

Kick-off Meeting - Reluis3 - RS2

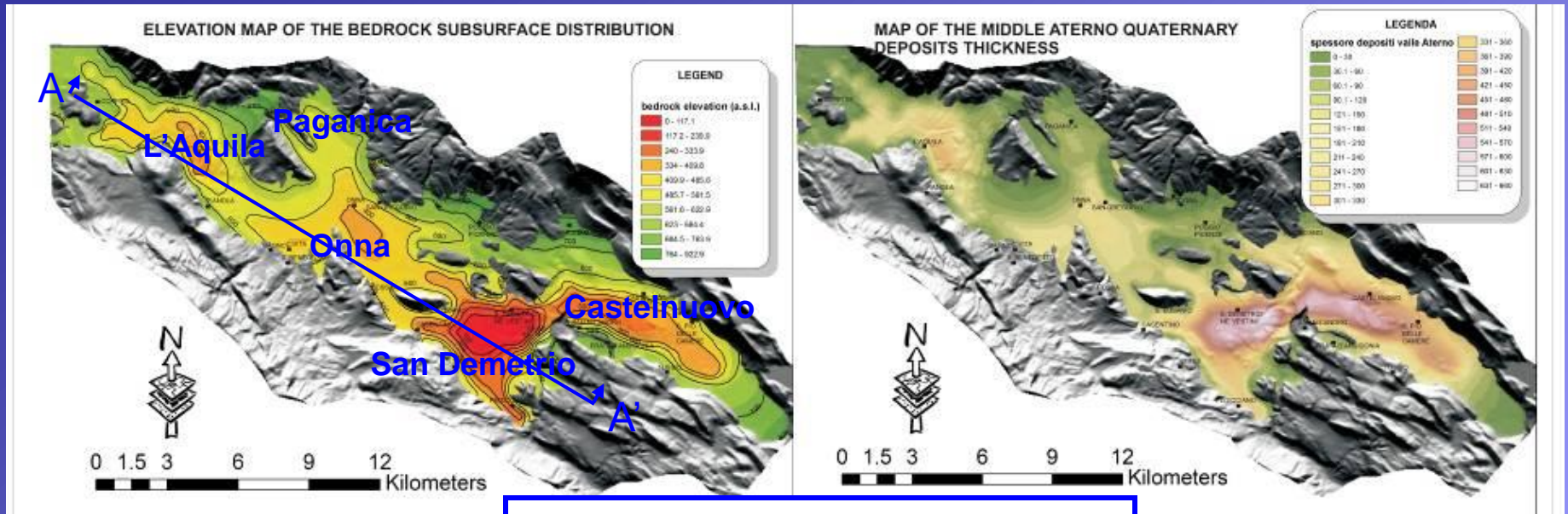
***Simulazioni di Terremoti
ed
Effetti Near-Source***



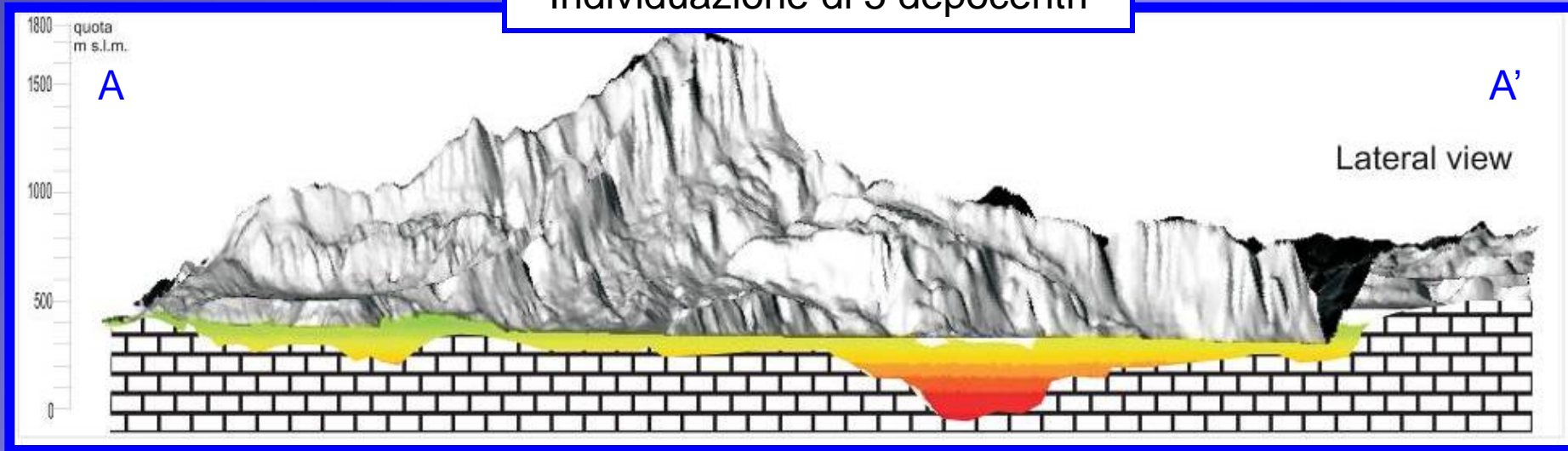
Lorenza Evangelista
Anna d'Onofrio
Francesco Silvestri

