PROGETTO, C.S.P.:

CAPOGRUPPO:

spm s.r.l. ingegneria

Sede legale: 00192 Roma - via Paolo Emilio, 34
Uffici: 86170 Isernia (IS) - via Libero Testa, 15/A
Uffici: 60026 Numana (AN) - via Loreto, 15
tel +390865411942 - fax +390865234579
spm@melfiprogetti.it - spm@pec.it
www.melfiprogetti.it

Member of CISQ Federation CERTIFIED MANAGEMENT SYSTEM ISO 9001
Member of CISQ Federation CERTIFIED MANAGEMENT SYSTEM ISO 14001
CERTIFIED SERVICE (ESCo) UNI CEI 11352
SCHEMA CEPAS SCH72 AI SENSI DEL COMMA 1 - ART.12 - D.LGS. 04.07.2014 N°102 ESPERTO GESTIONE ENERGIA UNI CEI 11339:2009
ESPERTO APPLICAZIONE C.A.M. IN EDILIZIA DM 11.10.2017

dott.arch. Carlo Melfi dott.ing. Roberto Melfi

MANDANTI:

geom. Marco Giovanchelli

dott.geol. Andrea Venosini

Geoven SERVIZI PER LA GEOLOGIA

REGIONE TOSCANA

COMUNE DI CANTAGALLO
(Provincia di Prato)

OPERE DI BONIFICA PER LA MITIGAZIONE DEL RISCHIO SU VERSANTE SOGGETTO A FRANA IN LOCALITA' "CASE DI SOTTO - MIGLIANA"

PROGETTO ESECUTIVO
Redatto ai sensi del D.Lgs. n°50 del 18.04.16 e s.m.i.

ALLEGATO:

STUDIO GEOLOGICO: Quaderno indagini indirette bibliografiche - tomografiche sismiche 2017

CODICE ELABORATO:

C.01
Allegato.2E

--

R.U.P.
dott.arch. Nicola SERINI

C.U.P. F84J18000890009

DATA APRILE 2022

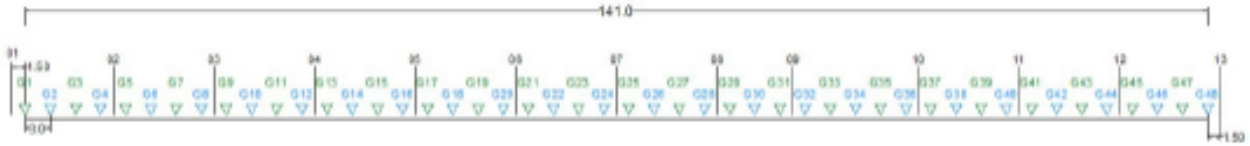
INDICE MODIFICHE	N°	MODIFICHE	DATA	SIGLA	DATA	SIGLA	DATA	SIGLA
	2							
	1							
	0	1^ EMISSIONE	04.22	406-408-413	04.22	404-415	04.22	417
			ELABORATO		CONTROLLATO		APPROVATO	

4.5.4 MODALITÀ E GEOMETRIA D'ACQUISIZIONE TOMOGRAFIA SISMICA A RIFRAZIONE

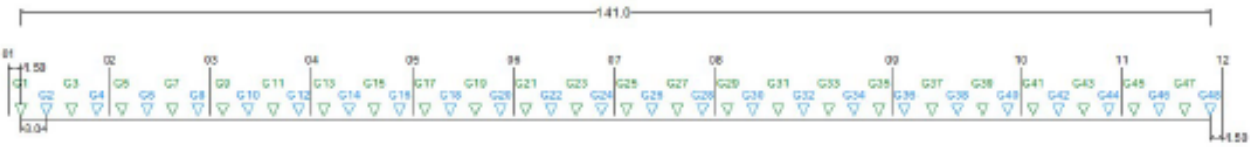
Le caratteristiche adottate per le prospezioni tomografiche acquisite sono le seguenti:

Stendimento	ST1 (P-SH)	ST2 (P-SH)	ST3 (SH)	ST4 (SH)
n° geofoni	48	48	48	48
distanza intergeofonica (m)	3,0	3,0	2,0	1,5
n° punti di scoppio	13÷12	13	16	17
tempo di acquisizione (ms)	500	500	500	500
freq. campionamento (Hz)	1000	1000	1000	1000

GEOMETRIE DI ACQUISIZIONE IN RIFRAZIONE



Stendimento ST1_P



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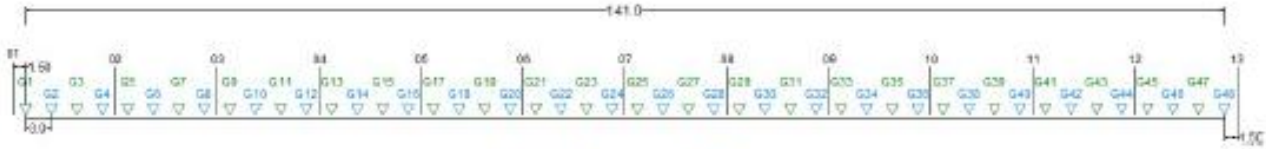
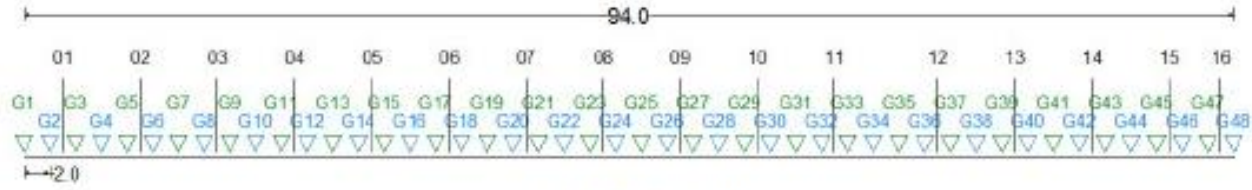
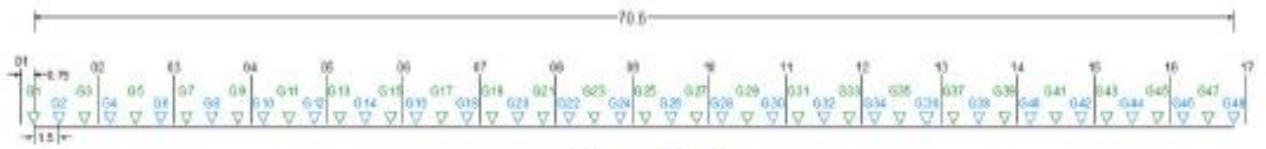


Stendimento ST2_P-SH



Stendimento ST3_SH



Stendimento ST4_SH

REPORT TOMOGRAFIA SISMICA (*Software RAYFRACT® 3.32*)

Luogo: **Loc. Case di Sotto, Migliana – Cantagallo (PO)**

Data: **23-27/11/2017**

STENDIMENTO ST1 - ONDE "P" - GEOMETRIA STENDIMENTO

Scoppio - Geofono	x [m]	y [m]	z [mslm]
Shot1	-1.50	0.00	-0.20
G1	0.00	0.00	0.00
G2	3.00	0.00	0.30
G3	6.00	0.00	0.65
G4	9.00	0.00	1.05
Shot2	10.50	0.00	1.20
G5	12.00	0.00	1.35
G6	15.00	0.00	1.70
G7	18.00	0.00	1.90
G8	21.00	0.00	2.00
Shot3	22.50	0.00	2.03
G9	24.00	0.00	2.05
G10	27.00	0.00	2.10
G11	30.00	0.00	2.20
G12	33.00	0.00	2.30
Shot4	34.50	0.00	2.38
G13	36.00	0.00	2.45
G14	39.00	0.00	2.55
G15	42.00	0.00	2.70
G16	45.00	0.00	2.90
Shot5	46.50	0.00	3.05
G17	48.00	0.00	3.20
G18	52.00	0.00	3.50
G19	54.00	0.00	3.90
G20	57.00	0.00	4.20
Shot6	58.50	0.00	4.30
G21	60.00	0.00	4.40
G22	63.00	0.00	4.60
G23	66.00	0.00	4.85
G24	69.00	0.00	5.15
Shot7	70.50	0.00	5.30
G25	72.00	0.00	5.45
G26	75.00	0.00	6.05
G27	78.00	0.00	6.75
G28	81.00	0.00	6.55
Shot8	82.50	0.00	6.45
G29	84.00	0.00	6.35
G30	87.00	0.00	6.05
G31	90.00	0.00	6.00
Shot9	91.50	0.00	5.98
G32	93.00	0.00	5.95
G33	96.00	0.00	5.95
G34	99.00	0.00	6.55
G35	102.00	0.00	8.45
G36	105.00	0.00	8.45
Shot10	106.50	0.00	8.50
G37	108.00	0.00	8.55
G38	111.00	0.00	8.55
G39	114.00	0.00	8.55
G40	117.00	0.00	8.55
Shot11	118.50	0.00	8.55
G41	120.00	0.00	8.55
G42	123.00	0.00	8.55
G43	126.00	0.00	8.55
G44	129.00	0.00	8.55
Shot12	130.50	0.00	8.55
G45	132.00	0.00	8.55
G46	135.00	0.00	8.55
G47	138.00	0.00	8.60
G48	141.00	0.00	8.50
Shot13	142.50	0.00	8.45

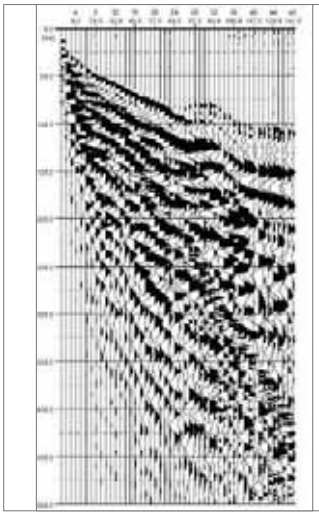
PRIMI ARRIVI – ST1-P													
Geofono	**Shot 1**	**Shot 2**	**Shot 3**	**Shot 4**	**Shot 5**	**Shot 6**	**Shot 7**	**Shot 8**	**Shot 9**	**Shot 10**	**Shot 11**	**Shot 12**	**Shot 13**
1	7.5	24.5	42.5	49.0	61.0	71.0	84.5	69.0	69.5	87.0	91.5	91.5	97.0
2	17.5	19.5	39.5	49.0	60.5	68.5	82.0	67.5	70.5	86.5	92.0	90.5	95.5
3	24.0	13.0	39.5	47.0	58.5	63.5	81.5	67.0	68.5	87.0	91.0	89.0	95.5
4	28.0	8.5	35.0	43.0	57.0	60.5	78.0	67.0	67.5	87.0	88.5	88.0	94.0
5	31.5	8.0	32.0	41.5	54.5	60.5	77.0	67.0	69.0	83.0	88.5	87.0	91.5
6	36.5	14.5	27.0	36.0	49.0	57.0	71.5	65.5	65.5	85.0	88.5	87.5	92.5
7	41.5	22.5	20.0	34.5	47.5	54.5	72.0	65.0	68.5	84.5	89.5	88.0	92.5
8	41.0	28.0	10.0	30.5	45.5	49.0	65.5	61.5	64.0	83.5	91.0	91.0	96.0
9	45.0	36.0	8.0	26.0	46.5	49.5	65.0	65.0	66.5	84.5	89.5	91.0	92.5
10	47.0	37.5	17.5	18.5	41.0	47.0	64.0	64.0	66.5	88.0	88.5	89.5	90.5
11	49.0	39.5	27.5	13.5	34.0	42.0	57.5	60.5	62.0	84.5	88.5	86.0	95.0
12	52.0	43.0	32.5	7.5	30.5	40.0	58.0	60.5	62.5	82.0	88.0	85.5	94.0
13	52.5	44.5	36.5	7.5	29.0	37.0	53.5	57.5	60.5	83.5	88.0	84.0	94.0
14	55.0	47.5	40.5	13.5	18.5	34.0	48.5	55.0	59.5	79.5	88.0	84.0	92.0
15	57.5	49.0	40.5	18.0	14.0	31.0	46.0	52.0	57.5	77.0	86.5	80.0	90.0
16	61.0	49.5	46.5	22.5	10.0	28.0	45.0	51.5	55.5	73.5	83.0	82.0	91.5
17	63.0	53.0	48.0	26.5	7.0	26.5	41.5	48.5	52.5	74.0	83.5	80.0	88.0
18	64.5	55.0	49.5	30.5	16.0	19.0	38.0	45.0	50.5	72.0	81.5	79.0	86.0
19	66.0	56.0	48.5	32.0	20.0	14.5	35.0	43.0	48.0	69.5	78.0	77.5	86.0
20	68.5	59.0	51.5	35.0	29.5	11.0	31.5	39.5	44.5	66.5	75.5	77.0	81.5
21	71.5	60.5	54.0	37.5	29.5	8.0	28.0	35.5	41.5	63.5	74.0	74.0	82.5
22	74.5	65.5	60.5	43.0	38.5	16.5	23.0	33.5	39.5	61.5	72.0	74.0	77.5
23	79.0	69.0	64.0	50.0	39.5	21.5	18.5	31.5	38.5	60.5	73.5	73.0	77.5
24	81.5	73.0	68.5	51.0	42.5	27.5	11.5	30.0	36.0	59.5	71.0	72.5	79.0
25	80.5	73.0	68.5	53.0	44.5	33.5	13.0	25.0	31.5	56.0	67.5	72.0	76.5
26	77.5	73.0	71.0	58.5	47.5	35.5	16.5	21.0	29.0	53.0	66.0	69.5	76.0
27	77.0	73.0	70.5	59.5	49.5	38.0	23.5	15.5	24.0	47.5	60.5	63.5	72.0
28	73.5	72.5	68.5	58.0	49.5	36.5	29.5	7.5	20.0	43.0	55.0	57.5	68.5
29	74.0	69.5	67.5	59.5	52.0	39.0	26.5	9.0	15.0	40.5	53.5	56.0	61.5
30	75.5	69.5	70.0	58.5	53.0	41.0	30.0	16.5	13.5	39.0	51.5	56.0	58.0
31	71.0	72.0	69.5	61.0	52.0	40.5	30.5	18.0	4.5	35.0	48.5	52.0	53.5
32	73.0	71.0	74.5	61.5	56.0	44.5	34.5	20.0	5.0	32.0	46.5	50.0	53.5
33	75.5	73.0	76.0	63.5	57.0	49.5	43.5	26.0	14.5	29.0	46.0	48.5	54.5
34	81.0	78.0	79.5	71.0	65.0	55.0	46.5	30.5	22.5	28.5	47.0	48.0	56.0
35	81.0	80.0	80.0	72.0	66.5	57.0	48.0	35.5	25.0	21.0	45.0	48.5	57.5
36	85.0	82.5	84.5	75.5	70.5	64.0	56.0	39.0	32.0	10.0	43.0	47.5	58.5
37	88.0	85.0	87.0	81.5	73.5	68.0	60.5	43.0	37.0	9.0	41.5	48.0	57.5
38	88.5	86.0	88.5	82.5	79.0	69.5	63.5	43.0	40.0	23.5	35.5	44.0	54.5
39	92.5	88.5	88.5	85.0	79.5	72.5	65.0	48.0	43.5	36.0	30.0	43.5	52.5
40	92.5	90.0	88.5	83.5	81.0	71.0	68.5	50.0	47.5	43.5	8.5	43.0	50.0
41	94.0	91.5	88.5	85.5	83.5	76.5	69.5	54.0	49.5	48.0	8.5	39.0	49.0
42	94.0	92.0	88.5	85.0	87.0	77.5	70.5	55.0	50.0	47.0	26.0	31.5	45.0
43	95.5	92.0	88.5	84.5	86.0	78.0	72.0	56.5	51.0	48.0	38.0	19.0	40.0
44	96.0	92.5	87.0	84.5	90.0	79.0	69.5	55.5	49.5	47.5	39.5	7.5	35.0
45	95.0	92.0	85.0	86.0	92.0	79.5	72.5	57.0	53.0	52.5	40.5	8.5	30.0
46	95.5	92.0	87.0	85.0	92.0	81.0	72.5	59.5	58.0	54.5	47.5	23.0	21.5
47	94.0	91.5	86.0	89.0	93.0	83.0	74.0	63.5	57.5	58.0	50.5	29.5	16.0
48	91.5	91.5	86.5	86.5	89.5	82.0	76.0	66.0	61.0	58.0	53.5	34.0	10.0

INDAGINE SISMICA A RIFRAZIONE ONDE "P"
(passo 3,0 m - 48 canali)

LUOGO: Migliana (PT)
DATA: 23/11/2017

REGISTRAZIONI ST1 - ONDE "P"

01



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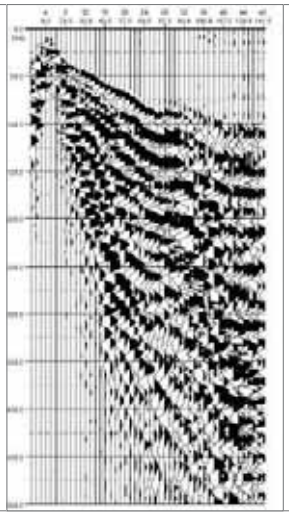

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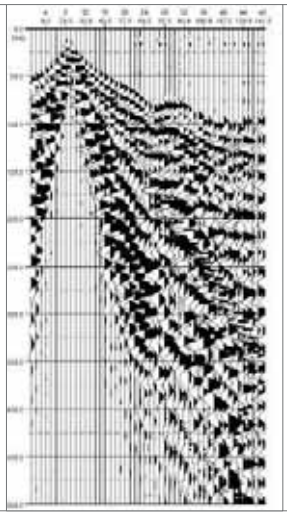

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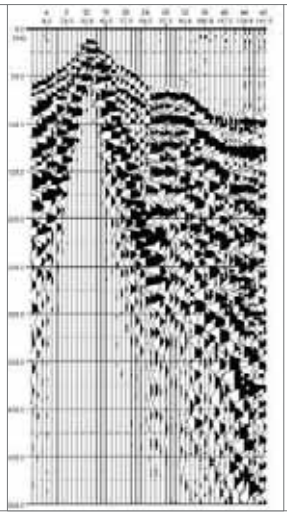

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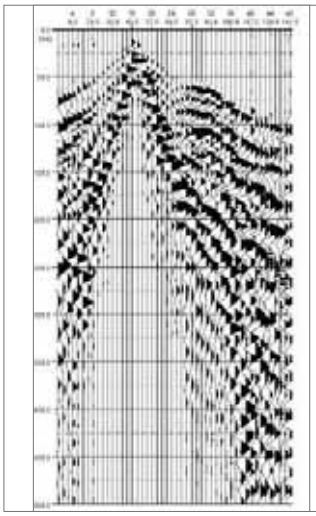

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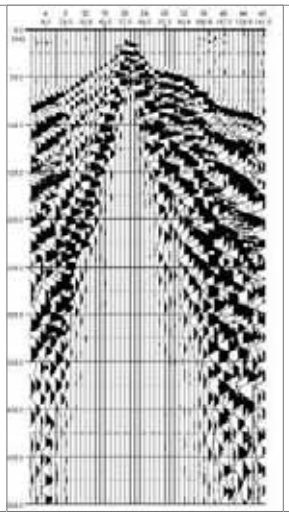

