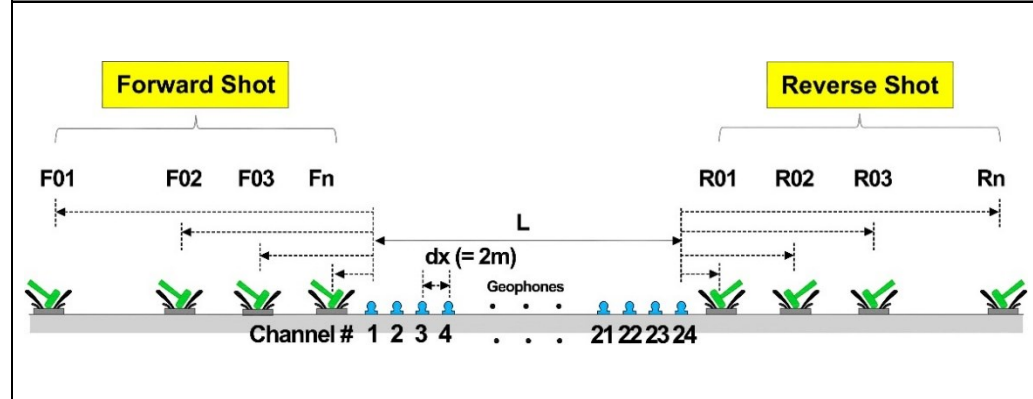
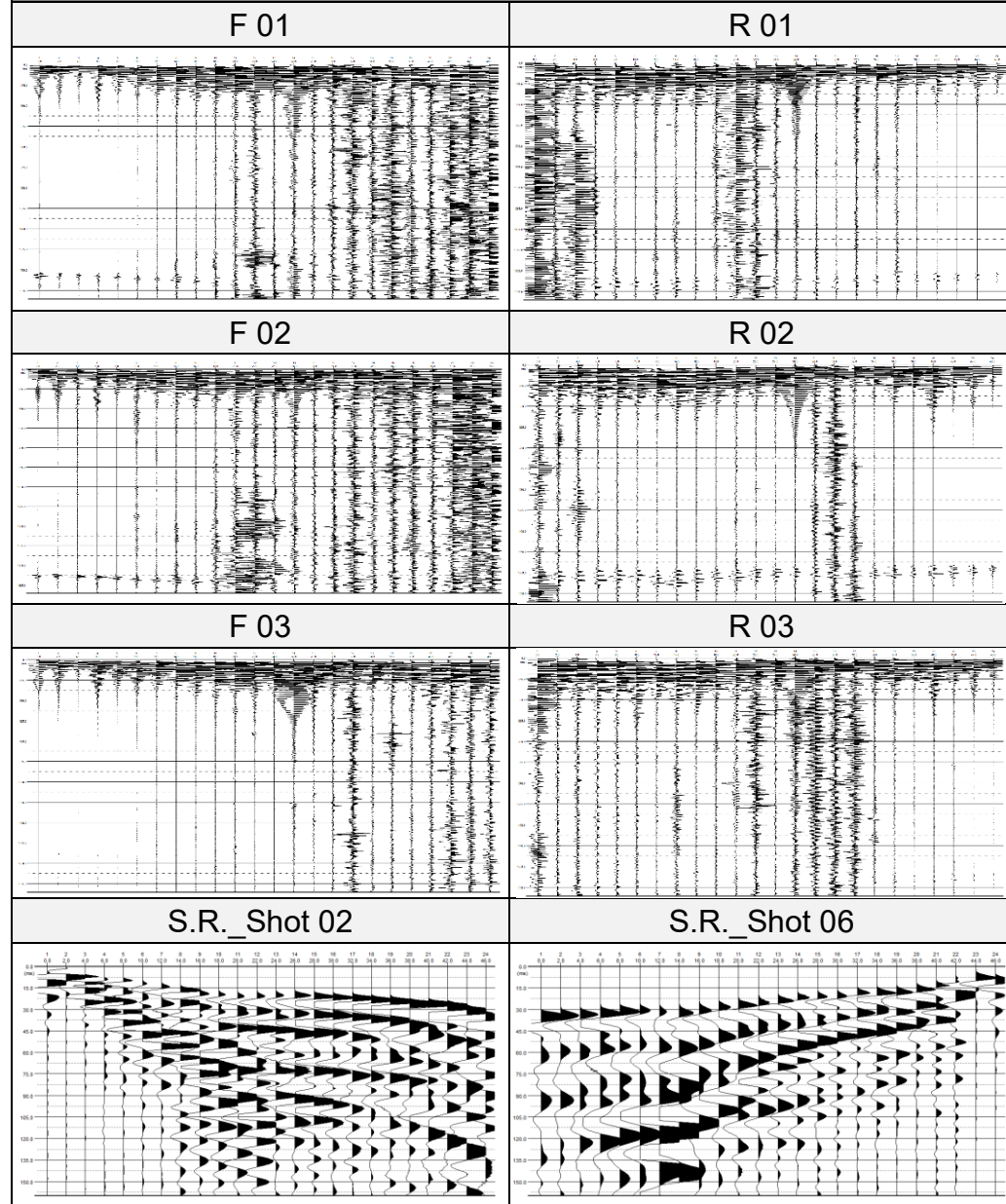


**Schema acquisizione MASW**



**Sismogrammi**



**Ubicazione**



**Geometria acquisizione MASW**

Posizione dei geofoni [m]			Posizione degli scoppi [m]		
<u>Geof.</u>	<u>Dist.</u>	<u>Quot. rel.</u>	<u>Shot</u>	<u>Dist.</u>	<u>Quot. rel.</u>
G 01	0.00	0.00			
G 02	2.00	0.00			
G 03	4.00	0.00			
G 04	6.00	0.00			
G 05	8.00	0.00			
G 06	10.00	0.00	F 01	-6.00	0.00
G 07	12.00	0.00	F 02	-5.00	0.00
G 08	14.00	0.00	F 03	-4.00	0.00
G 09	16.00	0.00	R 01	50.00	0.00
G 10	18.00	0.00	R 02	51.00	0.00
G 11	20.00	0.00	R 03	52.00	0.00
G 12	22.00	0.00			
G 13	24.00	0.00			
G 14	26.00	0.00			
G 15	28.00	0.00			
G 16	30.00	0.00			
G 17	32.00	0.00			
G 18	34.00	0.00			
G 19	36.00	0.00			
G 20	38.00	0.00			
G 21	40.00	0.00			
G 22	42.00	0.00			
G 23	44.00	0.00			
G 24	46.00	0.00			

**COMUNE DI SAN CHIRICO R.**  
Provincia di Potenza

**MASW 01**

**Indagine:** MASW

**Data:** 24/06/2024

**Progetto:** "Indagini Geofisiche"

**Località:** Stazione Sismica SCHR

**Committente:** CNR IMAA

**Parametri acquisizione MASW**

<b>Nome Stendimento:</b>	MASW 01
<b>N. Canali:</b>	24
<b>Distanza Intergeofonica:</b>	2 m
<b>n. scoppi diretti:</b>	3
<b>n. scoppi inversi:</b>	3
<b>Tempo di campionamento:</b>	250 nsec.
<b>Tempo di acquisizione:</b>	2 sec.