Napoli - 27/03/2014

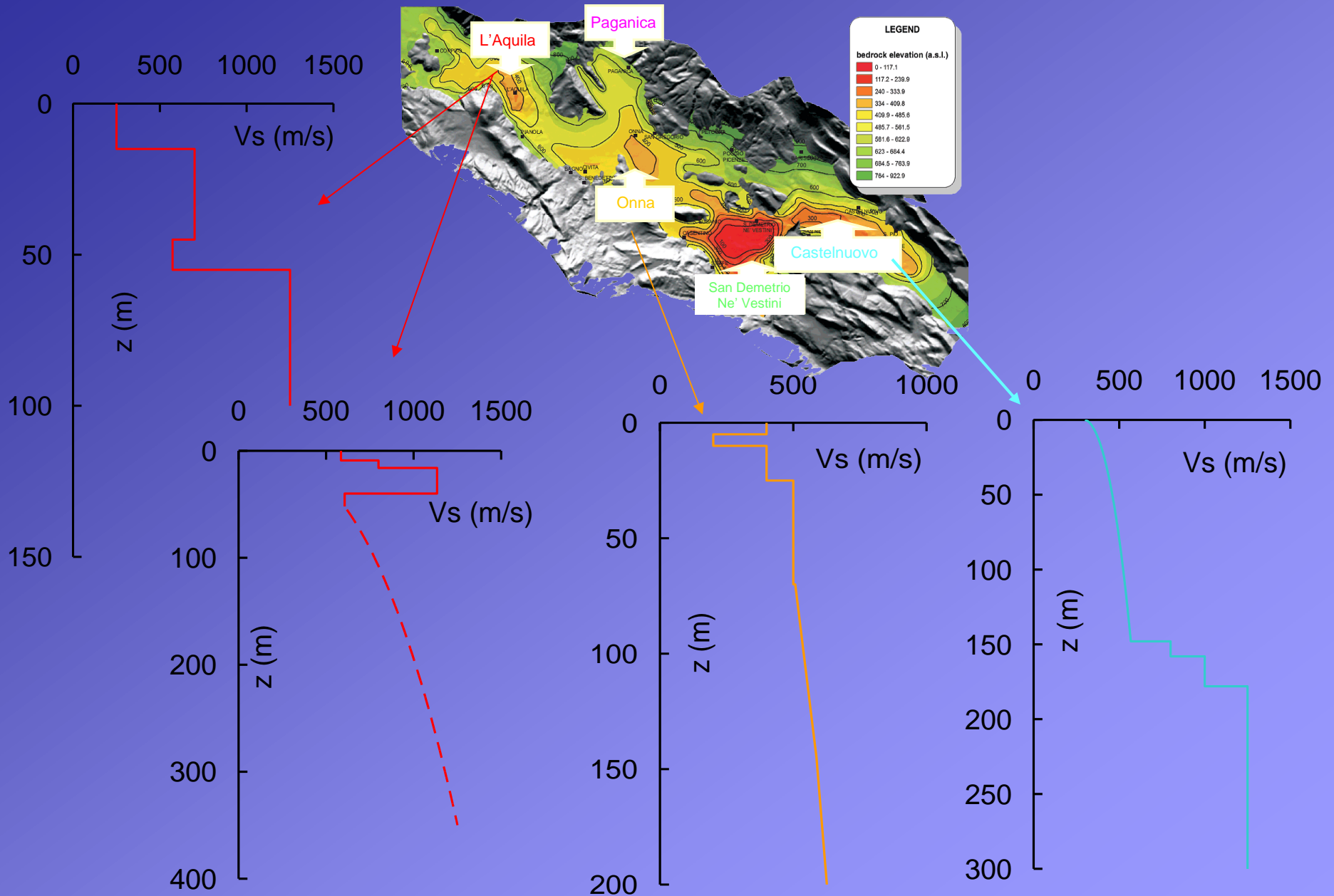
Assetto geomorfologico e tettonico dell'intera depressione della Valle Aterno



