	2.00	50.00	30.00	18.79	28.67	29.77	1.466 (B)	[PC]	[SLV] H +V
126	C	1.00	52.00	32.00	18.89	28.91	28.83	1.467 (B)	[PC]	[SLV] H -V
127	C	2.00	53.00	32.50	18.80	30.45	37.40	1.467 (B)	[PC]	[SLV] H +V
128	C	4.00	53.00	31.50	18.81	31.95	44.81	1.467 (B)	[PC]	[SLV] H +V
129	C	3.00	53.00	32.00	18.80	31.20	41.05	1.467 (B)	[PC]	[SLV] H +V
130	C	4.00	51.00	31.00	18.26	32.46	62.10	1.473 (B)	[PC]	--
131	C	4.00	50.00	30.50	18.06	32.30	65.60	1.473 (B)	[PC]	--
132	C	4.00	51.00	29.50	18.91	29.91	34.02	1.473 (B)	[PC]	[SLV] H -V
133	C	3.00	51.00	31.00	18.49	31.01	47.61	1.474 (B)	[PC]	[SLD] H -V
134	C	4.00	52.00	32.00	18.21	33.30	69.24	1.477 (B)	[PC]	--
135	C	2.00	52.00	32.50	18.42	31.31	49.66	1.481 (B)	[PC]	[SLD] H +V
136	C	3.00	51.00	30.00	18.92	29.25	30.68	1.481 (B)	[PC]	[SLV] H -V
137	C	2.00	51.00	32.00	18.25	31.17	52.82	1.489 (B)	[PC]	--
138	C	4.00	50.00	29.50	18.55	30.72	45.60	1.490 (B)	[PC]	[SLD] H -V
139	C	2.00	50.00	30.50	18.57	29.38	37.63	1.491 (B)	[PC]	[SLD] H -V
140	C	0.00	50.00	31.00	18.87	27.55	22.60	1.493 (B)	[PC]	[SLV] H -V
141	C	2.00	51.00	30.50	18.94	28.71	27.35	1.495 (B)	[PC]	[SLV] H -V
142	C	2.00	51.00	31.50	18.49	30.31	43.46	1.495 (B)	[PC]	[SLD] H +V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[mc]*			
143	C	0.00	52.00	32.50	18.92	28.36	25.41	1.495 (B)	[PC]	[SLV] H -V
144	C	1.00	51.00	32.00	18.51	29.64	39.39	1.497 (B)	[PC]	[SLD] H +V
145	C	3.00	50.00	30.00	18.56	30.02	41.59	1.498 (B)	[PC]	[SLD] H -V
146	C	1.00	50.00	30.50	18.83	28.10	26.17	1.499 (B)	[PC]	[SLV] H +V
147	C	4.00	52.00	30.50	18.86	30.90	39.20	1.499 (B)	[PC]	[SLV] H +V
148	C	3.00	52.00	31.00	18.86	30.17	35.69	1.500 (B)	[PC]	[SLV] H +V
149	C	4.00	54.00	32.00	18.96	32.00	41.09	1.502 (B)	[PC]	[SLV] H -V
150	C	3.00	51.00	31.00	18.49	31.01	47.61	1.503 (B)	[PC]	[SLD] H +V
151	C	1.00	50.00	31.00	18.60	28.81	33.71	1.503 (B)	[PC]	[SLD] H -V
152	C	3.00	54.00	32.50	18.95	31.23	37.59	1.504 (B)	[PC]	[SLV] H -V
153	C	2.00	52.00	31.50	18.87	29.51	32.24	1.506 (B)	[PC]	[SLV] H +V
154	C	4.00	50.00	28.50	18.97	29.05	29.15	1.512 (B)	[PC]	[SLV] H -V
155	C	4.00	50.00	29.50	18.55	30.72	45.60	1.519 (B)	[PC]	[SLD] H +V
156	C	4.00	50.00	30.00	18.31	31.57	55.15	1.520 (B)	[PC]	--
157	C	-1.00	51.00	32.50	18.82	27.76	24.01	1.523 (B)	[PC]	[SLV] H +V
158	C	3.00	53.00	32.50	18.60	32.11	50.52	1.525 (B)	[PC]	[SLD] H -V
159	C	4.00	52.00	31.50	18.44	32.60	58.45	1.525 (B)	[PC]	--
160	C	2.00	50.00	30.50	18.57	29.38	37.63	1.526 (B)	[PC]	[SLD] H +V
161	C	4.00	51.00	29.50	18.91	29.91	34.02	1.526 (B)	[PC]	[SLV] H +V
162	C	4.00	53.00	32.50	18.39	33.41	65.22	1.527 (B)	[PC]	--
163	C	3.00	50.00	29.00	18.99	28.50	25.90	1.528 (B)	[PC]	[SLV] H -V
164	C	3.00	50.00	30.00	18.56	30.02	41.59	1.530 (B)	[PC]	[SLD] H +V
165	C	0.00	50.00	31.50	18.64	28.26	29.78	1.532 (B)	[PC]	[SLD] H -V
166	C	1.00	52.00	32.00	18.89	28.91	28.83	1.534 (B)	[PC]	[SLV] H +V
167	C	3.00	53.00	31.50	19.01	30.19	32.56	1.536 (B)	[PC]	[SLV] H -V
168	C	1.00	51.00	31.00	18.97	28.15	24.00	1.539 (B)	[PC]	[SLV] H -V
169	C	4.00	53.00	31.00	19.01	30.93	35.81	1.541 (B)	[PC]	[SLV] H -V
170	C	2.00	54.00	32.50	19.17	29.46	26.43	1.542 (B)	[PC]	[SLV] H -V
171	C	1.00	50.00	31.00	18.60	28.81	33.71	1.542 (B)	[PC]	[SLD] H +V
172	C	3.00	51.00	30.00	18.92	29.25	30.68	1.542 (B)	[PC]	[SLV] H +V
173	C	4.00	54.00	32.00	18.96	32.00	41.09	1.546 (B)	[PC]	[SLV] H +V
174	C	2.00	53.00	32.00	19.01	29.51	29.38	1.549 (B)	[PC]	[SLV] H -V
175	C	2.00	52.00	32.00	18.66	30.40	40.49	1.551 (B)	[PC]	[SLD] H -V
176	C	2.00	51.00	30.00	19.17	27.95	20.43	1.552 (B)	[PC]	[SLV] H -V
177	C	3.00	54.00	32.50	18.95	31.23	37.59	1.552 (B)	[PC]	[SLV] H +V
178	C	1.00	52.00	32.50	18.67	29.71	36.67	1.553 (B)	[PC]	[SLD] H -V
179	C	3.00	53.00	32.50	18.60	32.11	50.52	1.554 (B)	[PC]	[SLD] H +V
180	C	3.00	52.00	31.50	18.65	31.12	44.40	1.556 (B)	[PC]	[SLD] H -V
181	C	4.00	52.00	31.00	18.66	31.86	48.40	1.556 (B)	[PC]	[SLD] H -V
182	C	3.00	52.00	32.00	18.43	32.02	54.06	1.563 (B)	[PC]	--
183	C	4.00	50.00	28.00	19.21	28.31	22.10	1.564 (B)	[PC]	[SLV] H -V
184	C	3.00	53.00	31.00	19.26	29.23	25.02	1.565 (B)	[PC]	[SLV] H -V
185	C	2.00	51.00	30.50	18.94	28.71	27.35	1.567 (B)	[PC]	[SLV] H +V
186	C	1.00	53.00	32.50	19.03	28.91	26.22	1.569 (B)	[PC]	[SLV] H -V
187	C	2.00	50.00	31.00	18.32	30.18	46.30	1.571 (B)	[PC]	--
188	C	4.00	53.00	30.50	19.25	29.90	27.83	1.572 (B)	[PC]	[SLV] H -V
189	C	0.00	52.00	32.50	18.92	28.36	25.41	1.575 (B)	[PC]	[SLV] H +V
190	C	0.00	50.00	31.50	18.64	28.26	29.78	1.575 (B)	[PC]	[SLD] H +V
191	C	4.00	52.00	30.00	19.06	29.93	30.97	1.578 (B)	[PC]	[SLV] H -V
192	C	2.00	51.00	31.00	18.72	29.46	35.00	1.582 (B)	[PC]	[SLD] H -V
193	C	4.00	50.00	28.50	18.97	29.05	29.15	1.582 (B)	[PC]	[SLV] H +V
194	C	3.00	51.00	30.50	18.71	30.12	38.70	1.583 (B)	[PC]	[SLD] H -V
195	C	4.00	51.00	30.00	18.71	30.83	42.47	1.583 (B)	[PC]	[SLD] H -V
196	C	3.00	50.00	30.50	18.31	30.87	50.68	1.584 (B)	[PC]	--
197	C	4.00	53.00	32.00	18.62	32.70	54.65	1.584 (B)	[PC]	--
198	C	2.00	52.00	32.00	18.66	30.40	40.49	1.586 (B)	[PC]	[SLD] H +V
199	C	4.00	52.00	31.00	18.66	31.86	48.40	1.587 (B)	[PC]	[SLD] H +V
200	C	0.00	50.00	31.00	18.87	27.55	22.60	1.587 (B)	[PC]	[SLV] H +V
201	C	3.00	52.00	30.50	19.07	29.26	27.89	1.589 (B)	[PC]	[SLV] H -V
202	C	3.00	52.00	31.50	18.65	31.12	44.40	1.589 (B)	[PC]	[SLD] H +V
203	C	1.00	52.00	32.50	18.67	29.71	36.67	1.590 (B)	[PC]	[SLD] H +V
204	C	4.00	51.00	30.50	18.49	31.73	51.85	1.590 (B)	[PC]	--
205	C	4.00	55.00	32.50	19.11	32.01	37.26	1.593 (B)	[PC]	[SLV] H -V
206	C	4.00	53.00	31.00	19.01	30.93	35.81	1.594 (B)	[PC]	[SLV] H +V
207	C	2.00	50.00	29.50	19.01	27.93	22.63	1.594 (B)	[PC]	[SLV] H -V
208	C	-1.00	50.00	31.50	18.93	27.00	19.06	1.596 (B)	[PC]	[SLV] H -V
209	C	3.00	53.00	31.50	19.01	30.19	32.56	1.596 (B)	[PC]	[SLV] H +V
210	C	2.00	54.00	32.50	19.17	29.46	26.43	1.601 (B)	[PC]	[SLV] H +V
211	C	1.00	51.00	31.50	18.74	28.88	31.33	1.604 (B)	[PC]	[SLD] H -V
212	C	4.00	54.00	32.50	18.77	32.77	50.71	1.605 (B)	[PC]	[SLD] H -V
213	C	2.00	53.00	31.50	19.29	28.69	22.21	1.606 (B)	[PC]	[SLV] H -V
214	C	3.00	50.00	29.00	18.99	28.50	25.90	1.609 (B)	[PC]	[SLV] H +V
215	C	4.00	50.00	29.00	18.76	29.85	36.95	1.611 (B)	[PC]	[SLD] H -V
216	C	2.00	52.00	31.00	19.08	28.72	24.82	1.613 (B)	[PC]	[SLV] H -V
217	C	4.00	52.00	29.50	19.35	29.04	23.65	1.615 (B)	[PC]	[SLV] H -V
218	C	3.00	50.00	29.50	18.77	29.21	33.36	1.617 (B)	[PC]	[SLD] H -V
219	C	4.00	51.00	30.00	18.71	30.83	42.47	1.618 (B)	[PC]	[SLD] H +V
220	C	3.00	50.00	28.50	19.25	27.75	19.16	1.618 (B)	[PC]	[SLV] H -V
221	C	3.00	51.00	30.50	18.71	30.12	38.70	1.619 (B)	[PC]	[SLD] H +V
222	C	2.00	53.00	32.00	19.01	29.51	29.38	1.621 (B)	[PC]	[SLV] H +V
223	C	2.00	51.00	31.00	18.72	29.46	35.00	1.622 (B)	[PC]	[SLD] H +V
224	C	4.00	53.00	30.50	19.25	29.90	27.83	1.627 (B)	[PC]	[SLV] H +V
225	C	0.00	51.00	31.50	19.01	27.59	20.68	1.629 (B)	[PC]	[SLV] H -V
226	C	4.00	51.00	29.00	19.12	29.06	26.44	1.629 (B)	[PC]	[SLV] H -V
227	C	1.00	51.00	31.00	18.97	28.15	24.00	1.630 (B)	[PC]	[SLV] H +V
228	C	3.00	53.00	31.00	19.26	29.23	25.02	1.631 (B)	[PC]	[SLV] H +V
229	C	2.00	51.00	30.00	19.17	27.95	20.43	1.633 (B)	[PC]	[SLV] H +V
230	C	0.00	51.00	32.00	18.78	28.33	27.66	1.636 (B)	[PC]	[SLD] H -V
231	C	4.00	54.00	32.50	18.77	32.77	50.71	1.636 (B)	[PC]	[SLD] H +V
232	C	1.00	51.00	30.50	19.24	27.40	17.43	1.636 (B)	[PC]	[SLV] H -V
233	C	4.00	50.00	28.00	19.21	28.31	22.10	1.637 (B)	[PC]	[SLV] H +V
234	C	2.00	52.00	32.50	18.42	31.31	49.66	1.637 (B)	[PC]	--
235	C	2.00	50.00	30.00	18.79	28.67	29.77	1.638 (B)	[PC]	[SLD] H -V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	[m]	[m]	[m]	[m]	[mc]			
236	C	4.00	53.00	31.50	18.81	31.95	44.81	1.644 (B)	[PC]	[SLD] H -V
237	C	3.00	53.00	32.00	18.80	31.20	41.05	1.644 (B)	[PC]	[SLD] H -V
238	C	4.00	52.00	30.00	19.06	29.93	30.97	1.645 (B)	[PC]	[SLV] H +V
239	C	2.00	53.00	32.50	18.80	30.45	37.40	1.646 (B)	[PC]	[SLD] H -V
240	C	1.00	51.00	31.50	18.74	28.88	31.33	1.649 (B)	[PC]	[SLD] H +V
241	C	4.00	54.00	31.50	19.17	30.92	32.33	1.649 (B)	[PC]	[SLV] H -V
242	C	4.00	55.00	32.50	19.11	32.01	37.26	1.650 (B)	[PC]	[SLV] H +V
243	C	4.00	50.00	29.00	18.76	29.85	36.95	1.650 (B)	[PC]	[SLD] H +V
244	C	4.00	55.00	32.00	19.42	30.85	28.79	1.653 (B)	[PC]	[SLV] H -V
245	C	1.00	53.00	32.50	19.03	28.91	26.22	1.653 (B)	[PC]	[SLV] H +V
246	C	3.00	54.00	32.00	19.16	30.15	29.35	1.654 (B)	[PC]	[SLV] H -V
247	C	2.00	51.00	31.50	18.49	30.31	43.46	1.655 (B)	[PC]	--
248	C	3.00	55.00	32.50	19.41	30.05	26.09	1.656 (B)	[PC]	[SLV] H -V
249	C	1.00	51.00	32.00	18.51	29.64	39.39	1.658 (B)	[PC]	--
250	C	3.00	50.00	29.50	18.77	29.21	33.36	1.660 (B)	[PC]	[SLD] H +V
251	C	1.00	53.00	32.00	19.34	28.12	19.38	1.661 (B)	[PC]	[SLV] H -V
252	C	3.00	52.00	30.00	19.38	28.50	20.92	1.662 (B)	[PC]	[SLV] H -V
253	C	3.00	51.00	31.00	18.49	31.01	47.61	1.663 (B)	[PC]	--
254	C	3.00	51.00	29.50	19.13	28.52	23.45	1.666 (B)	[PC]	[SLV] H -V
255	C	3.00	52.00	30.50	19.07	29.26	27.89	1.669 (B)	[PC]	[SLV] H +V
256	C	1.00	50.00	30.50	18.83	28.10	26.17	1.674 (B)	[PC]	[SLD] H -V
257	C	4.00	53.00	31.50	18.81	31.95	44.81	1.680 (B)	[PC]	[SLD] H +V
258	C	3.00	52.00	31.00	18.86	30.17	35.69	1.681 (B)	[PC]	[SLD] H -V
259	C	4.00	52.00	30.50	18.86	30.90	39.20	1.681 (B)	[PC]	[SLD] H -V
260	C	4.00	50.00	29.50	18.55	30.72	45.60	1.681 (B)	[PC]	--
261	C	2.00	53.00	31.50	19.29	28.69	22.21	1.681 (B)	[PC]	[SLV] H +V
262	C	3.00	53.00	32.00	18.80	31.20	41.05	1.683 (B)	[PC]	[SLD] H +V
263	C	2.00	53.00	32.50	18.80	30.45	37.40	1.685 (B)	[PC]	[SLD] H +V
264	C	2.00	50.00	30.00	18.79	28.67	29.77	1.686 (B)	[PC]	[SLD] H +V
265	C	4.00	52.00	29.50	19.35	29.04	23.65	1.686 (B)	[PC]	[SLV] H +V
266	C	0.00	51.00	32.00	18.78	28.33	27.66	1.687 (B)	[PC]	[SLD] H +V
267	C	2.00	52.00	31.50	18.87	29.51	32.24	1.687 (B)	[PC]	[SLD] H -V
268	C	2.00	50.00	30.50	18.57	29.38	37.63	1.690 (B)	[PC]	--
269	C	3.00	50.00	30.00	18.56	30.02	41.59	1.694 (B)	[PC]	--
270	C	1.00	52.00	31.50	19.11	28.15	21.73	1.695 (B)	[PC]	[SLV] H -V
271	C	1.00	50.00	30.00	19.06	27.39	19.37	1.699 (B)	[PC]	[SLV] H -V
272	C	2.00	50.00	29.50	19.01	27.93	22.63	1.699 (B)	[PC]	[SLV] H +V
273	C	-1.00	51.00	32.50	18.82	27.76	24.01	1.700 (B)	[PC]	[SLD] H -V
274	C	4.00	54.00	31.00	19.51	29.82	24.66	1.707 (B)	[PC]	[SLV] H -V
275	C	-1.00	52.00	32.50	19.25	27.06	15.61	1.708 (B)	[PC]	[SLV] H -V
276	C	2.00	52.00	31.00	19.08	28.72	24.82	1.708 (B)	[PC]	[SLV] H +V
277	C	4.00	55.00	32.00	19.42	30.85	28.79	1.710 (B)	[PC]	[SLV] H +V
278	C	4.00	51.00	29.50	18.91	29.91	34.02	1.710 (B)	[PC]	[SLD] H -V
279	C	1.00	50.00	31.00	18.60	28.81	33.71	1.710 (B)	[PC]	--
280	C	3.00	50.00	28.50	19.25	27.75	19.16	1.714 (B)	[PC]	[SLV] H +V
281	C	1.00	52.00	32.00	18.89	28.91	28.83	1.715 (B)	[PC]	[SLD] H -V
282	C	2.00	50.00	29.00	19.32	27.20	16.23	1.715 (B)	[PC]	[SLV] H -V
283	C	4.00	51.00	28.50	19.46	28.30	19.66	1.719 (B)	[PC]	[SLV] H -V
284	C	4.00	54.00	31.50	19.17	30.92	32.33	1.719 (B)	[PC]	[SLV] H +V
285	C	4.00	51.00	29.00	19.12	29.06	26.44	1.720 (B)	[PC]	[SLV] H +V
286	C	4.00	52.00	30.50	18.86	30.90	39.20	1.721 (B)	[PC]	[SLD] H +V
287	C	3.00	53.00	32.50	18.60	32.11	50.52	1.722 (B)	[PC]	--
288	C	3.00	54.00	31.50	19.51	29.15	22.12	1.723 (B)	[PC]	[SLV] H -V
289	C	3.00	52.00	31.00	18.86	30.17	35.69	1.724 (B)	[PC]	[SLD] H +V
290	C	3.00	55.00	32.50	19.41	30.05	26.09	1.725 (B)	[PC]	[SLV] H +V
291	C	3.00	51.00	30.00	18.92	29.25	30.68	1.727 (B)	[PC]	[SLD] H -V
292	C	1.00	50.00	30.50	18.83	28.10	26.17	1.731 (B)	[PC]	[SLD] H +V
293	C	3.00	54.00	32.00	19.16	30.15	29.35	1.732 (B)	[PC]	[SLV] H +V
294	C	2.00	52.00	31.50	18.87	29.51	32.24	1.734 (B)	[PC]	[SLD] H +V
295	C	-1.00	50.00	31.50	18.93	27.00	19.06	1.735 (B)	[PC]	[SLV] H +V
296	C	2.00	52.00	30.50	19.42	27.93	18.17	1.737 (B)	[PC]	[SLV] H -V
297	C	4.00	54.00	32.00	18.96	32.00	41.09	1.737 (B)	[PC]	[SLD] H -V
298	C	3.00	54.00	32.50	18.95	31.23	37.59	1.745 (B)	[PC]	[SLD] H -V
299	C	3.00	52.00	30.00	19.38	28.50	20.92	1.749 (B)	[PC]	[SLV] H +V
300	C	1.00	51.00	30.50	19.24	27.40	17.43	1.750 (B)	[PC]	[SLV] H +V
301	C	0.00	50.00	31.50	18.64	28.26	29.78	1.752 (B)	[PC]	--
302	C	2.00	51.00	30.50	18.94	28.71	27.35	1.752 (B)	[PC]	[SLD] H -V
303	C	0.00	51.00	31.50	19.01	27.59	20.68	1.754 (B)	[PC]	[SLV] H +V
304	C	4.00	51.00	29.50	18.91	29.91	34.02	1.755 (B)	[PC]	[SLD] H +V
305	C	4.00	52.00	31.00	18.66	31.86	48.40	1.759 (B)	[PC]	--
306	C	1.00	53.00	32.00	19.34	28.12	19.38	1.759 (B)	[PC]	[SLV] H +V
307	C	2.00	52.00	32.00	18.66	30.40	40.49	1.761 (B)	[PC]	--
308	C	0.00	52.00	32.50	18.92	28.36	25.41	1.761 (B)	[PC]	[SLD] H -V
309	C	3.00	52.00	31.50	18.65	31.12	44.40	1.762 (B)	[PC]	--
310	C	0.00	53.00	32.50	19.40	27.57	16.57	1.762 (B)	[PC]	[SLV] H -V
311	C	-1.00	51.00	32.50	18.82	27.76	24.01	1.764 (B)	[PC]	[SLD] H +V
312	C	1.00	52.00	32.50	18.67	29.71	36.67	1.767 (B)	[PC]	--
313	C	4.00	50.00	28.50	18.97	29.05	29.15	1.767 (B)	[PC]	[SLD] H -V
314	C	0.00	50.00	31.00	18.87	27.55	22.60	1.769 (B)	[PC]	[SLD] H -V
315	C	1.00	52.00	32.00	18.89	28.91	28.83	1.769 (B)	[PC]	[SLD] H +V
316	C	3.00	51.00	29.50	19.13	28.52	23.45	1.774 (B)	[PC]	[SLV] H +V
317	C	3.00	51.00	30.00	18.92	29.25	30.68	1.777 (B)	[PC]	[SLD] H +V
318	C	4.00	54.00	32.00	18.96	32.00	41.09	1.778 (B)	[PC]	[SLD] H +V
319	C	2.00	54.00	32.00	19.54	28.62	19.58	1.779 (B)	[PC]	[SLV] H -V
320	C	-1.00	51.00	32.00	19.06	27.05	17.39	1.781 (B)	[PC]	[SLV] H -V
321	C	4.00	54.00	31.00	19.51	29.82	24.66	1.784 (B)	[PC]	[SLV] H +V
322	C	3.00	54.00	32.50	18.95	31.23	37.59	1.789 (B)	[PC]	[SLD] H +V
323	C	4.00	53.00	31.00	19.01	30.93	35.81	1.791 (B)	[PC]	[SLD] H -V
324	C	3.00	53.00	31.50	19.01	30.19	32.56	1.792 (B)	[PC]	[SLD] H -V
325	C	4.00	56.00	32.50	19.67	30.71	25.25	1.793 (B)	[PC]	[SLV] H -V
326	C	4.00	53.00	30.00	19.60	28.97	20.84	1.794 (B)	[PC]	[SLV] H -V
327	C	4.00	51.00	30.00	18.71	30.83	42.47	1.795 (B)	[PC]	--
328	C	3.00	50.00	29.00	18.99	28.50	25.90	1.797 (B)	[PC]	[SLD] H -V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[mc]*			
329	C	-1.00	50.00	31.00	19.21	26.23	13.00	1.798 (B)	[PC]	[SLV] H -V
330	C	3.00	51.00	30.50	18.71	30.12	38.70	1.799 (B)	[PC]	--
331	C	2.00	54.00	32.50	19.17	29.46	26.43	1.800 (B)	[PC]	[SLD] H -V
332	C	2.00	51.00	31.00	18.72	29.46	35.00	1.803 (B)	[PC]	--
333	C	3.00	51.00	29.00	19.50	27.73	16.99	1.803 (B)	[PC]	[SLV] H -V
334	C	0.00	51.00	31.00	19.33	26.86	14.46	1.803 (B)	[PC]	[SLV] H -V
335	C	3.00	54.00	31.50	19.51	29.15	22.12	1.808 (B)	[PC]	[SLV] H +V
336	C	2.00	51.00	30.50	18.94	28.71	27.35	1.811 (B)	[PC]	[SLD] H +V
337	C	-2.00	50.00	32.00	19.00	26.42	15.59	1.815 (B)	[PC]	[SLV] H -V
338	C	2.00	53.00	32.00	19.01	29.51	29.38	1.816 (B)	[PC]	[SLD] H -V
339	C	4.00	54.00	32.50	18.77	32.77	50.71	1.817 (B)	[PC]	--
340	C	1.00	52.00	31.50	19.11	28.15	21.73	1.820 (B)	[PC]	[SLV] H +V
341	C	1.00	51.00	31.00	18.97	28.15	24.00	1.820 (B)	[PC]	[SLD] H -V
342	C	4.00	51.00	28.50	19.46	28.30	19.66	1.820 (B)	[PC]	[SLV] H +V
343	C	4.00	50.00	28.50	18.97	29.05	29.15	1.823 (B)	[PC]	[SLD] H +V
344	C	0.00	52.00	32.50	18.92	28.36	25.41	1.824 (B)	[PC]	[SLD] H +V
345	C	0.00	52.00	32.00	19.16	27.60	18.65	1.829 (B)	[PC]	[SLV] H -V
346	C	2.00	51.00	30.00	19.17	27.95	20.43	1.830 (B)	[PC]	[SLD] H -V
347	C	3.00	53.00	31.00	19.26	29.23	25.02	1.831 (B)	[PC]	[SLD] H -V
348	C	4.00	53.00	30.50	19.25	29.90	27.83	1.832 (B)	[PC]	[SLD] H -V
349	C	4.00	50.00	29.00	18.76	29.85	36.95	1.834 (B)	[PC]	--
350	C	1.00	51.00	31.50	18.74	28.88	31.33	1.836 (B)	[PC]	--
351	C	4.00	50.00	28.00	19.21	28.31	22.10	1.836 (B)	[PC]	[SLD] H -V
352	C	4.00	53.00	31.00	19.01	30.93	35.81	1.838 (B)	[PC]	[SLD] H +V
353	C	0.00	50.00	31.00	18.87	27.55	22.60	1.841 (B)	[PC]	[SLD] H +V
354	C	3.00	53.00	31.50	19.01	30.19	32.56	1.842 (B)	[PC]	[SLD] H +V
355	C	4.00	52.00	30.00	19.06	29.93	30.97	1.845 (B)	[PC]	[SLD] H -V
356	C	3.00	50.00	29.50	18.77	29.21	33.36	1.846 (B)	[PC]	--
357	C	1.00	50.00	30.00	19.06	27.39	19.37	1.850 (B)	[PC]	[SLV] H +V
358	C	1.00	53.00	32.50	19.03	28.91	26.22	1.850 (B)	[PC]	[SLD] H -V
359	C	2.00	54.00	32.50	19.17	29.46	26.43	1.851 (B)	[PC]	[SLD] H +V
360	C	2.00	50.00	29.00	19.32	27.20	16.23	1.854 (B)	[PC]	[SLV] H +V
361	C	2.00	52.00	30.50	19.42	27.93	18.17	1.854 (B)	[PC]	[SLV] H +V
362	C	-1.00	52.00	32.50	19.25	27.06	15.61	1.855 (B)	[PC]	[SLV] H +V
363	C	4.00	55.00	32.50	19.11	32.01	37.26	1.856 (B)	[PC]	[SLD] H -V
364	C	3.00	53.00	30.50	19.63	28.43	18.36	1.856 (B)	[PC]	[SLV] H -V
365	C	3.00	50.00	29.00	18.99	28.50	25.90	1.861 (B)	[PC]	[SLD] H +V
366	C	1.00	52.00	31.00	19.49	27.38	15.43	1.863 (B)	[PC]	[SLV] H -V
367	C	4.00	53.00	31.50	18.81	31.95	44.81	1.867 (B)	[PC]	--
368	C	3.00	52.00	30.50	19.07	29.26	27.89	1.868 (B)	[PC]	[SLD] H -V
369	C	3.00	53.00	32.00	18.80	31.20	41.05	1.872 (B)	[PC]	--
370	C	4.00	56.00	32.50	19.67	30.71	25.25	1.873 (B)	[PC]	[SLV] H +V
371	C	1.00	54.00	32.50	19.59	28.05	17.01	1.873 (B)	[PC]	[SLV] H -V
372	C	4.00	55.00	31.50	19.76	29.68	21.49	1.873 (B)	[PC]	[SLV] H -V
373	C	2.00	53.00	32.00	19.01	29.51	29.38	1.874 (B)	[PC]	[SLD] H +V
374	C	2.00	53.00	32.50	18.80	30.45	37.40	1.878 (B)	[PC]	--
375	C	2.00	50.00	30.00	18.79	28.67	29.77	1.878 (B)	[PC]	--
376	C	4.00	53.00	30.50	19.25	29.90	27.83	1.880 (B)	[PC]	[SLD] H +V
377	C	0.00	51.00	32.00	18.78	28.33	27.66	1.882 (B)	[PC]	--
378	C	3.00	53.00	31.00	19.26	29.23	25.02	1.886 (B)	[PC]	[SLD] H +V
379	C	2.00	54.00	32.00	19.54	28.62	19.58	1.887 (B)	[PC]	[SLV] H +V
380	C	1.00	50.00	29.50	19.42	26.65	13.33	1.887 (B)	[PC]	[SLV] H -V
381	C	2.00	53.00	31.50	19.29	28.69	22.21	1.891 (B)	[PC]	[SLD] H -V
382	C	1.00	51.00	31.00	18.97	28.15	24.00	1.891 (B)	[PC]	[SLD] H +V
383	C	4.00	53.00	30.00	19.60	28.97	20.84	1.893 (B)	[PC]	[SLV] H +V
384	C	2.00	50.00	29.50	19.01	27.93	22.63	1.894 (B)	[PC]	[SLD] H -V
385	C	2.00	51.00	30.00	19.17	27.95	20.43	1.895 (B)	[PC]	[SLD] H +V
386	C	4.00	52.00	29.50	19.35	29.04	23.65	1.896 (B)	[PC]	[SLD] H -V
387	C	4.00	50.00	28.00	19.21	28.31	22.10	1.896 (B)	[PC]	[SLD] H +V
388	C	4.00	52.00	30.00	19.06	29.93	30.97	1.901 (B)	[PC]	[SLD] H +V
389	C	4.00	50.00	27.50	19.59	27.54	15.84	1.902 (B)	[PC]	[SLV] H -V
390	C	0.00	53.00	32.50	19.40	27.57	16.57	1.903 (B)	[PC]	[SLV] H +V
391	C	4.00	55.00	32.50	19.11	32.01	37.26	1.904 (B)	[PC]	[SLD] H +V
392	C	2.00	52.00	31.00	19.08	28.72	24.82	1.910 (B)	[PC]	[SLD] H -V
393	C	4.00	52.00	30.50	18.86	30.90	39.20	1.917 (B)	[PC]	--
394	C	0.00	50.00	30.50	19.11	26.84	16.15	1.917 (B)	[PC]	[SLV] H -V
395	C	1.00	53.00	32.50	19.03	28.91	26.22	1.918 (B)	[PC]	[SLD] H +V
396	C	3.00	50.00	28.50	19.25	27.75	19.16	1.918 (B)	[PC]	[SLD] H -V
397	C	-1.00	50.00	31.50	18.93	27.00	19.06	1.921 (B)	[PC]	[SLD] H -V
398	C	4.00	51.00	29.00	19.12	29.06	26.44	1.921 (B)	[PC]	[SLD] H -V
399	C	3.00	52.00	31.00	18.86	30.17	35.69	1.921 (B)	[PC]	--
400	C	4.00	55.00	32.00	19.42	30.85	28.79	1.932 (B)	[PC]	[SLD] H -V
401	C	3.00	52.00	30.50	19.07	29.26	27.89	1.932 (B)	[PC]	[SLD] H +V
402	C	1.00	50.00	30.50	18.83	28.10	26.17	1.933 (B)	[PC]	--
403	C	4.00	54.00	31.50	19.17	30.92	32.33	1.934 (B)	[PC]	[SLD] H -V
404	C	2.00	52.00	31.50	18.87	29.51	32.24	1.935 (B)	[PC]	--
405	C	3.00	55.00	32.00	19.76	29.04	19.23	1.935 (B)	[PC]	[SLV] H -V
406	C	3.00	55.00	32.50	19.41	30.05	26.09	1.942 (B)	[PC]	[SLD] H -V
407	C	3.00	51.00	29.00	19.50	27.73	16.99	1.943 (B)	[PC]	[SLV] H +V
408	C	3.00	54.00	32.00	19.16	30.15	29.35	1.946 (B)	[PC]	[SLD] H -V
409	C	4.00	52.00	29.00	19.71	28.23	17.19	1.952 (B)	[PC]	[SLV] H -V
410	C	0.00	51.00	31.50	19.01	27.59	20.68	1.953 (B)	[PC]	[SLD] H -V
411	C	2.00	53.00	31.50	19.29	28.69	22.21	1.953 (B)	[PC]	[SLD] H +V
412	C	1.00	51.00	30.50	19.24	27.40	17.43	1.954 (B)	[PC]	[SLD] H -V
413	C	4.00	52.00	29.50	19.35	29.04	23.65	1.956 (B)	[PC]	[SLD] H +V
414	C	4.00	51.00	29.50	18.91	29.91	34.02	1.958 (B)	[PC]	--
415	C	3.00	52.00	30.00	19.38	28.50	20.92	1.965 (B)	[PC]	[SLD] H -V
416	C	-1.00	51.00	32.50	18.82	27.76	24.01	1.974 (B)	[PC]	--
417	C	4.00	55.00	31.50	19.76	29.68	21.49	1.974 (B)	[PC]	[SLV] H +V
418	C	1.00	53.00	32.00	19.34	28.12	19.38	1.974 (B)	[PC]	[SLD] H -V
419	C	2.00	50.00	29.50	19.01	27.93	22.63	1.975 (B)	[PC]	[SLD] H +V
420	C	1.00	52.00	32.00	18.89	28.91	28.83	1.977 (B)	[PC]	--
421	C	2.00	53.00	31.00	19.67	27.86	15.88	1.979 (B)	[PC]	[SLV] H -V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[mc]*			
422	C	2.00	51.00	29.50	19.57	27.19	14.32	1.980 (B)	[PC]	[SLV] H -V
423	C	-1.00	51.00	32.00	19.06	27.05	17.39	1.980 (B)	[PC]	[SLV] H +V
424	C	3.00	51.00	29.50	19.13	28.52	23.45	1.981 (B)	[PC]	[SLD] H -V
425	C	4.00	55.00	32.00	19.42	30.85	28.79	1.982 (B)	[PC]	[SLD] H +V
426	C	4.00	54.00	32.00	18.96	32.00	41.09	1.984 (B)	[PC]	--
427	C	3.00	53.00	30.50	19.63	28.43	18.36	1.984 (B)	[PC]	[SLV] H +V
428	C	2.00	52.00	31.00	19.08	28.72	24.82	1.985 (B)	[PC]	[SLD] H +V
429	C	3.00	51.00	30.00	18.92	29.25	30.68	1.985 (B)	[PC]	--
430	C	0.00	51.00	31.00	19.33	26.86	14.46	1.988 (B)	[PC]	[SLV] H +V
431	C	4.00	54.00	31.50	19.17	30.92	32.33	1.992 (B)	[PC]	[SLD] H +V
432	C	4.00	51.00	29.00	19.12	29.06	26.44	1.993 (B)	[PC]	[SLD] H +V
433	C	3.00	50.00	28.50	19.25	27.75	19.16	1.994 (B)	[PC]	[SLD] H +V
434	C	3.00	54.00	32.50	18.95	31.23	37.59	1.998 (B)	[PC]	--
435	C	3.00	55.00	32.50	19.41	30.05	26.09	2.000 (B)	[PC]	[SLD] H +V
436	C	4.00	54.00	31.00	19.51	29.82	24.66	2.009 (B)	[PC]	[SLD] H -V
437	C	3.00	54.00	32.00	19.16	30.15	29.35	2.010 (B)	[PC]	[SLD] H +V
438	C	0.00	52.00	32.00	19.16	27.60	18.65	2.013 (B)	[PC]	[SLV] H +V
439	C	-1.00	50.00	31.00	19.21	26.23	13.00	2.020 (B)	[PC]	[SLV] H +V
440	C	1.00	54.00	32.50	19.59	28.05	17.01	2.022 (B)	[PC]	[SLV] H +V
441	C	2.00	51.00	30.50	18.94	28.71	27.35	2.025 (B)	[PC]	--
442	C	-1.00	50.00	31.50	18.93	27.00	19.06	2.026 (B)	[PC]	[SLD] H +V
443	C	1.00	52.00	31.50	19.11	28.15	21.73	2.030 (B)	[PC]	[SLD] H -V
444	C	2.00	55.00	32.50	19.79	28.51	16.94	2.034 (B)	[PC]	[SLV] H -V
445	C	3.00	52.00	30.00	19.38	28.50	20.92	2.037 (B)	[PC]	[SLD] H +V
446	C	4.00	50.00	28.50	18.97	29.05	29.15	2.037 (B)	[PC]	--
447	C	3.00	54.00	31.50	19.51	29.15	22.12	2.038 (B)	[PC]	[SLD] H -V
448	C	1.00	52.00	31.00	19.49	27.38	15.43	2.038 (B)	[PC]	[SLV] H +V
449	C	4.00	54.00	30.50	19.85	28.86	18.02	2.039 (B)	[PC]	[SLV] H -V
450	C	1.00	51.00	30.50	19.24	27.40	17.43	2.043 (B)	[PC]	[SLD] H +V
451	C	4.00	51.00	28.50	19.46	28.30	19.66	2.044 (B)	[PC]	[SLD] H -V
452	C	0.00	52.00	32.50	18.92	28.36	25.41	2.044 (B)	[PC]	--
453	C	0.00	51.00	31.50	19.01	27.59	20.68	2.049 (B)	[PC]	[SLD] H +V
454	C	1.00	50.00	30.00	19.06	27.39	19.37	2.052 (B)	[PC]	[SLD] H -V
455	C	1.00	53.00	32.00	19.34	28.12	19.38	2.053 (B)	[PC]	[SLD] H +V
456	C	4.00	53.00	31.00	19.01	30.93	35.81	2.056 (B)	[PC]	--
457	C	3.00	55.00	32.00	19.76	29.04	19.23	2.062 (B)	[PC]	[SLV] H +V
458	C	3.00	53.00	31.50	19.01	30.19	32.56	2.062 (B)	[PC]	--
459	C	0.00	50.00	31.00	18.87	27.55	22.60	2.064 (B)	[PC]	--
460	C	-1.00	52.00	32.50	19.25	27.06	15.61	2.065 (B)	[PC]	[SLD] H -V
461	C	3.00	51.00	29.50	19.13	28.52	23.45	2.066 (B)	[PC]	[SLD] H +V
462	C	2.00	50.00	29.00	19.32	27.20	16.23	2.066 (B)	[PC]	[SLD] H -V
463	C	-2.00	50.00	32.00	19.00	26.42	15.59	2.068 (B)	[PC]	[SLV] H +V
464	C	2.00	54.00	32.50	19.17	29.46	26.43	2.073 (B)	[PC]	--
465	C	4.00	54.00	31.00	19.51	29.82	24.66	2.074 (B)	[PC]	[SLD] H +V
466	C	4.00	50.00	27.50	19.59	27.54	15.84	2.074 (B)	[PC]	[SLV] H +V
467	C	2.00	52.00	30.50	19.42	27.93	18.17	2.078 (B)	[PC]	[SLD] H -V
468	C	3.00	50.00	29.00	18.99	28.50	25.90	2.084 (B)	[PC]	--
469	C	2.00	53.00	32.00	19.01	29.51	29.38	2.100 (B)	[PC]	--
470	C	3.00	52.00	29.50	19.75	27.68	14.78	2.103 (B)	[PC]	[SLV] H -V
471	C	4.00	52.00	29.00	19.71	28.23	17.19	2.107 (B)	[PC]	[SLV] H +V
472	C	4.00	53.00	30.50	19.25	29.90	27.83	2.107 (B)	[PC]	--
473	C	3.00	54.00	31.50	19.51	29.15	22.12	2.109 (B)	[PC]	[SLD] H +V
474	C	3.00	53.00	31.00	19.26	29.23	25.02	2.114 (B)	[PC]	--
475	C	4.00	56.00	32.50	19.67	30.71	25.25	2.116 (B)	[PC]	[SLD] H -V
476	C	1.00	50.00	29.50	19.42	26.65	13.33	2.121 (B)	[PC]	[SLV] H +V
477	C	3.00	50.00	28.00	19.65	27.00	13.25	2.122 (B)	[PC]	[SLV] H -V
478	C	1.00	51.00	31.00	18.97	28.15	24.00	2.122 (B)	[PC]	--
479	C	2.00	54.00	32.00	19.54	28.62	19.58	2.123 (B)	[PC]	[SLD] H -V
480	C	4.00	51.00	28.50	19.46	28.30	19.66	2.125 (B)	[PC]	[SLD] H +V
481	C	1.00	52.00	31.50	19.11	28.15	21.73	2.127 (B)	[PC]	[SLD] H +V
482	C	0.00	53.00	32.50	19.40	27.57	16.57	2.127 (B)	[PC]	[SLD] H -V
483	C	4.00	50.00	28.00	19.21	28.31	22.10	2.127 (B)	[PC]	--
484	C	2.00	51.00	30.00	19.17	27.95	20.43	2.129 (B)	[PC]	--
485	C	-2.00	51.00	32.50	19.13	26.47	14.16	2.130 (B)	[PC]	[SLV] H -V
486	C	4.00	52.00	30.00	19.06	29.93	30.97	2.130 (B)	[PC]	--
487	C	4.00	53.00	30.00	19.60	28.97	20.84	2.133 (B)	[PC]	[SLD] H -V
488	C	4.00	55.00	32.50	19.11	32.01	37.26	2.134 (B)	[PC]	--
489	C	4.00	56.00	32.00	20.01	29.46	18.35	2.145 (B)	[PC]	[SLV] H -V
490	C	3.00	54.00	31.00	19.88	28.32	15.81	2.151 (B)	[PC]	[SLV] H -V
491	C	1.00	53.00	32.50	19.03	28.91	26.22	2.153 (B)	[PC]	--
492	C	2.00	53.00	31.00	19.67	27.86	15.88	2.163 (B)	[PC]	[SLV] H +V
493	C	1.00	50.00	30.00	19.06	27.39	19.37	2.166 (B)	[PC]	[SLD] H +V
494	C	3.00	52.00	30.50	19.07	29.26	27.89	2.168 (B)	[PC]	--
495	C	2.00	52.00	30.50	19.42	27.93	18.17	2.171 (B)	[PC]	[SLD] H +V
496	C	2.00	50.00	29.00	19.32	27.20	16.23	2.172 (B)	[PC]	[SLD] H +V
497	C	3.00	51.00	29.00	19.50	27.73	16.99	2.173 (B)	[PC]	[SLD] H -V
498	C	-1.00	52.00	32.50	19.25	27.06	15.61	2.178 (B)	[PC]	[SLD] H +V
499	C	0.00	50.00	30.50	19.11	26.84	16.15	2.179 (B)	[PC]	[SLV] H +V
500	C	4.00	56.00	32.50	19.67	30.71	25.25	2.183 (B)	[PC]	[SLD] H +V
501	C	-1.00	51.00	32.00	19.06	27.05	17.39	2.185 (B)	[PC]	[SLD] H -V
502	C	4.00	54.00	30.50	19.85	28.86	18.02	2.192 (B)	[PC]	[SLV] H +V
503	C	2.00	53.00	31.50	19.29	28.69	22.21	2.197 (B)	[PC]	--
504	C	4.00	52.00	29.50	19.35	29.04	23.65	2.198 (B)	[PC]	--
505	C	2.00	51.00	29.50	19.57	27.19	14.32	2.201 (B)	[PC]	[SLV] H +V
506	C	2.00	55.00	32.50	19.79	28.51	16.94	2.204 (B)	[PC]	[SLV] H +V
507	C	0.00	51.00	31.00	19.33	26.86	14.46	2.206 (B)	[PC]	[SLD] H -V
508	C	2.00	54.00	32.00	19.54	28.62	19.58	2.210 (B)	[PC]	[SLD] H +V
509	C	4.00	53.00	30.00	19.60	28.97	20.84	2.214 (B)	[PC]	[SLD] H +V
510	C	2.00	50.00	29.50	19.01	27.93	22.63	2.222 (B)	[PC]	--
511	C	-1.00	50.00	31.00	19.21	26.23	13.00	2.224 (B)	[PC]	[SLD] H -V
512	C	4.00	55.00	32.00	19.42	30.85	28.79	2.229 (B)	[PC]	--
513	C	3.00	53.00	30.50	19.63	28.43	18.36	2.231 (B)	[PC]	[SLD] H -V
514	C	2.00	52.00	31.00	19.08	28.72	24.82	2.232 (B)	[PC]	--