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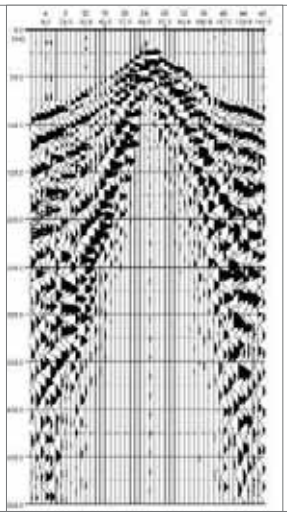

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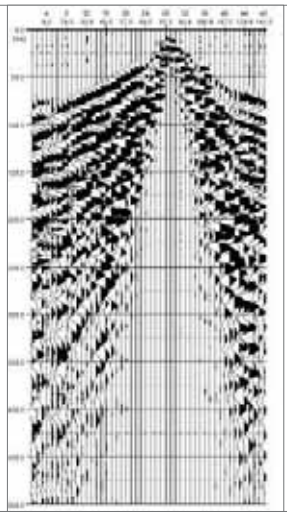

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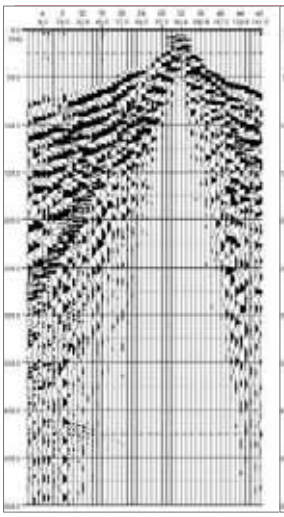

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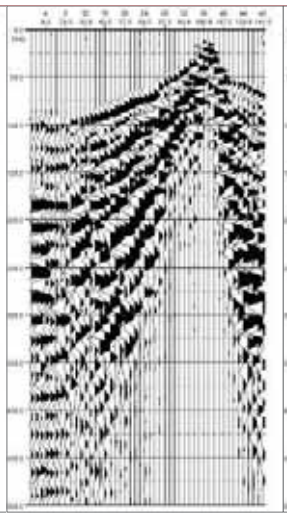

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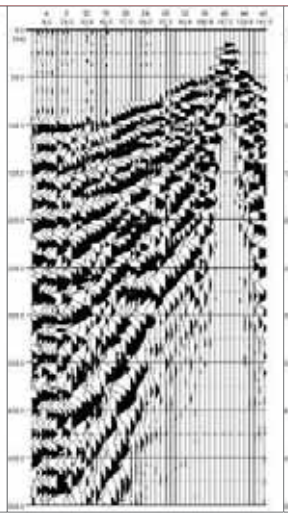

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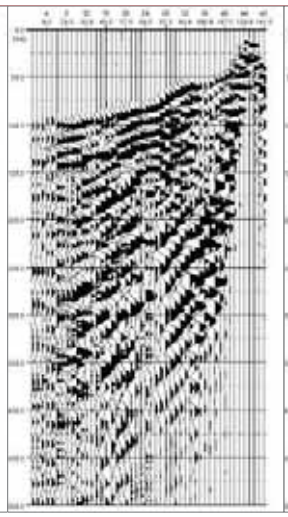
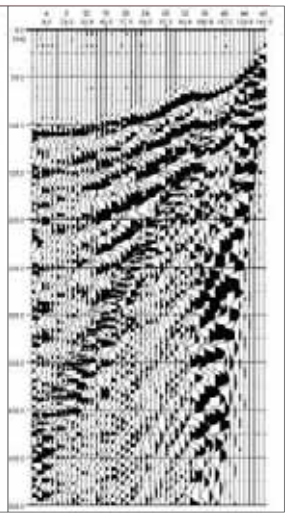


13



INDAGINE SISMICA A RIFRAZIONE "ST1-P"

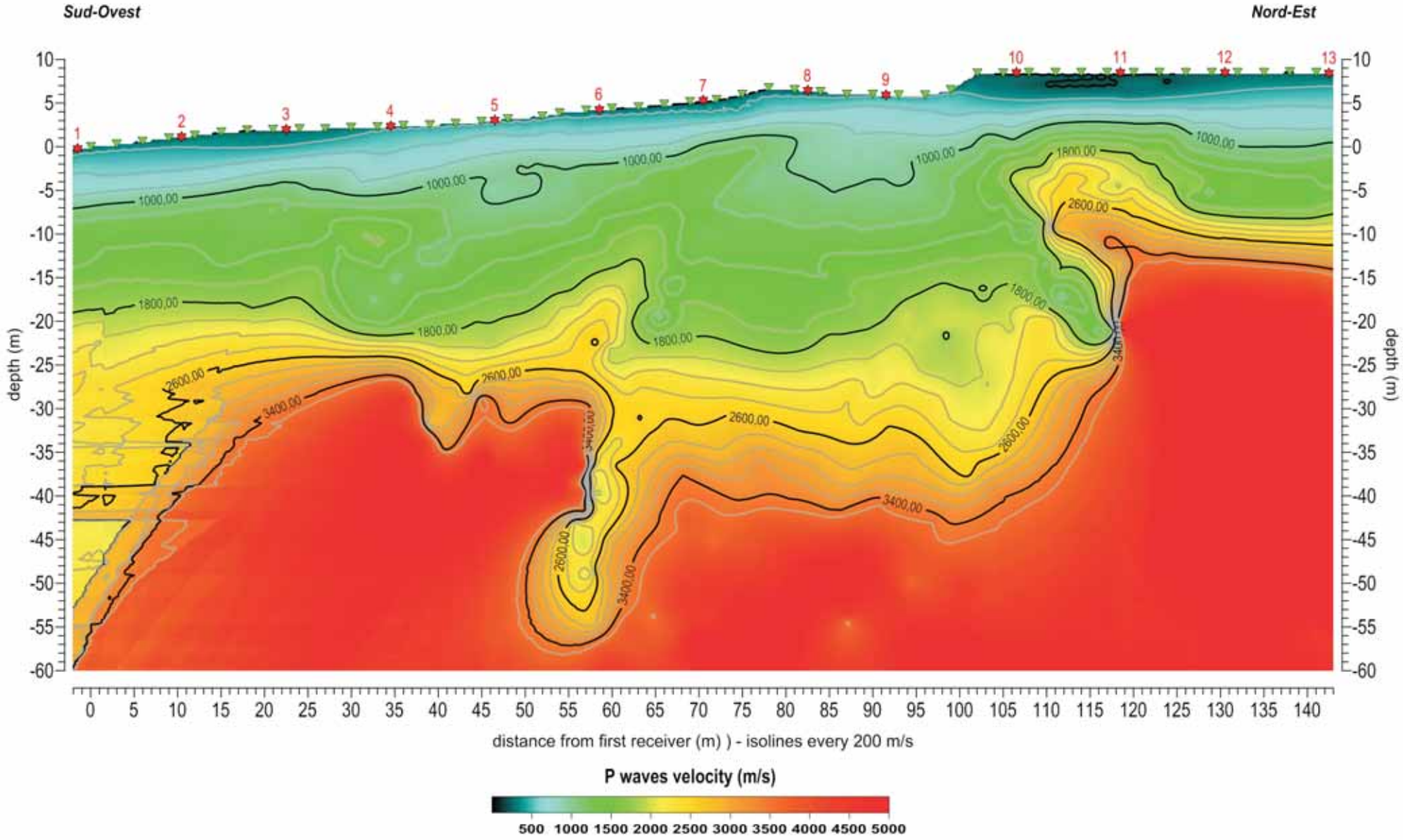
(passo 3,0 m - 48 canali - fixed line)

LUOGO: Migliana (PT)

DATA: 23/11/2017

LEGENDA

- Geophones
- Shots position
- refractor with classic methods (wavefront or CMP int. traveltimes met.)
- Vs logs from masw analysis
- Other seismic line
- Electrodes



STENDIMENTO ST1 - ONDE "SH" - GEOMETRIA STENDIMENTO

Scoppio - Geofono	x [m]	y [m]	z [mslm]
Shot1	-1.50	0.00	-0.20
G1	0.00	0.00	0.00
G2	3.00	0.00	0.30
G3	6.00	0.00	0.65
G4	9.00	0.00	1.05
Shot2	10.50	0.00	1.20
G5	12.00	0.00	1.35
G6	15.00	0.00	1.70
G7	18.00	0.00	1.90
G8	21.00	0.00	2.00
Shot3	22.50	0.00	2.03
G9	24.00	0.00	2.05
G10	27.00	0.00	2.10
G11	30.00	0.00	2.20
G12	33.00	0.00	2.30
Shot4	34.50	0.00	2.38
G13	36.00	0.00	2.45
G14	39.00	0.00	2.55
G15	42.00	0.00	2.70
G16	45.00	0.00	2.90
Shot5	46.50	0.00	3.05
G17	48.00	0.00	3.20
G18	52.00	0.00	3.50
G19	54.00	0.00	3.90
G20	57.00	0.00	4.20
Shot6	58.50	0.00	4.30
G21	60.00	0.00	4.40
G22	63.00	0.00	4.60
G23	66.00	0.00	4.85
G24	69.00	0.00	5.15
Shot7	70.50	0.00	5.30
G25	72.00	0.00	5.45
G26	75.00	0.00	6.05
G27	78.00	0.00	6.75
G28	81.00	0.00	6.55
Shot8	82.50	0.00	6.45
G29	84.00	0.00	6.35
G30	87.00	0.00	6.05
G31	90.00	0.00	6.00
G32	93.00	0.00	5.95
G33	96.00	0.00	5.95
G34	99.00	0.00	6.55
G35	102.00	0.00	8.45
Shot9	106.50	0.00	8.50
G36	105.00	0.00	8.45
G37	108.00	0.00	8.55
G38	111.00	0.00	8.55
G39	114.00	0.00	8.55
G40	117.00	0.00	8.55
Shot10	118.50	0.00	8.55
G41	120.00	0.00	8.55
G42	123.00	0.00	8.55
G43	126.00	0.00	8.55
G44	129.00	0.00	8.55
Shot11	130.50	0.00	8.55
G45	132.00	0.00	8.55
G46	135.00	0.00	8.55
G47	138.00	0.00	8.60
G48	141.00	0.00	8.50
Shot12	142.50	0.00	8.45

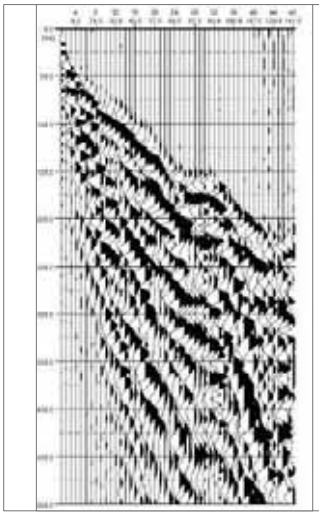
PRIMI ARRIVI – ST1-SH												
Geofono	**Shot 1**	**Shot 2**	**Shot 3**	**Shot 4**	**Shot 5**	**Shot 6**	**Shot 7**	**Shot 8**	**Shot 9**	**Shot 10**	**Shot 11**	**Shot 12**
1	8.0	42.0	58.5	86.0	93.5	127.0	141.0	158.5	169.5	192.5	194.0	202.0
2	21.0	31.5	55.0	83.0	91.5	125.0	140.5	156.5	169.5	191.0	194.0	199.5
3	30.0	21.0	50.0	78.0	90.5	118.5	139.0	156.5	167.0	190.5	192.5	200.0
4	37.5	12.0	46.5	74.5	86.0	112.5	134.5	150.5	167.0	190.5	191.0	198.5
5	47.5	12.0	36.5	70.5	82.0	113.0	129.0	141.5	169.5	187.5	190.5	198.0
6	52.5	21.5	29.5	65.0	79.5	110.0	125.5	142.5	168.0	183.5	187.5	194.5
7	57.0	33.5	19.0	58.5	75.5	101.5	125.0	139.0	160.5	182.5	188.5	189.0
8	63.5	44.0	10.0	49.5	67.5	99.0	119.0	137.5	158.5	181.5	188.5	187.5
9	65.0	58.5	10.0	40.5	63.5	91.5	110.0	133.5	157.0	183.5	186.0	190.5
10	72.5	63.0	21.5	33.0	58.5	83.0	105.5	125.0	152.0	182.5	184.0	188.5
11	69.5	64.5	27.0	23.5	53.5	79.0	97.5	118.5	150.0	176.5	178.0	186.0
12	74.0	69.5	36.5	9.0	49.0	74.0	96.0	112.5	145.5	177.5	178.0	183.5
13	78.0	73.0	42.5	9.5	43.5	67.0	93.5	113.5	141.5	175.5	173.5	185.5
14	83.0	81.0	46.0	23.5	36.5	59.5	89.5	111.0	136.5	173.5	173.0	181.5
15	89.5	82.5	51.0	28.5	26.0	53.0	85.5	108.5	136.0	170.0	171.5	178.0
16	92.0	90.5	57.0	35.0	7.5	50.0	80.0	105.0	129.5	164.5	166.0	176.5
17	96.0	92.5	65.0	39.5	7.0	45.5	70.5	101.0	127.0	162.0	166.5	170.0
18	102.5	99.5	72.0	47.0	32.0	34.0	61.5	93.5	122.0	161.0	163.0	167.0
19	108.0	103.0	78.0	56.5	40.0	26.5	57.0	87.5	122.0	156.5	154.0	164.5
20	114.5	108.0	81.0	66.0	47.0	9.0	52.5	84.0	122.0	154.5	151.5	163.5
21	119.0	110.0	88.5	68.5	53.5	5.5	38.5	74.0	120.5	151.5	150.0	161.0
22	122.0	112.5	96.5	80.0	63.5	28.5	29.5	67.5	114.5	149.0	150.5	162.0
23	130.5	122.5	101.5	86.0	73.5	40.5	9.5	62.0	110.0	141.5	150.0	159.0
24	135.5	125.0	105.0	92.5	81.5	52.5	12.0	55.0	102.0	133.0	145.0	152.0
25	141.0	129.0	108.5	94.0	90.0	56.5	22.5	49.5	91.5	127.0	138.0	148.5
26	143.0	134.0	114.0	98.5	95.0	54.5	32.0	41.0	78.0	122.0	137.5	144.5
27	145.5	136.0	114.5	97.5	102.0	50.5	46.0	25.5	69.0	109.0	131.0	135.5
28	145.5	134.0	114.0	95.5	103.0	50.0	50.0	8.0	61.5	90.0	120.5	132.5
29	147.0	135.0	116.0	95.0	103.5	52.5	47.5	7.0	50.0	77.5	114.5	123.5
30	145.5	138.5	113.5	93.5	103.0	53.5	45.5	16.0	46.5	67.5	109.0	120.5
31	147.0	138.0	118.5	96.0	102.5	58.5	53.0	22.0	42.0	61.5	103.0	118.0
32	151.5	143.0	122.5	99.5	106.5	62.0	53.5	33.0	31.5	56.5	99.5	113.0
33	154.0	150.5	126.0	106.0	111.0	69.0	68.5	44.0	31.0	54.5	94.5	115.0
34	163.0	152.5	135.5	120.0	122.5	76.5	80.0	52.5	23.0	53.5	94.5	116.5
35	167.5	161.5	141.0	133.0	133.5	81.0	89.5	60.0	10.5	53.5	96.0	118.5
36	175.0	167.0	147.0	146.5	143.0	89.0	97.5	67.5	10.0	52.5	95.5	121.5
37	186.0	167.5	164.0	154.0	150.5	97.0	105.5	76.0	27.0	45.5	93.5	121.5
38	191.0	173.0	171.0	162.5	155.0	103.0	113.5	83.0	42.0	44.5	88.5	121.5
39	195.5	177.0	172.0	166.0	161.0	108.0	117.0	89.5	54.5	22.5	83.0	121.5
40	200.5	174.0	173.0	171.0	166.0	113.5	120.5	96.0	70.5	12.0	69.5	116.5
41	201.5	178.5	173.0	172.0	172.5	119.0	122.0	101.0	81.5	9.5	63.0	108.0
42	208.0	180.0	175.5	178.0	169.0	122.5	123.0	104.5	90.5	21.5	49.5	99.5
43	203.5	173.0	175.5	174.5	171.5	125.5	123.0	110.0	95.0	42.0	28.0	91.5
44	206.5	174.5	178.0	174.5	171.5	127.5	127.0	112.5	97.5	54.5	10.5	83.0
45	203.5	175.5	179.0	175.5	175.5	131.0	129.0	119.0	102.5	63.0	9.0	66.0
46	204.5	179.5	181.5	177.0	174.5	132.5	130.5	125.5	105.5	63.0	18.5	49.5
47	203.0	178.5	182.5	173.0	168.5	136.5	133.5	127.5	108.0	66.0	33.0	23.5
48	204.0	177.0	180.0	174.5	168.0	138.0	132.5	128.5	109.5	69.5	40.5	7.5

INDAGINE SISMICA A RIFRAZIONE ONDE "SH"
(passo 3,0 m - 48 canali)

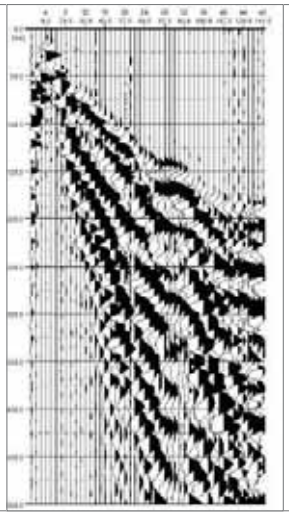
LUOGO: Migliana (PT)
DATA: 23/11/2017

REGISTRAZIONI ST1 - ONDE "SH"

01



02



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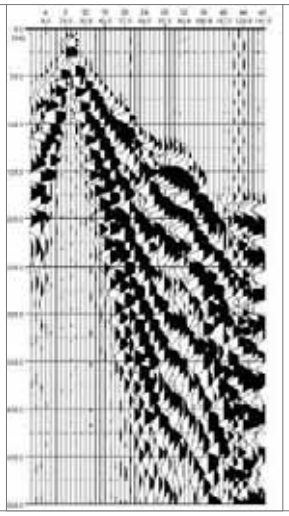

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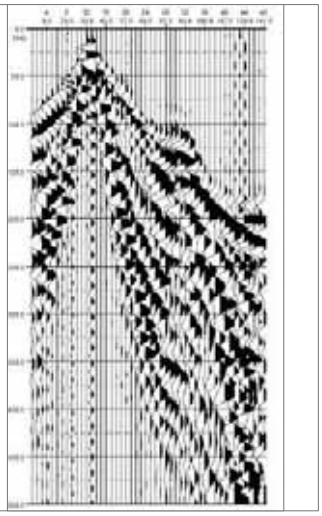