Individuazione di 5 depocentri



modello di Velocità del bacino della Valle Aterno

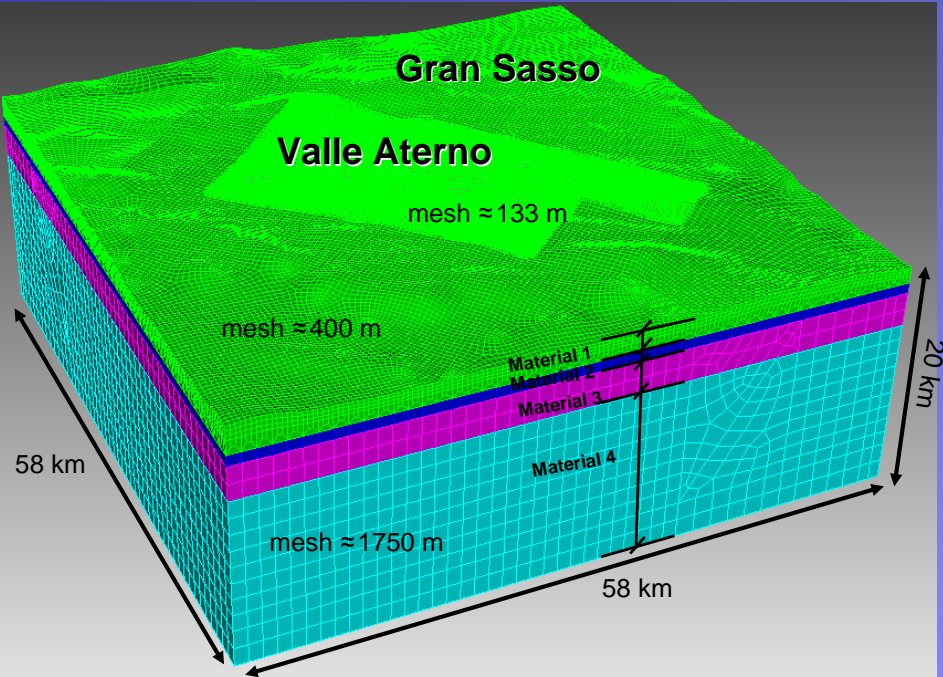


definizione di un modello di V_s 'semplificato'

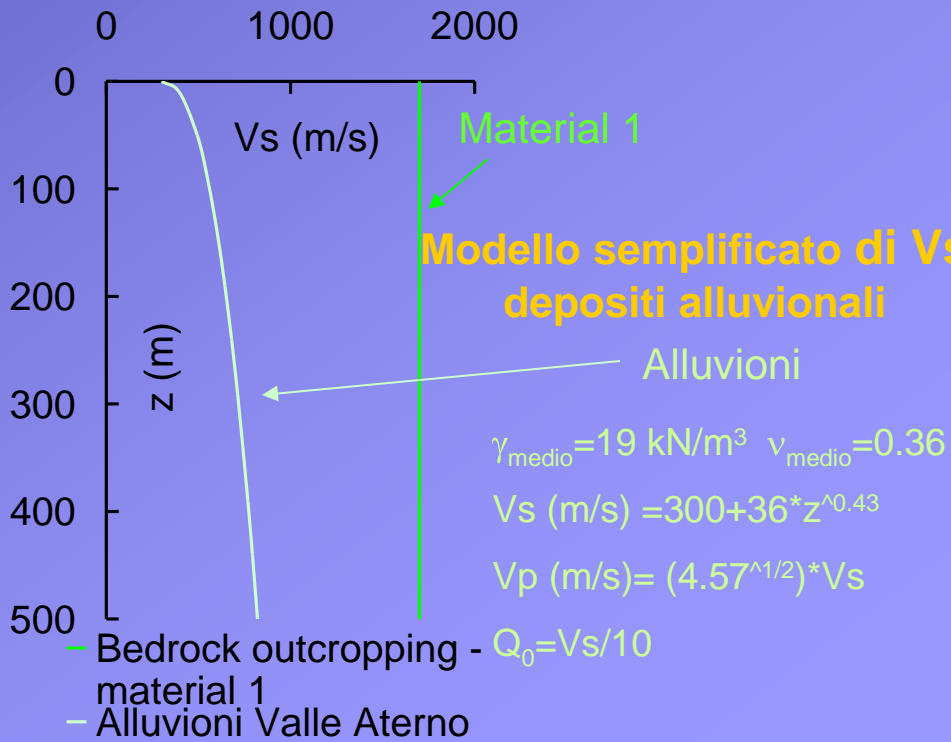
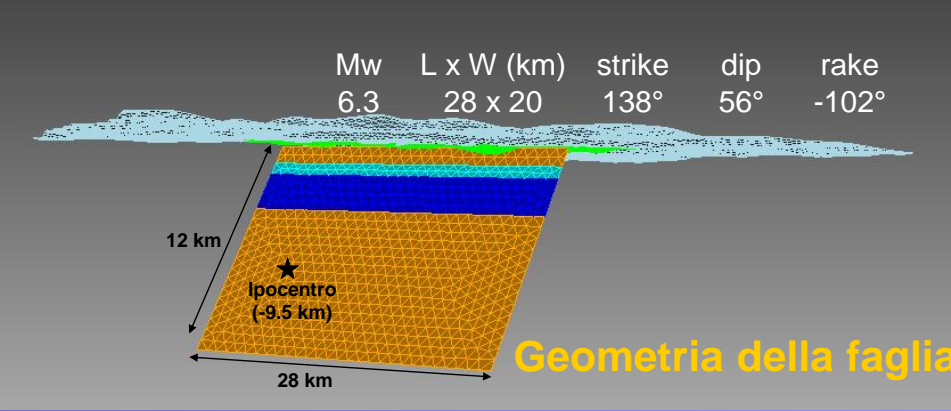
Descrizione litologica	V_s (m/s)	Classe
Depositi eluvio colluviali	150-200	
Deposito di frana	150-200	A
Riporti	150-200	
Alluvioni recenti ed attuali	250	B1
Detrito di falda sciolto	250	
Limi rossi	500	B2
Alluvioni terrazzate antiche	350	C1
Limi con ghiaia (Brecce dell'Aquila)	600	C2
Depositi di conoidi recenti	500	
Limi antichi	$V_s(z)$	L
Depositi di conoide antica	800	
Brecce dell'Aquila	900/1000	E
Brecce cementate	900/1000	
Flysch calcareo-arenaceo	1000	Sf
Substrato carbonatico mesozoico	1500	Sc