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	[m]	[m]	[m]	[m]	[mc]			
515	C	4.00	55.00	31.50	19.76	29.68	21.49	2.232 (B)	[PC]	[SLD] H -V
516	C	0.00	52.00	32.00	19.16	27.60	18.65	2.234 (B)	[PC]	[SLD] H -V
517	C	0.00	53.00	32.50	19.40	27.57	16.57	2.237 (B)	[PC]	[SLD] H +V
518	C	4.00	54.00	31.50	19.17	30.92	32.33	2.239 (B)	[PC]	--
519	C	4.00	51.00	29.00	19.12	29.06	26.44	2.239 (B)	[PC]	--
520	C	3.00	50.00	28.50	19.25	27.75	19.16	2.245 (B)	[PC]	--
521	C	3.00	55.00	32.50	19.41	30.05	26.09	2.249 (B)	[PC]	--
522	C	4.00	51.00	28.00	19.84	27.49	13.72	2.256 (B)	[PC]	[SLV] H -V
523	C	3.00	56.00	32.50	20.01	28.88	16.36	2.259 (B)	[PC]	[SLV] H -V
524	C	-2.00	50.00	32.00	19.00	26.42	15.59	2.261 (B)	[PC]	[SLD] H -V
525	C	3.00	54.00	32.00	19.16	30.15	29.35	2.262 (B)	[PC]	--
526	C	1.00	54.00	32.50	19.59	28.05	17.01	2.267 (B)	[PC]	[SLD] H -V
527	C	1.00	52.00	31.00	19.49	27.38	15.43	2.272 (B)	[PC]	[SLD] H -V
528	C	3.00	51.00	29.00	19.50	27.73	16.99	2.282 (B)	[PC]	[SLD] H +V
529	C	-1.00	50.00	31.50	18.93	27.00	19.06	2.283 (B)	[PC]	--
530	C	4.00	53.00	29.50	19.96	28.12	14.71	2.296 (B)	[PC]	[SLV] H -V
531	C	3.00	52.00	30.00	19.38	28.50	20.92	2.296 (B)	[PC]	--
532	C	1.00	51.00	30.50	19.24	27.40	17.43	2.305 (B)	[PC]	--
533	C	4.00	56.00	32.00	20.01	29.46	18.35	2.305 (B)	[PC]	[SLV] H +V
534	C	0.00	51.00	31.50	19.01	27.59	20.68	2.312 (B)	[PC]	--
535	C	4.00	50.00	27.50	19.59	27.54	15.84	2.315 (B)	[PC]	[SLD] H -V
536	C	4.00	55.00	31.50	19.76	29.68	21.49	2.316 (B)	[PC]	[SLD] H +V
537	C	1.00	53.00	32.00	19.34	28.12	19.38	2.317 (B)	[PC]	--
538	C	3.00	55.00	32.00	19.76	29.04	19.23	2.328 (B)	[PC]	[SLD] H -V
539	C	3.00	51.00	29.50	19.13	28.52	23.45	2.328 (B)	[PC]	--
540	C	3.00	53.00	30.50	19.63	28.43	18.36	2.333 (B)	[PC]	[SLD] H +V
541	C	3.00	52.00	29.50	19.75	27.68	14.78	2.334 (B)	[PC]	[SLV] H +V
542	C	-1.00	51.00	32.00	19.06	27.05	17.39	2.335 (B)	[PC]	[SLD] H +V
543	C	4.00	54.00	31.00	19.51	29.82	24.66	2.337 (B)	[PC]	--
544	C	1.00	50.00	29.50	19.42	26.65	13.33	2.339 (B)	[PC]	[SLD] H -V
545	C	0.00	51.00	31.00	19.33	26.86	14.46	2.347 (B)	[PC]	[SLD] H +V
546	C	3.00	54.00	31.00	19.88	28.32	15.81	2.362 (B)	[PC]	[SLV] H +V
547	C	4.00	52.00	29.00	19.71	28.23	17.19	2.366 (B)	[PC]	[SLD] H -V
548	C	0.00	52.00	32.00	19.16	27.60	18.65	2.374 (B)	[PC]	[SLD] H +V
549	C	3.00	54.00	31.50	19.51	29.15	22.12	2.382 (B)	[PC]	--
550	C	1.00	54.00	32.50	19.59	28.05	17.01	2.384 (B)	[PC]	[SLD] H +V
551	C	0.00	50.00	30.50	19.11	26.84	16.15	2.389 (B)	[PC]	[SLD] H -V
552	C	-1.00	50.00	31.00	19.21	26.23	13.00	2.394 (B)	[PC]	[SLD] H +V
553	C	4.00	51.00	28.50	19.46	28.30	19.66	2.402 (B)	[PC]	--
554	C	1.00	52.00	31.50	19.11	28.15	21.73	2.403 (B)	[PC]	--
555	C	1.00	52.00	31.00	19.49	27.38	15.43	2.407 (B)	[PC]	[SLD] H +V
556	C	3.00	50.00	28.00	19.65	27.00	13.25	2.413 (B)	[PC]	[SLV] H +V
557	C	4.00	55.00	31.00	20.10	28.70	15.22	2.414 (B)	[PC]	[SLV] H -V
558	C	2.00	53.00	31.00	19.67	27.86	15.88	2.421 (B)	[PC]	[SLD] H -V
559	C	3.00	55.00	32.00	19.76	29.04	19.23	2.430 (B)	[PC]	[SLD] H +V
560	C	2.00	51.00	29.50	19.57	27.19	14.32	2.447 (B)	[PC]	[SLD] H -V
561	C	4.00	50.00	27.50	19.59	27.54	15.84	2.448 (B)	[PC]	[SLD] H +V
562	C	1.00	50.00	30.00	19.06	27.39	19.37	2.450 (B)	[PC]	--
563	C	-2.00	50.00	32.00	19.00	26.42	15.59	2.451 (B)	[PC]	[SLD] H +V
564	C	2.00	52.00	30.50	19.42	27.93	18.17	2.458 (B)	[PC]	--
565	C	2.00	50.00	29.00	19.32	27.20	16.23	2.459 (B)	[PC]	--
566	C	-1.00	52.00	32.50	19.25	27.06	15.61	2.468 (B)	[PC]	--
567	C	4.00	56.00	32.50	19.67	30.71	25.25	2.469 (B)	[PC]	--
568	C	3.00	56.00	32.50	20.01	28.88	16.36	2.471 (B)	[PC]	[SLV] H +V
569	C	4.00	54.00	30.50	19.85	28.86	18.02	2.474 (B)	[PC]	[SLD] H -V
570	C	2.00	55.00	32.50	19.79	28.51	16.94	2.482 (B)	[PC]	[SLD] H -V
571	C	4.00	52.00	29.00	19.71	28.23	17.19	2.489 (B)	[PC]	[SLD] H +V
572	C	2.00	54.00	32.00	19.54	28.62	19.58	2.506 (B)	[PC]	--
573	C	4.00	53.00	30.00	19.60	28.97	20.84	2.509 (B)	[PC]	--
574	C	1.00	50.00	29.50	19.42	26.65	13.33	2.518 (B)	[PC]	[SLD] H +V
575	C	0.00	53.00	32.50	19.40	27.57	16.57	2.539 (B)	[PC]	--
576	C	-2.00	51.00	32.50	19.13	26.47	14.16	2.550 (B)	[PC]	[SLV] H +V
577	C	4.00	51.00	28.00	19.84	27.49	13.72	2.558 (B)	[PC]	[SLV] H +V
578	C	2.00	53.00	31.00	19.67	27.86	15.88	2.565 (B)	[PC]	[SLD] H +V
579	C	4.00	53.00	29.50	19.96	28.12	14.71	2.565 (B)	[PC]	[SLV] H +V
580	C	4.00	57.00	32.50	20.24	29.18	15.27	2.587 (B)	[PC]	[SLV] H -V
581	C	0.00	50.00	30.50	19.11	26.84	16.15	2.587 (B)	[PC]	[SLD] H +V
582	C	3.00	51.00	29.00	19.50	27.73	16.99	2.592 (B)	[PC]	--
583	C	4.00	54.00	30.50	19.85	28.86	18.02	2.597 (B)	[PC]	[SLD] H +V
584	C	3.00	52.00	29.50	19.75	27.68	14.78	2.606 (B)	[PC]	[SLD] H -V
585	C	4.00	56.00	32.00	20.01	29.46	18.35	2.612 (B)	[PC]	[SLD] H -V
586	C	2.00	55.00	32.50	19.79	28.51	16.94	2.617 (B)	[PC]	[SLD] H +V
587	C	2.00	51.00	29.50	19.57	27.19	14.32	2.618 (B)	[PC]	[SLD] H +V
588	C	4.00	55.00	31.50	19.76	29.68	21.49	2.634 (B)	[PC]	--
589	C	3.00	54.00	31.00	19.88	28.32	15.81	2.654 (B)	[PC]	[SLD] H -V
590	C	3.00	53.00	30.50	19.63	28.43	18.36	2.655 (B)	[PC]	--
591	C	-1.00	51.00	32.00	19.06	27.05	17.39	2.656 (B)	[PC]	--
592	C	3.00	50.00	28.00	19.65	27.00	13.25	2.669 (B)	[PC]	[SLD] H -V
593	C	0.00	51.00	31.00	19.33	26.86	14.46	2.674 (B)	[PC]	--
594	C	4.00	55.00	31.00	20.10	28.70	15.22	2.685 (B)	[PC]	[SLV] H +V
595	C	0.00	52.00	32.00	19.16	27.60	18.65	2.703 (B)	[PC]	--
596	C	1.00	54.00	32.50	19.59	28.05	17.01	2.718 (B)	[PC]	--
597	C	-1.00	50.00	31.00	19.21	26.23	13.00	2.732 (B)	[PC]	--
598	C	4.00	56.00	32.00	20.01	29.46	18.35	2.743 (B)	[PC]	[SLD] H +V
599	C	1.00	52.00	31.00	19.49	27.38	15.43	2.745 (B)	[PC]	--
600	C	-2.00	51.00	32.50	19.13	26.47	14.16	2.754 (B)	[PC]	[SLD] H -V
601	C	3.00	55.00	32.00	19.76	29.04	19.23	2.774 (B)	[PC]	--
602	C	3.00	52.00	29.50	19.75	27.68	14.78	2.787 (B)	[PC]	[SLD] H +V
603	C	3.00	56.00	32.50	20.01	28.88	16.36	2.793 (B)	[PC]	[SLD] H -V
604	C	4.00	50.00	27.50	19.59	27.54	15.84	2.793 (B)	[PC]	--
605	C	-2.00	50.00	32.00	19.00	26.42	15.59	2.798 (B)	[PC]	--
606	C	3.00	54.00	31.00	19.88	28.32	15.81	2.822 (B)	[PC]	[SLD] H +V
607	C	4.00	52.00	29.00	19.71	28.23	17.19	2.845 (B)	[PC]	--