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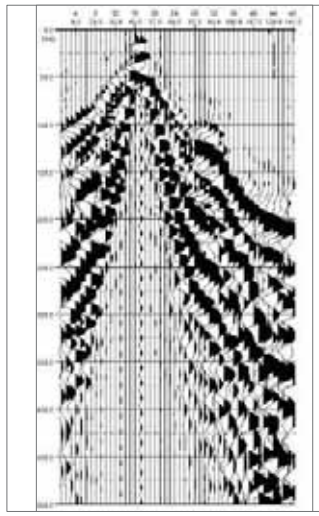

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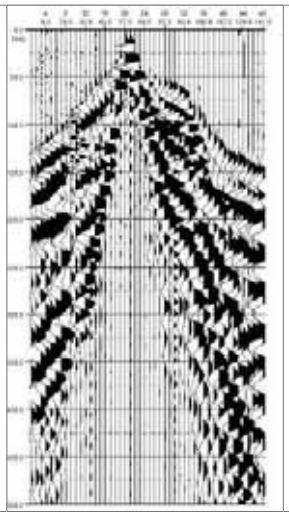

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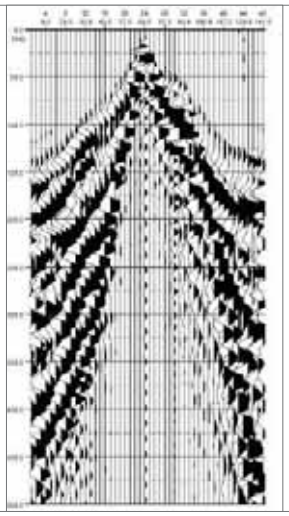
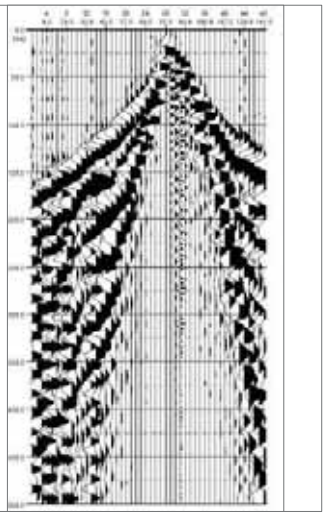
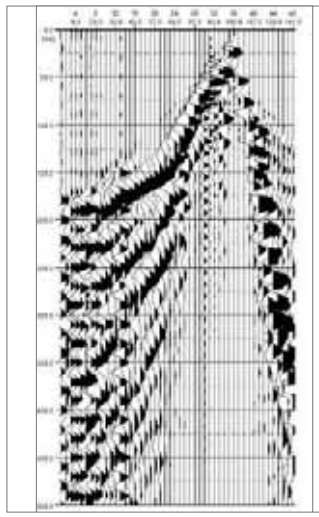


08



09



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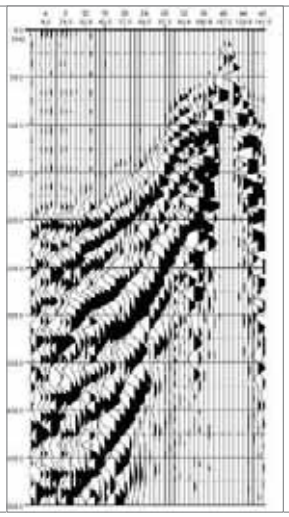

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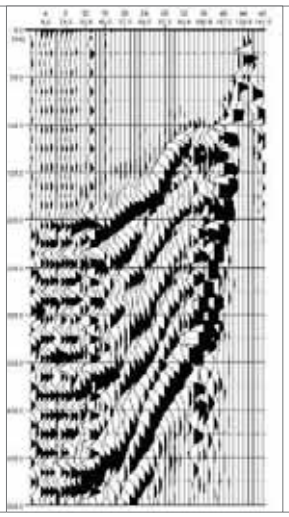
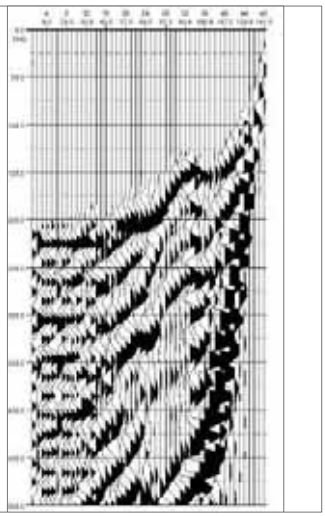


12



INDAGINE SISMICA A RIFRAZIONE "ST1-SH"

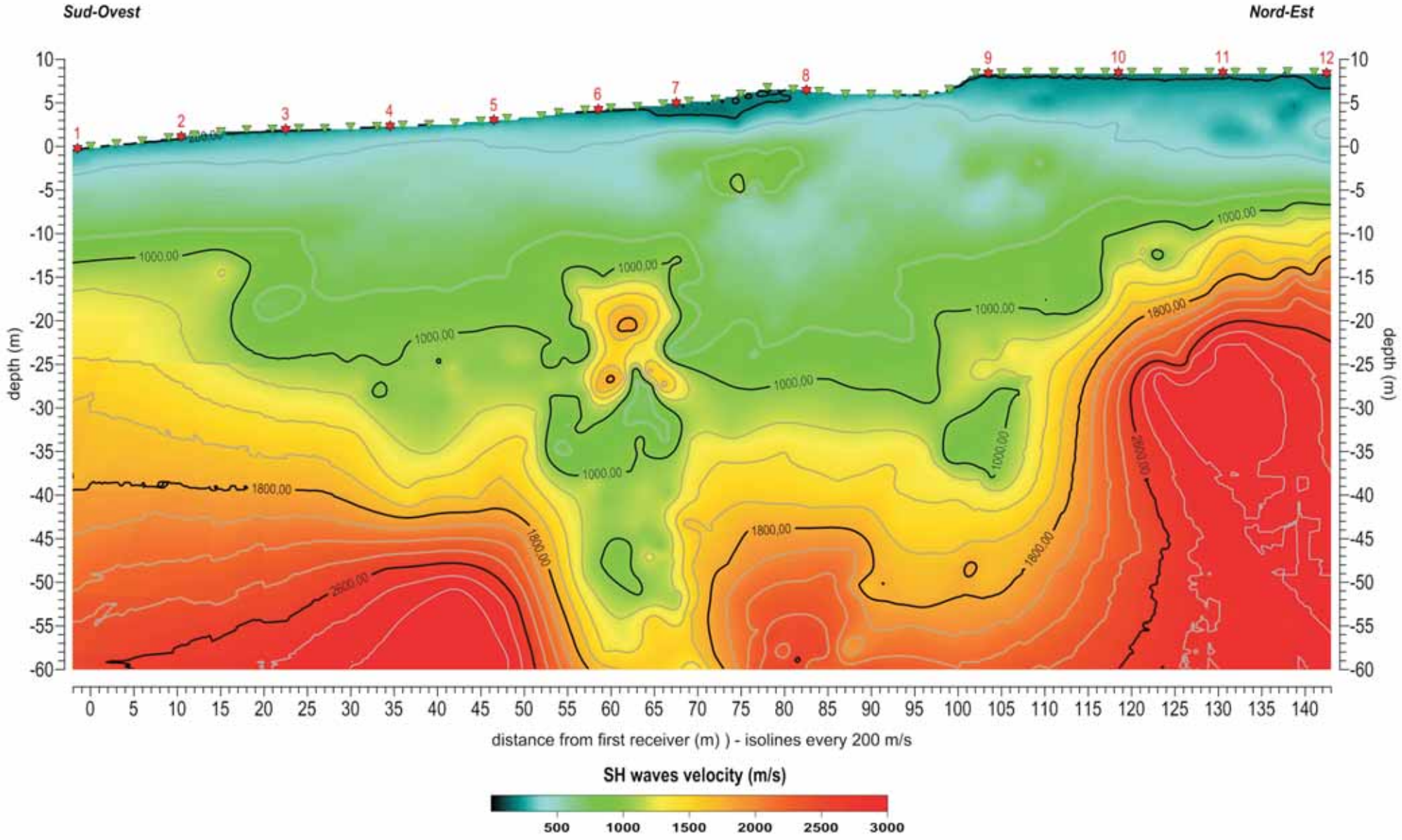
(passo 3,0 m - 48 canali - fixed line)

LUOGO: Migliana (PT)

DATA: 23/11/2017

LEGENDA

- Geophones
- Shots position
- refractor with classic methods (wavefront or CMP int. traveltimes met.)
- Vs logs from masw analysis
- Other seismic line
- Electrodes



STENDIMENTO ST2 - ONDE "P" - GEOMETRIA STENDIMENTO

Scoppio - Geofono	x [m]	y [m]	z [mslm]
Shot1	-1.50	0.00	0.00
G1	0.00	0.00	0.00
G2	3.00	0.00	0.15
G3	6.00	0.00	0.27
G4	9.00	0.00	0.27
Shot2	10.50	0.00	0.21
G5	12.00	0.00	0.14
G6	15.00	0.00	0.06
G7	18.00	0.00	-0.08
G8	21.00	0.00	-0.18
Shot3	22.50	0.00	-0.27
G9	24.00	0.00	-0.36
G10	27.00	0.00	-0.53
G11	30.00	0.00	-0.64
G12	33.00	0.00	-0.82
Shot4	34.50	0.00	-0.89
G13	36.00	0.00	-0.96
G14	39.00	0.00	-0.81
G15	42.00	0.00	-0.56
G16	45.00	0.00	-0.20
Shot5	46.50	0.00	-0.02
G17	48.00	0.00	0.17
G18	51.00	0.00	0.62
G19	54.00	0.00	0.62
G20	57.00	0.00	0.62
Shot6	58.50	0.00	0.80
G21	60.00	0.00	0.97
G22	63.00	0.00	1.35
G23	66.00	0.00	2.05
G24	69.00	0.00	1.95
Shot7	70.50	0.00	1.95
G25	72.00	0.00	1.95
G26	75.00	0.00	2.20
G27	78.00	0.00	2.20
G28	81.00	0.00	2.20
Shot8	82.50	0.00	2.20
G29	84.00	0.00	2.20
G30	87.00	0.00	2.20
G31	90.00	0.00	2.20
G32	94.50	0.00	1.90
Shot9	93.00	0.00	2.00
G33	96.00	0.00	1.80
G34	99.00	0.00	1.60
G35	102.00	0.00	1.40
G36	105.00	0.00	1.20
Shot10	106.50	0.00	1.20
G37	108.00	0.00	1.20
G38	111.00	0.00	1.20
G39	114.00	0.00	1.20
G40	117.00	0.00	1.20
Shot11	118.50	0.00	1.20
G41	120.00	0.00	1.20
G42	123.00	0.00	1.20
G43	126.00	0.00	1.00
G44	129.00	0.00	0.80
Shot12	130.50	0.00	0.70
G45	132.00	0.00	0.60
G46	135.00	0.00	0.40
G47	138.00	0.00	0.20
G48	141.00	0.00	0.00
Shot13	142.50	0.00	0.00

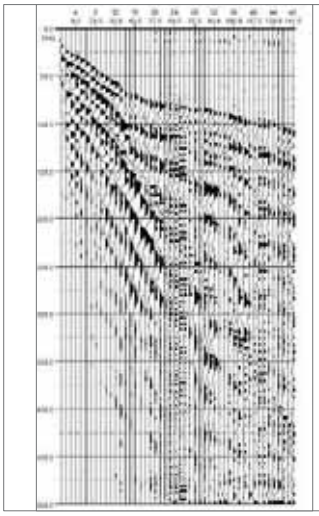
PRIMI ARRIVI – ST2-P													
Geofono	**Shot 1**	**Shot 2**	**Shot 3**	**Shot 4**	**Shot 5**	**Shot 6**	**Shot 7**	**Shot 8**	**Shot 9**	**Shot 10**	**Shot 11**	**Shot 12**	**Shot 13**
1	9.0	27.0	41.5	49.5	63.5	69.0	67.5	71.0	76.5	81.0	87.0	88.5	100.0
2	15.5	23.5	40.0	46.0	62.0	69.0	67.5	69.5	75.5	79.0	87.0	88.5	99.5
3	20.0	19.5	32.0	45.5	60.5	65.5	67.0	71.0	74.5	79.0	86.5	88.5	99.5
4	24.5	8.0	32.0	44.0	58.5	63.5	65.5	69.5	74.5	78.0	84.5	88.5	101.0
5	26.0	6.5	29.5	40.5	58.0	63.5	65.5	69.0	72.5	76.0	84.5	89.0	98.5
6	27.0	14.0	27.0	35.5	56.5	60.0	65.5	67.0	71.0	75.5	85.0	86.0	97.0
7	30.5	20.0	17.5	31.5	53.0	58.5	65.0	65.5	69.5	74.5	81.5	86.0	95.0
8	35.5	26.0	7.5	28.5	52.0	57.0	63.0	65.0	69.0	73.0	82.5	87.0	90.5
9	37.0	31.0	5.0	26.5	49.5	55.0	60.0	65.5	67.5	72.0	80.0	84.5	93.5
10	39.0	34.5	15.5	24.5	47.5	56.5	60.0	65.5	67.5	69.0	79.5	84.5	90.5
11	45.0	37.5	21.0	18.0	48.0	54.5	58.5	63.5	66.0	70.5	78.0	85.0	90.5
12	47.5	42.5	25.5	7.0	44.0	52.0	55.0	63.5	67.0	73.0	76.5	85.5	88.0
13	54.0	48.5	30.5	8.0	39.5	51.5	55.0	63.0	69.5	71.0	76.5	83.0	86.5
14	58.5	49.5	35.0	27.0	35.0	47.5	53.0	63.0	70.0	70.5	79.0	81.5	86.5
15	60.0	51.5	40.5	34.0	30.0	44.0	51.5	59.5	68.5	71.5	76.0	80.0	89.5
16	65.0	53.5	44.5	39.0	10.5	38.5	46.5	61.0	67.0	70.5	76.0	79.5	85.0
17	66.5	57.0	49.0	46.0	11.5	33.0	44.0	56.5	63.5	69.0	74.0	79.0	83.5
18	71.0	59.5	49.5	46.5	28.5	26.5	39.0	54.5	61.5	67.5	73.0	76.0	82.5
19	69.5	60.5	51.0	51.0	32.0	17.5	36.5	53.0	59.5	66.5	71.0	75.5	82.5
20	71.5	64.5	55.5	51.5	37.0	9.5	29.5	51.0	55.0	65.0	69.0	73.0	82.5
21	74.0	63.5	55.0	53.5	40.5	10.0	23.5	45.5	52.5	63.5	67.0	71.0	82.5
22	74.0	66.0	57.0	56.0	40.5	17.5	19.0	41.0	50.0	58.5	64.5	69.0	80.0
23	72.0	66.0	59.5	55.0	44.0	23.0	15.5	36.5	46.0	54.5	63.5	68.5	75.5
24	72.0	68.5	60.5	56.0	45.5	29.5	7.5	35.5	43.0	56.0	61.5	67.5	75.5
25	74.5	71.0	60.0	58.0	47.5	35.5	7.5	32.0	42.0	51.5	60.5	70.0	74.5
26	76.5	72.0	63.0	60.5	52.5	40.5	16.5	30.0	41.5	50.0	60.0	69.5	77.0
27	77.0	71.0	62.0	64.0	58.0	45.5	26.5	25.0	40.5	51.0	60.5	70.5	76.0
28	77.0	70.5	64.5	65.0	60.0	47.5	35.0	14.5	36.5	49.0	58.5	70.0	75.5
29	76.0	73.0	61.5	66.0	60.5	51.0	37.0	14.5	33.0	45.5	53.0	68.0	76.0
30	77.5	72.0	61.0	68.5	62.0	51.0	37.5	25.0	29.0	41.5	50.0	65.0	73.5
31	78.0	74.0	63.0	70.5	63.5	51.0	39.0	31.0	24.5	39.0	47.0	61.5	73.5
32	80.5	75.5	67.0	72.0	66.0	56.0	42.5	32.0	14.5	35.0	44.0	58.0	70.5
33	79.0	79.0	70.0	71.0	66.0	57.0	45.5	34.0	14.5	31.5	41.0	55.0	69.0
34	82.5	80.5	70.5	72.0	68.5	59.5	47.5	37.5	25.0	27.0	38.5	52.5	66.5
35	84.5	79.5	72.5	75.0	70.5	61.5	48.0	40.5	28.5	23.5	36.0	49.5	64.0
36	87.0	81.0	75.0	77.0	72.5	61.5	51.5	44.0	31.5	12.5	33.0	46.5	57.0
37	85.5	82.5	76.5	79.5	74.5	63.5	54.5	47.5	35.5	10.5	28.5	44.0	58.5
38	87.0	86.0	76.5	79.5	75.5	65.0	57.0	52.0	39.5	23.0	26.0	42.5	56.5
39	87.0	85.0	79.0	82.5	78.0	66.0	59.5	54.0	43.0	30.0	16.5	41.0	55.0
40	90.0	88.5	78.5	83.0	79.5	67.0	60.5	57.0	43.5	33.5	9.0	37.5	52.0
41	90.0	89.5	79.5	84.5	79.5	70.5	62.0	60.5	47.5	36.0	9.0	35.0	49.5
42	89.5	90.0	81.0	86.0	81.0	74.0	65.5	61.5	51.5	39.5	16.5	28.0	42.5
43	91.5	91.5	81.0	86.5	81.5	74.5	67.0	63.5	52.5	44.0	27.0	18.0	38.0
44	95.5	95.0	81.5	87.0	82.5	76.0	68.5	65.5	56.0	48.5	34.0	9.5	33.0
45	98.0	94.5	82.5	88.0	82.5	76.5	69.0	67.5	56.5	51.5	40.5	9.0	29.5
46	97.5	96.5	87.0	88.0	85.0	77.5	70.5	69.0	56.5	53.5	42.5	15.5	22.5
47	102.5	96.0	86.5	88.5	86.5	79.0	72.0	71.0	60.0	56.0	46.5	19.5	16.5
48	101.5	99.0	88.5	90.5	87.0	80.0	73.0	71.0	63.5	60.0	49.0	26.5	10.0

INDAGINE SISMICA A RIFRAZIONE ONDE "P"
(passo 3,0 m - 48 canali)

LUOGO: Migliana (PT)
DATA: 23/11/2017

REGISTRAZIONI ST2 - ONDE "P"

01



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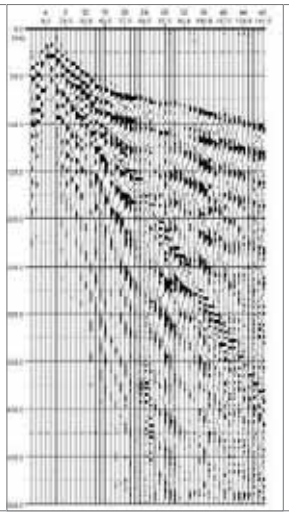