Modello 3D del bacino della Valle Aterno con il metodo degli Elementi Spettrali

Dimensioni dominio di analisi e modello crostale di Vs



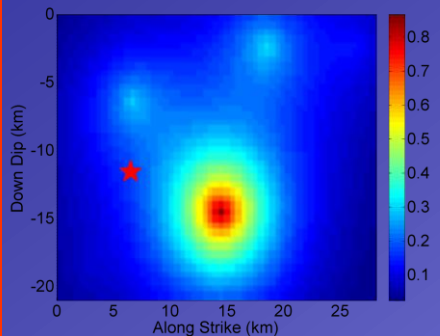
	H (m)	Vs (m/s)	Vp (m/s)	ρ (kg/m ³)	Qs (-)
Material 1	1000	1700	3160	2500	100
Material 2	1000	2600	4830	2840	200
Material 3	3000	3100	5760	2940	200
Material 4	15000	3500	6510	3180	200



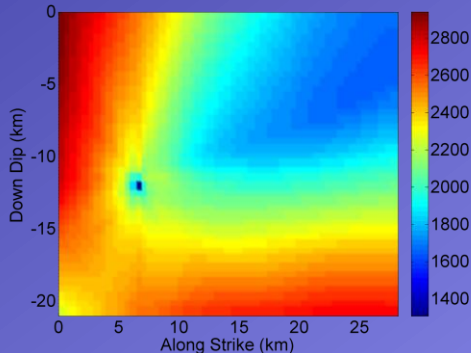
Modellazione della sorgente: MODEL 1 da inversione cinematica a basse frequenze MODEL 2 da inversione cinematica ad alte frequenze

MODEL - 1 -

Spostamento (m)

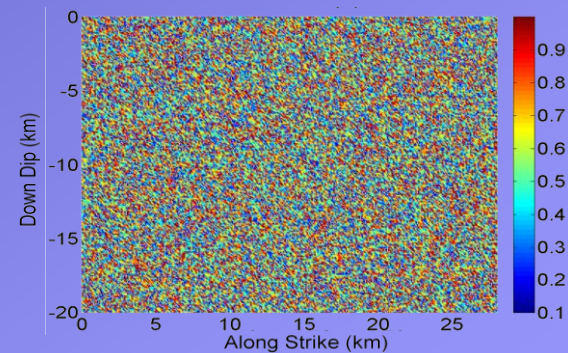
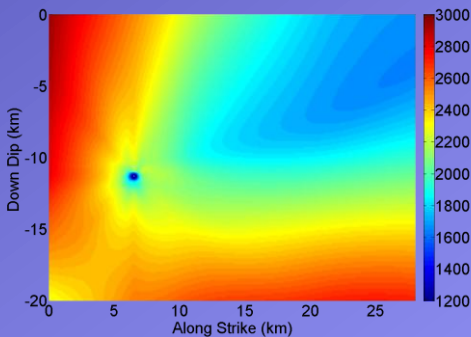
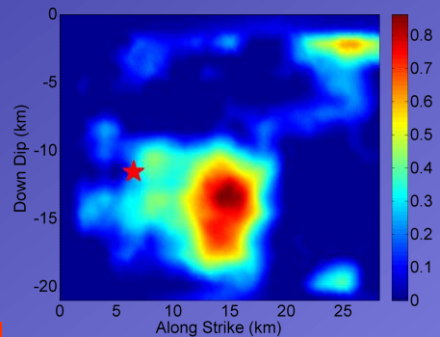


Velocità di rottura (km/s)

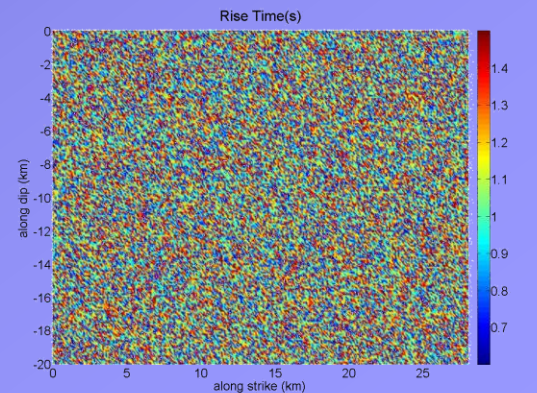
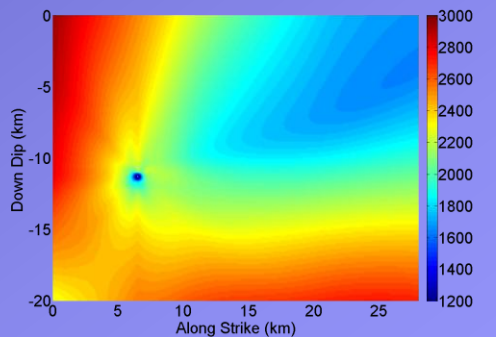
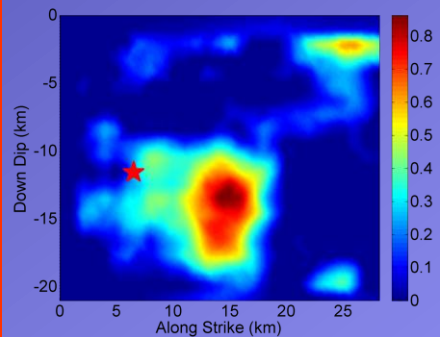