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[mc]*			
608	C	4.00	51.00	28.00	19.84	27.49	13.72	2.847 (B)	[PC]	[SLD] H -V
609	C	4.00	53.00	29.50	19.96	28.12	14.71	2.877 (B)	[PC]	[SLD] H -V
610	C	1.00	50.00	29.50	19.42	26.65	13.33	2.884 (B)	[PC]	--
611	C	4.00	57.00	32.50	20.24	29.18	15.27	2.884 (B)	[PC]	[SLV] H +V
612	C	3.00	50.00	28.00	19.65	27.00	13.25	2.896 (B)	[PC]	[SLD] H +V
613	C	2.00	53.00	31.00	19.67	27.86	15.88	2.939 (B)	[PC]	--
614	C	0.00	50.00	30.50	19.11	26.84	16.15	2.961 (B)	[PC]	--
615	C	3.00	56.00	32.50	20.01	28.88	16.36	2.964 (B)	[PC]	[SLD] H +V
616	C	4.00	54.00	30.50	19.85	28.86	18.02	2.978 (B)	[PC]	--
617	C	2.00	55.00	32.50	19.79	28.51	16.94	3.005 (B)	[PC]	--
618	C	2.00	51.00	29.50	19.57	27.19	14.32	3.005 (B)	[PC]	--
619	C	4.00	55.00	31.00	20.10	28.70	15.22	3.032 (B)	[PC]	[SLD] H -V
620	C	-2.00	51.00	32.50	19.13	26.47	14.16	3.084 (B)	[PC]	[SLD] H +V
621	C	4.00	51.00	28.00	19.84	27.49	13.72	3.086 (B)	[PC]	[SLD] H +V
622	C	4.00	53.00	29.50	19.96	28.12	14.71	3.092 (B)	[PC]	[SLD] H +V
623	C	4.00	56.00	32.00	20.01	29.46	18.35	3.161 (B)	[PC]	--
624	C	3.00	52.00	29.50	19.75	27.68	14.78	3.217 (B)	[PC]	--
625	C	4.00	55.00	31.00	20.10	28.70	15.22	3.251 (B)	[PC]	[SLD] H +V
626	C	3.00	54.00	31.00	19.88	28.32	15.81	3.260 (B)	[PC]	--
627	C	4.00	57.00	32.50	20.24	29.18	15.27	3.275 (B)	[PC]	[SLD] H -V
628	C	3.00	50.00	28.00	19.65	27.00	13.25	3.355 (B)	[PC]	--
629	C	3.00	56.00	32.50	20.01	28.88	16.36	3.440 (B)	[PC]	--
630	C	4.00	57.00	32.50	20.24	29.18	15.27	3.520 (B)	[PC]	[SLD] H +V
631	C	-2.00	51.00	32.50	19.13	26.47	14.16	3.589 (B)	[PC]	--
632	C	4.00	51.00	28.00	19.84	27.49	13.72	3.597 (B)	[PC]	--
633	C	4.00	53.00	29.50	19.96	28.12	14.71	3.603 (B)	[PC]	--
634	C	4.00	55.00	31.00	20.10	28.70	15.22	3.809 (B)	[PC]	--
635	C	4.00	57.00	32.50	20.24	29.18	15.27	4.162 (B)	[PC]	--

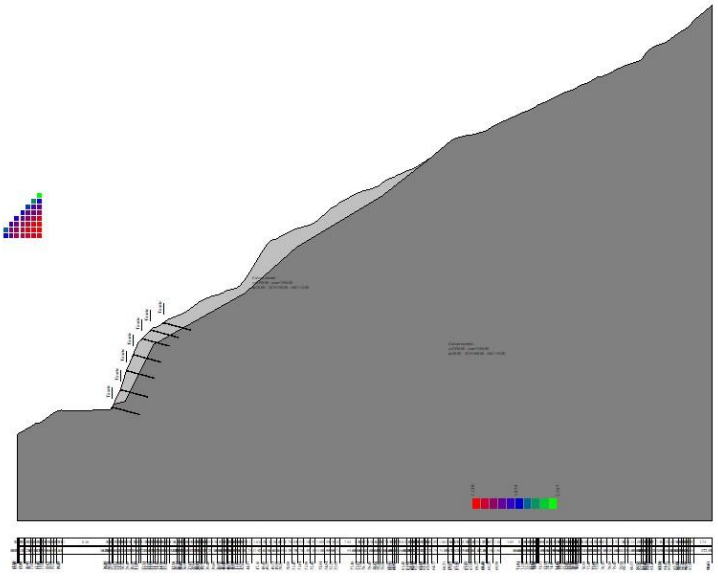


Fig. 2 - Mappa fattori di sicurezza - BISHOP

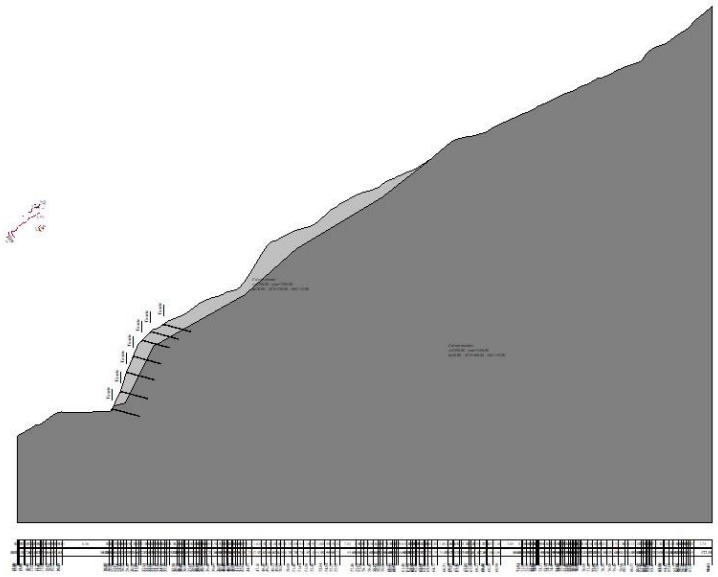


Fig. 3 - Curve di livello - BISHOP

Analisi della superficie critica

Simbologia adottata

Le ascisse X sono considerate positive verso destra
Le ordinate Y sono considerate positive verso l'alto
Le strisce sono numerate da valle verso monte

N°	numero d'ordine della striscia
X_s	ascissa sinistra della striscia espressa in m
Y_{ss}	ordinata superiore sinistra della striscia espressa in m
Y_{si}	ordinata inferiore sinistra della striscia espressa in m
X_g	ascissa del baricentro della striscia espressa in m
Y_g	ordinata del baricentro della striscia espressa in m
α	angolo fra la base della striscia e l'orizzontale espresso °(positivo antiorario)
ϕ	angolo d'attrito del terreno lungo la base della striscia
c	coesione del terreno lungo la base della striscia espressa in kg/cmq
L	sviluppo della base della striscia espressa in m(L=b/cosα)
u	pressione neutra lungo la base della striscia espressa in kg/cmq
W	peso della striscia espresso in kg
Q	carico applicato sulla striscia espresso in kg
N	sforzo normale alla base della striscia espresso in kg
T	sforzo tangenziale alla base della striscia espresso in kg
U	pressione neutra alla base della striscia espressa in kg
E_s, E_d	forze orizzontali sulla striscia a sinistra e a destra espresse in kg
X_s, X_d	forze verticali sulla striscia a sinistra e a destra espresse in kg
ID	Indice della superficie interessata dall'intervento
JCS	Coefficiente di resistenza di giunto
JRC	Coefficiente di rugosità del giunto
ϕ_r	Angolo di attrito residuo
γ	Peso dell'unità di volume della roccia

Superficie n° 1

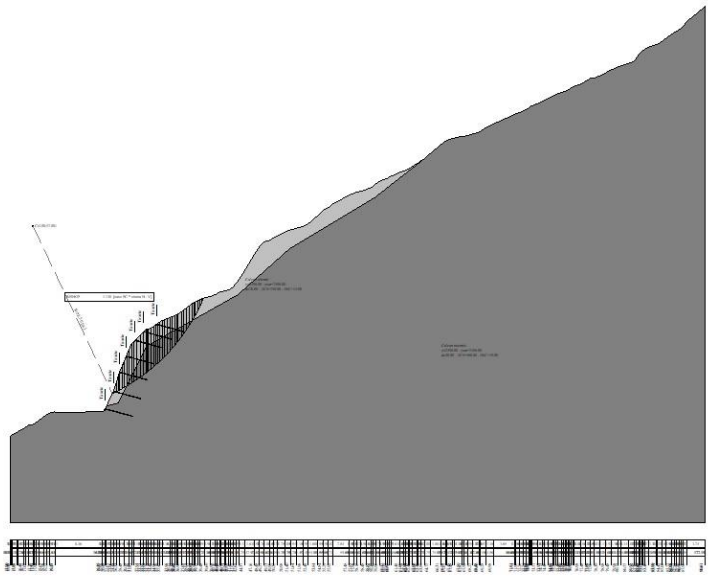


Fig. 4 - Superficie di rottura (Superficie n° 1)

Analisi della superficie 1 - valori caratteristici e sisma verso il basso

Numero di strisce	40	
Coordinate del centro	X[m]= 4.00	Y[m]= 52.00
Raggio del cerchio	R[m]= 32.50	
Intersezione a valle con il profilo topografico	X_v[m]= 17.92	Y_v[m]= 22.63
Intersezione a monte con il profilo topografico	X_m[m]= 33.95	Y_m[m]= 39.38