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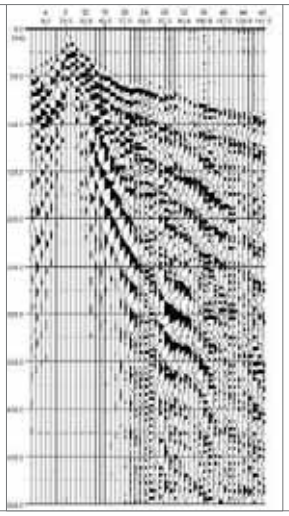

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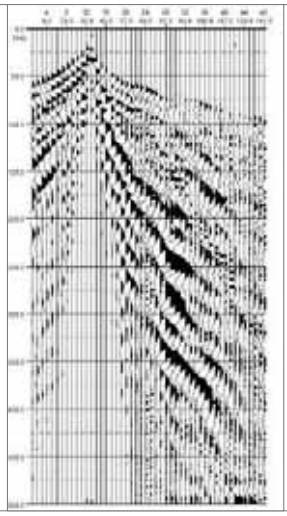

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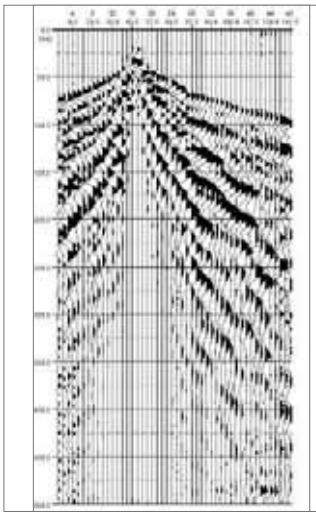

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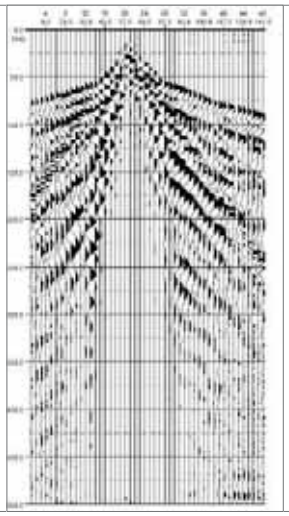

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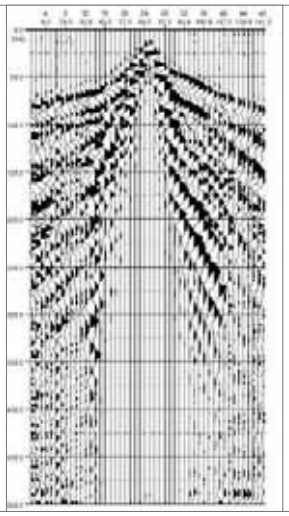

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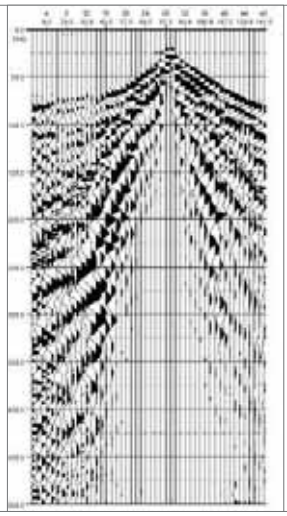

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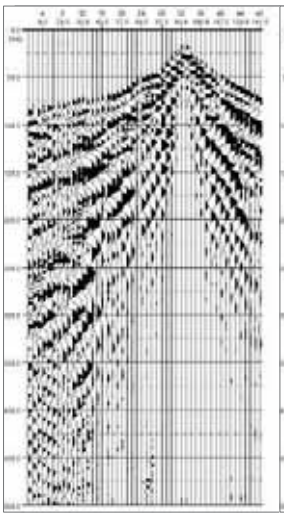

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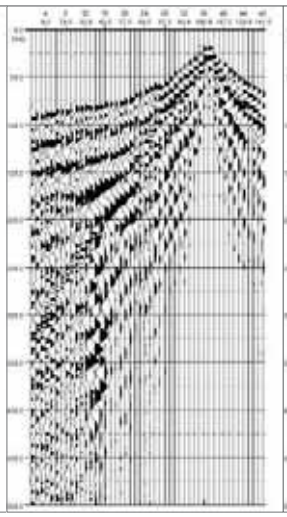

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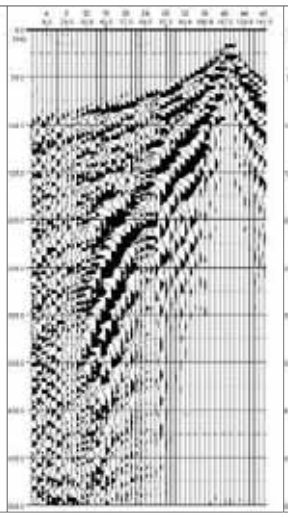

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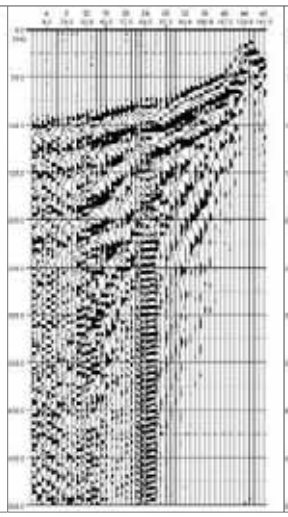

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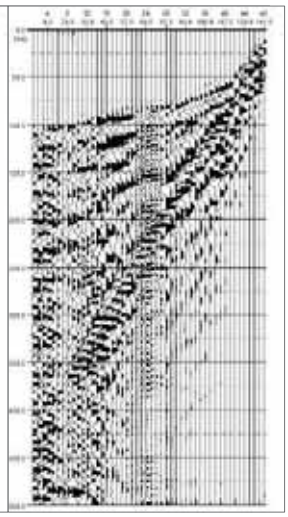


INDAGINE SISMICA A RIFRAZIONE "ST2-P"

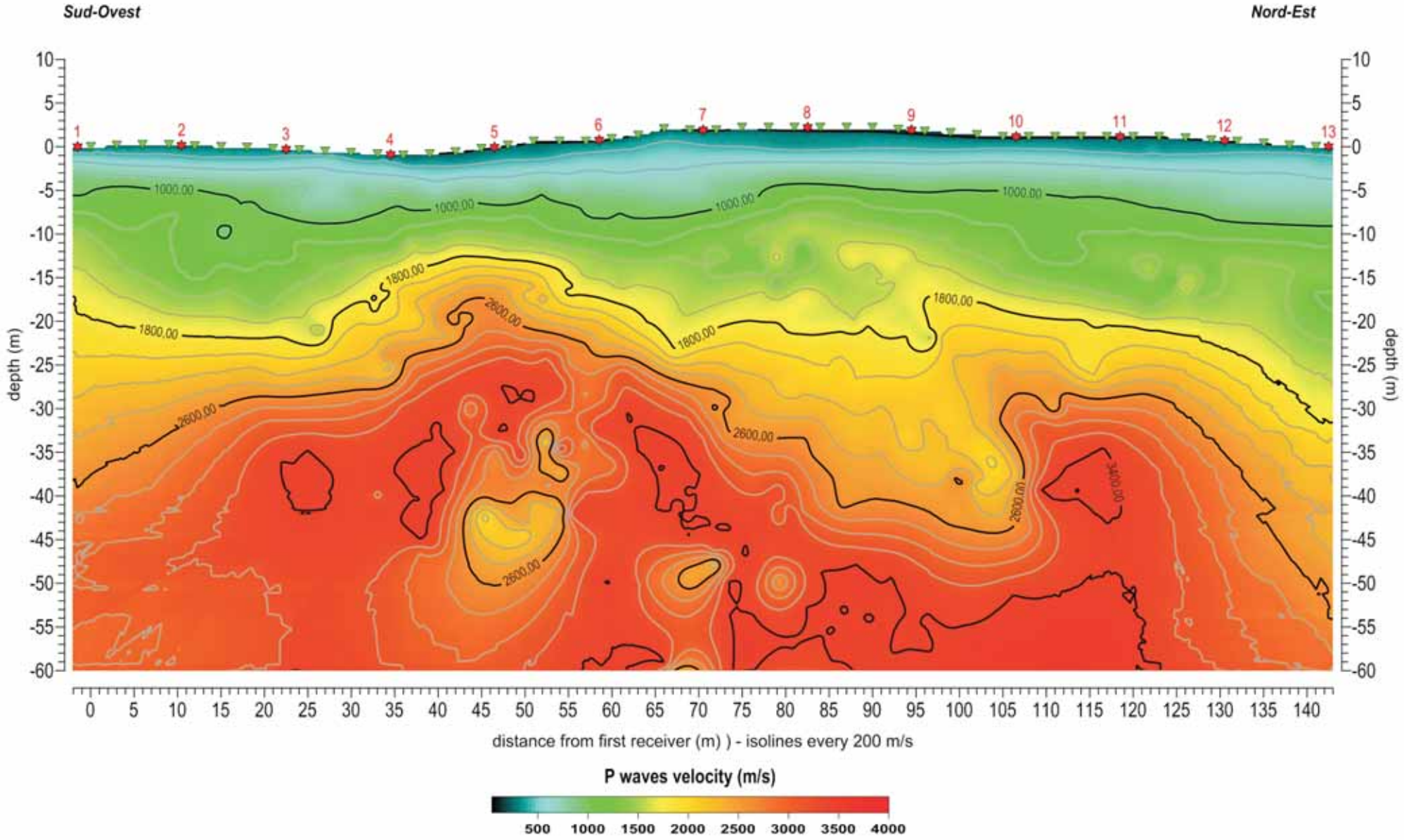
(passo 3,0 m - 48 canali - fixed line)

LUOGO: Migliana (PT)

DATA: 23/11/2017

LEGENDA

- Geophones
- Shots position
- refractor with classic methods (wavefront or CMP int. traveltimes met.)
- Vs logs from masw analysis
- Other seismic line
- Electrodes



STENDIMENTO ST2 - ONDE "SH" - GEOMETRIA STENDIMENTO

Scoppio - Geofono	x [m]	y [m]	z [mslm]
Shot1	-1.50	0.00	0.00
G1	0.00	0.00	0.00
G2	3.00	0.00	0.15
G3	6.00	0.00	0.27
G4	9.00	0.00	0.27
Shot2	10.50	0.00	0.21
G5	12.00	0.00	0.14
G6	15.00	0.00	0.06
G7	18.00	0.00	-0.08
G8	21.00	0.00	-0.18
Shot3	22.50	0.00	-0.27
G9	24.00	0.00	-0.36
G10	27.00	0.00	-0.53
G11	30.00	0.00	-0.64
G12	33.00	0.00	-0.82
Shot4	34.50	0.00	-0.89
G13	36.00	0.00	-0.96
G14	39.00	0.00	-0.81
G15	42.00	0.00	-0.56
G16	45.00	0.00	-0.20
Shot5	46.50	0.00	-0.02
G17	48.00	0.00	0.17
G18	51.00	0.00	0.62
G19	54.00	0.00	0.62
G20	57.00	0.00	0.62
Shot6	58.50	0.00	0.80
G21	60.00	0.00	0.97
G22	63.00	0.00	1.35
G23	66.00	0.00	2.05
G24	69.00	0.00	1.95
Shot7	70.50	0.00	1.95
G25	72.00	0.00	1.95
G26	75.00	0.00	2.20
G27	78.00	0.00	2.20
G28	81.00	0.00	2.20
Shot8	82.50	0.00	2.20
G29	84.00	0.00	2.20
G30	87.00	0.00	2.20
G31	90.00	0.00	2.20
G32	93.00	0.00	2.00
Shot9	94.50	0.00	1.90
G33	96.00	0.00	1.80
G34	99.00	0.00	1.60
G35	102.00	0.00	1.40
G36	105.00	0.00	1.20
Shot10	106.50	0.00	1.20
G37	108.00	0.00	1.20
G38	111.00	0.00	1.20
G39	114.00	0.00	1.20
G40	117.00	0.00	1.20
Shot11	118.50	0.00	1.20
G41	120.00	0.00	1.20
G42	123.00	0.00	1.20
G43	126.00	0.00	1.00
G44	129.00	0.00	0.80
Shot12	130.50	0.00	0.70
G45	132.00	0.00	0.60
G46	135.00	0.00	0.40
G47	138.00	0.00	0.20
G48	141.00	0.00	0.00
Shot13	142.50	0.00	0.00

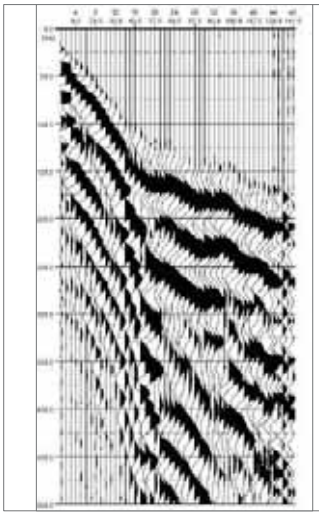
PRIMI ARRIVI – ST2-SH													
Geofono	**Shot 1**	**Shot 2**	**Shot 3**	**Shot 4**	**Shot 5**	**Shot 6**	**Shot 7**	**Shot 8**	**Shot 9**	**Shot 10**	**Shot 11**	**Shot 12**	**Shot 13**
1	10.0	35.0	53.5	66.0	106.5	127.0	134.0	154.0	148.5	165.5	175.5	175.5	187.5
2	21.0	26.0	48.0	62.0	104.0	122.0	128.5	152.5	146.5	159.5	173.0	174.5	183.5
3	26.0	18.5	44.5	58.0	102.0	118.0	125.5	152.0	143.0	161.0	172.0	173.0	182.0
4	30.5	10.0	37.5	52.5	100.5	111.5	121.5	145.0	141.0	157.0	170.0	173.0	180.5
5	35.5	9.5	30.0	49.0	98.5	109.5	118.5	141.5	138.0	158.5	169.0	171.0	181.0
6	38.5	16.0	24.5	45.5	94.0	107.5	116.0	136.5	139.0	155.0	168.0	170.0	180.5
7	46.0	27.5	22.5	41.0	90.0	106.0	116.5	136.5	139.0	155.0	166.5	171.0	183.0
8	51.0	33.5	11.0	35.0	87.0	104.0	113.5	135.5	136.0	156.0	160.5	166.5	178.5
9	59.5	42.0	12.5	32.0	81.0	104.0	112.5	131.0	135.5	152.5	163.5	165.5	178.0
10	65.0	45.5	26.5	32.0	74.0	102.0	108.0	128.0	132.5	149.0	159.5	166.5	172.0
11	69.5	53.5	38.5	27.0	71.0	95.0	104.0	125.5	133.0	146.5	157.5	166.5	175.0
12	74.0	65.0	47.5	14.0	66.0	92.0	102.0	125.5	130.5	146.0	149.0	169.5	174.5
13	86.0	72.5	60.5	14.5	60.5	85.0	98.5	118.5	129.0	144.5	153.0	166.0	172.0
14	91.0	80.0	65.5	40.5	54.5	81.0	96.0	118.5	127.0	144.5	150.5	159.0	174.5
15	94.5	88.5	72.0	52.5	37.5	77.5	91.5	112.0	123.5	140.0	149.0	158.5	174.5
16	96.5	95.5	79.5	62.0	14.5	69.0	83.0	106.0	122.5	136.5	148.0	154.0	174.5
17	103.5	97.0	88.5	67.0	14.5	53.0	73.5	102.5	120.0	134.0	145.5	155.0	173.5
18	109.5	106.5	93.5	75.5	34.0	46.0	70.0	98.5	113.0	131.0	144.5	157.0	169.0
19	115.0	111.0	96.0	82.5	48.0	35.5	62.0	92.5	106.5	126.0	143.0	152.5	166.5
20	118.5	111.0	101.0	86.0	53.5	9.5	52.0	87.0	98.5	125.0	137.0	146.5	163.0
21	115.0	115.0	104.0	87.0	57.0	10.0	38.0	80.0	89.5	120.0	132.5	142.0	156.0
22	118.5	113.5	104.0	88.5	60.5	24.5	25.5	72.5	81.5	113.0	128.5	135.5	152.5
23	119.0	116.5	105.5	92.0	67.0	30.5	15.5	67.5	74.0	110.0	126.0	132.0	146.5
24	124.0	117.5	105.5	97.0	76.0	44.5	11.5	59.5	71.0	108.0	126.5	131.5	148.0
25	125.0	122.5	110.0	102.5	84.5	56.5	11.0	50.0	64.0	105.5	123.5	127.5	151.5
26	128.5	125.0	112.5	105.5	93.5	63.0	25.5	43.0	58.5	102.0	111.0	127.5	150.5
27	131.0	129.5	116.0	110.0	98.5	72.0	33.5	33.5	53.5	97.0	107.5	125.5	148.5
28	135.5	132.0	120.5	115.0	103.0	83.5	44.0	14.5	46.5	86.5	102.5	120.5	145.5
29	135.5	132.5	120.5	116.5	106.5	90.5	52.5	12.5	37.0	75.5	98.5	110.5	142.0
30	138.0	138.5	121.5	119.0	109.0	96.0	58.5	35.5	32.0	65.0	94.0	104.0	126.0
31	141.5	136.5	121.5	121.5	110.0	97.0	60.5	38.5	18.0	58.5	83.0	98.5	124.5
32	143.0	138.0	125.0	121.5	114.5	101.0	65.0	46.5	10.0	53.5	79.0	93.5	119.0
33	144.5	136.0	125.5	122.0	116.5	104.5	70.5	52.5	8.5	45.5	74.0	91.0	109.0
34	143.0	141.0	132.0	128.5	121.5	111.0	76.5	60.5	20.0	35.0	67.0	81.5	104.0
35	143.0	143.5	136.0	132.5	127.0	116.5	79.5	69.5	31.5	30.5	56.0	78.0	103.0
36	143.5	145.0	139.0	139.5	129.0	119.0	87.0	74.5	44.5	14.0	46.5	72.0	95.0
37	149.0	151.5	147.0	143.5	134.5	120.0	97.0	82.5	57.0	14.5	41.0	60.5	89.5
38	150.0	157.5	147.0	144.5	139.5	121.5	102.0	92.0	66.0	30.0	33.0	56.0	79.0
39	153.5	158.5	150.5	147.0	144.5	128.0	106.5	102.0	71.5	42.5	28.0	47.5	75.5
40	157.0	158.5	152.0	149.0	148.0	131.0	111.5	106.5	77.5	49.0	14.0	38.0	67.0
41	159.0	159.0	157.0	150.0	148.0	137.5	113.5	111.0	83.5	56.0	11.5	36.5	62.0
42	159.5	163.0	160.5	155.0	152.5	141.0	122.5	117.0	90.0	63.5	26.5	30.5	55.0
43	162.0	163.0	164.0	159.0	157.0	142.5	128.0	122.0	94.0	65.5	35.5	20.5	50.0
44	162.0	163.0	164.0	162.0	157.0	141.0	130.5	123.5	97.5	71.0	42.0	8.5	42.5
45	166.0	164.5	164.5	164.0	156.0	143.0	135.5	133.0	98.5	75.5	46.0	8.5	32.0
46	169.0	166.5	166.0	164.5	157.0	145.0	137.5	136.5	102.0	78.5	48.0	14.0	29.0
47	170.0	169.5	165.5	164.5	157.5	145.0	141.5	138.5	105.5	80.0	54.5	19.0	18.0
48	170.0	169.5	166.0	164.5	157.5	145.0	143.5	143.0	107.5	82.5	57.0	22.5	8.5