Rise time = 1 s

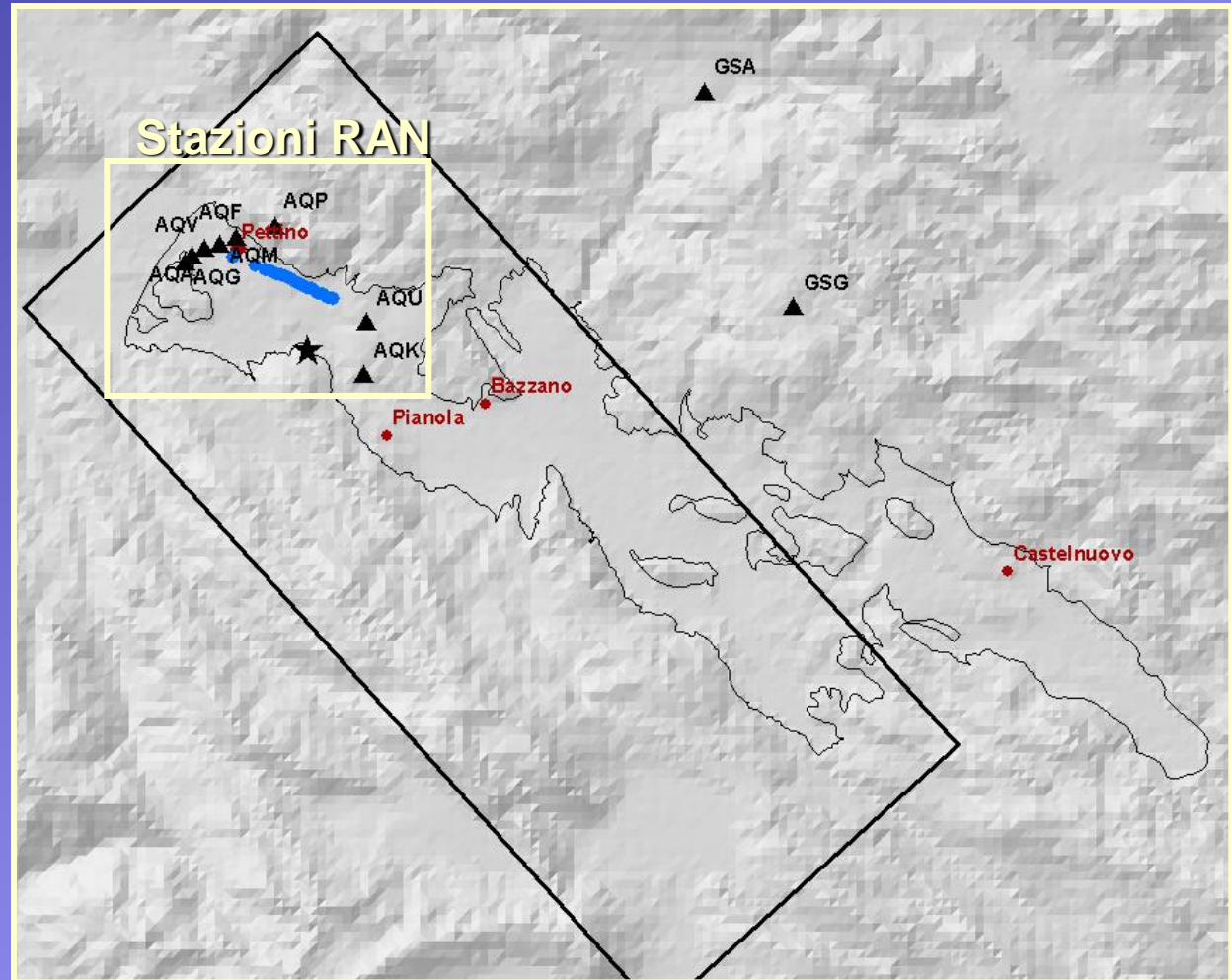
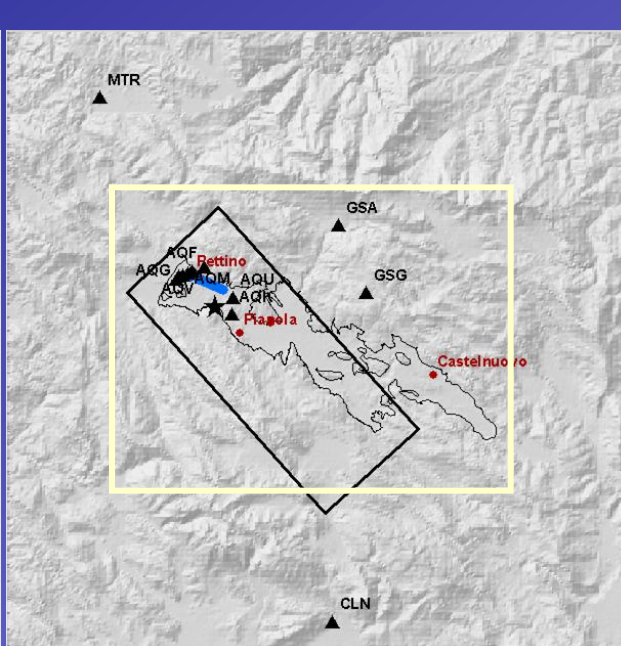
MODEL - 2 -