Geometria e caratteristiche strisce

N°	X_s	Y_{ss}	Y_{si}	X_d	Y_{ds}	Y_{di}	X_q	Y_q	L	α	ϕ	c
	[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[°]*	*[°]*	*[kg/cmq]*
1	17.92	22.63	22.63	18.12	23.06	22.73	18.05	22.81	0.22	25.55	61.48	0.006
2	18.12	23.06	22.73	18.60	24.48	22.96	18.41	23.40	0.54	26.22	61.48	0.006
3	18.60	24.48	22.96	19.00	25.85	23.17	18.82	24.15	0.45	27.09	52.60	0.015
4	19.00	25.85	23.17	19.14	26.33	23.24	19.07	24.65	0.16	27.63	50.69	0.018
5	19.14	26.33	23.24	19.62	27.41	23.50	19.39	25.13	0.54	28.24	49.55	0.021
6	19.62	27.41	23.50	20.09	28.48	23.76	19.86	25.80	0.54	29.20	48.33	0.024
7	20.09	28.48	23.76	20.47	29.43	23.98	20.28	26.42	0.44	30.06	47.38	0.027
8	20.47	29.43	23.98	20.85	30.38	24.21	20.66	27.01	0.44	30.84	46.61	0.030
9	20.85	30.38	24.21	21.36	31.48	24.52	21.11	27.66	0.60	31.76	45.93	0.032
10	21.36	31.48	24.52	21.65	31.81	24.71	21.51	28.13	0.34	32.59	45.57	0.034
11	21.65	31.81	24.71	22.24	32.38	25.10	21.95	28.50	0.71	33.52	45.52	0.034
12	22.24	32.38	25.10	22.84	32.94	25.52	22.54	28.99	0.72	34.79	46.65	0.030
13	22.84	32.94	25.52	23.46	33.53	25.97	23.15	29.49	0.77	36.11	45.49	0.034
14	23.46	33.53	25.97	23.85	33.88	26.27	23.66	29.91	0.49	37.21	45.52	0.034
15	23.85	33.88	26.27	24.00	33.92	26.38	23.92	30.11	0.19	37.81	45.58	0.034
16	24.00	33.92	26.38	24.26	33.98	26.59	24.13	30.22	0.33	38.27	45.72	0.033
17	24.26	33.98	26.59	24.80	34.14	27.03	24.53	30.43	0.70	39.18	45.99	0.032
18	24.80	34.14	27.03	25.21	34.48	27.38	25.00	30.76	0.54	40.27	46.23	0.031
19	25.21	34.48	27.38	25.54	34.73	27.66	25.37	31.06	0.44	41.13	46.34	0.031
20	25.54	34.73	27.66	25.87	34.98	27.96	25.70	31.33	0.44	41.90	46.46	0.030
21	25.87	34.98	27.96	26.19	35.16	28.25	26.03	31.59	0.44	42.68	46.61	0.030
22	26.19	35.16	28.25	26.68	35.45	28.72	26.43	31.90	0.68	43.66	46.86	0.029
23	26.68	35.45	28.72	27.13	35.63	29.17	26.91	32.24	0.64	44.82	47.20	0.028
24	27.13	35.63	29.17	27.59	35.80	29.64	27.36	32.56	0.65	45.96	47.61	0.026
25	27.59	35.80	29.64	28.04	35.98	30.13	27.81	32.89	0.67	47.12	48.07	0.025
26	28.04	35.98	30.13	28.44	36.17	30.58	28.24	33.21	0.60	48.23	48.52	0.024
27	28.44	36.17	30.58	28.86	36.33	31.07	28.65	33.53	0.64	49.33	49.00	0.022
28	28.86	36.33	31.07	29.25	36.48	31.54	29.05	33.85	0.61	50.44	49.54	0.021
29	29.25	36.48	31.54	29.51	36.65	31.86	29.38	34.13	0.42	51.35	49.98	0.020
30	29.51	36.65	31.86	30.04	36.98	32.55	29.77	34.51	0.87	52.48	50.49	0.019
31	30.04	36.98	32.55	30.51	37.33	33.19	30.27	35.01	0.79	53.94	51.17	0.017
32	30.51	37.33	33.19	30.97	37.68	33.87	30.73	35.51	0.82	55.36	51.87	0.016
33	30.97	37.68	33.87	31.39	38.03	34.51	31.18	36.02	0.77	56.76	52.62	0.015
34	31.39	38.03	34.51	31.99	38.51	35.48	31.68	36.62	1.15	58.44	53.65	0.013
35	31.99	38.51	35.48	32.33	38.64	36.07	32.16	37.17	0.68	60.06	54.97	0.011
36	32.33	38.64	36.07	32.51	38.74	36.40	32.42	37.46	0.37	60.98	56.00	0.010
37	32.51	38.74	36.40	32.94	38.98	37.21	32.72	37.82	0.92	62.12	57.37	0.009
38	32.94	38.98	37.21	33.28	39.12	37.90	33.10	38.29	0.76	63.61	59.70	0.007

N°	X_s	Y_{ss}	Y_{si}	X_d	Y_{ds}	Y_{di}	X_q	Y_q	L	α	ϕ	c
	[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[°]*	*[°]*	*[kg/cmq]*
39	33.28	39.12	37.90	33.61	39.25	38.61	33.43	38.70	0.79	64.98	61.48	0.006
40	33.61	39.25	38.61	33.95	39.38	39.38	33.73	39.08	0.83	66.41	61.48	0.006

Metodo di **BISHOP**

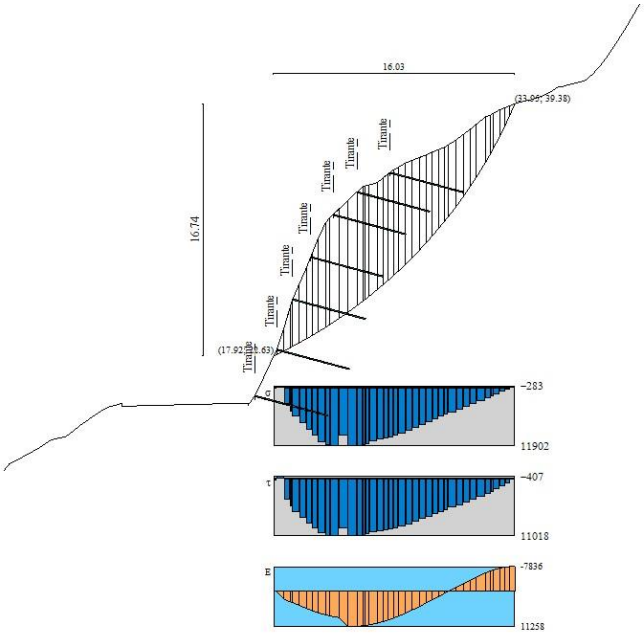


Fig. 5 - Forze di interstriscia (Superficie n° 1)

Coefficiente di sicurezza F_S= 1.130

Forze applicate sulle strisce

N°	W	Q	N	T	U	E_s	E_d	X_s	X_d	ID
	[kg]	*[kg]*	*[kg]*	*[kg]*	*[kg]*	*[kg]*	*[kg]*	*[kg]*	*[kg]*	
1	83	0	52	97	0	0	54	0	0	--
2	1108	0	-151	-218	0	54	2649	0	0	--
3	2097	0	1558	1862	0	2649	3323	0	0	--
4	1009	0	766	854	0	3323	3592	0	0	--
5	4151	0	3189	3410	0	3592	4543	0	0	--
6	5117	0	3973	4067	0	4543	5486	0	0	--
7	4825	0	3776	3737	0	5486	6197	0	0	--
8	5514	0	4345	4184	0	6197	6841	0	0	--
9	8361	0	6623	6226	0	6841	7554	0	0	--
10	5091	0	4040	3751	0	7554	7872	0	0	--
11	10679	0	8457	7836	0	7872	8336	0	0	--
12	10919	0	7071	6818	0	8336	11258	0	0	--
13	11602	0	9133	8455	0	11258	11188	0	0	--
14	7391	0	5805	5378	0	11188	10993	0	0	--
15	2838	0	2224	2066	0	10993	10890	0	0	--
16	4847	0	3789	3536	0	10890	10684	0	0	--
17	9783	0	7606	7167	0	10684	10154	0	0	--
18	7280	0	5632	5352	0	10154	9645	0	0	--
19	5841	0	4508	4300	0	9645	9154	0	0	--
20	5806	0	4470	4282	0	9154	8595	0	0	--
21	5566	0	4272	4115	0	8595	7996	0	0	--
22	8344	0	6377	6195	0	7996	6983	0	0	--
23	7464	0	5670	5576	0	6983	5964	0	0	--
24	7144	0	5388	5377	0	5964	4894	0	0	--
25	6802	0	5091	5163	0	4894	3786	0	0	--
26	5717	0	4246	4375	0	3786	2785	0	0	--
27	5695	0	4194	4397	0	2785	1723	0	0	--
28	4971	0	3625	3876	0	1723	746	0	0	--
29	3159	0	2286	2482	0	746	97	0	0	--
30	6099	0	4372	4836	0	97	-1224	0	0	--
31	4974	0	3520	3992	0	-1224	-2371	0	0	--
32	4619	0	3226	3753	0	-2371	-3496	0	0	--
33	3850	0	2649	3168	0	-3496	-4479	0	0	--
34	4909	0	3306	4108	0	-4479	-5789	0	0	--
35	2375	0	1551	2027	0	-5789	-6432	0	0	--
36	1104	0	702	955	0	-6432	-6728	0	0	--
37	2208	0	1355	1945	0	-6728	-7305	0	0	--
38	1271	0	728	1151	0	-7305	-7612	0	0	--
39	776	0	415	719	0	-7612	-7786	0	0	--
40	266	0	128	253	0	-7786	-7836	0	0	-

Dati VERIFICA DI STABILITA' SEZIONE 18

Descrizione rocce

Simbologia adottata

Nr. Indice roccia
Descrizione Descrizione
JRC Coefficiente di rugosità JRC (Joint Roughness Coefficient)
JCS Coefficiente di resistenza del giunto JCS (Joint Coefficient Strength) espresso in kg/cmq
ϕ_r Angolo di attrito di base espresso in gradi

n°	Descrizione	γ [kg/mc]	γ_{sat} [kg/mc]	JRC	JCS [kg/cmq]	ϕ_r
1	Brecce eterometriche	2498	2498	18.00	387.00	25.00
2	Breccia Alterata	2498	2498	15.00	250.00	20.00

Profilo del piano campagna

Simbologia e convenzioni di segno adottate

L'ascissa è intesa positiva da sinistra verso destra e l'ordinata positiva verso l'alto.

Nr. Identificativo del punto
X Ascissa del punto del profilo espressa in m
Y Ordinata del punto del profilo espressa in m

n°	X [m]	Y [m]
1	0.00	15.00
2	0.42	15.26
3	0.72	15.45
4	1.19	15.76
5	1.68	16.08
6	1.94	16.26
7	2.39	16.43
8	3.25	16.76
9	3.58	17.05
10	3.84	17.26
11	4.10	17.52
12	4.34	17.76
13	4.73	18.35
14	5.03	18.70
15	5.34	18.75
16	6.84	18.75
17	9.33	18.76
18	9.78	18.76
19	10.12	18.76
20	10.26	18.76
21	10.56	18.76
22	10.72	18.76
23	11.29	18.76
24	12.16	18.76
25	12.72	18.76
26	12.95	18.76
27	13.58	18.76
28	13.77	18.76
29	14.11	18.98
30	14.68	19.26
31	14.72	19.40
32	14.92	19.76
33	14.97	19.96
34	15.12	20.26
35	15.18	20.51
36	15.27	20.76
37	15.34	21.07
38	15.38	21.26
39	15.49	21.76
40	15.53	21.90
41	15.67	21.99
42	15.88	22.97
43	15.98	23.26
44	16.07	23.35
45	16.15	23.76
46	16.19	23.87
47	16.41	24.18
48	16.52	24.76
49	16.54	24.88
50	16.71	25.20
51	16.73	25.40
52	16.86	25.76
53	16.99	25.96
54	17.05	26.26
55	17.15	26.56
56	17.26	26.76
57	17.33	27.13
58	17.46	27.40
59	17.53	27.76
60	17.84	28.72

n°	X	Y
	[m]	*[m]*
61	17.90	28.90
62	18.02	29.26
63	18.06	29.38
64	18.21	29.84
65	18.26	29.96
66	18.43	30.30
67	18.69	30.76
68	18.90	31.10
69	19.00	31.26
70	19.13	31.47
71	19.32	31.76
72	19.55	32.07
73	19.69	32.26
74	19.82	32.38
75	20.25	32.78
76	20.36	32.84
77	20.89	33.26
78	21.82	33.62
79	22.19	33.76
80	22.96	34.07
81	23.42	34.26
82	23.52	34.32
83	24.10	34.47
84	24.52	34.58
85	24.82	34.76
86	25.29	35.15
87	25.43	35.26
88	25.55	35.35
89	26.21	35.76
90	26.51	35.88
91	27.16	36.26
92	27.60	36.49
93	27.94	36.76
94	28.62	37.30
95	28.75	37.40
96	29.16	37.76
97	29.39	37.94
98	29.80	38.26
99	30.29	38.65
100	30.42	38.76
101	30.69	38.93
102	31.16	39.26
103	31.43	39.44
104	32.01	39.76
105	32.76	40.17
106	32.94	40.26
107	33.11	40.36
108	33.67	40.76
109	34.00	41.05
110	34.20	41.26
111	34.84	41.45
112	35.64	41.76
113	36.51	42.26
114	36.66	42.36
115	36.91	42.54
116	37.21	42.76
117	37.40	42.91
118	37.82	43.26
119	38.35	43.69
120	38.43	43.76
121	38.98	44.17
122	39.18	44.32
123	39.81	44.76
124	40.36	45.09
125	40.67	45.26
126	41.05	45.47
127	41.85	45.76
128	42.91	46.44

Descrizione stratigrafia

Simbologia e convenzioni di segno adottate
Gli strati sono descritti mediante i punti di contorno (in senso antiorario) e l'indice del terreno di cui è costituito

Strato N° **1** costituito da terreno n° 1 (Brecce eterometriche)

Coordinate dei vertici dello strato n° 1

n°	X	Y
	[m]	*[m]*
1	14.68	19.26
2	14.11	18.98
3	13.77	18.76
4	13.58	18.76
5	12.95	18.76
6	12.72	18.76
7	12.16	18.76
8	11.29	18.76
9	10.72	18.76
10	10.56	18.76

n°	X	Y
	[m]	*[m]*
11	10.26	18.76
12	10.12	18.76
13	9.78	18.76
14	9.33	18.76
15	6.84	18.75
16	5.34	18.75
17	5.03	18.70
18	4.73	18.35
19	4.34	17.76
20	4.10	17.52
21	3.84	17.26
22	3.58	17.05
23	3.25	16.76
24	2.39	16.43
25	1.94	16.26
26	1.68	16.08
27	1.19	15.76
28	0.72	15.45
29	0.42	15.26
30	0.00	15.00
31	0.00	0.00
32	42.91	0.00
33	42.91	46.44
34	41.85	45.76
35	41.05	45.47
36	40.67	45.26
37	40.36	45.09
38	39.81	44.76
39	39.18	44.32
40	38.98	44.17
41	38.43	43.76
42	38.35	43.69
43	37.82	43.26
44	37.40	42.91
45	37.21	42.76
46	36.91	42.54
47	36.66	42.36
48	36.51	42.26
49	35.64	41.76
50	34.84	41.45
51	34.20	41.26
52	34.00	41.05
53	33.67	40.76
54	33.11	40.36
55	32.94	40.26
56	32.76	40.17
57	32.01	39.76
58	31.43	39.44
59	31.16	39.26
60	30.69	38.93
61	30.42	38.76
62	30.29	38.65
63	29.80	38.26
64	29.39	37.94
65	29.16	37.76
66	28.75	37.40
67	28.62	37.30
68	27.94	36.76
69	27.60	36.49
70	27.16	36.26
71	26.51	35.88
72	26.21	35.76
73	25.55	35.35
74	25.43	35.26
75	25.29	35.15
76	24.82	34.76
77	24.52	34.58
78	24.10	34.47
79	22.00	31.00
80	20.00	28.00
81	18.00	23.00

Strato N° **2** costituito da terreno n° 2 (Breccia Alterata)

Coordinate dei vertici dello strato n° 2

n°	X	Y
	[m]	*[m]*
1	24.10	34.47
2	23.52	34.32
3	23.42	34.26
4	22.96	34.07
5	22.19	33.76
6	21.82	33.62
7	20.89	33.26
8	20.36	32.84
9	20.25	32.78
10	19.82	32.38
11	19.69	32.26
12	19.55	32.07
13	19.32	31.76

n°	X	Y
	[m]	*[m]*
14	19.13	31.47
15	19.00	31.26
16	18.90	31.10
17	18.69	30.76
18	18.43	30.30
19	18.26	29.96
20	18.21	29.84
21	18.06	29.38
22	18.02	29.26
23	17.90	28.90
24	17.84	28.72
25	17.53	27.76
26	17.46	27.40
27	17.33	27.13
28	17.26	26.76
29	17.15	26.56
30	17.05	26.26
31	16.99	25.96
32	16.86	25.76
33	16.73	25.40
34	16.71	25.20
35	16.54	24.88
36	16.52	24.76
37	16.41	24.18
38	16.19	23.87
39	16.15	23.76
40	16.07	23.35
41	15.98	23.26
42	15.88	22.97
43	15.67	21.99
44	15.53	21.90
45	15.49	21.76
46	15.38	21.26
47	15.34	21.07
48	15.27	20.76
49	15.18	20.51
50	15.12	20.26
51	14.97	19.96
52	14.92	19.76
53	14.72	19.40
54	14.68	19.26
55	18.00	23.00
56	20.00	28.00
57	22.00	31.00

Interventi inseriti

Numero interventi inseriti 5

Cordolo tirantato - Tirante 1

Ascissa sul profilo	15.88	m
Posizione sul cordolo	22.97	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante 1

Ascissa sul profilo	17.05	m
Posizione sul cordolo	26.26	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante 1

Ascissa sul profilo	17.90	m
Posizione sul cordolo	28.90	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante 1

Ascissa sul profilo	19.32	m
Posizione sul cordolo	31.76	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Cordolo tirantato - Tirante 1

Ascissa sul profilo	21.82	m
Posizione sul cordolo	33.62	m
Altezza cordolo	0.25	m
Larghezza cordolo	0.01	m
Lunghezza totale tiranti	5.00	m
Lunghezza fondazione tiranti	5.00	m
Inclinazione tiranti	15.000	
Interasse tiranti	3.00	m
Diametro tiranti	4.00	cm
Resistenza trazione (per tirante)	1500	kg
Resistenza taglio (per tirante)	13000	kg

Definizione della resistenza a taglio del singolo tirante

La resistenza a taglio delle barre è stata determinata utilizzando la seguente relazione:
$F_{v,rd} = 0.6*f_{td}*A/\gamma_{m2}$. Per una barra da 28 mm. con classe dell'acciaio pari a B450C, si ha: $F_{v,rd} = 0.6*450*615/1.15 = 14.500$ daN. Cautelativamente nelle verifiche è stato scelto di utilizzare una resistenza taglio di **13.000 daN**.

Definizione della resistenza a trazione del singolo tirante

La resistenza a trazione del tirante è stata valutata considerando la resistenza allo sfilamento della barra dal terreno. Considerando del tirante di 4 cm. una lunghezza dello stesso pari a 5 m. e un angolo di attrito del terreno pari a quello minimo degli strati in gioco, la tensione allo sfilamento potrà essere determinata con la relazione che segue:
$R_{a,c} = \pi D_d L_f q_s$
dove q_s è la resistenza ultima unitaria, assunta cautelativamente pari a 50 kN/m^2
$R_{a,c} = \pi D_d L_f q_s = 15$ kN = **1.500 daN**

Dati zona sismica

Identificazione del sito

Latitudine	41.922204
Longitudine	13.758611
Comune	Bisegna
Provincia	L'Aquila
Regione	Abruzzo
Punti di interpolazione del reticolo	28309 - 28308 - 28530 - 28531

Tipo di opera

Tipo di costruzione	Costruzioni con livelli di prestazioni ordinari
Vita nominale	50 anni
Classe d'uso	III - Affollamenti significativi e industrie non pericolose
Vita di riferimento	75 anni

	Simbolo	U.M.		SLV	SLD
Accelerazione al suolo	a_g	[m/s^2]		2.941	1.226
Accelerazione al suolo	a_g/g	[%]		0.300	0.125
Massimo fattore amplificazione spettro orizzontale	F0			2.385	2.318
Periodo inizio tratto spettro a velocità costante	Tc*			0.358	0.291
Tipo di sottosuolo - Coefficiente stratigrafico	Ss		B	1.114	1.200
Categoria topografica - Coefficiente amplificazione topografica	St		T4	1.400	1.400
Coefficiente riduzione pendio naturale	β_s			0.280	0.280
Rapporto intensità sismica verticale/orizzontale				0.50	0.50

Pendio naturale

	Simbolo	SLV	SLD
Coefficiente di intensità sismica orizzontale (percento)	$k_h=(a_g/g*\beta_s*St*S)$	13.09	5.88
Coefficiente di intensità sismica verticale (percento)	$k_v=0.50 * k_h$	6.55	2.94

Dati normativa

Normativa :
Norme Tecniche sulle Costruzioni 2018 - D.M. 17/01/2018

Coefficienti parziali per le azioni o per l'effetto delle azioni:

Carichi	Effetto	Simbologia	A2 Statico	A2 Sismico
Permanenti	Favorevole	γ_{Gfav}	1.00	1.00
Permanenti	Sfavorevole	γ_{Gsfav}	1.00	1.00
Variabili	Favorevole	γ_{Qfav}	0.00	0.00
Variabili	Sfavorevole	γ_{Qsfav}	1.30	1.00

Coefficienti parziali per i parametri geotecnici del terreno:

Parametri	Simbologia	M2 Statico	M2 Sismico
Tangente dell'angolo di attrito	$\gamma_{tan\phi'}$	1.25	1.00
Coesione efficace	$\gamma_{c'}$	1.25	1.00
Resistenza non drenata	γ_{cu}	1.40	1.00
Peso dell'unità di volume	γ_{γ}	1.00	1.00

Coefficiente di sicurezza richiesto

Tipo calcolo	Simbolo	Statico	Sismico
Pendio naturale	γ_R	1.00	1.00
Fronte di scavo	γ_R	1.10	1.20

Impostazioni delle superfici di rottura

Superfici di rottura circolari

Si considerano delle superfici di rottura circolari generate tramite la seguente maglia dei centri

Origine maglia	[m]	X_0 = 1.00	Y_0 = 42.00
Passo maglia	[m]	dX = 1.00	dY = 1.00
Numero passi		Nx = 5	Ny = 5
Raggio	[m]	R = 15.00	

Si utilizza un raggio variabile con passo dR=0.50 [m] ed un numero di incrementi pari a 20

Si considerano le superfici passanti per il punto P(14.71, 19.31) aventi centri sulla maglia

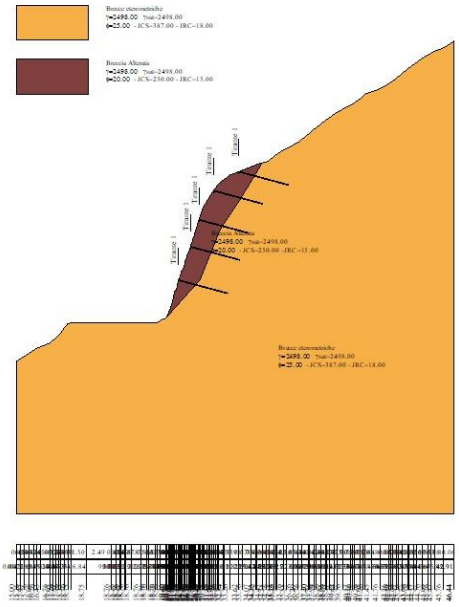


Fig. 1 - Profilo

Opzioni di calcolo

Per l'analisi sono stati utilizzati i seguenti metodi di calcolo:
- BISHOP

Le superfici sono state analizzate sia in condizioni **statiche** che **sismiche**.
Le superfici sono state analizzate per i casi:
- Pendio naturale [PC] - Parametri caratteristici
- Sisma orizzontale e Sisma verticale (verso il basso e verso l'alto)

Criterio di rottura adottato: **Barton**

Condizioni di esclusione

Sono state escluse dall'analisi le superfici aventi:

- lunghezza di corda inferiore a	1.00	m
- freccia inferiore a	0.50	m
- volume inferiore a	2.00	mc
- pendenza media della superficie inferiore a	1.00	[%]

Risultati analisi

Numero di superfici analizzate	560
Coefficiente di sicurezza minimo	1.197
Superficie con coefficiente di sicurezza minimo	1

Quadro sintetico coefficienti di sicurezza

Metodo	Nr. superfici	FS_{min}	S_{min}	FS_{max}	S_{max}
BISHOP	560	1.197	1	14.081	560

Caratteristiche delle superfici analizzate

Simbologia adottata

Le ascisse X sono considerate positive verso monte
Le ordinate Y sono considerate positive verso l'alto
N° numero d'ordine della superficie cerchio
F forma (C: circolare, S: spirale logaritmica, G: generica)
C_x ascissa x del centro [m]
C_y ordinata y del centro [m]
R raggio del cerchio espresso in m
x_v ascissa del punto di intersezione con il profilo (valle) espresse in m
x_m ascissa del punto di intersezione con il profilo (monte) espresse in m
V volume interessato dalla superficie espresso [mc]
FS coefficiente di sicurezza. Tra parentesi il metodo di calcolo usato (F: Fellenius, B: Bishop, J: Janbu, C: Janbu completo, L: Bell, M: Morgenstern-Price P: Spencer, S: Sarma, V: Maksimovic, G: GLE)
Caso caso di calcolo
Sisma H sisma orizzontale, V sisma verticale (+ verso l'alto, - verso il basso)
La colonna FS (fattore di sicurezza) potrebbe contenere più valori. Questo è dovuto alla presenza degli interventi quando considerati come incremento delle forze di interstriscia. In questo caso vengono analizzate più superfici di scorrimento ed ogni superficie è separata dalla successiva dall'intervento.