INDAGINE SISMICA A RIFRAZIONE ONDE "SH"
(passo 3,0 m - 48 canali)

LUOGO: Migliana (PT)
DATA: 23/11/2017

REGISTRAZIONI ST2 - ONDE "SH"

01



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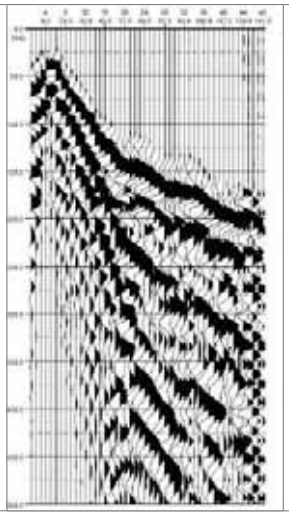

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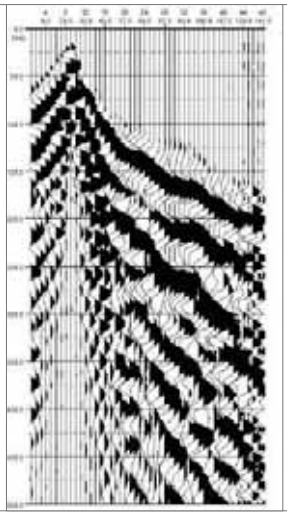

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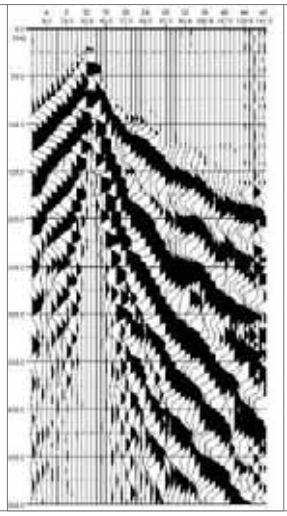

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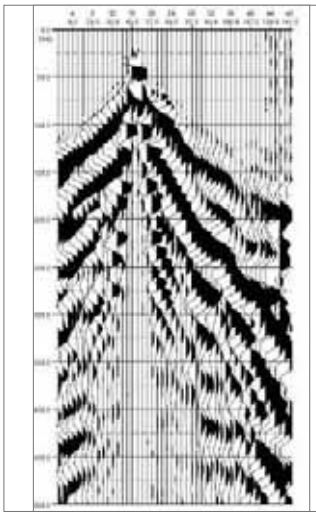

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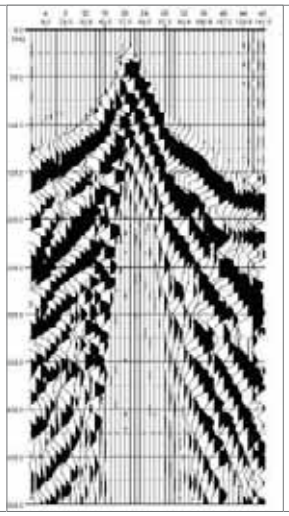

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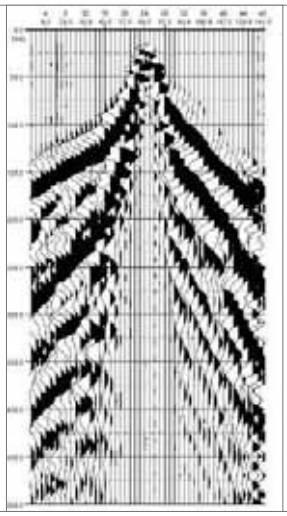

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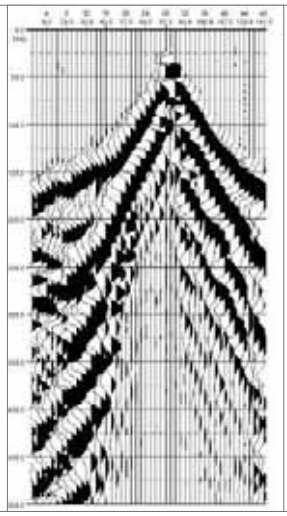

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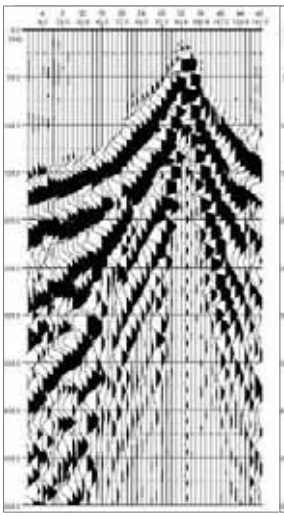

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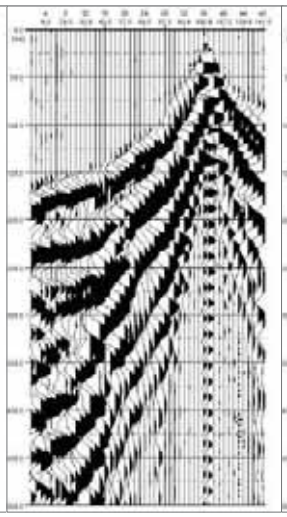

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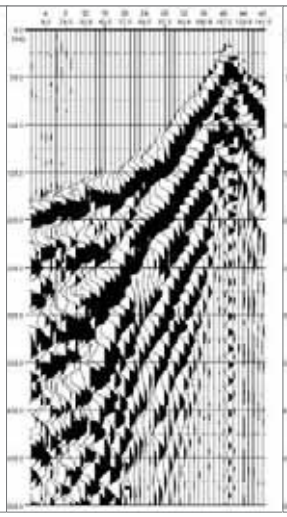

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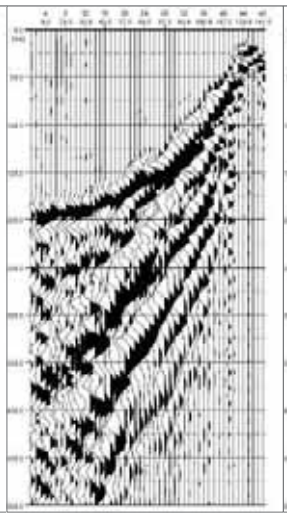

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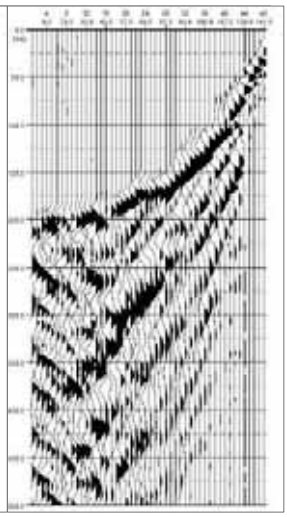


INDAGINE SISMICA A RIFRAZIONE "ST2-SH"

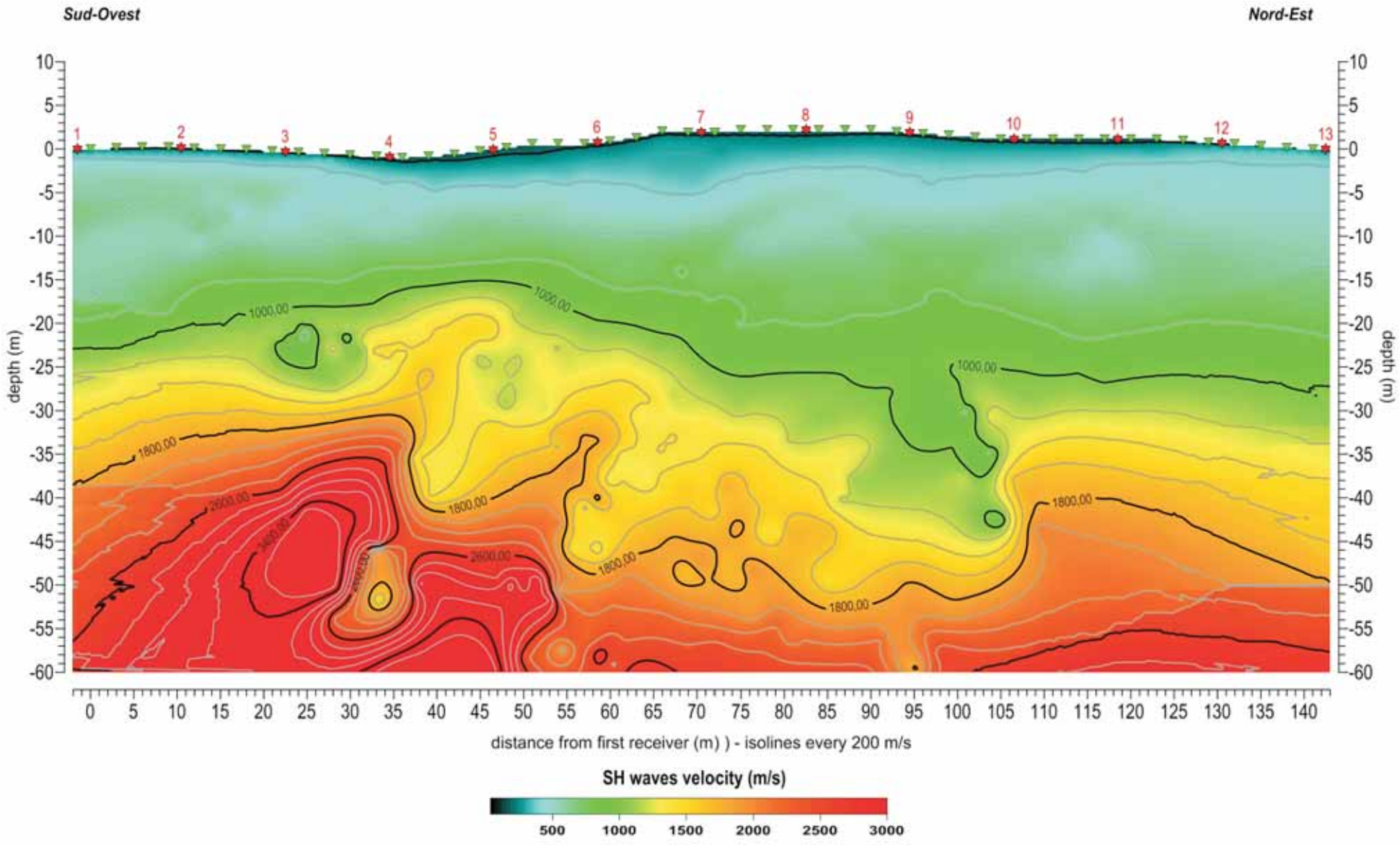
(passo 3,0 m - 48 canali - fixed line)

LUOGO: Migliana (PT)

DATA: 23/11/2017

LEGENDA

- Geophones
- Shots position
- refractor with classic methods (wavefront or CMP int. traveltimes met.)
- Vs logs from masw analysis
- Other seismic line
- Electrodes



STENDIMENTO ST3 - ONDE "SH" - GEOMETRIA STENDIMENTO

Scoppio - Geofono	x [m]	y [m]	z [mslm]
G1	0.00	0.00	0.00
G2	2.00	0.00	-0.35
Shot1	3.00	0.00	-0.55
G3	4.00	0.00	-0.75
G4	6.00	0.00	-2.20
G5	8.00	0.00	-2.60
Shot2	9.00	0.00	-2.78
G6	10.00	0.00	-2.95
G7	12.00	0.00	-3.35
G8	14.00	0.00	-3.65
Shot3	15.00	0.00	-3.85
G9	16.00	0.00	-4.05
G10	18.00	0.00	-4.50
G11	20.00	0.00	-5.00
Shot4	21.00	0.00	-5.35
G12	22.00	0.00	-5.70
G13	24.00	0.00	-6.30
G14	26.00	0.00	-6.85
Shot5	27.00	0.00	-7.30
G15	28.00	0.00	-7.75
G16	30.00	0.00	-8.52
G17	32.00	0.00	-8.52
Shot6	33.00	0.00	-8.59
G18	34.00	0.00	-8.66
G19	36.00	0.00	-8.83
G20	38.00	0.00	-9.03
Shot7	39.00	0.00	-10.33
G21	40.00	0.00	-10.33
G22	42.00	0.00	-10.95
G23	44.00	0.00	-11.20
Shot8	45.00	0.00	-11.27
G24	46.00	0.00	-11.33
G25	48.00	0.00	-12.48
G26	50.00	0.00	-12.78
Shot9	51.00	0.00	-13.11
G27	52.00	0.00	-13.43
G28	54.00	0.00	-14.60
G29	56.00	0.00	-15.04
Shot10	57.00	0.00	-15.24
G30	58.00	0.00	-15.44
G31	60.00	0.00	-15.80
G32	62.00	0.00	-17.20
Shot11	63.00	0.00	-17.37
G33	64.00	0.00	-17.54
G34	66.00	0.00	-17.99
G35	68.00	0.00	-18.30
G36	70.00	0.00	-19.70
Shot12	71.00	0.00	-19.86
G37	72.00	0.00	-20.02
G38	74.00	0.00	-20.50
G39	76.00	0.00	-21.02
Shot13	77.00	0.00	-21.25
G40	78.00	0.00	-21.47
G41	80.00	0.00	-23.14
G42	82.00	0.00	-23.38
Shot14	83.00	0.00	-23.80
G43	84.00	0.00	-24.22
G44	86.00	0.00	-25.30
G45	88.00	0.00	-25.70
Shot15	89.00	0.00	-25.95
G46	90.00	0.00	-26.20
G47	92.00	0.00	-26.63
Shot16	93.00	0.00	-26.81
G48	94.00	0.00	-26.98

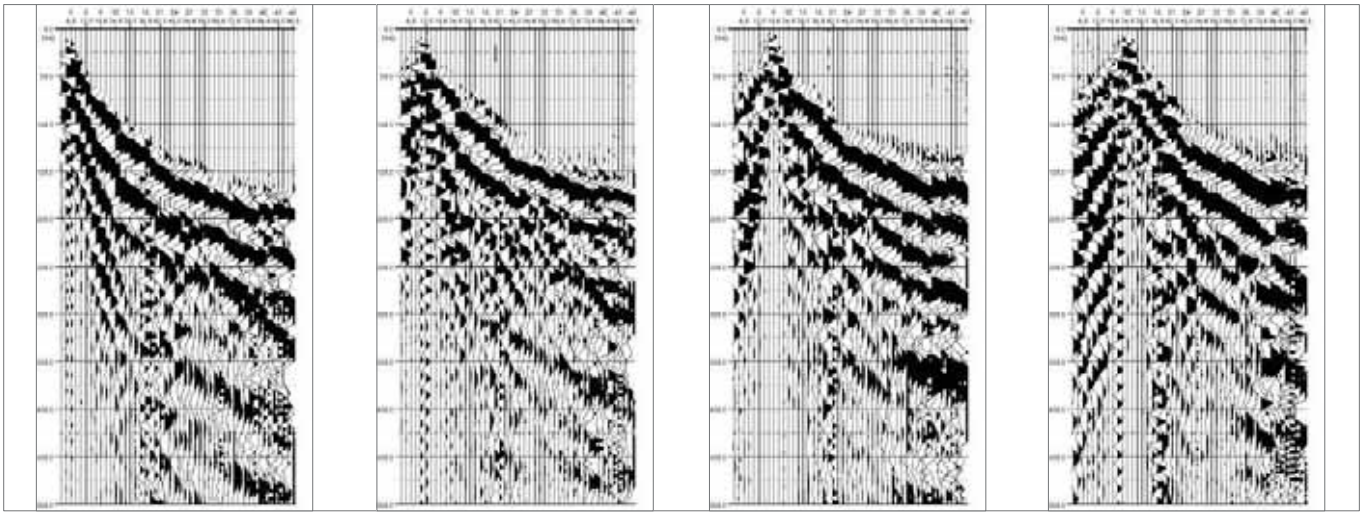
PRIMI ARRIVI – ST3-SH																
Geofono	Shot 1	Shot 2	Shot 3	Shot 4	Shot 5	Shot 6	Shot 7	Shot 8	Shot 9	Shot 10	Shot 11	Shot 12	Shot 13	Shot 14	Shot 15	Shot 16
1	21.5	35.5	47.5	69.0	72.0	95.0	114.0	139.0	129.5	152.0	150.5	154.0	175.0	161.5	134.5	162.5
2	9.5	29.0	40.5	64.0	70.5	91.5	108.5	134.5	126.5	147.0	145.5	147.5	172.5	159.0	133.5	157.0
3	7.0	17.5	39.5	53.5	68.5	89.5	103.0	128.0	125.5	144.5	144.5	146.0	168.0	157.0	133.5	156.5
4	19.5	14.0	31.5	47.0	63.5	80.5	99.0	121.0	125.0	145.0	140.5	143.0	165.5	155.5	128.0	152.0
5	27.5	8.5	27.0	46.5	61.5	76.5	95.5	120.0	117.5	136.0	133.5	141.0	159.0	153.5	126.5	144.0
6	38.0	9.5	24.0	39.5	54.5	76.5	95.0	114.0	118.5	131.5	128.0	139.5	160.0	146.0	126.5	144.5
7	48.0	29.5	13.5	29.5	50.0	67.5	90.0	104.5	114.0	126.0	125.0	139.5	154.0	145.5	123.0	144.5
8	60.0	33.0	3.0	33.5	48.0	61.0	84.5	95.0	113.0	124.5	122.0	133.5	148.5	141.0	120.5	141.5
9	65.5	38.5	5.5	26.5	47.0	54.5	77.5	87.0	103.5	121.5	116.5	136.5	145.0	137.5	120.0	141.0
10	68.0	40.5	12.5	10.5	39.5	49.5	72.5	79.0	105.0	110.0	108.5	133.0	143.0	139.5	119.0	136.0
11	78.5	44.5	22.5	8.0	30.5	46.0	62.0	72.0	99.5	102.0	103.5	130.5	140.0	135.5	122.0	130.0
12	86.5	56.0	33.0	5.5	32.0	40.5	56.5	67.5	94.0	99.5	100.0	127.0	140.0	131.0	119.0	126.0
13	91.5	60.0	41.0	14.5	19.0	32.0	53.0	62.0	88.5	94.0	91.5	122.0	132.0	127.5	120.5	123.0
14	92.5	63.0	46.0	29.5	5.0	28.5	46.5	62.0	80.5	86.0	84.5	120.0	133.5	122.0	116.5	118.5
15	95.5	60.5	50.0	38.0	4.0	16.5	39.0	56.5	76.0	81.5	79.0	109.5	126.0	120.5	111.0	117.0
16	98.0	63.5	54.5	35.0	10.5	2.5	29.0	52.5	64.0	70.0	74.5	107.5	118.5	117.0	110.5	112.5
17	102.5	68.5	58.5	44.5	26.5	4.5	12.0	48.5	53.5	59.0	70.0	101.0	115.5	104.5	108.5	109.0
18	107.5	77.5	62.0	50.0	30.5	3.5	9.0	44.5	51.0	58.5	66.0	98.0	112.5	99.5	111.0	102.5
19	108.0	76.5	68.0	51.5	40.5	2.5	3.0	39.0	47.5	56.5	63.0	95.0	111.0	99.0	105.5	101.0
20	108.5	82.5	66.0	69.5	46.5	7.5	3.5	31.0	48.0	56.5	62.0	93.0	108.5	99.0	107.5	100.0
21	115.0	88.5	73.0	74.5	52.5	10.0	5.0	24.5	46.5	54.5	56.5	80.5	101.0	99.0	104.0	99.0
22	117.0	95.0	90.5	76.0	51.5	22.0	21.0	22.5	43.5	49.5	51.5	78.0	99.0	98.0	100.5	99.5
23	122.0	98.5	93.5	80.0	56.5	24.0	28.5	10.0	34.0	46.5	51.5	70.0	96.0	101.0	99.5	98.0
24	125.0	102.0	97.0	86.5	60.0	33.5	33.5	8.5	29.5	50.5	54.5	65.5	92.5	94.0	96.5	94.0
25	125.5	106.0	104.0	84.5	66.0	40.0	34.5	19.0	26.5	42.0	50.0	60.5	86.0	87.0	94.0	96.5
26	128.5	111.5	105.5	89.5	70.0	48.0	35.5	26.0	5.5	36.0	43.5	54.0	82.0	82.0	89.5	93.0
27	132.5	113.5	106.5	99.0	72.5	52.5	35.0	29.5	5.5	25.0	41.5	49.5	77.0	77.0	81.5	89.5
28	134.5	120.0	106.5	104.0	75.5	56.0	42.0	33.5	12.0	21.0	34.5	43.5	66.0	70.0	72.0	87.0
29	138.5	119.0	106.0	101.0	75.0	58.0	47.5	38.5	19.0	9.5	28.5	42.0	65.5	67.5	69.0	81.5
30	140.5	122.5	106.0	100.5	78.5	62.0	52.0	44.5	24.5	9.5	25.5	36.5	60.5	66.0	60.5	77.0
31	145.0	126.0	111.0	104.5	83.0	64.0	59.5	46.5	29.0	19.0	20.5	34.0	57.5	62.5	61.0	75.0
32	144.0	132.5	111.5	111.5	88.0	62.5	59.5	51.0	30.0	20.5	4.5	28.5	51.0	55.0	60.5	70.0
33	150.0	134.5	110.0	111.0	90.5	67.0	67.0	56.5	35.0	26.0	3.0	23.5	45.0	53.5	55.0	67.5
34	148.5	134.0	116.0	116.0	93.0	72.0	75.5	67.0	39.0	35.0	16.0	20.5	44.5	50.0	54.0	64.0
35	148.5	134.0	118.0	120.5	97.0	78.0	78.0	70.0	44.5	39.0	24.5	18.0	42.0	48.0	52.5	64.0
36	147.0	135.5	117.0	126.0	99.5	81.5	83.0	77.0	45.5	38.0	27.0	9.5	35.0	43.0	51.0	56.5
37	148.5	135.5	119.0	125.5	102.0	87.0	87.0	80.0	45.0	37.5	27.5	7.0	28.5	40.0	47.0	54.0
38	148.0	137.5	119.5	127.5	99.0	88.0	92.5	83.0	47.0	40.5	31.0	16.5	22.5	33.5	40.5	48.5
39	151.5	141.0	122.0	125.5	100.5	91.0	88.5	88.5	48.5	44.5	37.5	22.0	9.5	28.5	40.5	48.5
40	153.5	140.0	125.5	124.0	106.0	91.5	87.0	88.5	53.0	45.0	40.0	24.5	9.0	23.5	36.5	45.0
41	153.5	140.0	124.0	122.5	105.5	88.0	89.5	86.5	55.0	46.5	37.0	27.0	14.5	15.5	30.0	37.0
42	155.0	142.5	123.5	120.5	106.0	89.5	88.5	85.0	60.5	49.5	38.0	33.0	23.5	5.5	28.5	34.0
43	156.0	143.0	127.5	125.0	109.0	93.0	90.0	86.5	59.0	53.0	42.0	35.5	27.0	6.0	24.5	27.5
44	155.5	143.0	131.0	124.0	104.5	92.5	94.0	86.0	54.5	48.5	38.0	31.0	24.0	17.0	16.5	26.0
45	155.5	149.5	131.0	123.5	106.0	94.5	96.5	88.0	54.5	49.5	41.5	34.5	27.0	19.5	7.5	22.5
46	157.5	148.0	127.0	125.5	107.5	96.5	93.5	91.0	54.5	50.0	41.5	40.5	29.0	25.5	7.5	19.0
47	159.0	150.0	127.0	128.5	109.5	98.0	93.0	91.0	58.0	51.5	41.5	41.0	34.0	29.0	15.5	9.5
48	159.0	150.5	129.0	129.5	106.0	98.0	96.0	94.0	62.5	56.0	46.0	44.5	35.5	35.5	19.5	9.5