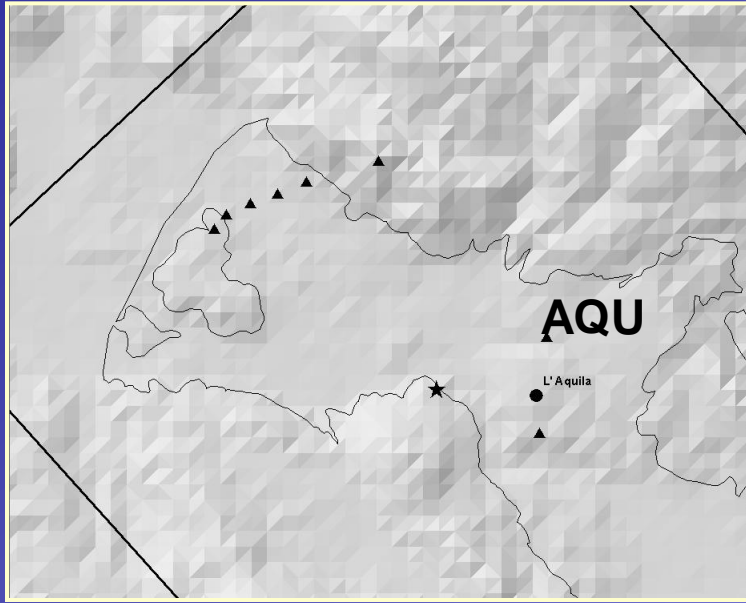


MODEL - 2 bis -

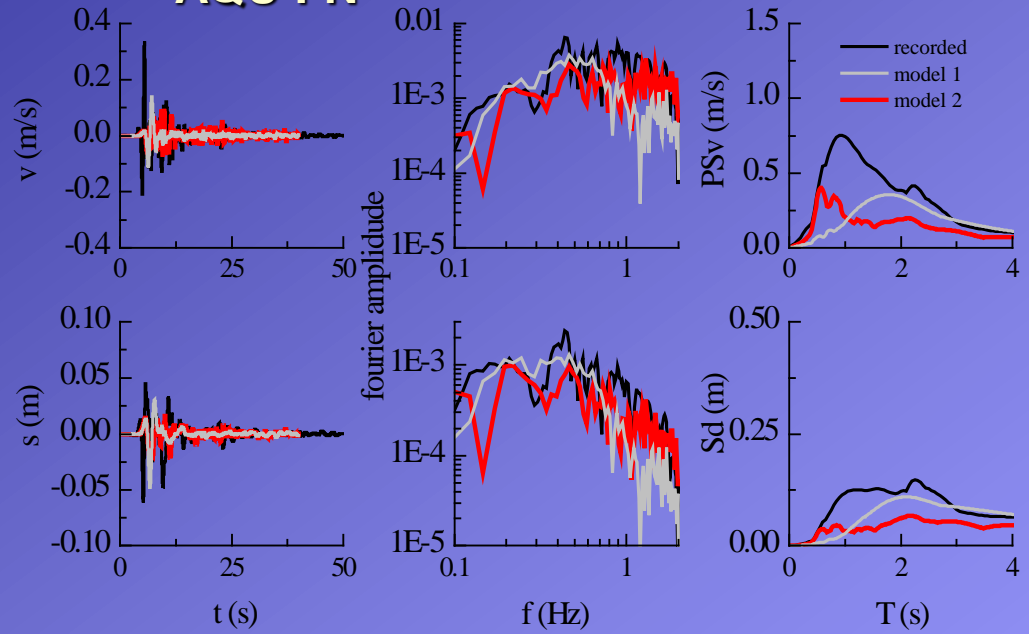


Siti di interesse per la definizione dei un input sismico di riferimento per studi di risposta sismica locale ed analisi di sistemi terreno-struttura