N°	F	C_x *[m]*	C_y *[m]*	R *[m]*	x_v *[m]*	x_m *[m]*	V *[mc]*	FS	Caso	Sisma
1	C	5.00	42.00	23.00	15.43	27.29	61.54	1.197 (B)	[PC]	[SLV] H -V
2	C	5.00	42.00	23.00	15.43	27.29	61.54	1.218 (B)	[PC]	[SLV] H +V
3	C	5.00	43.00	24.00	15.40	28.24	69.38	1.232 (B)	[PC]	[SLV] H -V
4	C	4.00	43.00	24.00	15.68	27.01	54.52	1.237 (B)	[PC]	[SLV] H -V
5	C	5.00	43.00	23.50	15.69	27.58	59.34	1.238 (B)	[PC]	[SLV] H -V
6	C	1.00	43.00	24.50	16.15	23.95	25.18	1.242 (B)	[PC]	[SLV] H -V
7	C	2.00	43.00	24.00	16.12	24.47	29.16	1.245 (B)	[PC]	[SLV] H -V
8	C	2.00	42.00	23.00	16.24	23.70	23.57	1.249 (B)	[PC]	[SLV] H -V
9	C	5.00	43.00	24.00	15.40	28.24	69.38	1.251 (B)	[PC]	[SLV] H +V
10	C	4.00	42.00	23.00	15.72	26.12	47.38	1.252 (B)	[PC]	[SLV] H -V
11	C	5.00	42.00	22.50	15.72	26.68	52.13	1.255 (B)	[PC]	[SLV] H -V
12	C	3.00	42.00	22.50	16.15	24.21	27.50	1.255 (B)	[PC]	[SLV] H -V
13	C	5.00	43.00	23.50	15.69	27.58	59.34	1.260 (B)	[PC]	[SLV] H +V
14	C	3.00	43.00	23.50	16.10	25.09	33.18	1.262 (B)	[PC]	[SLV] H -V
15	C	4.00	43.00	24.00	15.68	27.01	54.52	1.265 (B)	[PC]	[SLV] H +V
16	C	5.00	44.00	24.50	15.52	28.55	66.85	1.270 (B)	[PC]	[SLV] H -V
17	C	4.00	42.00	22.00	16.13	24.76	31.43	1.279 (B)	[PC]	[SLV] H -V
18	C	3.00	42.00	23.00	15.87	24.83	34.67	1.281 (B)	[PC]	[SLV] H -V
19	C	3.00	44.00	24.50	15.96	26.03	39.24	1.283 (B)	[PC]	[SLV] H -V
20	C	2.00	43.00	24.00	16.12	24.47	29.16	1.286 (B)	[PC]	[SLV] H +V
21	C	5.00	42.00	22.50	15.72	26.68	52.13	1.287 (B)	[PC]	[SLV] H +V
22	C	1.00	43.00	24.50	16.15	23.95	25.18	1.289 (B)	[PC]	[SLV] H +V
23	C	4.00	42.00	23.00	15.72	26.12	47.38	1.289 (B)	[PC]	[SLV] H +V
24	C	4.00	44.00	24.50	15.78	27.26	52.36	1.289 (B)	[PC]	[SLV] H -V
25	C	3.00	43.00	24.00	15.83	25.80	41.05	1.289 (B)	[PC]	[SLV] H -V
26	C	1.00	42.00	23.50	16.43	23.15	19.68	1.289 (B)	[PC]	[SLV] H -V
27	C	5.00	44.00	24.50	15.52	28.55	66.85	1.290 (B)	[PC]	[SLV] H +V
28	C	4.00	43.00	23.00	16.09	25.73	37.31	1.296 (B)	[PC]	[SLV] H -V
29	C	5.00	44.00	23.50	15.96	27.20	47.77	1.296 (B)	[PC]	[SLV] H -V
30	C	3.00	42.00	22.50	16.15	24.21	27.50	1.299 (B)	[PC]	[SLV] H +V
31	C	4.00	42.00	22.50	15.86	25.48	39.01	1.299 (B)	[PC]	[SLV] H -V
32	C	2.00	42.00	23.00	16.24	23.70	23.57	1.300 (B)	[PC]	[SLV] H +V
33	C	5.00	43.00	23.00	15.82	26.95	50.07	1.302 (B)	[PC]	[SLV] H -V
34	C	4.00	43.00	23.50	15.82	26.38	45.57	1.303 (B)	[PC]	[SLV] H -V
35	C	5.00	42.00	21.50	16.12	25.41	35.41	1.303 (B)	[PC]	[SLV] H -V
36	C	3.00	43.00	23.50	16.10	25.09	33.18	1.303 (B)	[PC]	[SLV] H +V
37	C	4.00	44.00	24.00	15.96	26.60	43.52	1.312 (B)	[PC]	[SLV] H -V
38	C	2.00	43.00	23.50	16.47	23.87	22.54	1.313 (B)	[PC]	[SLV] H -V
39	C	5.00	44.00	23.50	15.96	27.20	47.77	1.320 (B)	[PC]	[SLV] H +V
40	C	3.00	44.00	24.50	15.96	26.03	39.24	1.321 (B)	[PC]	[SLV] H +V
41	C	4.00	42.00	22.00	16.13	24.76	31.43	1.321 (B)	[PC]	[SLV] H +V
42	C	2.00	44.00	24.50	16.41	24.65	27.72	1.321 (B)	[PC]	[SLV] H -V
43	C	4.00	44.00	24.50	15.78	27.26	52.36	1.322 (B)	[PC]	[SLV] H +V
44	C	5.00	42.00	22.00	15.86	26.07	43.41	1.322 (B)	[PC]	[SLV] H -V
45	C	3.00	43.00	23.00	16.44	24.39	26.19	1.328 (B)	[PC]	[SLV] H -V
46	C	5.00	43.00	22.50	16.08	26.32	41.48	1.329 (B)	[PC]	[SLV] H -V
47	C	5.00	44.00	24.00	15.79	27.86	56.94	1.330 (B)	[PC]	[SLV] H -V
48	C	3.00	42.00	23.00	15.87	24.83	34.67	1.332 (B)	[PC]	[SLV] H +V
49	C	5.00	45.00	24.50	15.91	28.12	54.30	1.332 (B)	[PC]	[SLV] H -V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	[m]	[m]	[m]	[m]	[mc]			
50	C	4.00	43.00	23.00	16.09	25.73	37.31	1.335 (B)	[PC]	[SLV] H +V
51	C	5.00	42.00	23.00	15.43	27.29	61.54	1.336 (B)	[PC]	[SLD] H -V
52	C	5.00	43.00	23.00	15.82	26.95	50.07	1.337 (B)	[PC]	[SLV] H +V
53	C	3.00	43.00	24.00	15.83	25.80	41.05	1.337 (B)	[PC]	[SLV] H +V
54	C	4.00	42.00	21.50	16.47	24.14	24.68	1.340 (B)	[PC]	[SLV] H -V
55	C	4.00	43.00	23.50	15.82	26.38	45.57	1.344 (B)	[PC]	[SLV] H +V
56	C	3.00	44.00	24.00	16.30	25.32	31.51	1.344 (B)	[PC]	[SLV] H -V
57	C	5.00	42.00	21.50	16.12	25.41	35.41	1.344 (B)	[PC]	[SLV] H +V
58	C	4.00	44.00	24.00	15.96	26.60	43.52	1.349 (B)	[PC]	[SLV] H +V
59	C	4.00	42.00	22.50	15.86	25.48	39.01	1.349 (B)	[PC]	[SLV] H +V
60	C	5.00	42.00	23.00	15.43	27.29	61.54	1.355 (B)	[PC]	[SLD] H +V
61	C	3.00	42.00	22.00	16.49	23.63	21.07	1.357 (B)	[PC]	[SLV] H -V
62	C	5.00	45.00	24.50	15.91	28.12	54.30	1.357 (B)	[PC]	[SLV] H +V
63	C	4.00	43.00	22.50	16.42	24.99	29.86	1.359 (B)	[PC]	[SLV] H -V
64	C	1.00	42.00	23.50	16.43	23.15	19.68	1.360 (B)	[PC]	[SLV] H +V
65	C	5.00	44.00	24.00	15.79	27.86	56.94	1.361 (B)	[PC]	[SLV] H +V
66	C	4.00	44.00	23.50	16.24	25.95	35.42	1.363 (B)	[PC]	[SLV] H -V
67	C	5.00	42.00	22.00	15.86	26.07	43.41	1.366 (B)	[PC]	[SLV] H +V
68	C	5.00	42.00	21.00	16.45	24.68	28.26	1.368 (B)	[PC]	[SLV] H -V
69	C	5.00	43.00	22.50	16.08	26.32	41.48	1.368 (B)	[PC]	[SLV] H +V
70	C	2.00	44.00	24.50	16.41	24.65	27.72	1.370 (B)	[PC]	[SLV] H +V
71	C	4.00	45.00	24.50	16.14	26.81	41.27	1.371 (B)	[PC]	[SLV] H -V
72	C	1.00	43.00	24.00	16.50	23.34	18.89	1.373 (B)	[PC]	[SLV] H -V
73	C	5.00	43.00	24.00	15.40	28.24	69.38	1.375 (B)	[PC]	[SLD] H -V
74	C	2.00	43.00	23.50	16.47	23.87	22.54	1.375 (B)	[PC]	[SLV] H +V
75	C	5.00	43.00	22.00	16.41	25.65	33.63	1.380 (B)	[PC]	[SLV] H -V
76	C	3.00	43.00	23.00	16.44	24.39	26.19	1.380 (B)	[PC]	[SLV] H +V
77	C	5.00	43.00	23.50	15.69	27.58	59.34	1.385 (B)	[PC]	[SLD] H -V
78	C	5.00	44.00	23.00	16.23	26.52	39.34	1.385 (B)	[PC]	[SLV] H -V
79	C	4.00	43.00	24.00	15.68	27.01	54.52	1.390 (B)	[PC]	[SLD] H -V
80	C	3.00	44.00	24.00	16.30	25.32	31.51	1.393 (B)	[PC]	[SLV] H +V
81	C	5.00	43.00	24.00	15.40	28.24	69.38	1.394 (B)	[PC]	[SLD] H +V
82	C	4.00	42.00	21.50	16.47	24.14	24.68	1.396 (B)	[PC]	[SLV] H +V
83	C	5.00	45.00	24.00	16.15	27.40	45.28	1.405 (B)	[PC]	[SLV] H -V
84	C	5.00	43.00	23.50	15.69	27.58	59.34	1.405 (B)	[PC]	[SLD] H +V
85	C	2.00	42.00	22.50	16.53	23.07	17.48	1.407 (B)	[PC]	[SLV] H -V
86	C	4.00	44.00	23.50	16.24	25.95	35.42	1.408 (B)	[PC]	[SLV] H +V
87	C	5.00	42.00	22.50	15.72	26.68	52.13	1.409 (B)	[PC]	[SLD] H -V
88	C	4.00	43.00	22.50	16.42	24.99	29.86	1.410 (B)	[PC]	[SLV] H +V
89	C	3.00	44.00	23.50	16.52	24.53	24.70	1.410 (B)	[PC]	[SLV] H -V
90	C	4.00	45.00	24.50	16.14	26.81	41.27	1.411 (B)	[PC]	[SLV] H +V
91	C	4.00	42.00	23.00	15.72	26.12	47.38	1.413 (B)	[PC]	[SLD] H -V
92	C	4.00	43.00	24.00	15.68	27.01	54.52	1.414 (B)	[PC]	[SLD] H +V
93	C	2.00	44.00	24.00	16.56	24.02	21.29	1.417 (B)	[PC]	[SLV] H -V
94	C	3.00	45.00	24.50	16.48	25.50	29.70	1.418 (B)	[PC]	[SLV] H -V
95	C	4.00	43.00	22.00	16.58	24.30	23.29	1.419 (B)	[PC]	[SLV] H -V
96	C	5.00	42.00	21.00	16.45	24.68	28.26	1.419 (B)	[PC]	[SLV] H +V
97	C	2.00	43.00	24.00	16.12	24.47	29.16	1.420 (B)	[PC]	[SLD] H -V
98	C	5.00	44.00	24.50	15.52	28.55	66.85	1.422 (B)	[PC]	[SLD] H -V
99	C	1.00	43.00	24.50	16.15	23.95	25.18	1.426 (B)	[PC]	[SLD] H -V
100	C	4.00	44.00	23.00	16.51	25.20	28.14	1.427 (B)	[PC]	[SLV] H -V
101	C	3.00	42.00	22.00	16.49	23.63	21.07	1.427 (B)	[PC]	[SLV] H +V
102	C	5.00	44.00	23.00	16.23	26.52	39.34	1.427 (B)	[PC]	[SLV] H +V
103	C	5.00	43.00	22.00	16.41	25.65	33.63	1.428 (B)	[PC]	[SLV] H +V
104	C	3.00	42.00	22.50	16.15	24.21	27.50	1.433 (B)	[PC]	[SLD] H -V
105	C	3.00	43.00	23.50	16.10	25.09	33.18	1.434 (B)	[PC]	[SLD] H -V
106	C	2.00	42.00	23.00	16.24	23.70	23.57	1.434 (B)	[PC]	[SLD] H -V
107	C	5.00	42.00	22.50	15.72	26.68	52.13	1.436 (B)	[PC]	[SLD] H +V
108	C	5.00	44.00	24.50	15.52	28.55	66.85	1.441 (B)	[PC]	[SLD] H +V
109	C	4.00	45.00	24.00	16.47	26.13	33.37	1.442 (B)	[PC]	[SLV] H -V
110	C	4.00	42.00	23.00	15.72	26.12	47.38	1.442 (B)	[PC]	[SLD] H +V
111	C	5.00	45.00	24.00	16.15	27.40	45.28	1.445 (B)	[PC]	[SLV] H +V
112	C	3.00	43.00	22.50	16.67	23.79	19.94	1.448 (B)	[PC]	[SLV] H -V
113	C	5.00	43.00	21.50	16.54	24.88	26.62	1.450 (B)	[PC]	[SLV] H -V
114	C	4.00	44.00	24.50	15.78	27.26	52.36	1.453 (B)	[PC]	[SLD] H -V
115	C	2.00	43.00	24.00	16.12	24.47	29.16	1.454 (B)	[PC]	[SLD] H +V
116	C	4.00	42.00	22.00	16.13	24.76	31.43	1.454 (B)	[PC]	[SLD] H -V
117	C	3.00	44.00	24.50	15.96	26.03	39.24	1.455 (B)	[PC]	[SLD] H -V
118	C	5.00	42.00	20.50	16.69	24.06	21.89	1.456 (B)	[PC]	[SLV] H -V
119	C	1.00	43.00	24.00	16.50	23.34	18.89	1.457 (B)	[PC]	[SLV] H +V
120	C	5.00	44.00	23.50	15.96	27.20	47.77	1.458 (B)	[PC]	[SLD] H -V
121	C	5.00	44.00	22.50	16.50	25.85	31.69	1.459 (B)	[PC]	[SLV] H -V
122	C	3.00	42.00	23.00	15.87	24.83	34.67	1.461 (B)	[PC]	[SLD] H -V
123	C	1.00	43.00	24.50	16.15	23.95	25.18	1.463 (B)	[PC]	[SLD] H +V
124	C	3.00	43.00	24.00	15.83	25.80	41.05	1.465 (B)	[PC]	[SLD] H -V
125	C	5.00	43.00	23.00	15.82	26.95	50.07	1.467 (B)	[PC]	[SLD] H -V
126	C	3.00	43.00	23.50	16.10	25.09	33.18	1.468 (B)	[PC]	[SLD] H +V
127	C	1.00	44.00	24.50	16.71	23.50	17.89	1.468 (B)	[PC]	[SLV] H -V
128	C	3.00	42.00	22.50	16.15	24.21	27.50	1.468 (B)	[PC]	[SLD] H +V
129	C	5.00	45.00	23.50	16.47	26.71	37.05	1.468 (B)	[PC]	[SLV] H -V
130	C	4.00	43.00	23.00	16.09	25.73	37.31	1.469 (B)	[PC]	[SLD] H -V
131	C	5.00	42.00	23.00	15.43	27.29	61.54	1.470 (B)	[PC]	--
132	C	3.00	44.00	23.50	16.52	24.53	24.70	1.473 (B)	[PC]	[SLV] H +V
133	C	3.00	45.00	24.50	16.48	25.50	29.70	1.474 (B)	[PC]	[SLV] H +V
134	C	2.00	42.00	23.00	16.24	23.70	23.57	1.475 (B)	[PC]	[SLD] H +V
135	C	4.00	43.00	23.50	15.82	26.38	45.57	1.476 (B)	[PC]	[SLD] H -V
136	C	4.00	42.00	22.50	15.86	25.48	39.01	1.476 (B)	[PC]	[SLD] H -V
137	C	5.00	42.00	21.50	16.12	25.41	35.41	1.476 (B)	[PC]	[SLD] H -V
138	C	4.00	44.00	24.50	15.78	27.26	52.36	1.480 (B)	[PC]	[SLD] H +V
139	C	5.00	44.00	23.50	15.96	27.20	47.77	1.481 (B)	[PC]	[SLD] H +V
140	C	5.00	46.00	24.50	16.44	27.57	42.61	1.482 (B)	[PC]	[SLV] H -V
141	C	4.00	44.00	24.00	15.96	26.60	43.52	1.486 (B)	[PC]	[SLD] H -V
142	C	3.00	44.00	24.50	15.96	26.03	39.24	1.486 (B)	[PC]	[SLD] H +V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	[m]	[m]	[m]	[m]	[mc]			
143	C	4.00	42.00	21.00	16.72	23.55	18.60	1.486 (B)	[PC]	[SLV] H -V
144	C	4.00	44.00	23.00	16.51	25.20	28.14	1.486 (B)	[PC]	[SLV] H +V
145	C	4.00	43.00	22.00	16.58	24.30	23.29	1.488 (B)	[PC]	[SLV] H +V
146	C	4.00	42.00	22.00	16.13	24.76	31.43	1.488 (B)	[PC]	[SLD] H +V
147	C	2.00	44.00	24.00	16.56	24.02	21.29	1.492 (B)	[PC]	[SLV] H +V
148	C	5.00	43.00	23.00	15.82	26.95	50.07	1.495 (B)	[PC]	[SLD] H +V
149	C	5.00	42.00	22.00	15.86	26.07	43.41	1.497 (B)	[PC]	[SLD] H -V
150	C	4.00	45.00	24.00	16.47	26.13	33.37	1.497 (B)	[PC]	[SLV] H +V
151	C	1.00	42.00	23.50	16.43	23.15	19.68	1.497 (B)	[PC]	[SLD] H -V
152	C	5.00	44.00	24.00	15.79	27.86	56.94	1.498 (B)	[PC]	[SLD] H -V
153	C	3.00	42.00	23.00	15.87	24.83	34.67	1.499 (B)	[PC]	[SLD] H +V
154	C	5.00	45.00	24.50	15.91	28.12	54.30	1.500 (B)	[PC]	[SLD] H -V
155	C	4.00	43.00	23.00	16.09	25.73	37.31	1.500 (B)	[PC]	[SLD] H +V
156	C	3.00	43.00	24.00	15.83	25.80	41.05	1.501 (B)	[PC]	[SLD] H +V
157	C	2.00	42.00	22.50	16.53	23.07	17.48	1.503 (B)	[PC]	[SLV] H +V
158	C	5.00	43.00	22.50	16.08	26.32	41.48	1.505 (B)	[PC]	[SLD] H -V
159	C	4.00	43.00	23.50	15.82	26.38	45.57	1.508 (B)	[PC]	[SLD] H +V
160	C	5.00	42.00	21.50	16.12	25.41	35.41	1.509 (B)	[PC]	[SLD] H +V
161	C	5.00	43.00	21.50	16.54	24.88	26.62	1.511 (B)	[PC]	[SLV] H +V
162	C	4.00	42.00	22.50	15.86	25.48	39.01	1.514 (B)	[PC]	[SLD] H +V
163	C	2.00	44.00	24.50	16.41	24.65	27.72	1.514 (B)	[PC]	[SLD] H -V
164	C	5.00	44.00	22.50	16.50	25.85	31.69	1.515 (B)	[PC]	[SLV] H +V
165	C	5.00	43.00	24.00	15.40	28.24	69.38	1.515 (B)	[PC]	--
166	C	2.00	43.00	23.50	16.47	23.87	22.54	1.516 (B)	[PC]	[SLD] H -V
167	C	4.00	44.00	24.00	15.96	26.60	43.52	1.516 (B)	[PC]	[SLD] H +V
168	C	2.00	45.00	24.50	16.74	24.12	19.89	1.518 (B)	[PC]	[SLV] H -V
169	C	5.00	45.00	23.50	16.47	26.71	37.05	1.519 (B)	[PC]	[SLV] H +V
170	C	2.00	43.00	23.00	16.72	23.24	16.61	1.519 (B)	[PC]	[SLV] H -V
171	C	4.00	44.00	22.00	17.06	23.79	16.08	1.520 (B)	[PC]	[SLV] H -V
172	C	4.00	46.00	24.50	16.60	26.27	31.14	1.522 (B)	[PC]	[SLV] H -V
173	C	3.00	45.00	24.00	16.72	24.66	23.03	1.522 (B)	[PC]	[SLV] H -V
174	C	3.00	43.00	23.00	16.44	24.39	26.19	1.522 (B)	[PC]	[SLD] H -V
175	C	5.00	45.00	24.50	15.91	28.12	54.30	1.523 (B)	[PC]	[SLD] H +V
176	C	5.00	44.00	24.00	15.79	27.86	56.94	1.525 (B)	[PC]	[SLD] H +V
177	C	5.00	46.00	24.50	16.44	27.57	42.61	1.525 (B)	[PC]	[SLV] H +V
178	C	5.00	43.00	23.50	15.69	27.58	59.34	1.529 (B)	[PC]	--
179	C	5.00	42.00	20.50	16.69	24.06	21.89	1.531 (B)	[PC]	[SLV] H +V
180	C	5.00	42.00	22.00	15.86	26.07	43.41	1.531 (B)	[PC]	[SLD] H +V
181	C	3.00	43.00	22.50	16.67	23.79	19.94	1.533 (B)	[PC]	[SLV] H +V
182	C	4.00	45.00	23.50	16.71	25.36	26.24	1.533 (B)	[PC]	[SLV] H -V
183	C	3.00	44.00	24.00	16.30	25.32	31.51	1.535 (B)	[PC]	[SLD] H -V
184	C	5.00	43.00	22.50	16.08	26.32	41.48	1.536 (B)	[PC]	[SLD] H +V
185	C	4.00	42.00	21.50	16.47	24.14	24.68	1.538 (B)	[PC]	[SLD] H -V
186	C	4.00	43.00	24.00	15.68	27.01	54.52	1.540 (B)	[PC]	--
187	C	5.00	46.00	24.00	16.60	26.85	34.56	1.542 (B)	[PC]	[SLV] H -V
188	C	4.00	44.00	22.50	16.75	24.42	21.73	1.543 (B)	[PC]	[SLV] H -V
189	C	5.00	44.00	22.00	16.73	25.05	24.81	1.545 (B)	[PC]	[SLV] H -V
190	C	2.00	45.00	24.00	17.07	23.48	14.37	1.547 (B)	[PC]	[SLV] H -V
191	C	1.00	42.00	23.50	16.43	23.15	19.68	1.549 (B)	[PC]	[SLD] H +V
192	C	4.00	44.00	23.50	16.24	25.95	35.42	1.552 (B)	[PC]	[SLD] H -V
193	C	4.00	43.00	22.50	16.42	24.99	29.86	1.553 (B)	[PC]	[SLD] H -V
194	C	2.00	44.00	24.50	16.41	24.65	27.72	1.553 (B)	[PC]	[SLD] H +V
195	C	3.00	44.00	23.00	16.80	23.91	18.64	1.558 (B)	[PC]	[SLV] H -V
196	C	4.00	45.00	24.50	16.14	26.81	41.27	1.558 (B)	[PC]	[SLD] H -V
197	C	5.00	42.00	22.50	15.72	26.68	52.13	1.561 (B)	[PC]	--
198	C	2.00	43.00	23.50	16.47	23.87	22.54	1.563 (B)	[PC]	[SLD] H +V
199	C	5.00	42.00	21.00	16.45	24.68	28.26	1.563 (B)	[PC]	[SLD] H -V
200	C	3.00	43.00	23.00	16.44	24.39	26.19	1.564 (B)	[PC]	[SLD] H +V
201	C	5.00	43.00	21.00	16.82	24.20	20.44	1.566 (B)	[PC]	[SLV] H -V
202	C	3.00	42.00	22.00	16.49	23.63	21.07	1.570 (B)	[PC]	[SLD] H -V
203	C	1.00	44.00	24.50	16.71	23.50	17.89	1.570 (B)	[PC]	[SLV] H +V
204	C	5.00	44.00	24.50	15.52	28.55	66.85	1.571 (B)	[PC]	--
205	C	5.00	43.00	22.00	16.41	25.65	33.63	1.571 (B)	[PC]	[SLD] H -V
206	C	4.00	42.00	23.00	15.72	26.12	47.38	1.572 (B)	[PC]	--
207	C	5.00	44.00	23.00	16.23	26.52	39.34	1.573 (B)	[PC]	[SLD] H -V
208	C	3.00	44.00	24.00	16.30	25.32	31.51	1.574 (B)	[PC]	[SLD] H +V
209	C	5.00	43.00	20.50	17.12	23.58	14.96	1.578 (B)	[PC]	[SLV] H -V
210	C	4.00	42.00	21.50	16.47	24.14	24.68	1.582 (B)	[PC]	[SLD] H +V
211	C	4.00	46.00	24.50	16.60	26.27	31.14	1.583 (B)	[PC]	[SLV] H +V
212	C	4.00	42.00	21.00	16.72	23.55	18.60	1.585 (B)	[PC]	[SLV] H +V
213	C	3.00	42.00	21.50	16.76	22.99	15.33	1.585 (B)	[PC]	[SLV] H -V
214	C	4.00	44.00	23.50	16.24	25.95	35.42	1.588 (B)	[PC]	[SLD] H +V
215	C	4.00	45.00	24.50	16.14	26.81	41.27	1.590 (B)	[PC]	[SLD] H +V
216	C	4.00	43.00	22.50	16.42	24.99	29.86	1.592 (B)	[PC]	[SLD] H +V
217	C	2.00	43.00	24.00	16.12	24.47	29.16	1.594 (B)	[PC]	--
218	C	5.00	45.00	24.00	16.15	27.40	45.28	1.595 (B)	[PC]	[SLD] H -V
219	C	5.00	46.00	24.00	16.60	26.85	34.56	1.599 (B)	[PC]	[SLV] H +V
220	C	3.00	45.00	24.00	16.72	24.66	23.03	1.601 (B)	[PC]	[SLV] H +V
221	C	4.00	44.00	22.00	17.06	23.79	16.08	1.601 (B)	[PC]	[SLV] H +V
222	C	1.00	43.00	24.00	16.50	23.34	18.89	1.602 (B)	[PC]	[SLD] H -V
223	C	5.00	42.00	21.00	16.45	24.68	28.26	1.603 (B)	[PC]	[SLD] H +V
224	C	4.00	45.00	23.50	16.71	25.36	26.24	1.605 (B)	[PC]	[SLV] H +V
225	C	3.00	43.00	23.50	16.10	25.09	33.18	1.606 (B)	[PC]	--
226	C	4.00	46.00	23.50	17.13	24.55	18.20	1.606 (B)	[PC]	[SLV] H -V
227	C	5.00	44.00	23.00	16.23	26.52	39.34	1.608 (B)	[PC]	[SLD] H +V
228	C	3.00	44.00	22.50	17.13	23.25	13.31	1.608 (B)	[PC]	[SLV] H -V
229	C	5.00	43.00	22.00	16.41	25.65	33.63	1.609 (B)	[PC]	[SLD] H +V
230	C	1.00	43.00	24.50	16.15	23.95	25.18	1.609 (B)	[PC]	--
231	C	3.00	42.00	22.50	16.15	24.21	27.50	1.610 (B)	[PC]	--
232	C	4.00	43.00	21.50	16.87	23.69	17.41	1.611 (B)	[PC]	[SLV] H -V
233	C	2.00	45.00	24.50	16.74	24.12	19.89	1.612 (B)	[PC]	[SLV] H +V
234	C	4.00	44.00	24.50	15.78	27.26	52.36	1.616 (B)	[PC]	--
235	C	5.00	44.00	23.50	15.96	27.20	47.77	1.618 (B)	[PC]	--