Documentazione fotografica



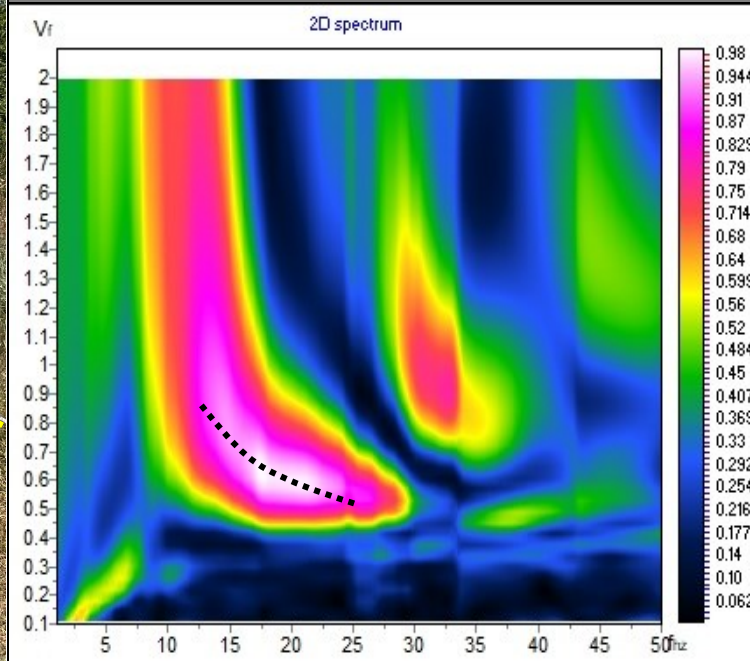
Coordinate WGS84

<u>Scoppi</u>	<u>Lat. (°)</u>	<u>Long. (°)</u>	<u>Quota (m)</u>
Shot (F01)	40.198899	16.075535	920
Shot (R03)	40.199216	16.076058	920

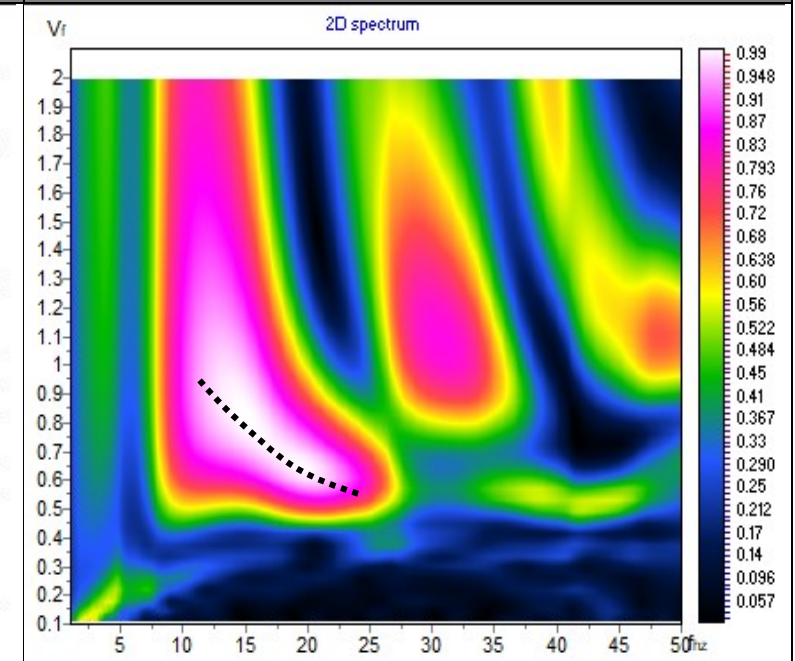
**COMUNE DI SAN CHIRICO R.**  
Provincia di Potenza