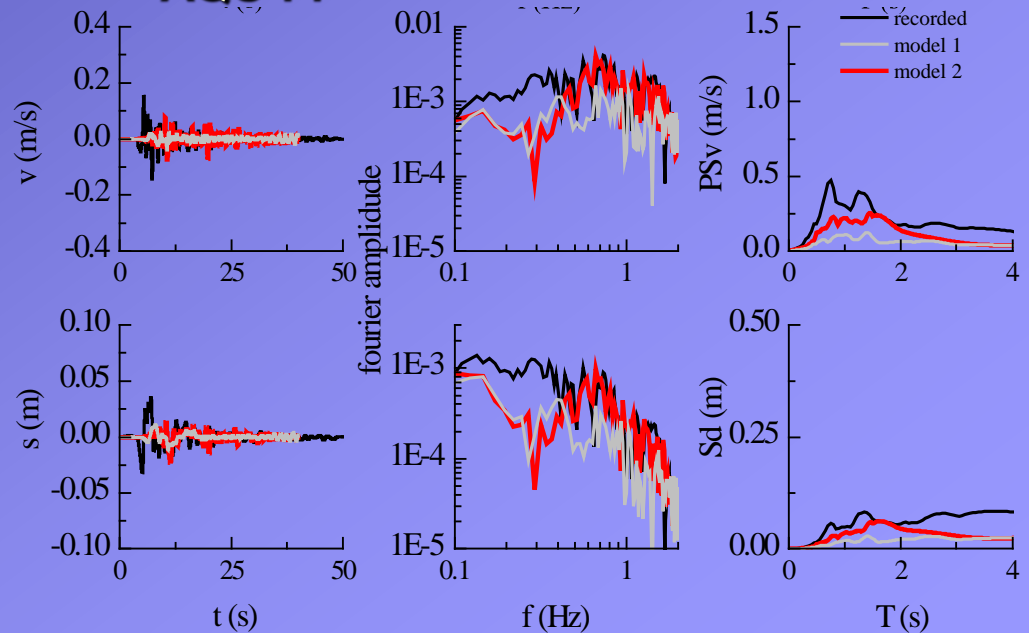




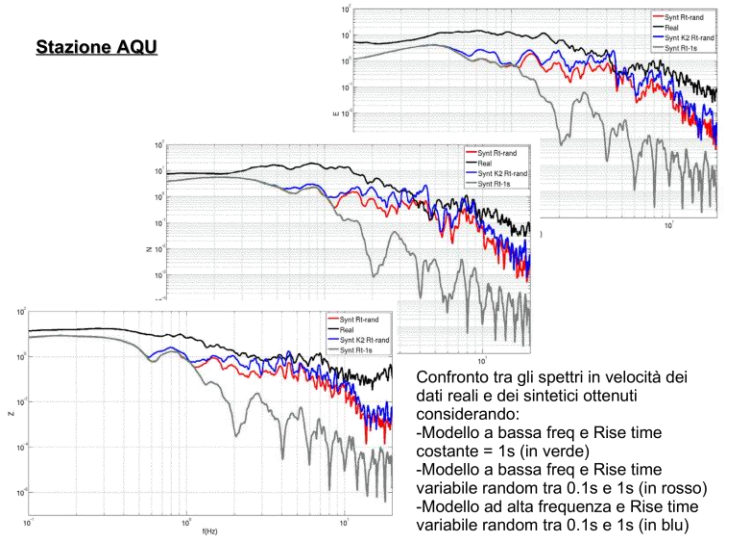
AQU FN



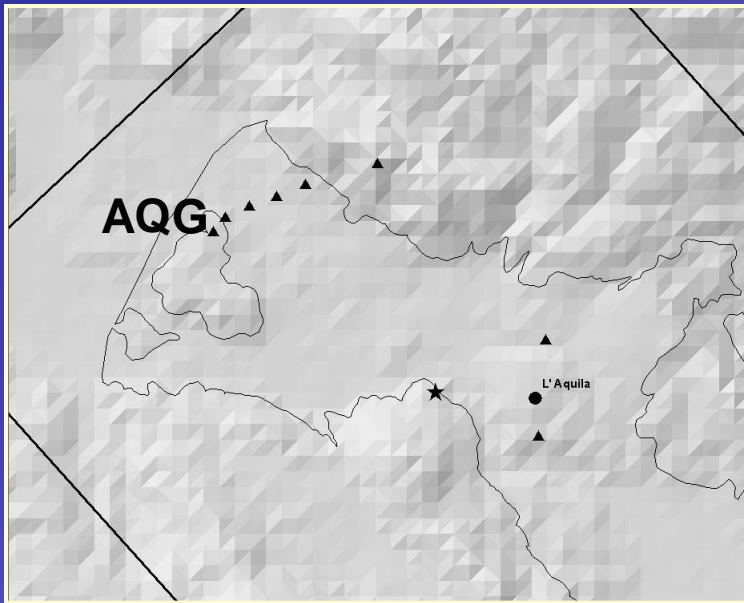
AQU FP



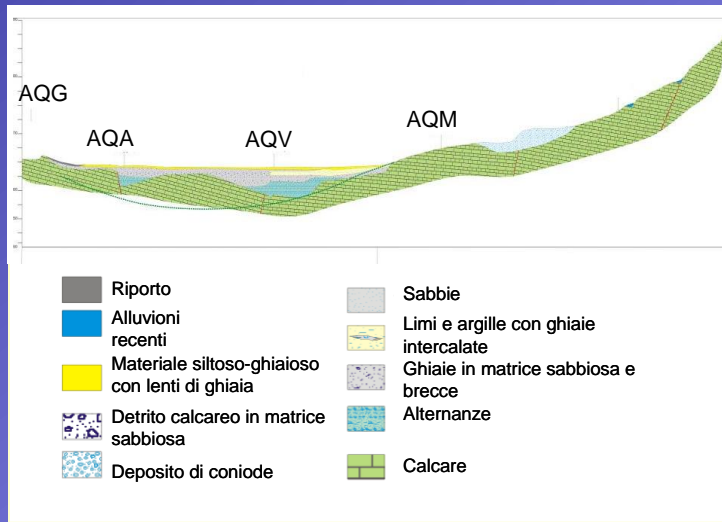