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[mc]*			
236	C	2.00	42.00	23.00	16.24	23.70	23.57	1.620 (B)	[PC]	--
237	C	5.00	44.00	22.00	16.73	25.05	24.81	1.621 (B)	[PC]	[SLV] H +V
238	C	3.00	42.00	22.00	16.49	23.63	21.07	1.622 (B)	[PC]	[SLD] H +V
239	C	3.00	44.00	23.50	16.52	24.53	24.70	1.625 (B)	[PC]	[SLD] H -V
240	C	3.00	44.00	24.50	15.96	26.03	39.24	1.626 (B)	[PC]	--
241	C	3.00	45.00	24.50	16.48	25.50	29.70	1.626 (B)	[PC]	[SLD] H -V
242	C	5.00	45.00	24.00	16.15	27.40	45.28	1.627 (B)	[PC]	[SLD] H +V
243	C	4.00	42.00	22.00	16.13	24.76	31.43	1.629 (B)	[PC]	--
244	C	4.00	44.00	22.50	16.75	24.42	21.73	1.630 (B)	[PC]	[SLV] H +V
245	C	5.00	46.00	23.00	17.11	25.27	20.79	1.631 (B)	[PC]	[SLV] H -V
246	C	5.00	43.00	23.00	15.82	26.95	50.07	1.631 (B)	[PC]	--
247	C	3.00	46.00	24.50	16.90	24.75	21.23	1.631 (B)	[PC]	[SLV] H -V
248	C	3.00	46.00	24.00	17.20	24.04	15.64	1.634 (B)	[PC]	[SLV] H -V
249	C	4.00	44.00	23.00	16.51	25.20	28.14	1.637 (B)	[PC]	[SLD] H -V
250	C	4.00	43.00	22.00	16.58	24.30	23.29	1.637 (B)	[PC]	[SLD] H -V
251	C	3.00	42.00	23.00	15.87	24.83	34.67	1.640 (B)	[PC]	--
252	C	3.00	43.00	24.00	15.83	25.80	41.05	1.640 (B)	[PC]	--
253	C	4.00	43.00	23.00	16.09	25.73	37.31	1.641 (B)	[PC]	--
254	C	2.00	43.00	23.00	16.72	23.24	16.61	1.641 (B)	[PC]	[SLV] H +V
255	C	2.00	45.00	24.00	17.07	23.48	14.37	1.644 (B)	[PC]	[SLV] H +V
256	C	2.00	44.00	24.00	16.56	24.02	21.29	1.646 (B)	[PC]	[SLD] H -V
257	C	2.00	42.00	22.50	16.53	23.07	17.48	1.647 (B)	[PC]	[SLD] H -V
258	C	4.00	43.00	23.50	15.82	26.38	45.57	1.648 (B)	[PC]	--
259	C	4.00	46.00	24.00	16.85	25.48	24.20	1.649 (B)	[PC]	[SLV] H -V
260	C	5.00	42.00	21.50	16.12	25.41	35.41	1.649 (B)	[PC]	--
261	C	4.00	45.00	24.00	16.47	26.13	33.37	1.650 (B)	[PC]	[SLD] H -V
262	C	5.00	45.00	22.00	17.24	24.35	17.11	1.651 (B)	[PC]	[SLV] H -V
263	C	4.00	42.00	22.50	15.86	25.48	39.01	1.652 (B)	[PC]	--
264	C	4.00	44.00	24.00	15.96	26.60	43.52	1.658 (B)	[PC]	--
265	C	5.00	43.00	21.00	16.82	24.20	20.44	1.661 (B)	[PC]	[SLV] H +V
266	C	1.00	43.00	24.00	16.50	23.34	18.89	1.664 (B)	[PC]	[SLD] H +V
267	C	5.00	43.00	21.50	16.54	24.88	26.62	1.665 (B)	[PC]	[SLD] H -V
268	C	3.00	44.00	23.00	16.80	23.91	18.64	1.665 (B)	[PC]	[SLV] H +V
269	C	5.00	44.00	24.00	15.79	27.86	56.94	1.665 (B)	[PC]	--
270	C	5.00	45.00	24.50	15.91	28.12	54.30	1.666 (B)	[PC]	--
271	C	5.00	46.00	23.50	16.84	26.13	27.27	1.667 (B)	[PC]	[SLV] H -V
272	C	5.00	44.00	22.50	16.50	25.85	31.69	1.669 (B)	[PC]	[SLD] H -V
273	C	2.00	44.00	23.50	16.91	23.38	15.55	1.669 (B)	[PC]	[SLV] H -V
274	C	3.00	45.00	24.50	16.48	25.50	29.70	1.669 (B)	[PC]	[SLD] H +V
275	C	4.00	45.00	23.00	17.00	24.50	20.02	1.670 (B)	[PC]	[SLV] H -V
276	C	5.00	42.00	22.00	15.86	26.07	43.41	1.672 (B)	[PC]	--
277	C	5.00	43.00	20.50	17.12	23.58	14.96	1.672 (B)	[PC]	[SLV] H +V
278	C	4.00	43.00	21.00	17.22	23.02	12.27	1.673 (B)	[PC]	[SLV] H -V
279	C	3.00	44.00	23.50	16.52	24.53	24.70	1.673 (B)	[PC]	[SLD] H +V
280	C	5.00	45.00	23.50	16.47	26.71	37.05	1.676 (B)	[PC]	[SLD] H -V
281	C	5.00	42.00	20.00	17.00	23.45	16.20	1.679 (B)	[PC]	[SLV] H -V
282	C	5.00	43.00	22.50	16.08	26.32	41.48	1.680 (B)	[PC]	--
283	C	4.00	44.00	23.00	16.51	25.20	28.14	1.683 (B)	[PC]	[SLD] H +V
284	C	5.00	42.00	20.50	16.69	24.06	21.89	1.684 (B)	[PC]	[SLD] H -V
285	C	4.00	46.00	23.50	17.13	24.55	18.20	1.685 (B)	[PC]	[SLV] H +V
286	C	3.00	43.00	22.50	16.67	23.79	19.94	1.686 (B)	[PC]	[SLD] H -V
287	C	4.00	45.00	22.50	17.27	23.85	14.61	1.687 (B)	[PC]	[SLV] H -V
288	C	5.00	46.00	24.50	16.44	27.57	42.61	1.689 (B)	[PC]	[SLD] H -V
289	C	4.00	43.00	22.00	16.58	24.30	23.29	1.689 (B)	[PC]	[SLD] H +V
290	C	4.00	45.00	24.00	16.47	26.13	33.37	1.692 (B)	[PC]	[SLD] H +V
291	C	2.00	44.00	24.00	16.56	24.02	21.29	1.703 (B)	[PC]	[SLD] H +V
292	C	5.00	46.00	23.00	17.11	25.27	20.79	1.703 (B)	[PC]	[SLV] H +V
293	C	1.00	42.00	23.50	16.43	23.15	19.68	1.707 (B)	[PC]	--
294	C	2.00	44.00	24.50	16.41	24.65	27.72	1.708 (B)	[PC]	--
295	C	5.00	44.00	21.50	17.03	24.30	18.84	1.709 (B)	[PC]	[SLV] H -V
296	C	5.00	43.00	21.50	16.54	24.88	26.62	1.712 (B)	[PC]	[SLD] H +V
297	C	5.00	44.00	22.50	16.50	25.85	31.69	1.712 (B)	[PC]	[SLD] H +V
298	C	3.00	45.00	23.50	17.03	24.00	17.20	1.713 (B)	[PC]	[SLV] H -V
299	C	5.00	45.00	23.50	16.47	26.71	37.05	1.716 (B)	[PC]	[SLD] H +V
300	C	2.00	42.00	22.50	16.53	23.07	17.48	1.717 (B)	[PC]	[SLD] H +V
301	C	3.00	43.00	23.00	16.44	24.39	26.19	1.719 (B)	[PC]	--
302	C	2.00	43.00	23.50	16.47	23.87	22.54	1.721 (B)	[PC]	--
303	C	3.00	44.00	22.50	17.13	23.25	13.31	1.724 (B)	[PC]	[SLV] H +V
304	C	1.00	44.00	24.50	16.71	23.50	17.89	1.724 (B)	[PC]	[SLD] H -V
305	C	5.00	46.00	24.50	16.44	27.57	42.61	1.725 (B)	[PC]	[SLD] H +V
306	C	3.00	44.00	24.00	16.30	25.32	31.51	1.726 (B)	[PC]	--
307	C	1.00	43.00	23.50	16.81	22.69	13.35	1.727 (B)	[PC]	[SLV] H -V
308	C	3.00	46.00	24.00	17.20	24.04	15.64	1.729 (B)	[PC]	[SLV] H +V
309	C	3.00	46.00	24.50	16.90	24.75	21.23	1.731 (B)	[PC]	[SLV] H +V
310	C	3.00	42.00	21.50	16.76	22.99	15.33	1.734 (B)	[PC]	[SLV] H +V
311	C	4.00	42.00	21.00	16.72	23.55	18.60	1.736 (B)	[PC]	[SLD] H -V
312	C	4.00	43.00	21.50	16.87	23.69	17.41	1.737 (B)	[PC]	[SLV] H +V
313	C	5.00	45.00	22.00	17.24	24.35	17.11	1.738 (B)	[PC]	[SLV] H +V
314	C	4.00	42.00	21.50	16.47	24.14	24.68	1.739 (B)	[PC]	--
315	C	4.00	46.00	24.00	16.85	25.48	24.20	1.739 (B)	[PC]	[SLV] H +V
316	C	5.00	42.00	20.50	16.69	24.06	21.89	1.740 (B)	[PC]	[SLD] H +V
317	C	4.00	44.00	23.50	16.24	25.95	35.42	1.741 (B)	[PC]	--
318	C	4.00	45.00	24.50	16.14	26.81	41.27	1.745 (B)	[PC]	--
319	C	5.00	46.00	23.50	16.84	26.13	27.27	1.747 (B)	[PC]	[SLV] H +V
320	C	4.00	43.00	22.50	16.42	24.99	29.86	1.747 (B)	[PC]	--
321	C	3.00	43.00	22.50	16.67	23.79	19.94	1.748 (B)	[PC]	[SLD] H +V
322	C	4.00	46.00	24.50	16.60	26.27	31.14	1.749 (B)	[PC]	[SLD] H -V
323	C	5.00	44.00	21.00	17.30	23.65	13.59	1.750 (B)	[PC]	[SLV] H -V
324	C	5.00	42.00	19.50	17.28	22.78	11.25	1.753 (B)	[PC]	[SLV] H -V
325	C	5.00	42.00	21.00	16.45	24.68	28.26	1.759 (B)	[PC]	--
326	C	5.00	44.00	23.00	16.23	26.52	39.34	1.763 (B)	[PC]	--
327	C	5.00	43.00	22.00	16.41	25.65	33.63	1.763 (B)	[PC]	--
328	C	3.00	45.00	24.00	16.72	24.66	23.03	1.767 (B)	[PC]	[SLD] H -V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	[m]	[m]	[m]	[m]	[mc]			
329	C	5.00	46.00	24.00	16.60	26.85	34.56	1.767 (B)	[PC]	[SLD] H -V
330	C	4.00	45.00	23.50	16.71	25.36	26.24	1.770 (B)	[PC]	[SLD] H -V
331	C	3.00	43.00	22.00	17.00	23.14	14.39	1.771 (B)	[PC]	[SLV] H -V
332	C	4.00	44.00	22.00	17.06	23.79	16.08	1.772 (B)	[PC]	[SLD] H -V
333	C	2.00	45.00	24.50	16.74	24.12	19.89	1.777 (B)	[PC]	[SLD] H -V
334	C	4.00	45.00	23.00	17.00	24.50	20.02	1.781 (B)	[PC]	[SLV] H +V
335	C	5.00	45.00	24.00	16.15	27.40	45.28	1.785 (B)	[PC]	--
336	C	5.00	44.00	22.00	16.73	25.05	24.81	1.786 (B)	[PC]	[SLD] H -V
337	C	3.00	42.00	22.00	16.49	23.63	21.07	1.787 (B)	[PC]	--
338	C	2.00	43.00	23.00	16.72	23.24	16.61	1.794 (B)	[PC]	[SLD] H -V
339	C	4.00	44.00	22.50	16.75	24.42	21.73	1.795 (B)	[PC]	[SLD] H -V
340	C	4.00	46.00	24.50	16.60	26.27	31.14	1.796 (B)	[PC]	[SLD] H +V
341	C	4.00	45.00	22.50	17.27	23.85	14.61	1.798 (B)	[PC]	[SLV] H +V
342	C	1.00	44.00	24.50	16.71	23.50	17.89	1.799 (B)	[PC]	[SLD] H +V
343	C	4.00	42.00	21.00	16.72	23.55	18.60	1.807 (B)	[PC]	[SLD] H +V
344	C	5.00	46.00	24.00	16.60	26.85	34.56	1.812 (B)	[PC]	[SLD] H +V
345	C	4.00	43.00	21.00	17.22	23.02	12.27	1.813 (B)	[PC]	[SLV] H +V
346	C	2.00	45.00	24.00	17.07	23.48	14.37	1.818 (B)	[PC]	[SLD] H -V
347	C	4.00	45.00	23.50	16.71	25.36	26.24	1.824 (B)	[PC]	[SLD] H +V
348	C	3.00	45.00	24.00	16.72	24.66	23.03	1.826 (B)	[PC]	[SLD] H +V
349	C	5.00	43.00	21.00	16.82	24.20	20.44	1.826 (B)	[PC]	[SLD] H -V
350	C	5.00	42.00	20.00	17.00	23.45	16.20	1.829 (B)	[PC]	[SLV] H +V
351	C	3.00	44.00	23.00	16.80	23.91	18.64	1.829 (B)	[PC]	[SLD] H -V
352	C	2.00	44.00	23.50	16.91	23.38	15.55	1.829 (B)	[PC]	[SLV] H +V
353	C	5.00	46.00	22.50	17.36	24.36	15.27	1.831 (B)	[PC]	[SLV] H -V
354	C	5.00	44.00	21.50	17.03	24.30	18.84	1.833 (B)	[PC]	[SLV] H +V
355	C	4.00	44.00	22.00	17.06	23.79	16.08	1.833 (B)	[PC]	[SLD] H +V
356	C	2.00	42.00	22.00	16.89	22.44	12.15	1.834 (B)	[PC]	[SLV] H -V
357	C	3.00	45.00	24.50	16.48	25.50	29.70	1.837 (B)	[PC]	--
358	C	1.00	43.00	24.00	16.50	23.34	18.89	1.838 (B)	[PC]	--
359	C	5.00	44.00	22.00	16.73	25.05	24.81	1.843 (B)	[PC]	[SLD] H +V
360	C	3.00	44.00	23.50	16.52	24.53	24.70	1.845 (B)	[PC]	--
361	C	2.00	45.00	24.50	16.74	24.12	19.89	1.846 (B)	[PC]	[SLD] H +V
362	C	5.00	43.00	20.50	17.12	23.58	14.96	1.846 (B)	[PC]	[SLD] H -V
363	C	4.00	44.00	23.00	16.51	25.20	28.14	1.851 (B)	[PC]	--
364	C	3.00	45.00	23.50	17.03	24.00	17.20	1.856 (B)	[PC]	[SLV] H +V
365	C	4.00	44.00	22.50	16.75	24.42	21.73	1.860 (B)	[PC]	[SLD] H +V
366	C	4.00	45.00	24.00	16.47	26.13	33.37	1.860 (B)	[PC]	--
367	C	4.00	43.00	22.00	16.58	24.30	23.29	1.862 (B)	[PC]	--
368	C	4.00	46.00	23.50	17.13	24.55	18.20	1.868 (B)	[PC]	[SLD] H -V
369	C	5.00	44.00	21.00	17.30	23.65	13.59	1.879 (B)	[PC]	[SLV] H +V
370	C	2.00	43.00	23.00	16.72	23.24	16.61	1.881 (B)	[PC]	[SLD] H +V
371	C	2.00	44.00	24.00	16.56	24.02	21.29	1.882 (B)	[PC]	--
372	C	5.00	44.00	22.50	16.50	25.85	31.69	1.882 (B)	[PC]	--
373	C	3.00	42.00	21.50	16.76	22.99	15.33	1.884 (B)	[PC]	[SLD] H -V
374	C	5.00	43.00	21.50	16.54	24.88	26.62	1.884 (B)	[PC]	--
375	C	4.00	42.00	20.50	17.03	22.89	13.25	1.887 (B)	[PC]	[SLV] H -V
376	C	5.00	45.00	23.50	16.47	26.71	37.05	1.887 (B)	[PC]	--
377	C	5.00	46.00	23.00	17.11	25.27	20.79	1.887 (B)	[PC]	[SLD] H -V
378	C	2.00	45.00	24.00	17.07	23.48	14.37	1.891 (B)	[PC]	[SLD] H +V
379	C	5.00	43.00	21.00	16.82	24.20	20.44	1.896 (B)	[PC]	[SLD] H +V
380	C	2.00	42.00	22.50	16.53	23.07	17.48	1.897 (B)	[PC]	--
381	C	5.00	46.00	24.50	16.44	27.57	42.61	1.899 (B)	[PC]	--
382	C	4.00	46.00	23.00	17.42	23.87	13.03	1.900 (B)	[PC]	[SLV] H -V
383	C	4.00	43.00	21.50	16.87	23.69	17.41	1.900 (B)	[PC]	[SLD] H -V
384	C	3.00	44.00	22.50	17.13	23.25	13.31	1.901 (B)	[PC]	[SLD] H -V
385	C	3.00	44.00	23.00	16.80	23.91	18.64	1.907 (B)	[PC]	[SLD] H +V
386	C	3.00	46.00	24.50	16.90	24.75	21.23	1.908 (B)	[PC]	[SLD] H -V
387	C	5.00	43.00	20.50	17.12	23.58	14.96	1.917 (B)	[PC]	[SLD] H +V
388	C	3.00	46.00	24.00	17.20	24.04	15.64	1.917 (B)	[PC]	[SLD] H -V
389	C	4.00	46.00	24.00	16.85	25.48	24.20	1.918 (B)	[PC]	[SLD] H -V
390	C	5.00	42.00	20.50	16.69	24.06	21.89	1.920 (B)	[PC]	--
391	C	5.00	42.00	19.50	17.28	22.78	11.25	1.925 (B)	[PC]	[SLV] H +V
392	C	5.00	45.00	22.00	17.24	24.35	17.11	1.926 (B)	[PC]	[SLD] H -V
393	C	4.00	46.00	23.50	17.13	24.55	18.20	1.929 (B)	[PC]	[SLD] H +V
394	C	5.00	46.00	23.50	16.84	26.13	27.27	1.931 (B)	[PC]	[SLD] H -V
395	C	3.00	43.00	22.50	16.67	23.79	19.94	1.932 (B)	[PC]	--
396	C	1.00	44.00	24.00	17.02	22.82	12.55	1.938 (B)	[PC]	[SLV] H -V
397	C	1.00	43.00	23.50	16.81	22.69	13.35	1.943 (B)	[PC]	[SLV] H +V
398	C	5.00	46.00	23.00	17.11	25.27	20.79	1.944 (B)	[PC]	[SLD] H +V
399	C	5.00	46.00	22.50	17.36	24.36	15.27	1.951 (B)	[PC]	[SLV] H +V
400	C	4.00	45.00	23.00	17.00	24.50	20.02	1.961 (B)	[PC]	[SLD] H -V
401	C	3.00	43.00	22.00	17.00	23.14	14.39	1.969 (B)	[PC]	[SLV] H +V
402	C	4.00	46.00	24.50	16.60	26.27	31.14	1.982 (B)	[PC]	--
403	C	3.00	46.00	24.50	16.90	24.75	21.23	1.982 (B)	[PC]	[SLD] H +V
404	C	4.00	46.00	24.00	16.85	25.48	24.20	1.985 (B)	[PC]	[SLD] H +V
405	C	3.00	44.00	22.50	17.13	23.25	13.31	1.986 (B)	[PC]	[SLD] H +V
406	C	3.00	42.00	21.50	16.76	22.99	15.33	1.988 (B)	[PC]	[SLD] H +V
407	C	4.00	45.00	22.50	17.27	23.85	14.61	1.989 (B)	[PC]	[SLD] H -V
408	C	4.00	43.00	21.00	17.22	23.02	12.27	1.989 (B)	[PC]	[SLD] H -V
409	C	3.00	46.00	24.00	17.20	24.04	15.64	1.990 (B)	[PC]	[SLD] H +V
410	C	4.00	43.00	21.50	16.87	23.69	17.41	1.990 (B)	[PC]	[SLD] H +V
411	C	5.00	42.00	20.00	17.00	23.45	16.20	1.991 (B)	[PC]	[SLD] H -V
412	C	5.00	46.00	23.50	16.84	26.13	27.27	1.992 (B)	[PC]	[SLD] H +V
413	C	5.00	45.00	22.00	17.24	24.35	17.11	1.993 (B)	[PC]	[SLD] H +V
414	C	1.00	44.00	24.50	16.71	23.50	17.89	1.993 (B)	[PC]	--
415	C	2.00	44.00	23.50	16.91	23.38	15.55	1.994 (B)	[PC]	[SLD] H -V
416	C	5.00	45.00	21.50	17.48	23.68	12.10	1.995 (B)	[PC]	[SLV] H -V
417	C	4.00	42.00	21.00	16.72	23.55	18.60	1.997 (B)	[PC]	--
418	C	5.00	46.00	24.00	16.60	26.85	34.56	1.999 (B)	[PC]	--
419	C	5.00	44.00	21.50	17.03	24.30	18.84	2.013 (B)	[PC]	[SLD] H -V
420	C	4.00	45.00	23.50	16.71	25.36	26.24	2.014 (B)	[PC]	--
421	C	3.00	45.00	24.00	16.72	24.66	23.03	2.020 (B)	[PC]	--