**MASW 01**

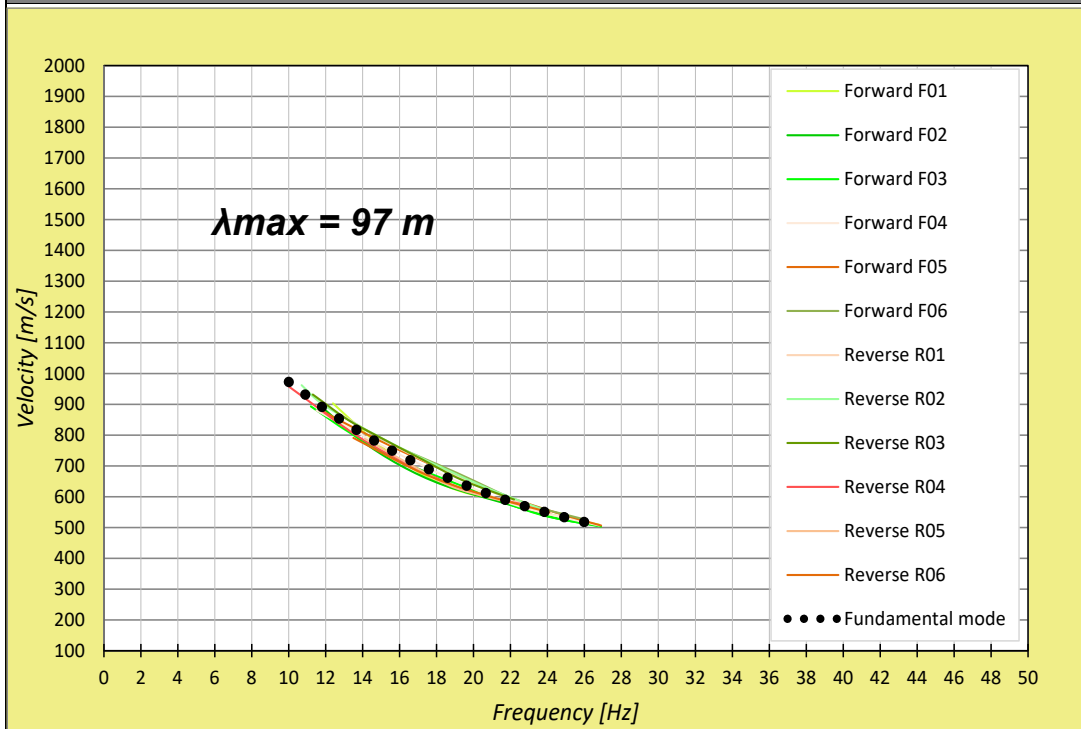
Spettro scoppio diretto F01



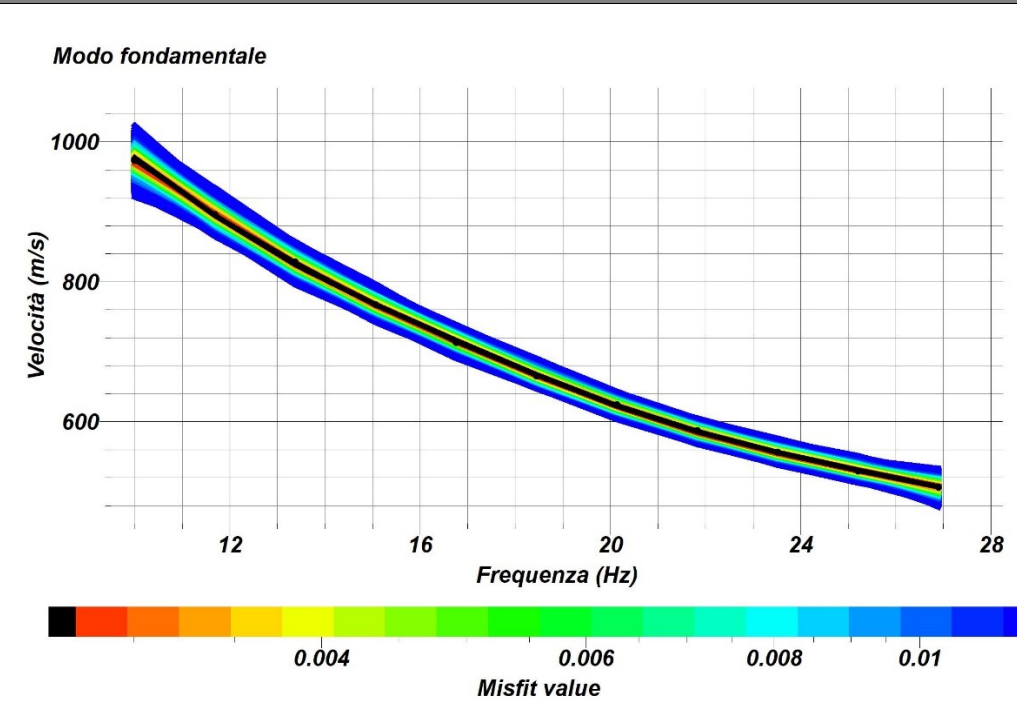
Spettro scoppio inverso R01



Curva di dispersione reale (picking)

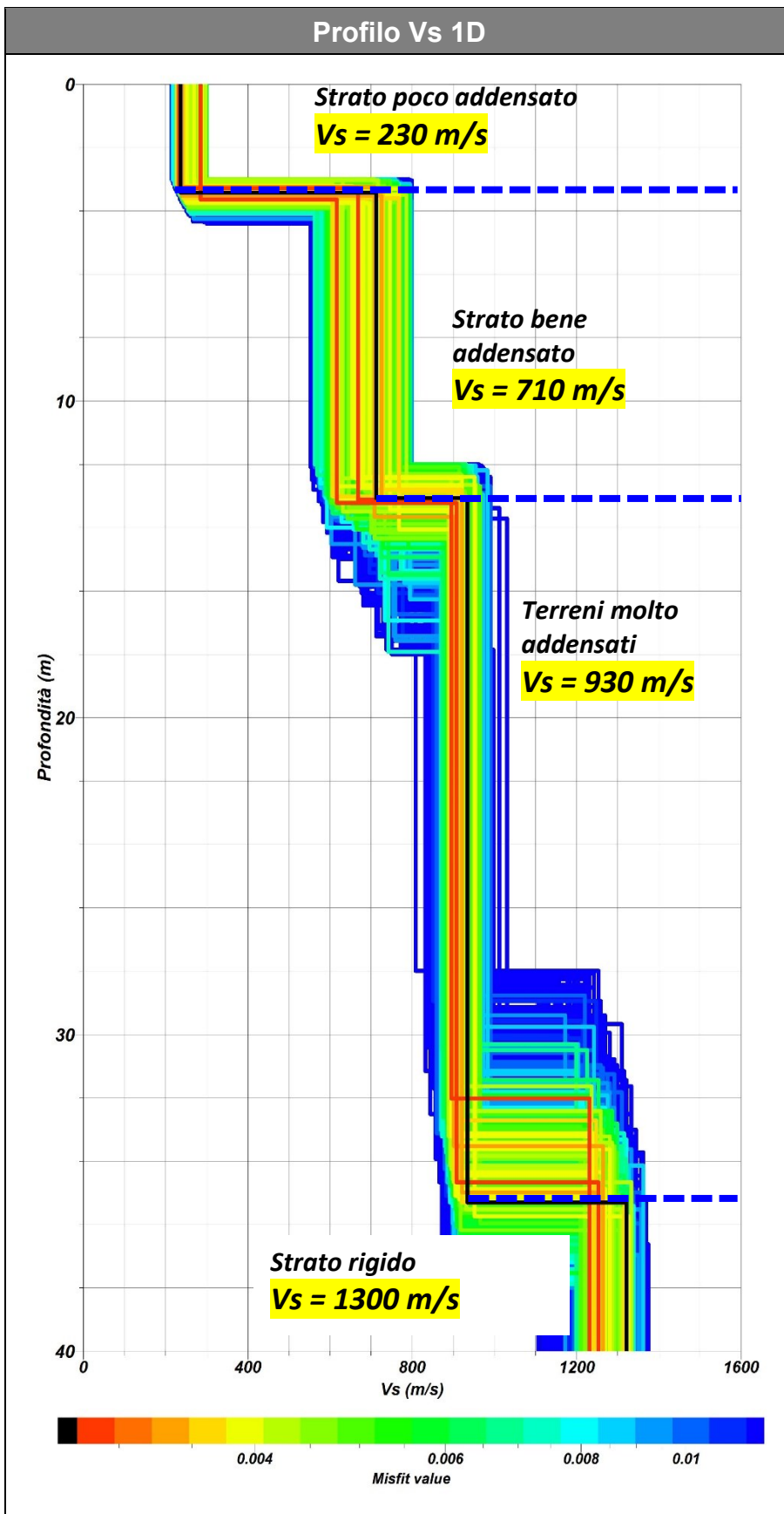


Curva di dispersione reale e sintetica (misfit migliore)



Valori curva di dispersione

M. fond.		I M. sup.		II M. sup.	
F (Hz)	V (m/S)	F (Hz)	V (m/S)	F (Hz)	V (m/S)
10.00	973				
11.69	896				
13.38	828				
15.07	767				
16.76	713				
18.45	665				
20.14	624				
21.83	587				
23.52	556				
25.21	529				
26.90	506				

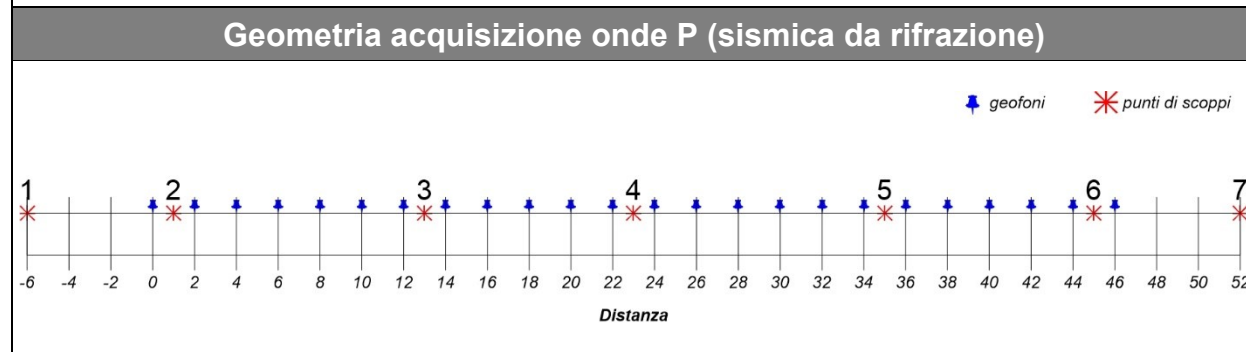
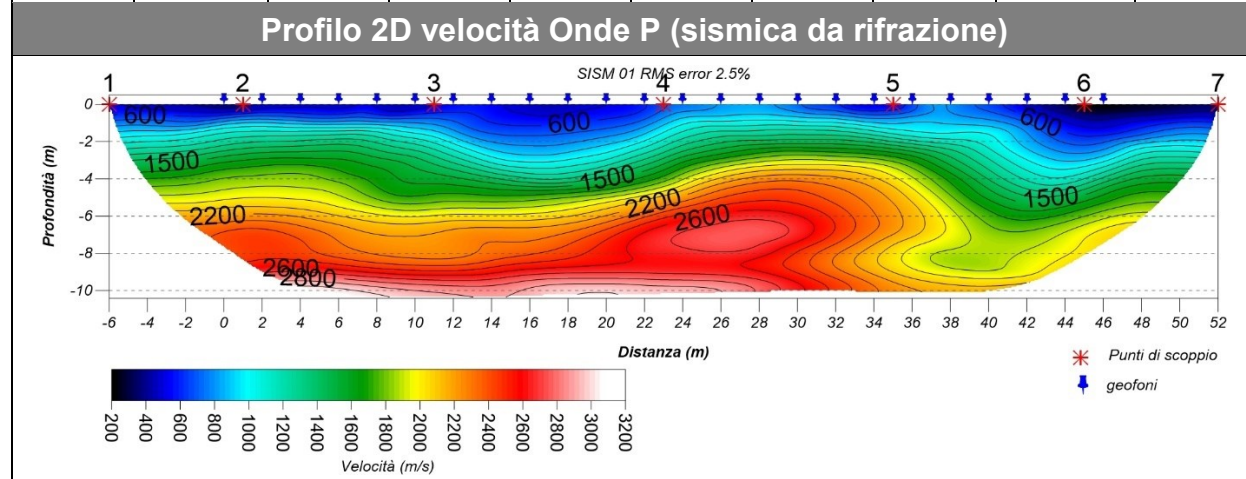