INDAGINE SISMICA A RIFRAZIONE ONDE "SH"
(passo 2,0 m - 48 canali)

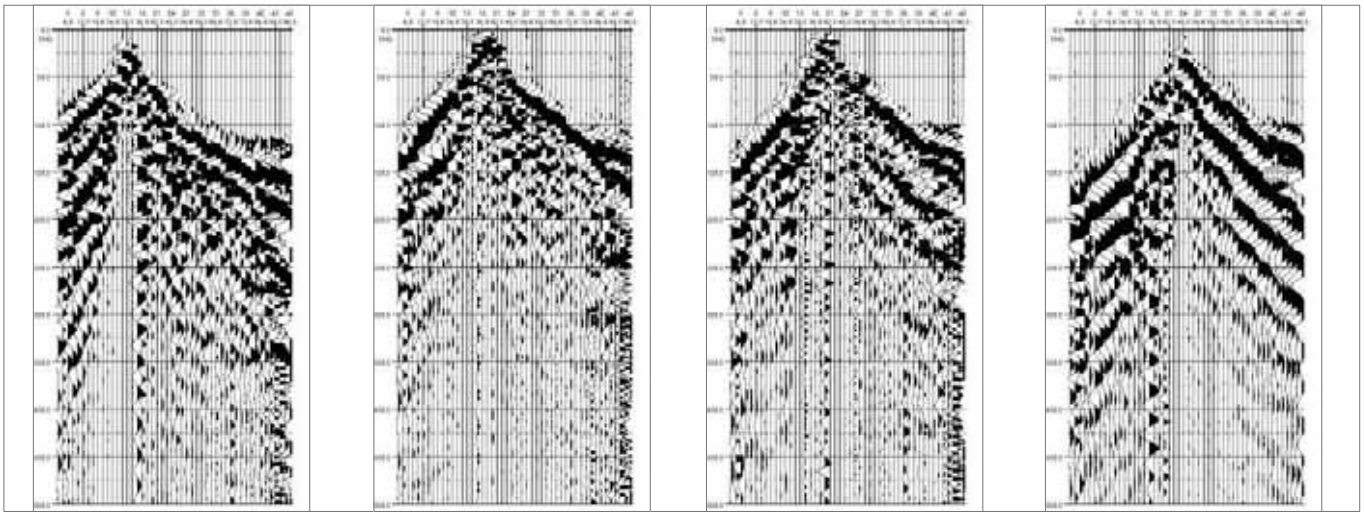
LUOGO: Migliana (PT)
DATA: 27/11/2017

REGISTRAZIONI ST3 - ONDE "SH" (PAG.1)

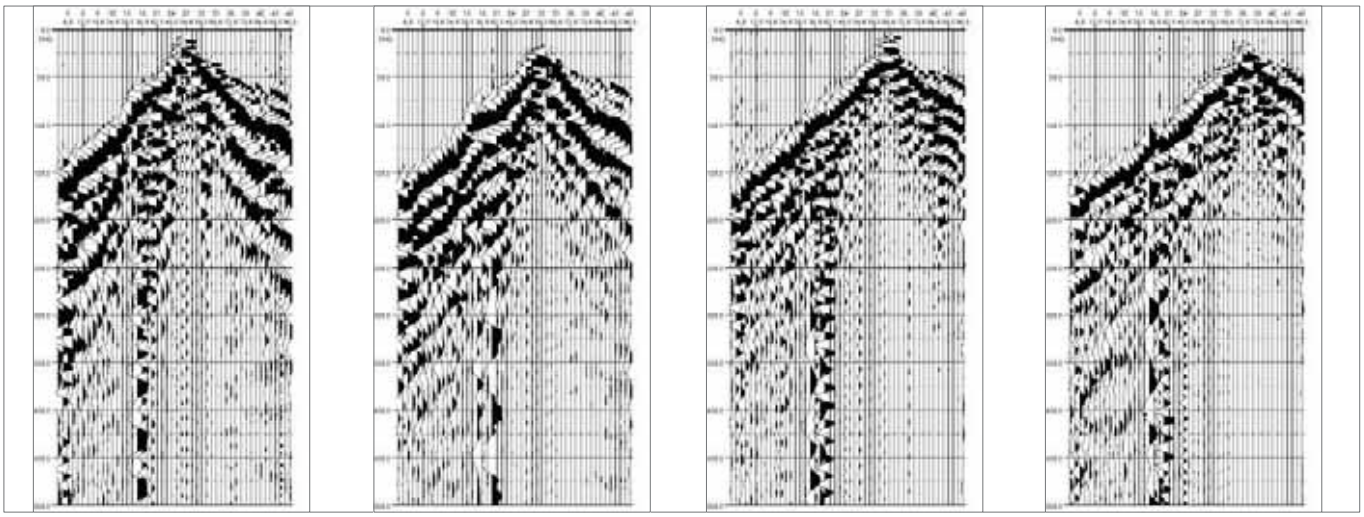
01 02 03 04



05 06 07 08



09 10 11 12

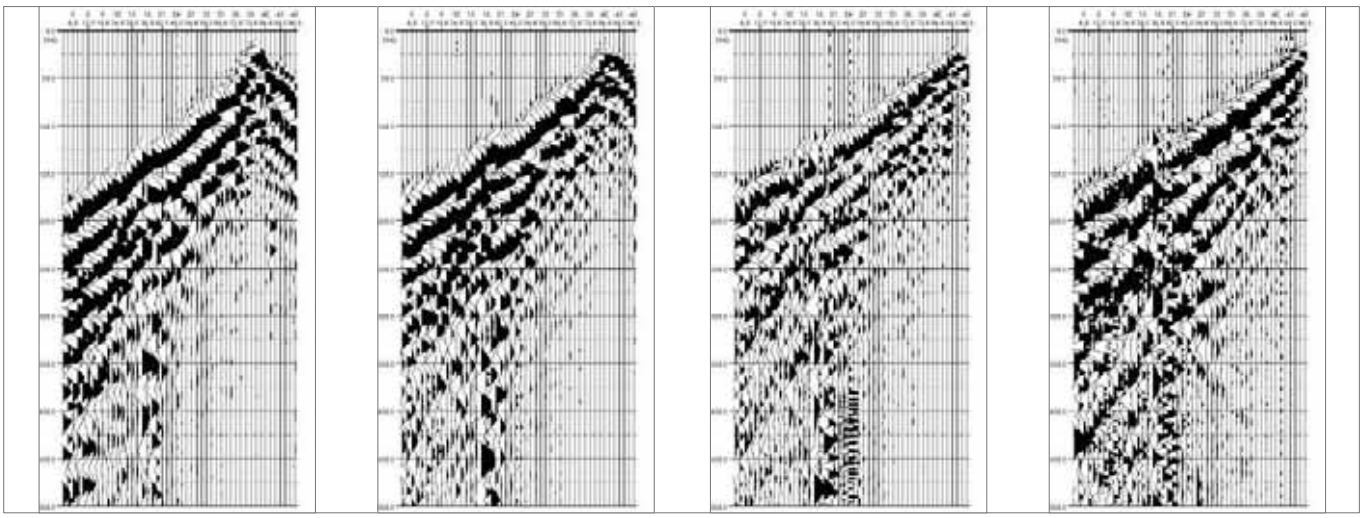


INDAGINE SISMICA A RIFRAZIONE ONDE "SH"
(passo 2,0 m - 48 canali)

LUOGO: Migliana (PT)
DATA: 27/11/2017

REGISTRAZIONI ST3 - ONDE "SH" (PAG.2)

13 14 15 16



INDAGINE SISMICA A RIFRAZIONE "ST3-SH"

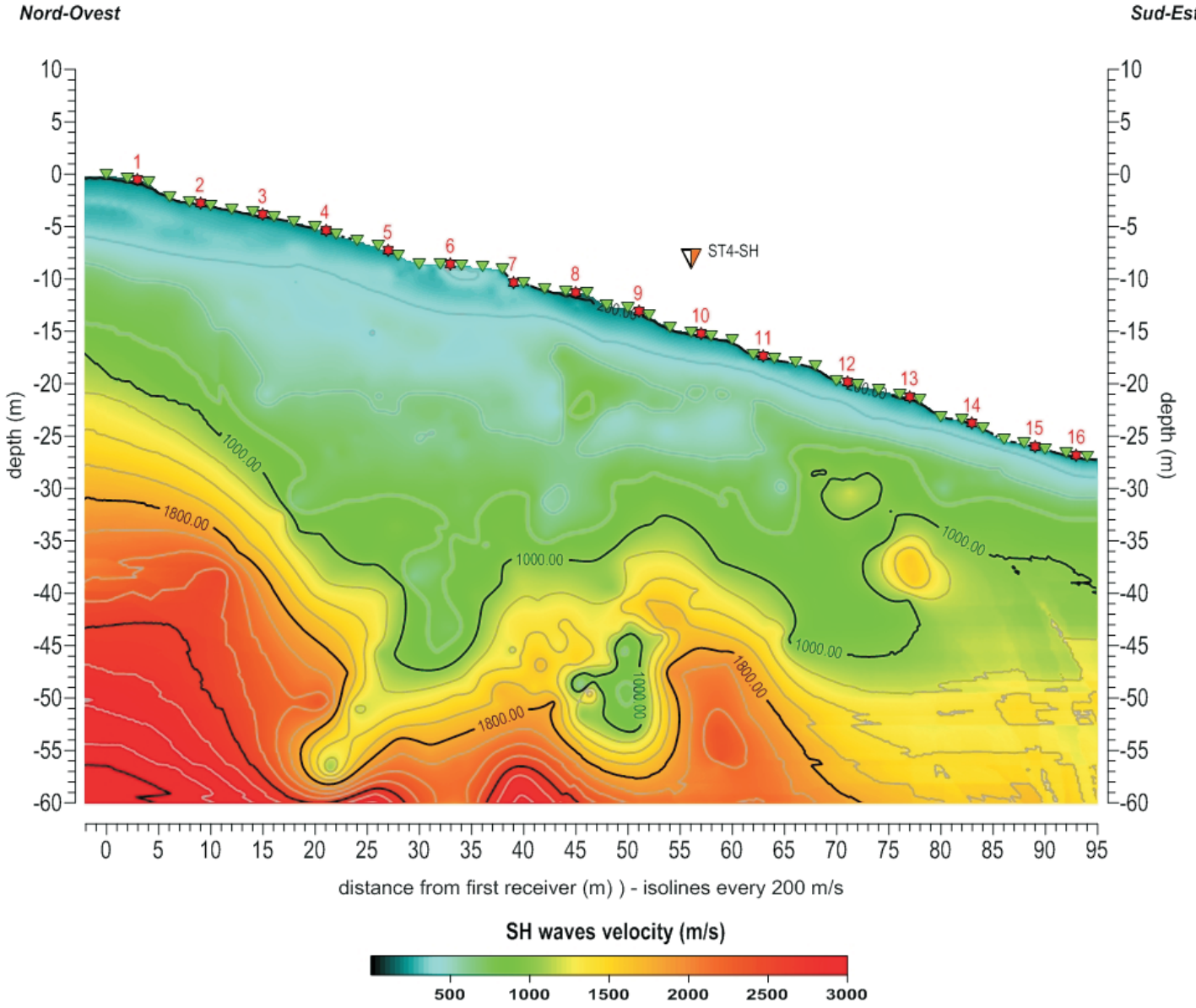
(passo 2,0 m - 48 canali - fixed line)

LUOGO: Migliana (PT)

DATA: 27/11/2017

LEGENDA

- Geophones
- Shots position
- refractor with classic methods (wavefront or CMP int. traveltimes met.)
- Vs logs from masw analysis
- Other seismic line
- Electrodes



STENDIMENTO ST4 - ONDE "SH" - GEOMETRIA STENDIMENTO

Scoppio - Geofono	x [m]	y [m]	z [mslm]
Shot1	-0.75	0.00	0.00
G1	0.00	0.00	0.00
G2	1.50	0.00	0.00
G3	3.00	0.00	0.00
Shot2	3.75	0.00	0.00
G4	4.50	0.00	0.00
G5	6.00	0.00	0.00
G6	7.50	0.00	0.00
Shot3	8.25	0.00	0.00
G7	9.00	0.00	0.00
G8	10.50	0.00	0.25
G9	12.00	0.00	0.25
Shot4	12.75	0.00	0.25
G10	13.50	0.00	0.25
G11	15.00	0.00	0.25
G12	16.50	0.00	0.35
Shot5	17.25	0.00	0.40
G13	18.00	0.00	0.45
G14	19.50	0.00	0.50
G15	21.00	0.00	0.50
Shot6	21.75	0.00	0.53
G16	22.50	0.00	0.55
G17	24.00	0.00	0.60
G18	25.50	0.00	0.60
Shot7	26.25	0.00	0.60
G19	27.00	0.00	0.60
G20	28.50	0.00	0.60
G21	30.00	0.00	0.81
Shot8	30.75	0.00	0.70
G22	31.50	0.00	0.58
G23	33.00	0.00	0.58
G24	34.50	0.00	0.58
Shot9	35.25	0.00	0.46
G25	36.00	0.00	0.33
G26	37.50	0.00	-0.37
G27	39.00	0.00	-0.54
Shot10	39.75	0.00	-0.62
G28	40.50	0.00	-0.69
G29	42.00	0.00	-0.87
G30	43.50	0.00	-0.87
Shot11	44.25	0.00	-0.87
G31	45.00	0.00	-0.87
G32	46.50	0.00	-0.87
G33	48.00	0.00	-1.02
Shot12	48.75	0.00	-1.02
G34	49.50	0.00	-1.02
G35	51.00	0.00	-1.22
G36	52.50	0.00	-1.22
Shot13	53.25	0.00	-1.29
G37	54.00	0.00	-1.35
G38	55.50	0.00	-1.40
G39	57.00	0.00	-1.45
Shot14	57.75	0.00	-1.48
G40	58.50	0.00	-1.50
G41	60.00	0.00	-1.50
G42	61.50	0.00	-1.20
Shot15	62.25	0.00	-1.20
G43	63.00	0.00	-1.20
G44	64.50	0.00	-1.36
G45	66.00	0.00	-1.36
Shot16	66.75	0.00	-1.31
G46	67.50	0.00	-1.26
G47	69.00	0.00	-1.26
G48	70.50	0.00	-1.11
Shot17	71.25	0.00	-1.00