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	[m]	[m]	[m]	[m]	[mc]			
422	C	4.00	44.00	22.00	17.06	23.79	16.08	2.034 (B)	[PC]	--
423	C	3.00	45.00	23.50	17.03	24.00	17.20	2.035 (B)	[PC]	[SLD] H -V
424	C	5.00	44.00	22.00	16.73	25.05	24.81	2.036 (B)	[PC]	--
425	C	4.00	45.00	23.00	17.00	24.50	20.02	2.042 (B)	[PC]	[SLD] H +V
426	C	2.00	45.00	24.50	16.74	24.12	19.89	2.047 (B)	[PC]	--
427	C	4.00	44.00	22.50	16.75	24.42	21.73	2.059 (B)	[PC]	--
428	C	4.00	46.00	23.00	17.42	23.87	13.03	2.060 (B)	[PC]	[SLV] H +V
429	C	4.00	45.00	22.50	17.27	23.85	14.61	2.072 (B)	[PC]	[SLD] H +V
430	C	5.00	44.00	21.00	17.30	23.65	13.59	2.073 (B)	[PC]	[SLD] H -V
431	C	2.00	43.00	23.00	16.72	23.24	16.61	2.085 (B)	[PC]	--
432	C	4.00	43.00	21.00	17.22	23.02	12.27	2.090 (B)	[PC]	[SLD] H +V
433	C	1.00	43.00	23.50	16.81	22.69	13.35	2.096 (B)	[PC]	[SLD] H -V
434	C	5.00	42.00	20.00	17.00	23.45	16.20	2.097 (B)	[PC]	[SLD] H +V
435	C	5.00	43.00	21.00	16.82	24.20	20.44	2.100 (B)	[PC]	--
436	C	5.00	42.00	19.50	17.28	22.78	11.25	2.102 (B)	[PC]	[SLD] H -V
437	C	5.00	44.00	21.50	17.03	24.30	18.84	2.103 (B)	[PC]	[SLD] H +V
438	C	2.00	45.00	24.00	17.07	23.48	14.37	2.103 (B)	[PC]	--
439	C	2.00	44.00	23.50	16.91	23.38	15.55	2.107 (B)	[PC]	[SLD] H +V
440	C	3.00	44.00	23.00	16.80	23.91	18.64	2.116 (B)	[PC]	--
441	C	2.00	42.00	22.00	16.89	22.44	12.15	2.121 (B)	[PC]	[SLV] H +V
442	C	5.00	43.00	20.50	17.12	23.58	14.96	2.129 (B)	[PC]	--
443	C	3.00	43.00	22.00	17.00	23.14	14.39	2.134 (B)	[PC]	[SLD] H -V
444	C	3.00	45.00	23.50	17.03	24.00	17.20	2.138 (B)	[PC]	[SLD] H +V
445	C	4.00	42.00	20.50	17.03	22.89	13.25	2.141 (B)	[PC]	[SLV] H +V
446	C	4.00	46.00	23.50	17.13	24.55	18.20	2.143 (B)	[PC]	--
447	C	5.00	46.00	23.00	17.11	25.27	20.79	2.156 (B)	[PC]	--
448	C	5.00	46.00	22.50	17.36	24.36	15.27	2.164 (B)	[PC]	[SLD] H -V
449	C	5.00	44.00	21.00	17.30	23.65	13.59	2.169 (B)	[PC]	[SLD] H +V
450	C	5.00	45.00	21.50	17.48	23.68	12.10	2.189 (B)	[PC]	[SLV] H +V
451	C	4.00	46.00	24.00	16.85	25.48	24.20	2.201 (B)	[PC]	--
452	C	3.00	46.00	24.50	16.90	24.75	21.23	2.201 (B)	[PC]	--
453	C	3.00	42.00	21.50	16.76	22.99	15.33	2.206 (B)	[PC]	--
454	C	5.00	46.00	23.50	16.84	26.13	27.27	2.207 (B)	[PC]	--
455	C	4.00	43.00	21.50	16.87	23.69	17.41	2.209 (B)	[PC]	--
456	C	3.00	44.00	22.50	17.13	23.25	13.31	2.212 (B)	[PC]	--
457	C	5.00	45.00	22.00	17.24	24.35	17.11	2.217 (B)	[PC]	--
458	C	3.00	46.00	24.00	17.20	24.04	15.64	2.218 (B)	[PC]	--
459	C	5.00	42.00	19.50	17.28	22.78	11.25	2.226 (B)	[PC]	[SLD] H +V
460	C	1.00	44.00	24.00	17.02	22.82	12.55	2.237 (B)	[PC]	[SLV] H +V
461	C	1.00	43.00	23.50	16.81	22.69	13.35	2.248 (B)	[PC]	[SLD] H +V
462	C	5.00	46.00	22.50	17.36	24.36	15.27	2.255 (B)	[PC]	[SLD] H +V
463	C	2.00	42.00	22.00	16.89	22.44	12.15	2.258 (B)	[PC]	[SLD] H -V
464	C	4.00	45.00	23.00	17.00	24.50	20.02	2.272 (B)	[PC]	--
465	C	3.00	43.00	22.00	17.00	23.14	14.39	2.274 (B)	[PC]	[SLD] H +V
466	C	4.00	46.00	23.00	17.42	23.87	13.03	2.275 (B)	[PC]	[SLD] H -V
467	C	4.00	42.00	20.50	17.03	22.89	13.25	2.302 (B)	[PC]	[SLD] H -V
468	C	4.00	45.00	22.50	17.27	23.85	14.61	2.312 (B)	[PC]	--
469	C	5.00	42.00	20.00	17.00	23.45	16.20	2.330 (B)	[PC]	--
470	C	4.00	43.00	21.00	17.22	23.02	12.27	2.332 (B)	[PC]	--
471	C	5.00	44.00	21.50	17.03	24.30	18.84	2.340 (B)	[PC]	--
472	C	2.00	44.00	23.50	16.91	23.38	15.55	2.348 (B)	[PC]	--
473	C	3.00	45.00	23.50	17.03	24.00	17.20	2.385 (B)	[PC]	--
474	C	4.00	46.00	23.00	17.42	23.87	13.03	2.394 (B)	[PC]	[SLD] H +V
475	C	1.00	44.00	24.00	17.02	22.82	12.55	2.397 (B)	[PC]	[SLD] H -V
476	C	5.00	45.00	21.50	17.48	23.68	12.10	2.410 (B)	[PC]	[SLD] H -V
477	C	5.00	44.00	21.00	17.30	23.65	13.59	2.425 (B)	[PC]	--
478	C	2.00	42.00	22.00	16.89	22.44	12.15	2.458 (B)	[PC]	[SLD] H +V
479	C	4.00	42.00	20.50	17.03	22.89	13.25	2.481 (B)	[PC]	[SLD] H +V
480	C	5.00	42.00	19.50	17.28	22.78	11.25	2.488 (B)	[PC]	--
481	C	1.00	43.00	23.50	16.81	22.69	13.35	2.510 (B)	[PC]	--
482	C	5.00	46.00	22.50	17.36	24.36	15.27	2.526 (B)	[PC]	--
483	C	3.00	43.00	22.00	17.00	23.14	14.39	2.540 (B)	[PC]	--
484	C	5.00	45.00	21.50	17.48	23.68	12.10	2.554 (B)	[PC]	[SLD] H +V
485	C	1.00	44.00	24.00	17.02	22.82	12.55	2.609 (B)	[PC]	[SLD] H +V
486	C	4.00	46.00	23.00	17.42	23.87	13.03	2.694 (B)	[PC]	--
487	C	2.00	42.00	22.00	16.89	22.44	12.15	2.749 (B)	[PC]	--
488	C	4.00	42.00	20.50	17.03	22.89	13.25	2.778 (B)	[PC]	--
489	C	5.00	45.00	21.50	17.48	23.68	12.10	2.883 (B)	[PC]	--
490	C	1.00	44.00	24.00	17.02	22.82	12.55	2.935 (B)	[PC]	--
491	C	1.00	42.00	26.51	0.78	13.76	20.54	5.311 (B)	[PC]	[SLV] H +V
492	C	1.00	43.00	27.37	0.99	13.71	19.21	5.432 (B)	[PC]	[SLV] H +V
493	C	1.00	42.00	26.51	0.78	13.76	20.54	5.432 (B)	[PC]	[SLV] H -V
494	C	1.00	43.00	27.37	0.99	13.71	19.21	5.555 (B)	[PC]	[SLV] H -V
495	C	1.00	44.00	28.24	1.19	13.67	18.00	5.557 (B)	[PC]	[SLV] H +V
496	C	1.00	44.00	28.24	1.19	13.67	18.00	5.682 (B)	[PC]	[SLV] H -V
497	C	1.00	45.00	29.12	1.38	13.63	16.89	5.686 (B)	[PC]	[SLV] H +V
498	C	1.00	45.00	29.12	1.38	13.63	16.89	5.813 (B)	[PC]	[SLV] H -V
499	C	1.00	46.00	30.01	1.56	13.58	15.88	5.818 (B)	[PC]	[SLV] H +V
500	C	2.00	42.00	26.01	1.55	13.67	17.00	5.840 (B)	[PC]	[SLV] H +V
501	C	1.00	46.00	30.01	1.56	13.58	15.88	5.946 (B)	[PC]	[SLV] H -V
502	C	2.00	42.00	26.01	1.55	13.67	17.00	5.980 (B)	[PC]	[SLV] H -V
503	C	2.00	43.00	26.88	1.73	13.63	15.89	5.985 (B)	[PC]	[SLV] H +V
504	C	2.00	43.00	26.88	1.73	13.63	15.89	6.126 (B)	[PC]	[SLV] H -V
505	C	2.00	44.00	27.77	1.90	13.58	14.87	6.134 (B)	[PC]	[SLV] H +V
506	C	2.00	45.00	28.66	2.15	13.53	13.95	6.274 (B)	[PC]	[SLV] H +V
507	C	2.00	44.00	27.77	1.90	13.58	14.87	6.277 (B)	[PC]	[SLV] H -V
508	C	2.00	46.00	29.56	2.42	13.48	13.11	6.413 (B)	[PC]	[SLV] H +V
509	C	2.00	45.00	28.66	2.15	13.53	13.95	6.420 (B)	[PC]	[SLV] H -V
510	C	3.00	42.00	25.53	2.50	13.58	13.82	6.500 (B)	[PC]	[SLV] H +V
511	C	2.00	46.00	29.56	2.42	13.48	13.11	6.563 (B)	[PC]	[SLV] H -V
512	C	3.00	43.00	26.43	2.77	13.52	12.92	6.659 (B)	[PC]	[SLV] H +V
513	C	3.00	42.00	25.53	2.50	13.58	13.82	6.666 (B)	[PC]	[SLV] H -V
514	C	1.00	42.00	26.51	0.78	13.76	20.54	6.737 (B)	[PC]	[SLD] H +V

N°	F	C_x	C_y	R	x_v	x_m	V	FS	Caso	Sisma
		[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[mc]*			
515	C	1.00	42.00	26.51	0.78	13.76	20.54	6.740 (B)	[PC]	[SLD] H -V
516	C	3.00	44.00	27.33	3.03	13.47	12.12	6.822 (B)	[PC]	[SLV] H +V
517	C	3.00	43.00	26.43	2.77	13.52	12.92	6.830 (B)	[PC]	[SLV] H -V
518	C	1.00	43.00	27.37	0.99	13.71	19.21	6.917 (B)	[PC]	[SLD] H +V
519	C	1.00	43.00	27.37	0.99	13.71	19.21	6.919 (B)	[PC]	[SLD] H -V
520	C	3.00	44.00	27.33	3.03	13.47	12.12	6.999 (B)	[PC]	[SLV] H -V
521	C	1.00	44.00	28.24	1.19	13.67	18.00	7.104 (B)	[PC]	[SLD] H +V
522	C	1.00	44.00	28.24	1.19	13.67	18.00	7.104 (B)	[PC]	[SLD] H -V
523	C	1.00	45.00	29.12	1.38	13.63	16.89	7.295 (B)	[PC]	[SLD] H -V
524	C	1.00	45.00	29.12	1.38	13.63	16.89	7.296 (B)	[PC]	[SLD] H +V
525	C	4.00	42.00	25.09	3.43	13.46	11.11	7.419 (B)	[PC]	[SLV] H +V
526	C	1.00	46.00	30.01	1.56	13.58	15.88	7.491 (B)	[PC]	[SLD] H -V
527	C	1.00	46.00	30.01	1.56	13.58	15.88	7.493 (B)	[PC]	[SLD] H +V
528	C	2.00	42.00	26.01	1.55	13.67	17.00	7.541 (B)	[PC]	[SLD] H +V
529	C	2.00	42.00	26.01	1.55	13.67	17.00	7.544 (B)	[PC]	[SLD] H -V
530	C	4.00	42.00	25.09	3.43	13.46	11.11	7.634 (B)	[PC]	[SLV] H -V
531	C	2.00	43.00	26.88	1.73	13.63	15.89	7.760 (B)	[PC]	[SLD] H +V
532	C	2.00	43.00	26.88	1.73	13.63	15.89	7.762 (B)	[PC]	[SLD] H -V
533	C	2.00	44.00	27.77	1.90	13.58	14.87	7.987 (B)	[PC]	[SLD] H +V
534	C	2.00	44.00	27.77	1.90	13.58	14.87	7.987 (B)	[PC]	[SLD] H -V
535	C	2.00	45.00	28.66	2.15	13.53	13.95	8.204 (B)	[PC]	[SLD] H -V
536	C	2.00	45.00	28.66	2.15	13.53	13.95	8.205 (B)	[PC]	[SLD] H +V
537	C	2.00	46.00	29.56	2.42	13.48	13.11	8.424 (B)	[PC]	[SLD] H -V
538	C	2.00	46.00	29.56	2.42	13.48	13.11	8.425 (B)	[PC]	[SLD] H +V
539	C	1.00	42.00	26.51	0.78	13.76	20.54	8.444 (B)	[PC]	--
540	C	3.00	42.00	25.53	2.50	13.58	13.82	8.587 (B)	[PC]	[SLD] H +V
541	C	3.00	42.00	25.53	2.50	13.58	13.82	8.594 (B)	[PC]	[SLD] H -V
542	C	1.00	43.00	27.37	0.99	13.71	19.21	8.712 (B)	[PC]	--
543	C	3.00	43.00	26.43	2.77	13.52	12.92	8.845 (B)	[PC]	[SLD] H +V
544	C	3.00	43.00	26.43	2.77	13.52	12.92	8.851 (B)	[PC]	[SLD] H -V
545	C	1.00	44.00	28.24	1.19	13.67	18.00	8.991 (B)	[PC]	--
546	C	3.00	44.00	27.33	3.03	13.47	12.12	9.113 (B)	[PC]	[SLD] H +V
547	C	3.00	44.00	27.33	3.03	13.47	12.12	9.119 (B)	[PC]	[SLD] H -V
548	C	1.00	45.00	29.12	1.38	13.63	16.89	9.280 (B)	[PC]	--
549	C	1.00	46.00	30.01	1.56	13.58	15.88	9.579 (B)	[PC]	--
550	C	2.00	42.00	26.01	1.55	13.67	17.00	9.669 (B)	[PC]	--
551	C	2.00	43.00	26.88	1.73	13.63	15.89	10.007 (B)	[PC]	--
552	C	4.00	42.00	25.09	3.43	13.46	11.11	10.141 (B)	[PC]	[SLD] H +V
553	C	4.00	42.00	25.09	3.43	13.46	11.11	10.158 (B)	[PC]	[SLD] H -V
554	C	2.00	44.00	27.77	1.90	13.58	14.87	10.358 (B)	[PC]	--
555	C	2.00	45.00	28.66	2.15	13.53	13.95	10.704 (B)	[PC]	--
556	C	2.00	46.00	29.56	2.42	13.48	13.11	11.059 (B)	[PC]	--
557	C	3.00	42.00	25.53	2.50	13.58	13.82	11.356 (B)	[PC]	--
558	C	3.00	43.00	26.43	2.77	13.52	12.92	11.785 (B)	[PC]	--
559	C	3.00	44.00	27.33	3.03	13.47	12.12	12.238 (B)	[PC]	--
560	C	4.00	42.00	25.09	3.43	13.46	11.11	14.081 (B)	[PC]	--
561	C	5.00	45.00	23.00	16.71	26.01	29.56		[PC]	[SLV] H +V
562	C	5.00	45.00	23.00	16.71	26.01	29.56		[PC]	--
563	C	5.00	45.00	22.50	16.99	25.19	22.86		[PC]	[SLD] H -V
564	C	5.00	45.00	23.00	16.71	26.01	29.56		[PC]	[SLD] H +V
565	C	5.00	45.00	23.00	16.71	26.01	29.56		[PC]	[SLD] H -V
566	C	1.00	42.00	23.00	16.71	22.52	13.99		[PC]	[SLD] H +V
567	C	5.00	45.00	22.50	16.99	25.19	22.86		[PC]	--
568	C	5.00	45.00	22.50	16.99	25.19	22.86		[PC]	[SLD] H +V
569	C	5.00	45.00	23.00	16.71	26.01	29.56		[PC]	[SLV] H -V
570	C	1.00	42.00	23.00	16.71	22.52	13.99		[PC]	[SLV] H -V
571	C	1.00	42.00	23.00	16.71	22.52	13.99		[PC]	[SLV] H +V
572	C	5.00	45.00	22.50	16.99	25.19	22.86		[PC]	[SLV] H +V
573	C	1.00	42.00	23.00	16.71	22.52	13.99		[PC]	--
574	C	1.00	42.00	23.00	16.71	22.52	13.99		[PC]	[SLD] H -V
575	C	5.00	45.00	22.50	16.99	25.19	22.86		[PC]	[SLV] H -V