### Spessore degli strati e velocità onde S (misfit migliore)

Strato	Profondità m	Spessore m	Velocità m/s
1	0.00	3.50	240
2	3.50	9.50	710
3	13.00	22.00	930
4	35.00	/	1300

### Moduli Elastici

STRATO	SPESSOR E m	Vp m/s	Vs m/s	$\gamma$ g/cm <sup>3</sup>	Poisson v	MODULO DI YOUNG Kg/cm <sup>2</sup>	R t/m <sup>2</sup> *sec	MODULO DI TAGLIO Kg/cm <sup>2</sup>	BULK MODULO Kg/cm <sup>2</sup>
1	3.50	1400	240	1.94	0.48	3384.00	466	1117.85	37255.28
2	9.50	2600	710	2.18	0.46	32748.04	1550	11004.18	135468.13
3	22.00	/	930	2.24	/	/	2086	19400.59	/
4	/	/	1300	2.30	/	/	2986	38820.74	/

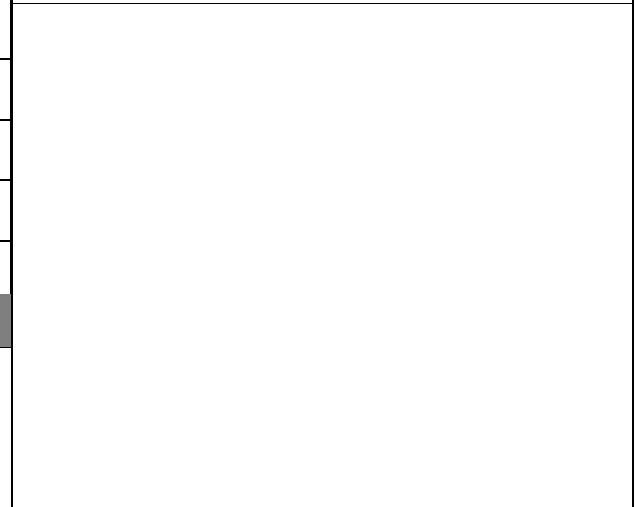


**COMUNE DI SAN CHIRICO R.**  
Provincia di Potenza

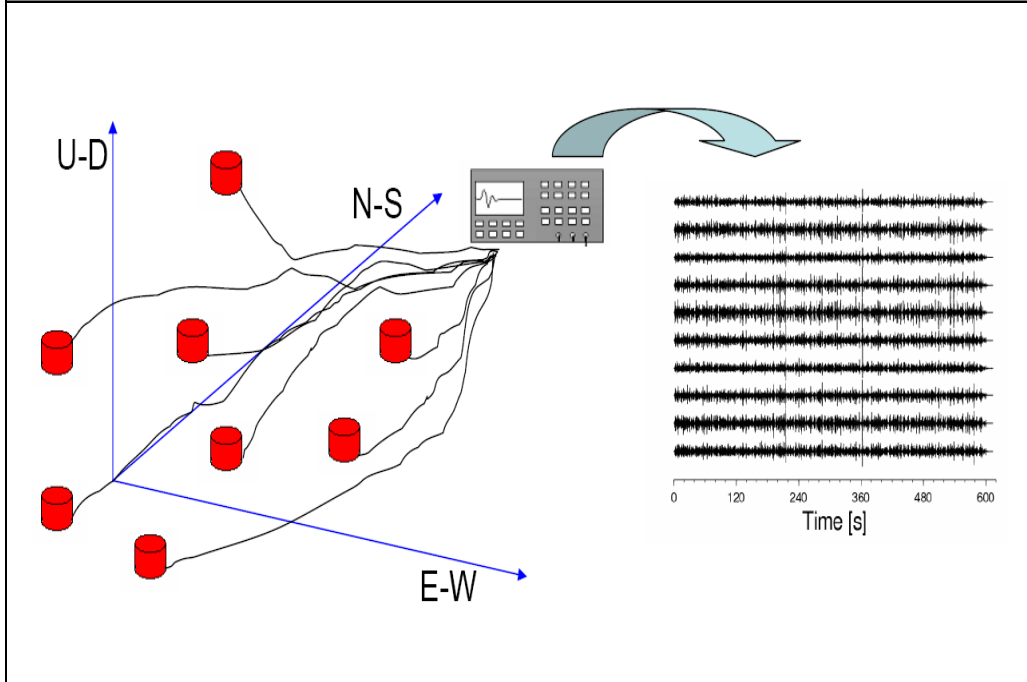
**MASW 01**

**Classificazione suoli**  
**NTC 2018**

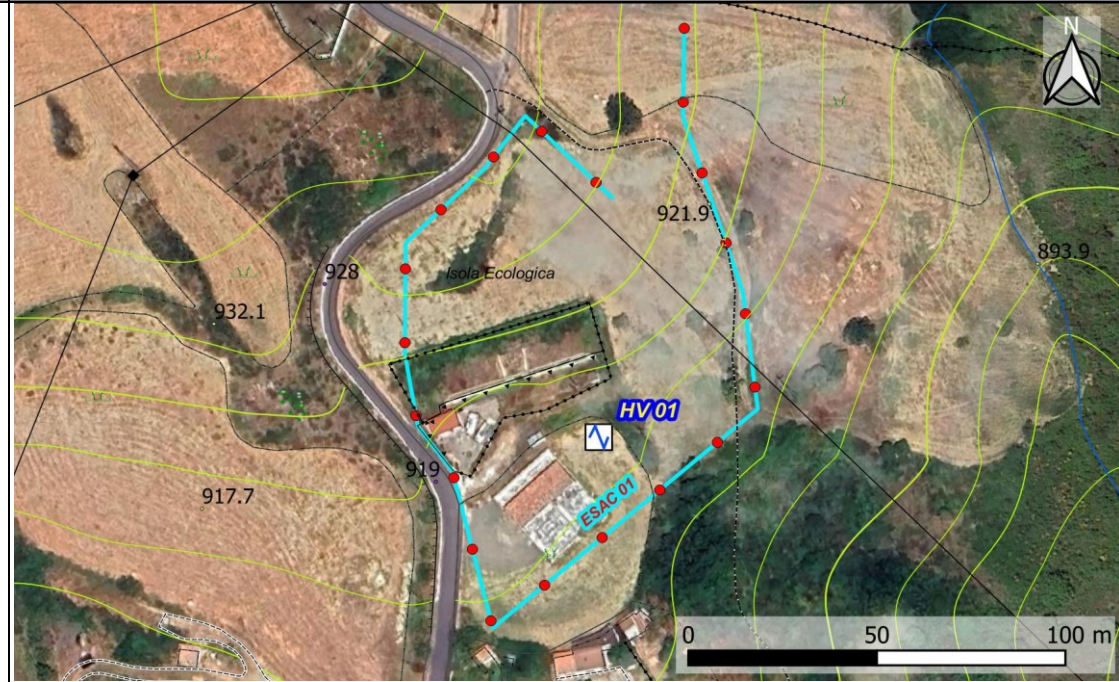
**$V_{seq} = V_{s13} = 465 \text{ m/s}$**