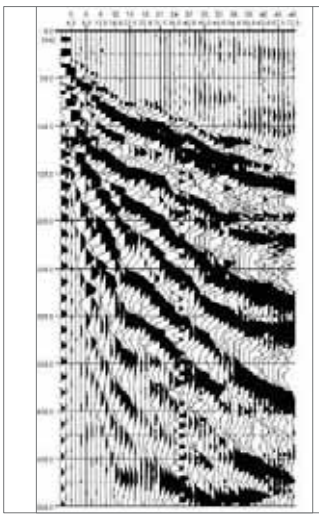
PRIMI ARRIVI – ST4-SH																	
Geofono	Shot 1	Shot 2	Shot 3	Shot 4	Shot 5	Shot 6	Shot 7	Shot 8	Shot 9	Shot 10	Shot 11	Shot 12	Shot 13	Shot 14	Shot 15	Shot 16	Shot 17
1	4.0	20.0	38.0	54.5	63.0	66.0	67.5	75.5	87.0	101.5	102.0	112.5	110.5	115.0	123.0	131.5	147.5
2	19.5	15.5	35.5	52.5	62.5	64.0	71.0	75.0	85.0	98.0	101.0	114.5	109.5	115.0	124.0	130.5	146.0
3	24.0	5.5	32.0	49.5	58.5	68.0	71.0	73.5	80.0	93.5	100.5	111.5	108.5	112.5	125.0	130.5	144.0
4	30.0	7.0	30.5	41.0	51.5	63.5	69.0	72.5	79.5	92.0	95.0	106.5	102.5	113.0	120.0	132.0	146.5
5	34.5	11.5	19.0	37.0	48.0	58.5	67.0	72.0	76.5	88.0	98.5	102.5	101.5	109.0	121.5	130.5	145.5
6	40.0	21.5	7.0	32.0	45.5	57.0	63.0	68.5	76.5	85.0	93.5	103.0	97.5	109.0	120.5	134.0	143.0
7	43.0	28.5	7.0	27.0	39.0	49.0	58.0	65.5	72.0	83.5	95.0	100.0	97.0	105.5	117.0	131.5	141.5
8	48.0	34.0	17.5	17.5	33.0	47.5	53.0	61.0	66.0	82.5	88.5	95.5	97.0	105.5	118.5	132.5	141.0
9	51.5	43.0	32.5	3.5	29.5	43.0	49.5	55.0	64.0	79.0	90.0	87.0	94.0	101.0	119.0	127.5	134.5
10	54.5	45.5	33.5	7.0	27.0	38.0	45.0	51.5	64.0	73.0	91.0	84.5	95.0	100.5	118.5	124.0	131.0
11	57.0	46.0	33.0	18.0	20.0	33.5	43.0	45.5	60.5	67.5	80.5	81.0	94.0	98.5	118.5	118.0	128.5
12	59.5	46.0	34.0	25.5	7.0	26.0	37.5	39.0	55.0	63.5	77.0	79.5	92.5	98.5	112.5	115.0	127.0
13	63.5	46.0	37.0	31.5	7.0	20.0	33.0	35.0	52.5	62.5	70.0	78.0	86.5	93.5	110.0	111.0	122.0
14	66.0	49.0	45.0	36.5	17.5	14.0	28.5	33.5	49.5	56.5	65.5	78.0	84.5	88.5	106.5	106.5	120.0
15	68.5	49.5	49.0	40.0	20.5	7.0	26.0	31.5	44.5	56.0	62.0	72.5	79.5	83.5	101.0	99.5	116.5
16	68.5	57.0	53.5	44.5	29.5	7.0	21.5	26.0	40.5	47.5	59.5	74.5	76.5	83.0	97.0	97.5	107.5
17	69.0	57.0	60.0	48.0	31.5	12.5	14.0	21.5	36.5	44.0	53.0	70.0	72.5	81.5	92.5	92.5	103.0
18	70.5	58.5	63.0	52.5	35.5	23.0	6.5	18.5	33.5	44.5	51.5	66.0	70.5	79.5	88.5	88.5	102.0
19	71.0	63.0	64.0	56.0	38.0	23.0	7.0	13.5	31.5	40.5	48.0	63.5	65.5	79.5	83.0	88.0	100.5
20	74.0	67.0	68.5	60.5	42.5	29.5	14.0	14.0	28.5	35.0	47.5	62.5	62.0	72.5	81.5	83.0	96.0
21	78.0	71.0	0.0	60.5	48.0	32.0	20.0	4.5	24.0	30.5	44.5	61.0	60.5	75.5	84.5	82.0	92.5
22	84.5	74.5	0.0	65.5	49.5	37.5	23.5	2.5	21.0	31.5	44.0	56.0	59.5	69.5	74.5	80.0	89.5
23	86.0	81.0	79.0	65.0	52.5	41.0	29.5	14.0	14.0	28.5	41.5	47.5	57.5	67.5	71.5	80.5	87.0
24	88.0	83.5	83.0	65.0	56.5	47.5	32.0	15.0	3.5	25.5	40.0	44.5	54.5	65.0	68.5	75.0	83.5
25	86.5	87.0	83.0	69.5	59.5	49.5	33.5	19.0	6.5	22.0	38.0	39.5	50.0	61.5	65.5	71.5	81.0
26	89.5	88.0	80.5	75.0	60.5	50.0	33.0	18.0	11.0	16.0	32.0	38.0	46.5	58.0	64.0	65.0	79.5
27	90.5	91.5	86.5	80.0	63.0	52.5	40.0	22.5	13.0	7.0	28.5	36.5	43.0	54.5	62.0	65.0	79.0
28	91.5	92.0	87.0	83.5	67.5	53.0	43.5	28.5	16.5	7.0	25.5	32.0	41.0	46.5	59.0	61.5	74.0
29	94.0	94.0	92.5	86.0	71.0	55.0	46.5	36.5	23.0	14.5	19.5	30.5	38.5	44.5	57.0	61.5	74.0
30	94.0	94.0	94.0	87.0	77.0	56.0	49.5	38.5	27.0	20.0	7.0	27.0	34.0	44.0	58.0	58.0	69.0
31	95.5	97.0	92.0	89.5	79.0	64.0	56.0	43.0	28.0	27.5	7.0	24.0	29.5	40.5	57.0	56.5	70.5
32	97.0	97.0	90.0	89.5	79.0	65.5	58.0	46.0	33.5	32.0	13.5	19.5	26.5	35.0	52.5	53.0	69.0
33	99.5	94.0	93.5	92.5	83.0	63.5	56.0	46.5	37.0	35.0	19.5	8.0	23.5	32.0	48.0	50.0	63.5
34	100.5	96.0	92.0	96.0	88.5	65.5	57.0	52.5	42.0	38.0	28.0	7.0	19.5	28.5	41.0	47.0	64.5
35	100.5	96.0	97.5	99.0	91.5	68.0	61.5	52.5	40.5	43.0	31.5	13.5	14.5	25.5	35.5	41.5	58.0
36	100.5	97.5	99.0	102.5	88.5	73.0	66.0	54.5	43.0	45.0	35.5	19.5	5.5	20.5	33.5	37.0	53.5
37	99.5	99.0	96.0	103.0	90.5	70.5	65.0	54.5	42.5	43.5	35.5	21.5	6.0	16.0	30.0	33.0	49.0
38	100.5	101.0	97.0	102.5	88.5	71.0	63.0	59.0	47.5	46.0	36.5	24.5	12.0	10.5	26.0	28.0	45.5
39	100.5	101.0	98.5	104.0	90.5	72.0	62.0	60.0	46.5	44.0	39.0	28.0	16.5	5.5	20.5	24.0	41.0
40	102.0	102.0	102.5	106.5	97.0	74.0	63.5	62.0	48.0	45.5	44.0	31.5	19.5	5.5	16.5	22.0	39.5
41	103.0	104.0	102.0	107.5	96.0	76.0	67.0	60.5	50.0	49.5	43.0	37.0	21.0	9.0	12.5	16.5	37.5
42	102.5	103.0	102.0	108.0	93.5	75.5	67.5	63.0	53.0	49.5	45.5	40.0	23.5	22.5	3.0	16.0	33.5
43	104.5	104.5	102.0	109.0	94.5	76.5	67.0	65.0	51.5	49.5	48.0	41.5	30.5	25.0	6.5	11.0	32.0
44	106.0	104.0	104.0	109.0	97.0	76.0	70.0	61.0	57.5	54.0	52.5	45.0	30.0	25.5	12.5	7.5	29.5
45	106.5	104.0	102.5	108.5	97.5	79.5	72.5	64.0	57.0	55.0	50.0	46.5	32.0	28.0	17.0	2.5	21.5
46	108.0	104.0	104.0	110.5	99.5	81.0	72.0	64.0	61.0	55.0	54.5	49.5	33.0	32.0	16.5	2.5	18.0
47	108.0	103.0	104.5	112.5	99.0	77.5	71.0	64.0	59.5	55.0	54.5	51.5	33.5	33.5	20.0	7.5	15.5
48	108.0	105.5	105.5	113.0	99.5	80.0	73.0	64.0	57.5	59.5	53.5	53.0	36.5	33.5	20.5	10.5	10.5

INDAGINE SISMICA A RIFRAZIONE ONDE "SH"
(passo 1,5 m - 48 canali)

LUOGO: Migliana (PT)
DATA: 27/11/2017

REGISTRAZIONI ST4 - ONDE "SH" (PAG.1)

01



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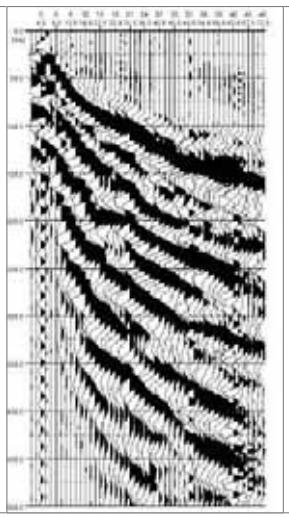

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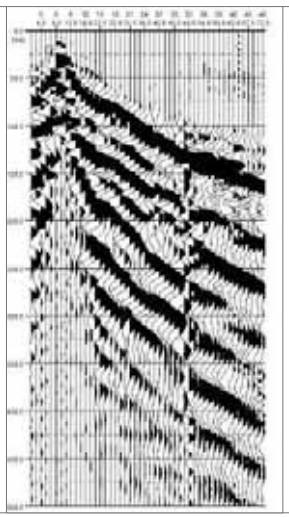

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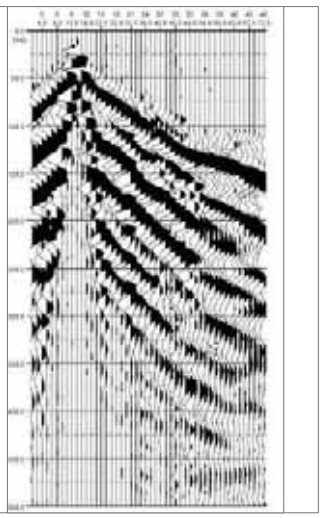

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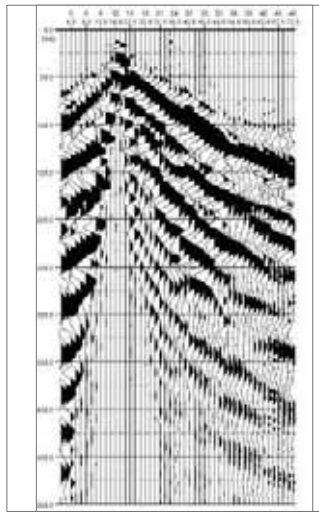

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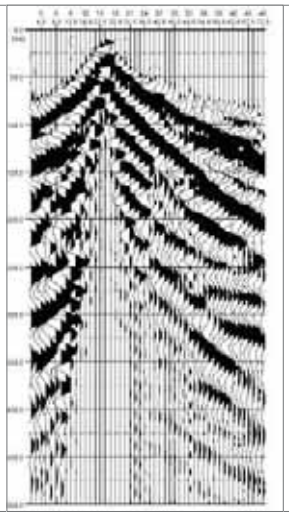

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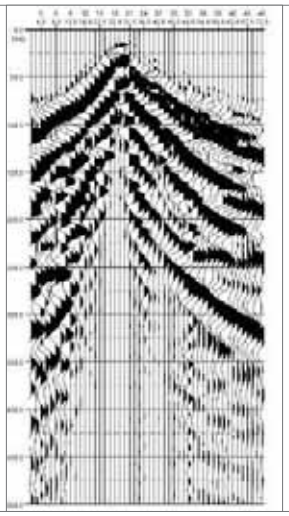

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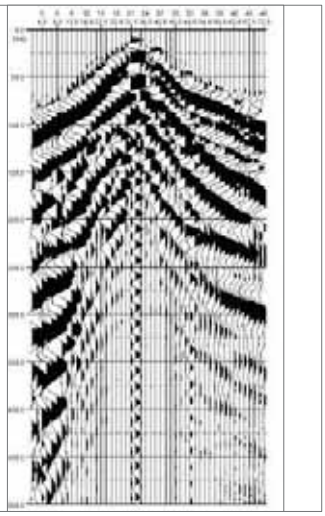

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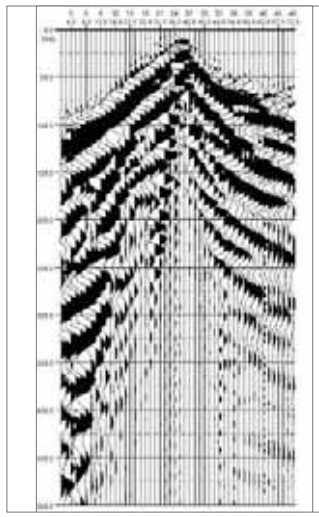

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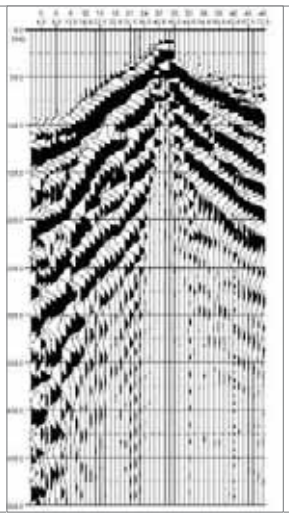

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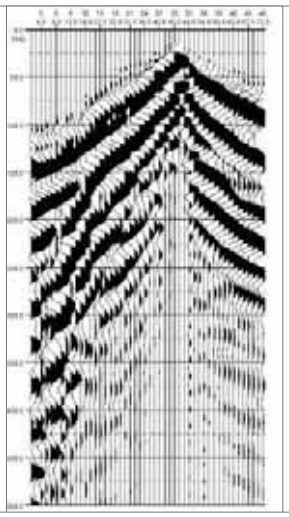

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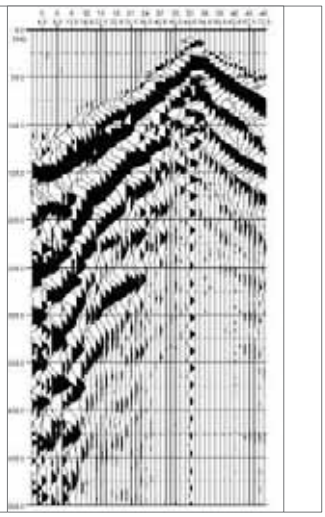
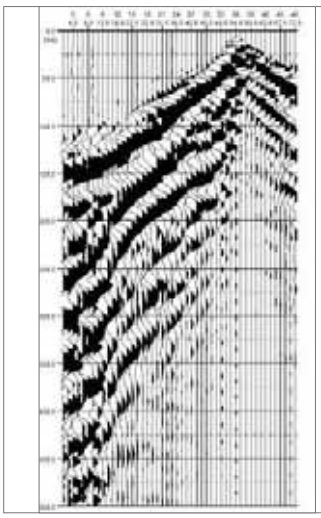


INDAGINE SISMICA A RIFRAZIONE ONDE "SH"
(passo 1,5 m - 48 canali)

LUOGO: Migliana (PT)
DATA: 27/11/2017

REGISTRAZIONI ST4 - ONDE "SH" (PAG.2)

13



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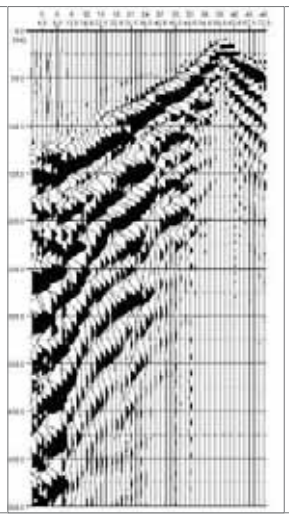

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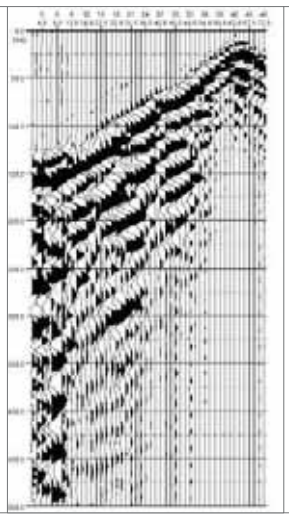

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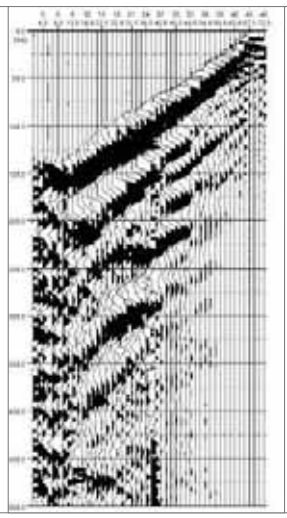

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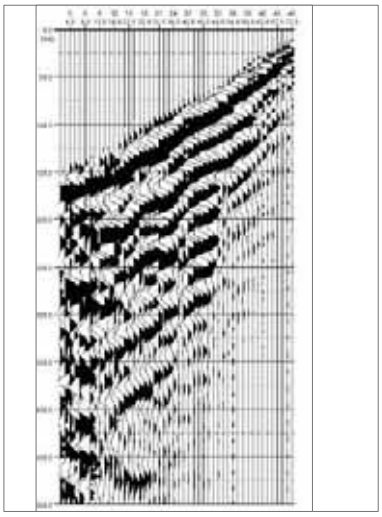


INDAGINE SISMICA A RIFRAZIONE "ST4-SH"