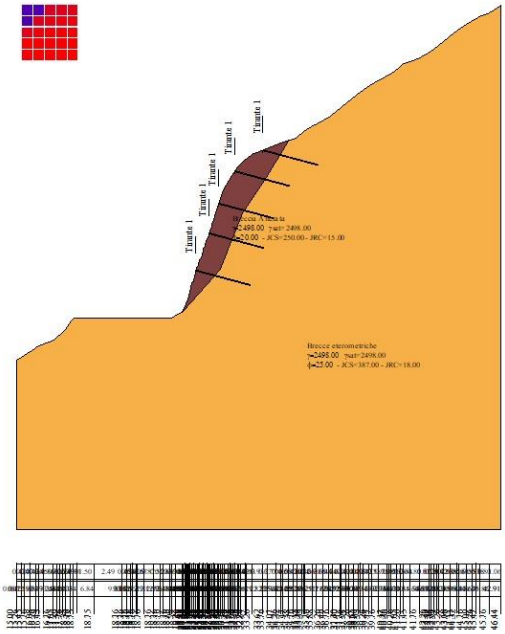


Fig. 2 - Mappa fattori di sicurezza - BISHOP

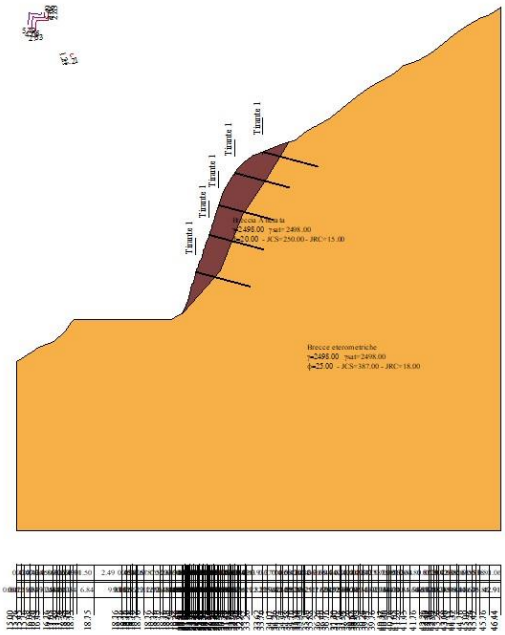


Fig. 3 - Curve di livello - BISHOP

Analisi della superficie critica

Simbologia adottata

Le ascisse X sono considerate positive verso destra
Le ordinate Y sono considerate positive verso l'alto
Le strisce sono numerate da valle verso monte

N°	numero d'ordine della striscia
X_s	ascissa sinistra della striscia espressa in m
Y_{ss}	ordinata superiore sinistra della striscia espressa in m
Y_{si}	ordinata inferiore sinistra della striscia espressa in m
X_g	ascissa del baricentro della striscia espressa in m
Y_g	ordinata del baricentro della striscia espressa in m

α	angolo fra la base della striscia e l'orizzontale espresso °(positivo antiorario)
ϕ	angolo d'attrito del terreno lungo la base della striscia
c	coesione del terreno lungo la base della striscia espressa in kg/cmq
L	sviluppo della base della striscia espressa in m(L=b/cosα)
u	pressione neutra lungo la base della striscia espressa in kg/cmq
W	peso della striscia espresso in kg
Q	carico applicato sulla striscia espresso in kg
N	sforzo normale alla base della striscia espresso in kg
T	sforzo tangenziale alla base della striscia espresso in kg
U	pressione neutra alla base della striscia espressa in kg
E_s, E_d	forze orizzontali sulla striscia a sinistra e a destra espresse in kg
X_s, X_d	forze verticali sulla striscia a sinistra e a destra espresse in kg
ID	Indice della superficie interessata dall'intervento
JCS	Coefficiente di resistenza di giunto
JRC	Coefficiente di rugosità del giunto
ϕ_r	Angolo di attrito residuo
γ	Peso dell'unità di volume della roccia

Superficie n° 1

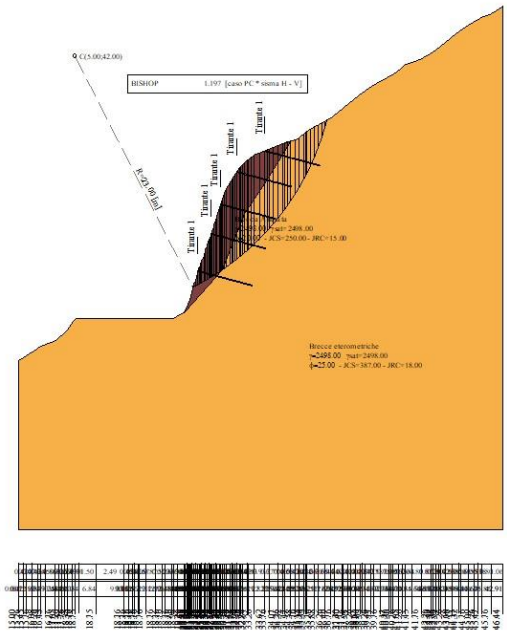


Fig. 4 - Superficie di rottura (Superficie n° 1)

Analisi della superficie 1 - valori caratteristici e sisma verso il basso

Numero di strisce	63	
Coordinate del centro	X[m]= 5.00	Y[m]= 42.00
Raggio del cerchio	R[m]= 23.00	
Intersezione a valle con il profilo topografico	X_v[m]= 15.43	Y_v[m]= 21.50
Intersezione a monte con il profilo topografico	X_m[m]= 27.29	Y_m[m]= 36.33

Geometria e caratteristiche strisce

N°	X_s [m]	Y_{ss} [m]	Y_{si} [m]	X_d [m]	Y_{ds} [m]	Y_{di} [m]	X_q [m]	Y_q [m]	L [m]	α [°]	ϕ [°]	c [kg/cmq]
1	15.43	21.50	21.50	15.49	21.76	21.53	15.47	21.60	0.06	27.06	60.61	0.011
2	15.49	21.76	21.53	15.53	21.90	21.55	15.51	21.69	0.04	27.19	60.61	0.011
3	15.53	21.90	21.55	15.67	21.99	21.62	15.60	21.77	0.16	27.44	60.61	0.011
4	15.67	21.99	21.62	15.88	22.97	21.74	15.79	22.13	0.24	27.94	60.60	0.011
5	15.88	22.97	21.74	15.98	23.26	21.79	15.93	22.44	0.11	28.37	57.52	0.014
6	15.98	23.26	21.79	16.07	23.35	21.84	16.03	22.56	0.10	28.64	56.95	0.015
7	16.07	23.35	21.84	16.15	23.76	21.88	16.11	22.71	0.09	28.88	56.17	0.016
8	16.15	23.76	21.88	16.19	23.87	21.91	16.17	22.86	0.05	29.06	55.38	0.018
9	16.19	23.87	21.91	16.41	24.18	22.03	16.30	23.00	0.25	29.43	54.98	0.018
10	16.41	24.18	22.03	16.52	24.76	22.09	16.47	23.27	0.13	29.90	54.02	0.020
11	16.52	24.76	22.09	16.54	24.88	22.10	16.53	23.46	0.02	30.09	53.24	0.022
12	16.54	24.88	22.10	16.71	25.20	22.20	16.63	23.60	0.20	30.36	52.89	0.022
13	16.71	25.20	22.20	16.73	25.40	22.22	16.72	23.76	0.02	30.63	52.47	0.023
14	16.73	25.40	22.22	16.86	25.76	22.29	16.80	23.92	0.15	30.85	52.01	0.024
15	16.86	25.76	22.29	16.99	25.96	22.37	16.93	24.10	0.15	31.23	51.66	0.025

N°	X_s	Y_{ss}	Y_{si}	X_d	Y_{ds}	Y_{di}	X_q	Y_q	L	α	ϕ	c
	[m]	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[m]*	*[°]*	*[°]*	*[kg/cmq]*
16	16.99	25.96	22.37	17.05	26.26	22.41	17.02	24.25	0.07	31.51	51.34	0.026
17	17.05	26.26	22.41	17.15	26.56	22.47	17.10	24.43	0.12	31.74	50.93	0.027
18	17.15	26.56	22.47	17.26	26.76	22.54	17.21	24.58	0.13	32.05	50.66	0.028
19	17.26	26.76	22.54	17.33	27.13	22.58	17.30	24.75	0.08	32.31	60.61	0.011
20	17.33	27.13	22.58	17.46	27.40	22.67	17.40	24.95	0.15	32.61	49.98	0.030
21	17.46	27.40	22.67	17.53	27.76	22.71	17.50	25.14	0.08	32.91	49.66	0.031
22	17.53	27.76	22.71	17.84	28.72	22.92	17.69	25.53	0.37	33.47	49.03	0.033
23	17.84	28.72	22.92	17.90	28.90	22.96	17.87	25.87	0.07	34.03	48.55	0.035
24	17.90	28.90	22.96	18.00	29.20	23.03	17.95	26.02	0.12	34.27	48.37	0.036
25	18.00	29.20	23.03	18.02	29.26	23.04	18.01	26.13	0.02	34.45	48.23	0.036
26	18.02	29.26	23.04	18.06	29.38	23.07	18.04	26.19	0.05	34.54	48.17	0.036
27	18.06	29.38	23.07	18.21	29.84	23.17	18.14	26.37	0.18	34.83	47.96	0.037
28	18.21	29.84	23.17	18.26	29.96	23.21	18.24	26.54	0.06	35.13	47.77	0.038
29	18.26	29.96	23.21	18.43	30.30	23.33	18.35	26.70	0.21	35.47	47.65	0.038
30	18.43	30.30	23.33	18.69	30.76	23.52	18.56	26.98	0.32	36.13	47.48	0.039
31	18.69	30.76	23.52	18.90	31.10	23.68	18.80	27.26	0.26	36.86	47.34	0.040
32	18.90	31.10	23.68	19.00	31.26	23.75	18.95	27.45	0.13	37.34	47.27	0.040
33	19.00	31.26	23.75	19.13	31.47	23.85	19.07	27.58	0.16	37.70	47.22	0.040
34	19.13	31.47	23.85	19.32	31.76	24.00	19.23	27.77	0.24	38.21	47.16	0.041
35	19.32	31.76	24.00	19.55	32.07	24.19	19.44	28.01	0.30	38.87	47.11	0.041
36	19.55	32.07	24.19	19.69	32.26	24.30	19.62	28.21	0.18	39.47	47.09	0.041
37	19.69	32.26	24.30	19.82	32.38	24.41	19.76	28.34	0.17	39.91	47.10	0.041
38	19.82	32.38	24.41	20.00	32.55	24.56	19.91	28.48	0.24	40.41	47.14	0.041
39	20.00	32.55	24.56	20.25	32.78	24.78	20.13	28.67	0.33	41.12	47.20	0.040
40	20.25	32.78	24.78	20.36	32.84	24.88	20.30	28.82	0.15	41.72	47.28	0.040
41	20.36	32.84	24.88	20.63	33.05	25.12	20.49	28.97	0.36	42.35	47.38	0.040
42	20.63	33.05	25.12	20.89	33.26	25.37	20.76	29.20	0.36	43.25	51.71	0.025
43	20.89	33.26	25.37	21.36	33.44	25.83	21.12	29.47	0.65	44.51	47.79	0.038
44	21.36	33.44	25.83	21.82	33.62	26.31	21.59	29.80	0.67	46.16	48.25	0.036
45	21.82	33.62	26.31	22.00	33.69	26.51	21.91	30.03	0.27	47.33	48.59	0.035
46	22.00	33.69	26.51	22.19	33.76	26.72	22.09	30.17	0.28	48.01	48.81	0.034
47	22.19	33.76	26.72	22.58	33.92	27.16	22.38	30.39	0.59	49.10	49.16	0.033
48	22.58	33.92	27.16	22.96	34.07	27.63	22.77	30.69	0.61	50.58	49.67	0.031
49	22.96	34.07	27.63	23.42	34.26	28.23	23.19	31.05	0.75	52.28	50.29	0.029
50	23.42	34.26	28.23	23.52	34.32	28.36	23.47	31.29	0.17	53.42	50.73	0.028
51	23.52	34.32	28.36	23.81	34.40	28.76	23.66	31.46	0.50	54.25	51.10	0.027
52	23.81	34.40	28.76	24.10	34.47	29.19	23.95	31.70	0.51	55.51	51.71	0.025
53	24.10	34.47	29.19	24.52	34.58	29.84	24.31	32.01	0.77	57.11	57.69	0.143
54	24.52	34.58	29.84	24.82	34.76	30.33	24.67	32.37	0.58	58.79	57.69	0.143
55	24.82	34.76	30.33	25.29	35.15	31.17	25.05	32.85	0.96	60.71	57.69	0.143
56	25.29	35.15	31.17	25.43	35.26	31.44	25.36	33.25	0.30	62.28	57.69	0.143
57	25.43	35.26	31.44	25.55	35.35	31.67	25.49	33.43	0.26	62.98	57.69	0.143
58	25.55	35.35	31.67	25.88	35.56	32.36	25.71	33.73	0.76	64.26	57.69	0.143
59	25.88	35.56	32.36	26.21	35.76	33.10	26.04	34.19	0.82	66.23	57.69	0.143
60	26.21	35.76	33.10	26.51	35.88	33.86	26.35	34.64	0.81	68.25	57.69	0.143
61	26.51	35.88	33.86	26.84	36.07	34.77	26.66	35.12	0.97	70.47	57.69	0.143
62	26.84	36.07	34.77	27.16	36.26	35.84	26.97	35.68	1.12	73.08	57.69	0.143
63	27.16	36.26	35.84	27.29	36.33	36.33	27.20	36.14	0.50	75.09	57.69	0.143

Metodo di **BISHOP**

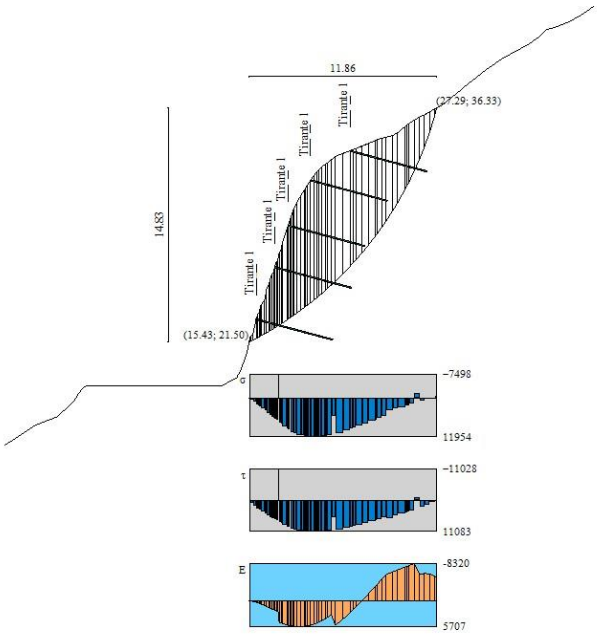


Fig. 5 - Forze di interstriscia (Superficie n° 1)

Coefficiente di sicurezza F_S= 1.197

Forze applicate sulle strisce

N°	W [kg]	Q [kg]	N [kg]	T [kg]	U [kg]	E_s [kg]	E_d [kg]	X_s [kg]	X_d [kg]	ID
1	16	0	9	20	0	0	11	0	0	--
2	29	0	18	31	0	11	27	0	0	--
3	125	0	80	134	0	27	93	0	0	--
4	419	0	277	432	0	93	290	0	0	--
5	338	0	235	322	0	290	418	0	0	--
6	335	0	235	315	0	418	537	0	0	--
7	338	0	240	312	0	537	650	0	0	--
8	192	0	138	173	0	650	709	0	0	--
9	1131	0	814	1009	0	709	1040	0	0	--
10	662	0	482	576	0	1040	1212	0	0	--
11	136	0	100	116	0	1212	1245	0	0	--
12	1225	0	906	1037	0	1245	1521	0	0	--
13	154	0	115	129	0	1521	1554	0	0	--
14	1080	0	806	893	0	1554	1766	0	0	--
15	1145	0	858	938	0	1766	1973	0	0	--
16	557	0	419	453	0	1973	2067	0	0	--
17	992	0	749	798	0	2067	2222	0	0	--
18	1142	0	864	911	0	2222	2386	0	0	--
19	766	0	-621	-913	0	2386	4738	0	0	--
20	1507	0	1149	1182	0	4738	4917	0	0	--
21	855	0	655	665	0	4917	5009	0	0	--
22	4201	0	3238	3218	0	5009	5357	0	0	--
23	880	0	682	666	0	5357	5412	0	0	--
24	1513	0	1174	1140	0	5412	5495	0	0	--
25	310	0	241	232	0	5495	5510	0	0	--
26	626	0	487	469	0	5510	5538	0	0	--
27	2432	0	1895	1813	0	5538	5625	0	0	--
28	838	0	655	622	0	5625	5647	0	0	--
29	2914	0	2278	2154	0	5647	5699	0	0	--
30	4616	0	3611	3395	0	5699	5707	0	0	--
31	3847	0	3011	2817	0	5707	5652	0	0	--
32	1865	0	1460	1362	0	5652	5605	0	0	--
33	2456	0	1923	1791	0	5605	5525	0	0	--
34	3649	0	2857	2656	0	5525	5367	0	0	--
35	4493	0	3518	3264	0	5367	5112	0	0	--
36	2770	0	2168	2010	0	5112	4923	0	0	--
37	2586	0	2023	1876	0	4923	4726	0	0	--
38	3586	0	2802	2603	0	4726	4422	0	0	--
39	4990	0	3893	3625	0	4422	3938	0	0	--
40	2192	0	1708	1594	0	3938	3705	0	0	--
41	5258	0	4089	3831	0	3705	3093	0	0	--
42	5235	0	2036	2231	0	3093	5365	0	0	--
43	9002	0	6952	6609	0	5365	4026	0	0	--
44	8664	0	6643	6420	0	4026	2546	0	0	--
45	3257	0	2484	2430	0	2546	1941	0	0	--
46	3375	0	2565	2529	0	1941	1284	0	0	--
47	6632	0	5014	5006	0	1284	-96	0	0	--
48	6342	0	4757	4837	0	-96	-1530	0	0	--
49	7165	0	5322	5535	0	-1530	-3290	0	0	--
50	1498	0	1105	1168	0	-3290	-3678	0	0	--
51	4198	0	3077	3296	0	-3678	-4799	0	0	--
52	3953	0	2867	3141	0	-4799	-5901	0	0	--
53	5260	0	2924	4784	0	-5901	-6446	0	0	--
54	3437	0	1864	3153	0	-6446	-6857	0	0	--
55	4937	0	2596	4575	0	-6857	-7530	0	0	--
56	1365	0	695	1277	0	-7530	-7730	0	0	--
57	1125	0	563	1058	0	-7730	-7898	0	0	--
58	2835	0	1358	2699	0	-7898	-8320	0	0	--
59	2414	0	-1397	-868	0	-8320	-5977	0	0	--
60	1753	0	608	1769	0	-5977	-6116	0	0	--
61	1348	0	218	1447	0	-6116	-6014	0	0	--
62	697	0	-342	880	0	-6014	-5522	0	0	--
63	68	0	-331	163	0	-5522	-5169	0	0	--