**Schema acquisizione ESAC**



**Ubicazione**



**COMUNE DI SAN CHIRICO R.**  
Provincia di Potenza

**ESAC 01**

**Indagine:** ESAC

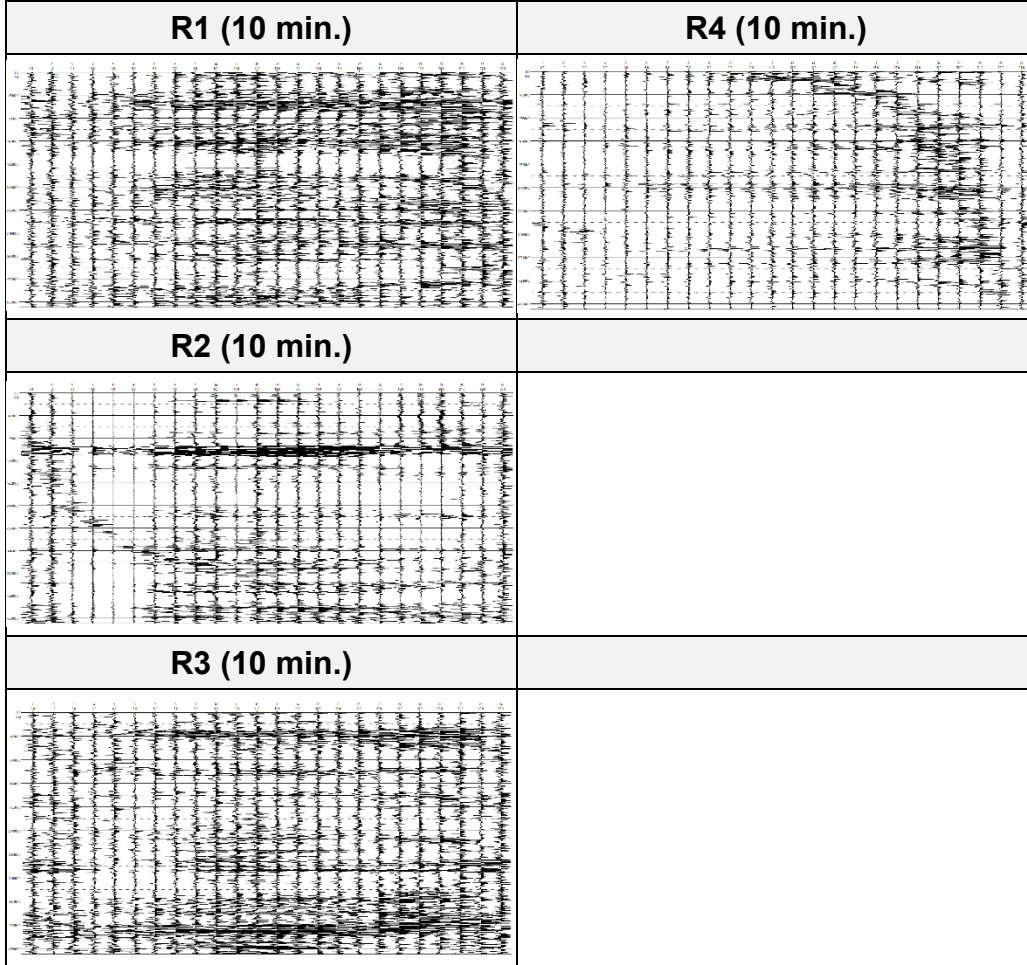
**Data:** 24-06-2024

**Progetto:** "Indagini Geofisiche"

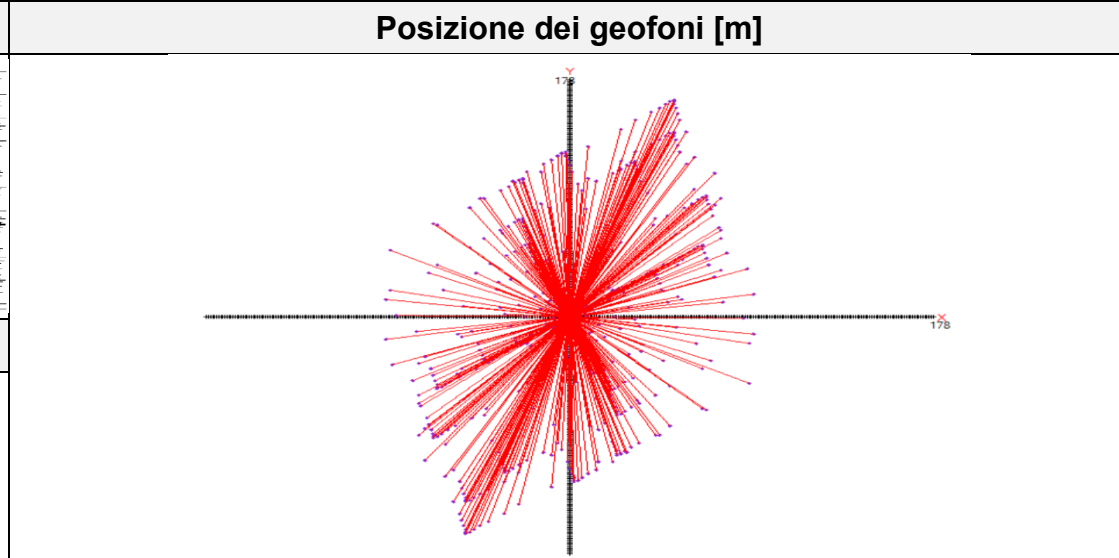
**Località:** Stazione Sismica SCHR

**Committente:** CNR IMAA

**Sismogrammi**



**Geometria acquisizione ESAC**



Stations Coordinates								
	x	y		x	y		x	y
Station 1	74.1	162.1	Station 11	24.1	1.21	Station 21	0.00	74.1
Station 2	73.1	138.1	Station 12	23.1	0.00	Station 22	0.21	104.1
Station 3	89.1	91.1	Station 13	23.0	0.91	Station 23	21.0	124.1
Station 4	87.1	54.1	Station 14	22.1	2.91	Station 24	55.0	116.1
Station 5	64.1	34.1	Station 15	21.1	5.81			
Station 6	49.1	21.1	Station 16	20.1	9.71			
Station 7	41.1	15.1	Station 17	19.1	14.1			
Station 8	34.1	9.01	Station 18	17.1	24.1			
Station 9	30.1	5.81	Station 19	12.1	42.1			
Station 10	27.1	3.21	Station 20	3.41	54.1			

**Parametri acquisizione MASW**

<b>Nome Stendimento:</b>	ESAC 01
<b>N. Canali:</b>	24
<b>Distanza Intergeofonica:</b>	variabile
<b>n. scoppi diretti:</b>	passiva
<b>n. scoppi inversi:</b>	passiva
<b>Tempo di campionamento:</b>	8 nsec.
<b>Tempo di acquisizione:</b>	40 min.