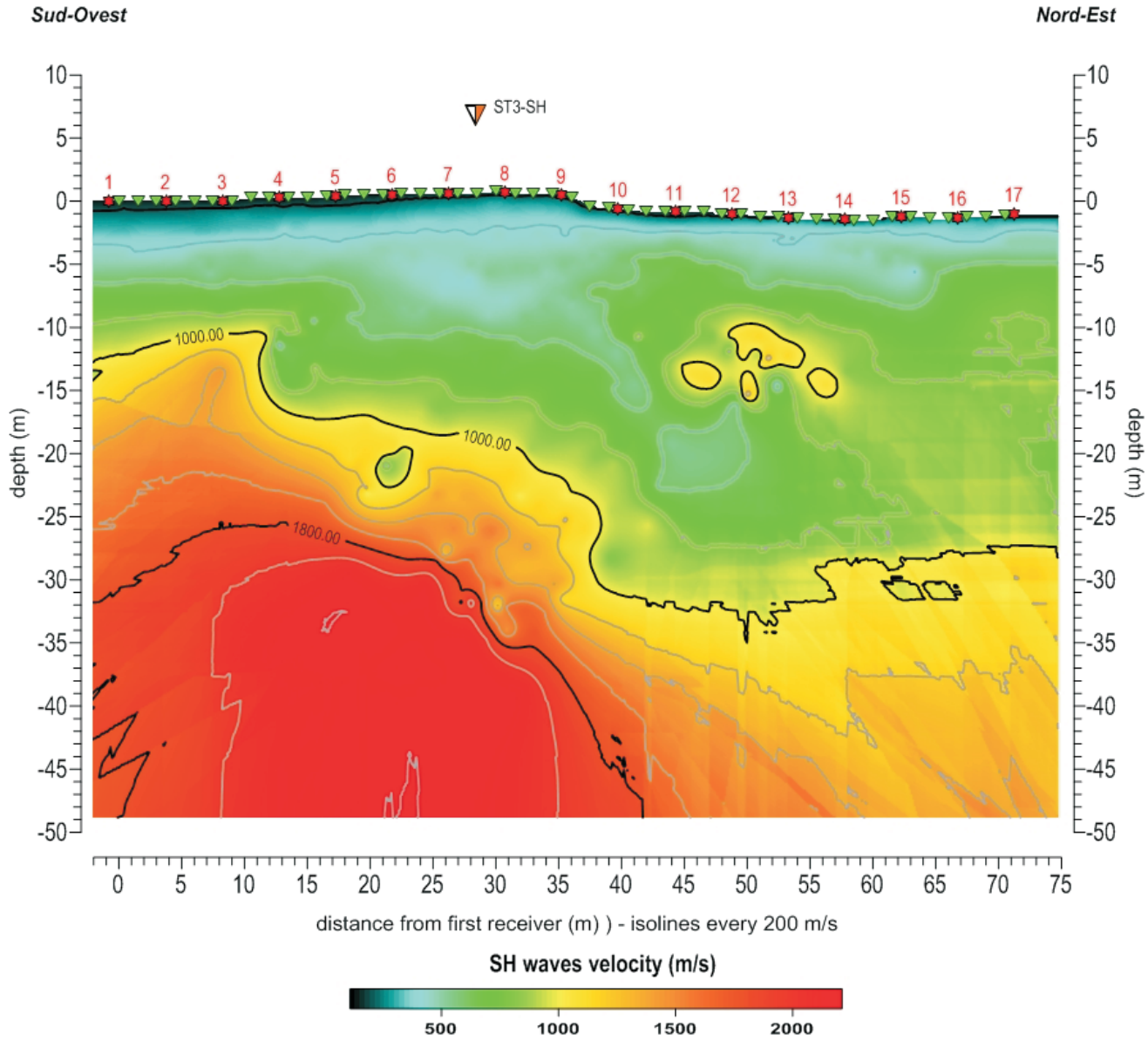
(passo 1,5 m - 48 canali - fixed line)

LUOGO: Migliana (PT)

DATA: 27/11/2017

LEGENDA

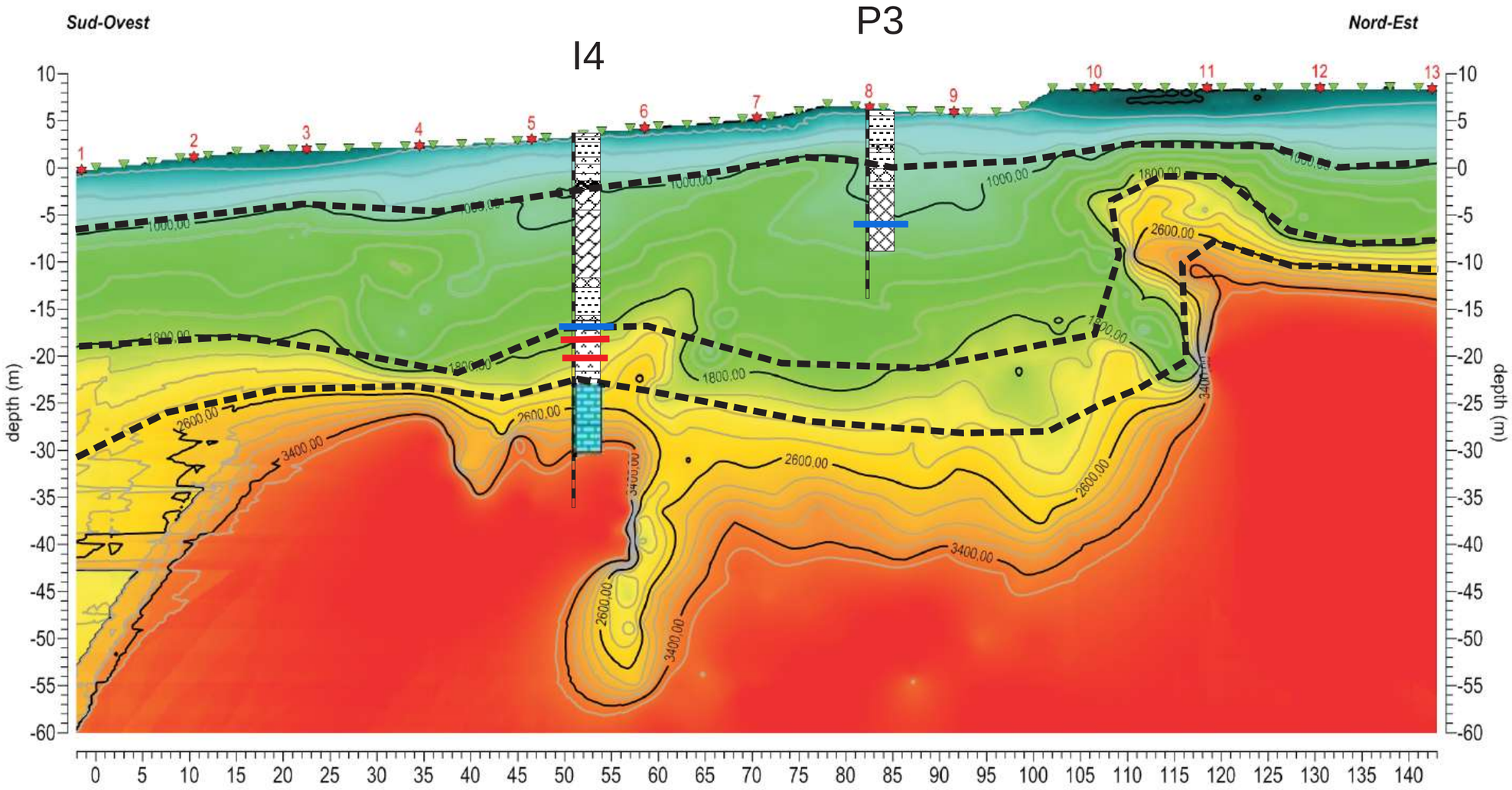
- Geophones
- Shots position
- refractor with classic methods (wavefront or CMP int. traveltimes met.)
- Vs logs from masw analysis
- Other seismic line
- Electrodes



benedetta polverosi
geologo

Comune di Cantagallo
Studio Geologico Tecnico
finalizzato al progetto di fattibilità tecnico-economica
per la bonifica della frana in loc. Case di Sotto - Migliana
CUP F88C17000001002

ST1- Vp



1:500

benedetta polverosi
geologo

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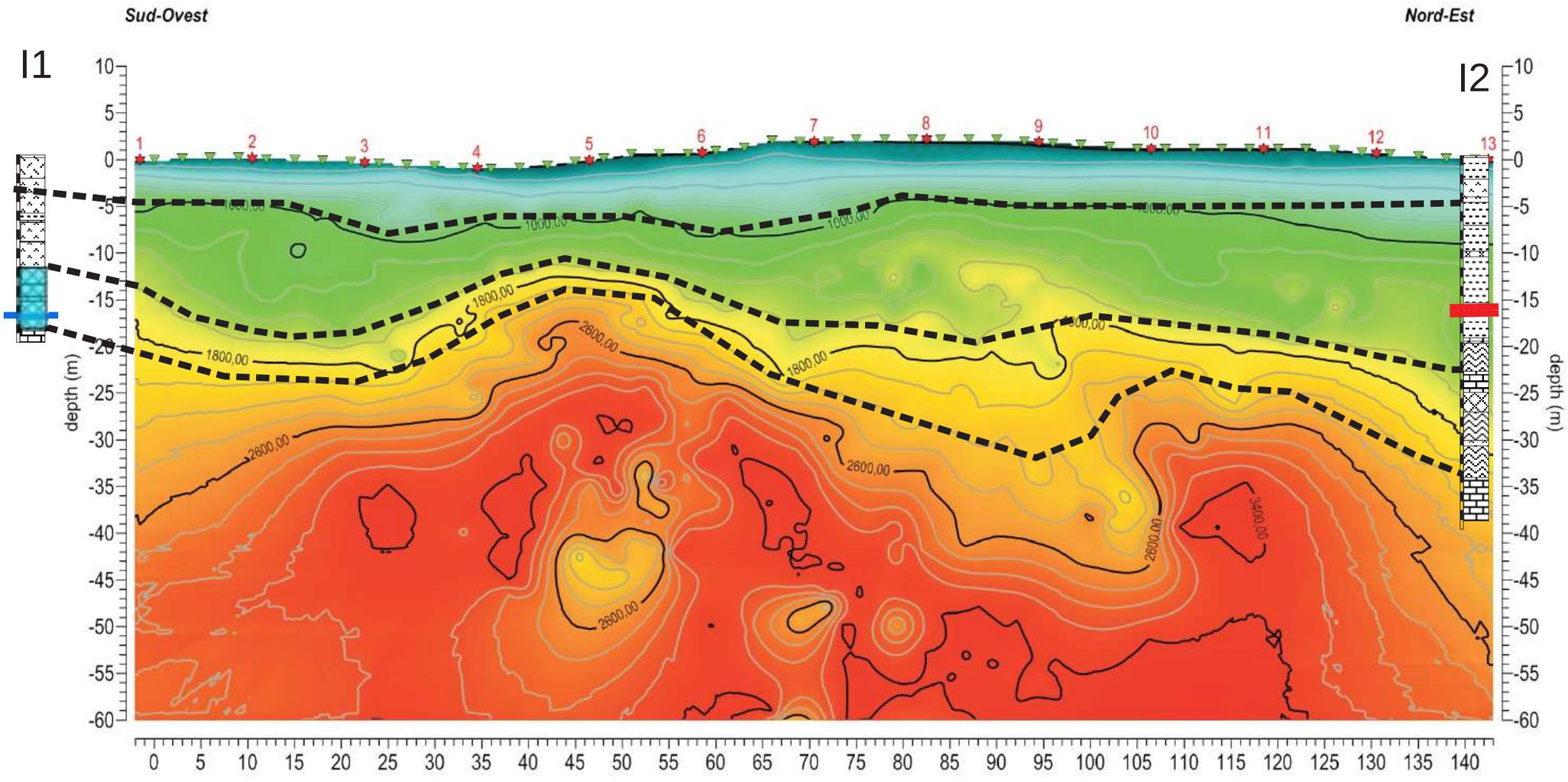
per la bonifica della frana in loc. Case di Sotto - Migliana
CUP F88C17000001002

ST2 - Vp



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benedetta polverosi
geologo

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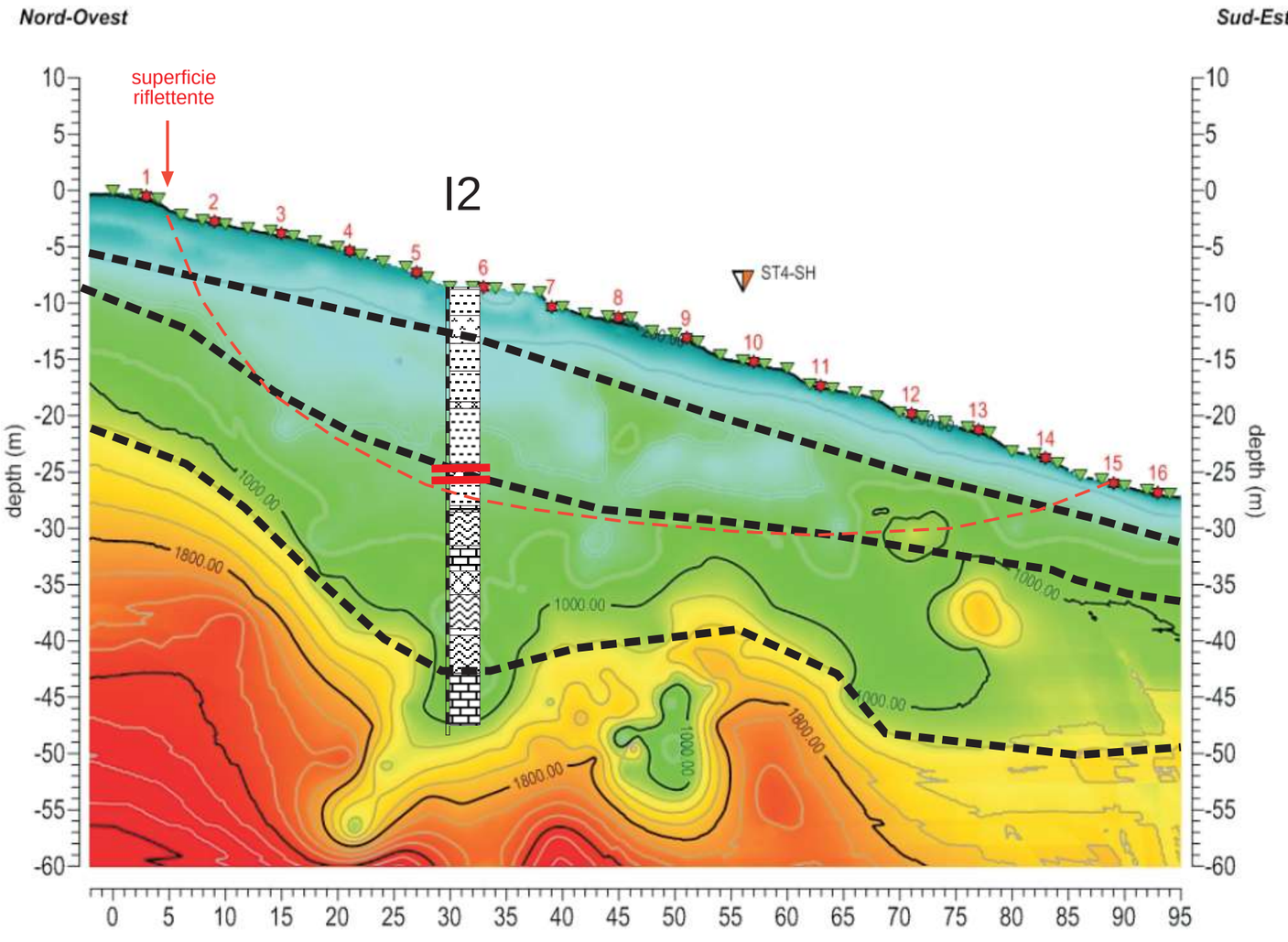
per la bonifica della frana in loc. Case di Sotto - Migliana
CUP F88C17000001002

ST3 - Vs



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benedetta polverosi
geologo

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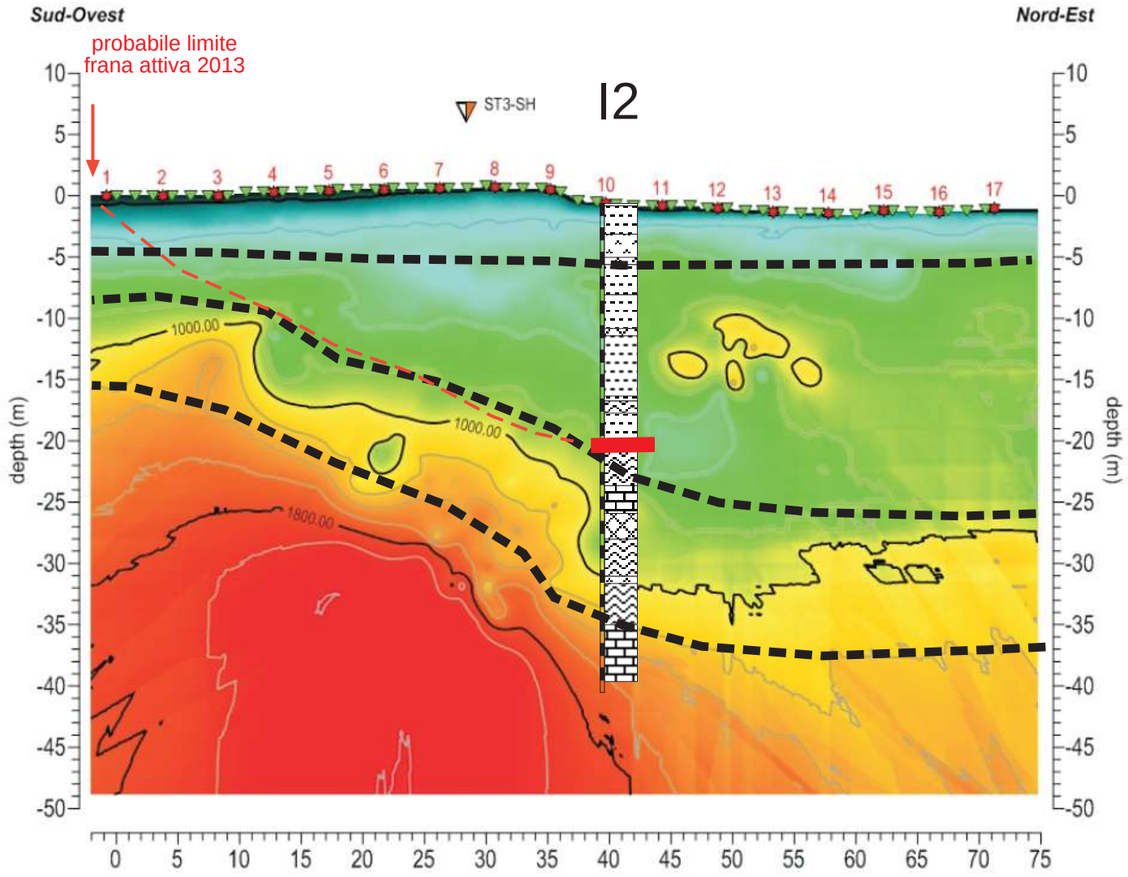
per la bonifica della frana in loc. Case di Sotto - Migliana
CUP F88C17000001002

ST4 - Vs



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