Documentazione fotografica



Coordinate WGS84

<u>Geofoni</u>	<u>Lat. (°)</u>	<u>Long. (°)</u>	<u>Quota (m)</u>
G 01	40.200034	16.076230	925
G 24	40.199617	16.075996	928

**COMUNE DI SAN CHIRICO R.**  
Provincia di Potenza

**ESAC 01**

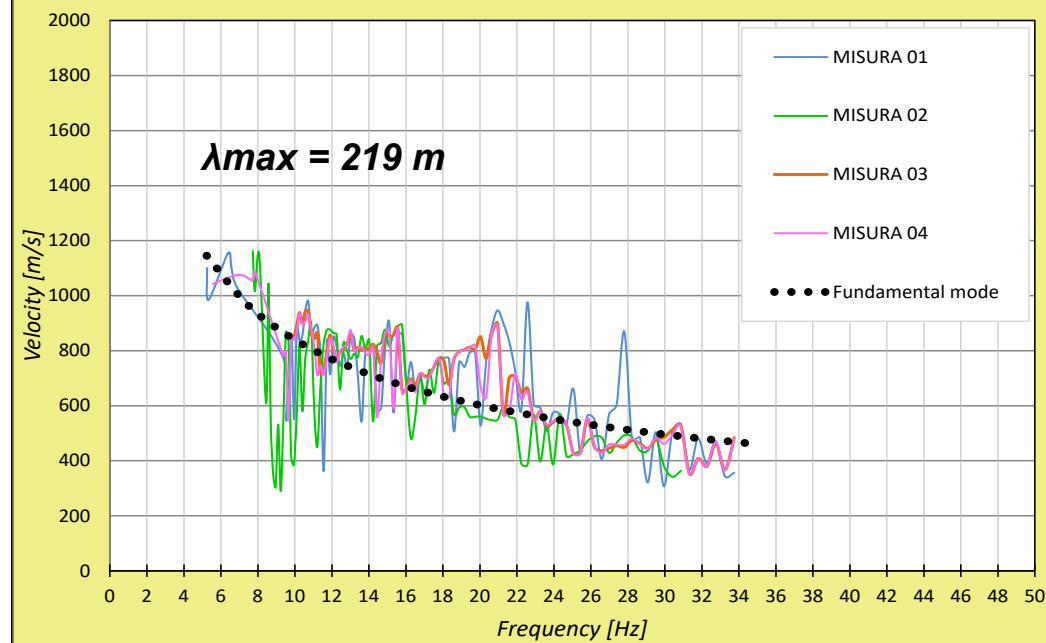
Foto Braccio -Ovest



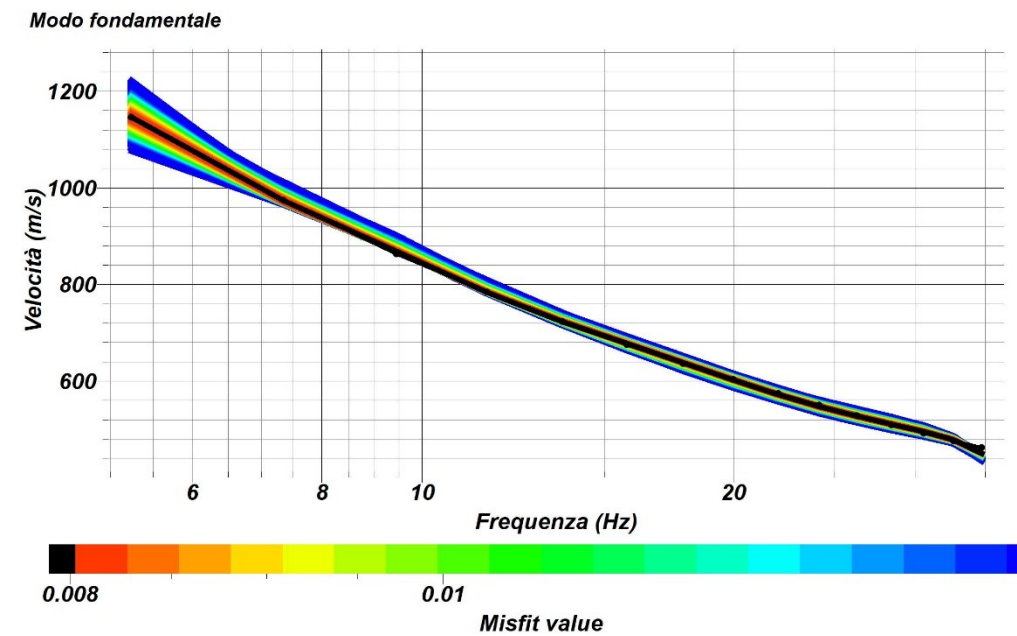
Foto Braccio Sud



Curva di dispersione reale ESAC (picking)

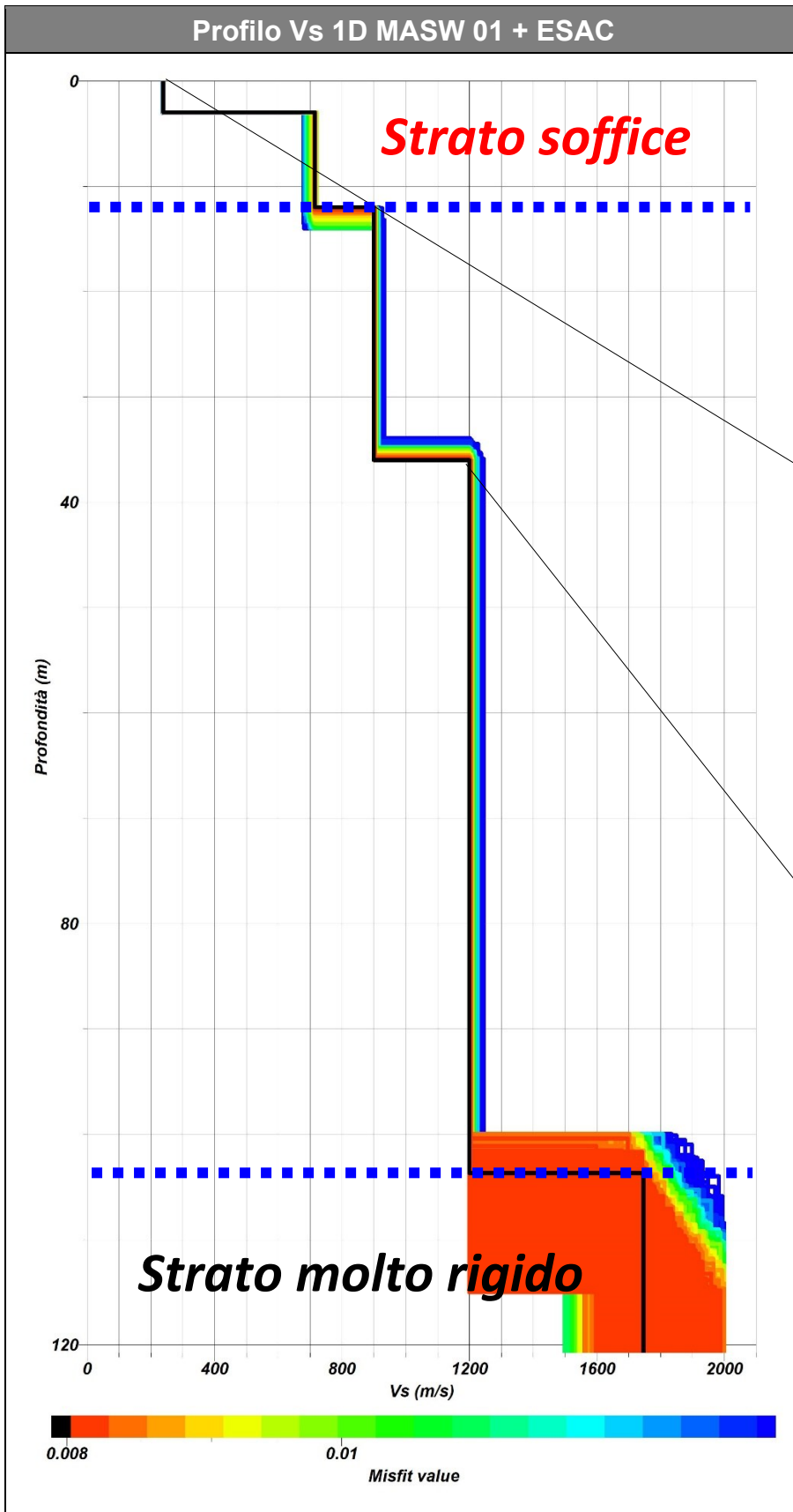


Curva di dispersione reale e sintetica (misfit migliore)



Valori curva di dispersione

<b>M. fond.</b>		<b>M. fond.</b>		<b>M. fond.</b>	
<b>F (Hz)</b>	<b>V (m/S)</b>	<b>F (Hz)</b>	<b>V (m/S)</b>	<b>F (Hz)</b>	<b>V (m/S)</b>
5.24	1146	28.42	509		
7.35	974	30.53	492		
9.45	863	32.63	476		
11.56	784	34.74	462		
13.67	723				
15.78	675				
17.88	636				
19.99	603				
22.10	574				
24.20	550				
26.31	528				



**Spessore degli strati e velocità onde S (misfit migliore)**

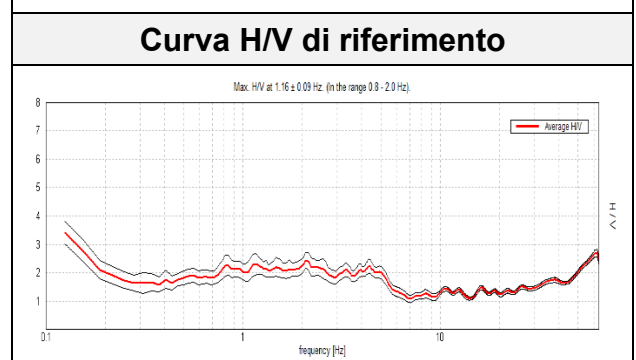
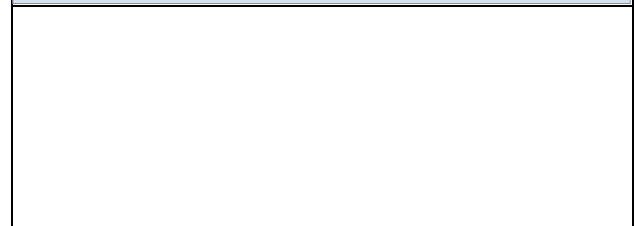
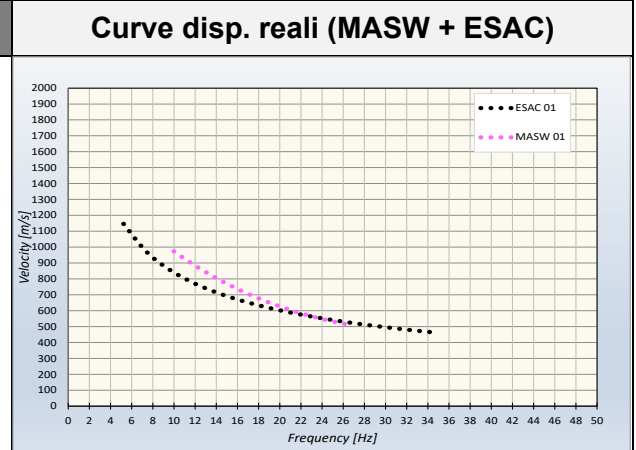
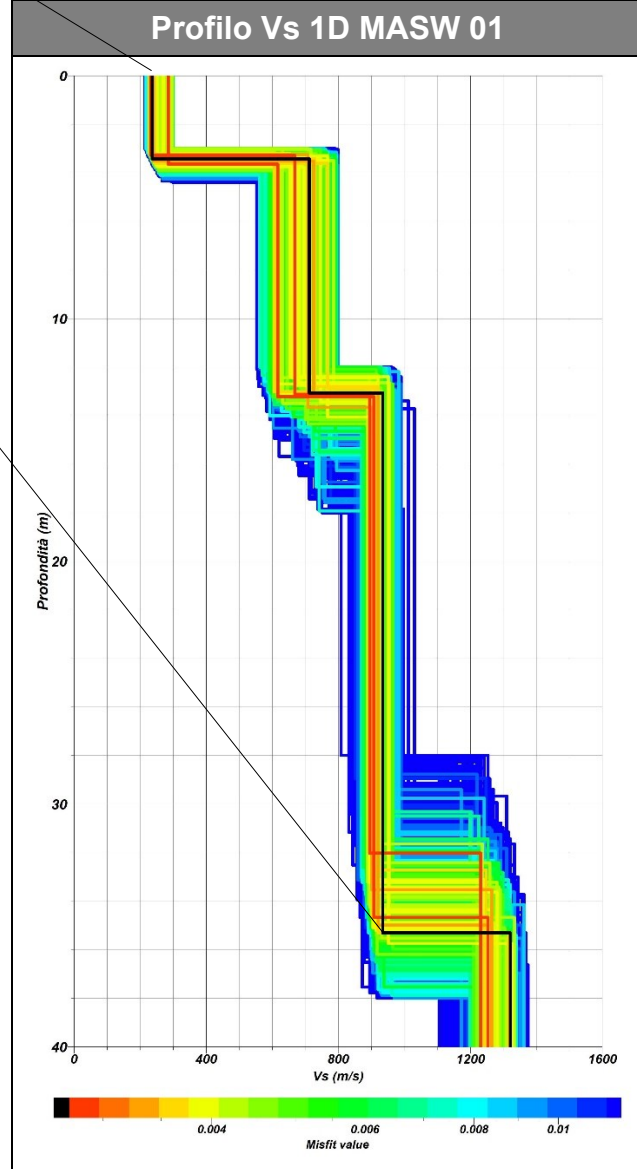
Strato	Profondità m	Spessore m	Velocità m/s
1	0.00	3.50	240
2	3.50	9.50	720
3	13.00	22.00	900
4	35.00	/	1200
5	104.00	/	1750

**COMUNE DI SAN CHIRICO R.**  
Provincia di Potenza

**ESAC 01**

**Classificazione suoli**  
**NTC 2018**

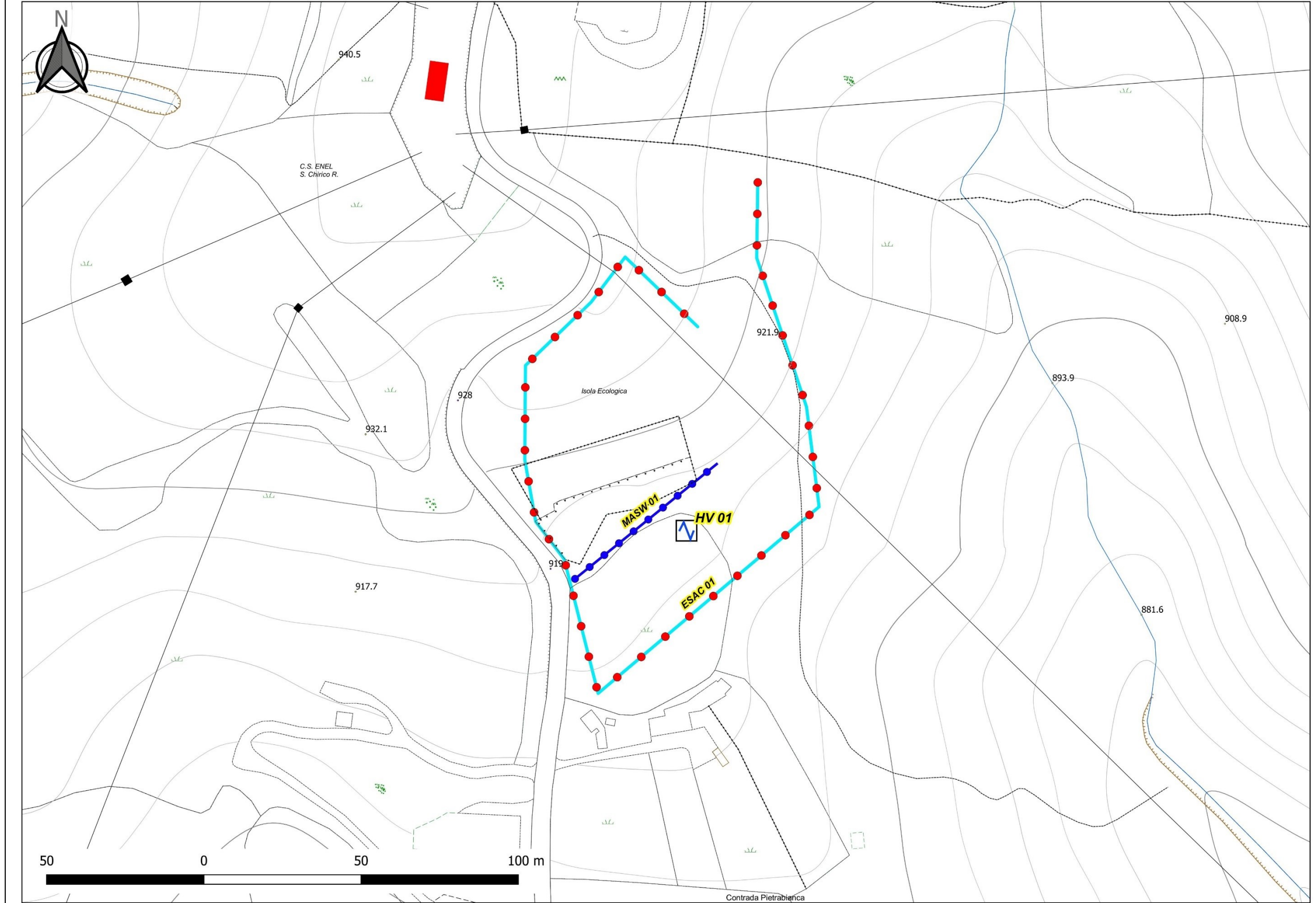
**$V_{Seq} = V_{S13} = 465 \text{ m/s}$**



P.I. 01798740765

**AlphaGeo** Soc. Coop.

# Ubicazione HVSR



# HVSR 01

Criterio di Validità dei Picchi (According to the Sesame, 2005 guidelines)					
<b>Max. H/V at 1.16 ± 0.09 Hz (in the range 0.8 - 2.0 Hz).</b>					
<b>Criteria for a reliable H/V curve</b> [All 3 should be fulfilled]					
$f_0 > 10 / L_w$	1.16 > 0.50	OK			
$n_c(f_0) > 200$	1133.1 > 200	OK			
$\sigma_A(f) < 2$ for $0.5f_0 < f < 2f_0$ if $f_0 > 0.5\text{Hz}$ $\sigma_A(f) < 3$ for $0.5f_0 < f < 2f_0$ if $f_0 < 0.5\text{Hz}$	Exceeded 0 out of 57 times	OK			
<b>Criteria for a clear H/V peak</b> [At least 5 out of 6 should be fulfilled]					
Exists $f^-$ in $[f_0/4, f_0]$   $A_{H/V}(f^-) < A_0 / 2$			NO		
Exists $f^+$ in $[f_0, 4f_0]$   $A_{H/V}(f^+) < A_0 / 2$			NO		
$A_0 > 2$	2.31 > 2	OK			
$f_{\text{peak}}[A_{H/V}(f) \pm \sigma_A(f)] = f_0 \pm 5\%$	$ 0.0777  < 0.05$		NO		
$\sigma_f < \varepsilon(f_0)$	0.08984 < 0.11563	OK			
$\sigma_A(f_0) < \theta(f_0)$	0.3779 < 1.78	OK			
$L_w$	window length				
$n_w$	number of windows used in the analysis				
$n_c = L_w n_w f_0$	number of significant cycles				
$f$	current frequency				
$f_0$	H/V peak frequency				
$\sigma_f$	standard deviation of H/V peak frequency				
$\varepsilon(f_0)$	threshold value for the stability condition $\sigma_f < \varepsilon(f_0)$				
$A_0$	H/V peak amplitude at frequency $f_0$				
$A_{H/V}(f)$	H/V curve amplitude at frequency $f$				
$f^-$	frequency between $f_0/4$ and $f_0$ for which $A_{H/V}(f^-) < A_0/2$				
$f^+$	frequency between $f_0$ and $4f_0$ for which $A_{H/V}(f^+) < A_0/2$				
$\sigma_A(f)$	standard deviation of $A_{H/V}(f)$ , $\sigma_A(f)$ is the factor by which the mean $A_{H/V}(f)$ curve should be multiplied or divided				
$\sigma_{\log H/V}(f)$	standard deviation of $\log A_{H/V}(f)$ curve				
$\theta(f_0)$	threshold value for the stability condition $\sigma_A(f) < \theta(f_0)$				
Threshold values for $\sigma_f$ and $\sigma_A(f_0)$					
Freq. range [Hz]	< 0.2	0.2 – 0.5	0.5 – 1.0	1.0 – 2.0	> 2.0
$\varepsilon(f_0)$ [Hz]	0.25 $f_0$	0.2 $f_0$	0.15 $f_0$	0.10 $f_0$	0.05 $f_0$
$\theta(f_0)$ for $\sigma_A(f_0)$	3.0	2.5	2.0	1.78	1.58
$\log \theta(f_0)$ for $\sigma_{\log H/V}(f_0)$	0.48	0.40	0.30	0.25	0.20