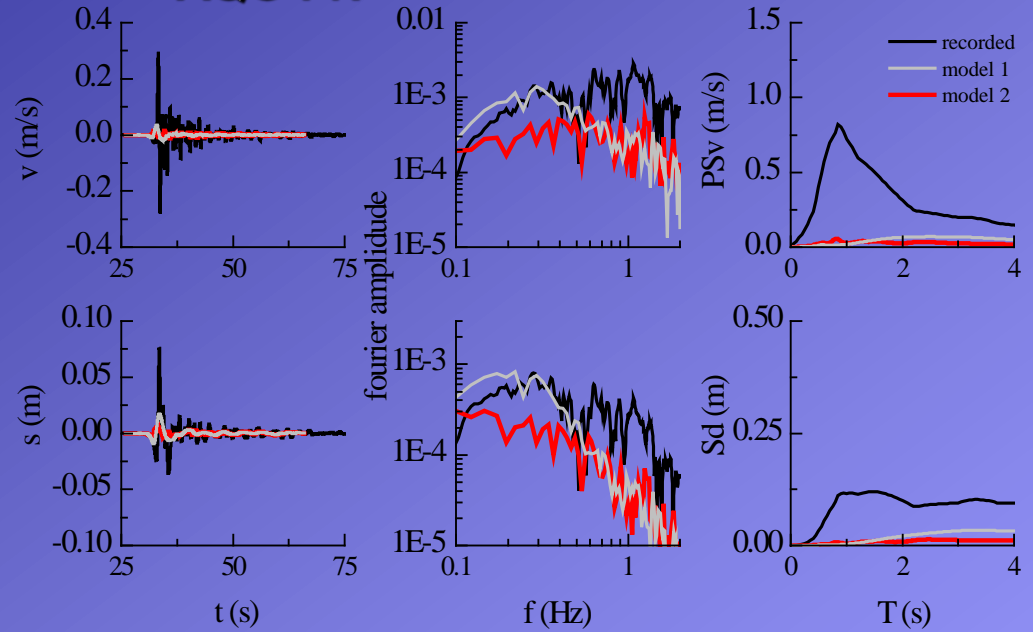
Stazione AQU



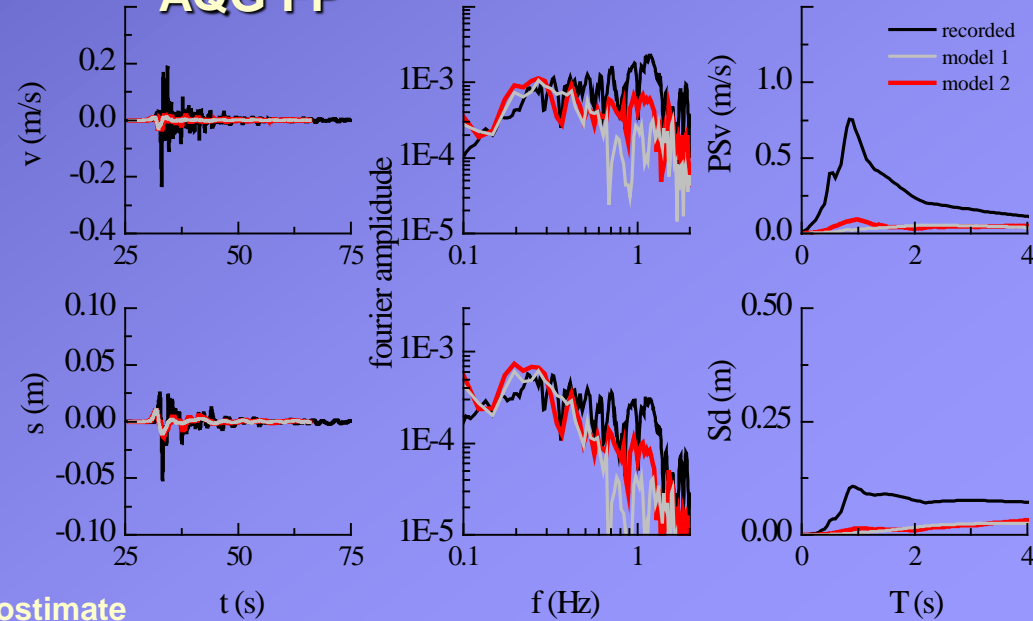
Segnali registrati e simulati filtrati con Butterworth passa banda [0.1-2] Hz



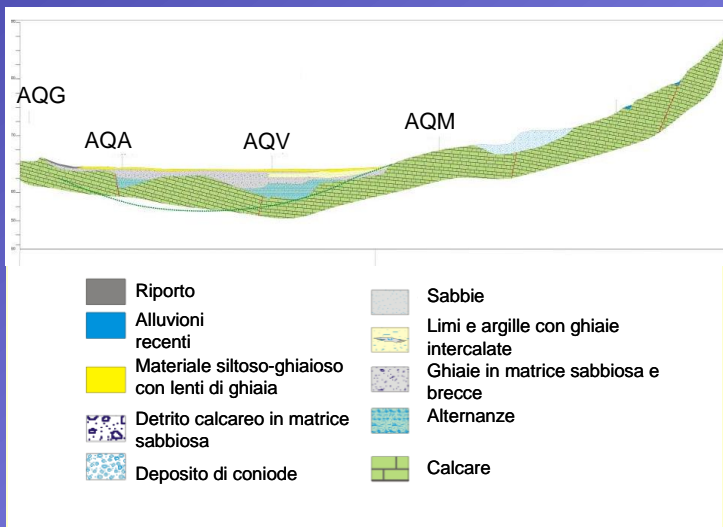
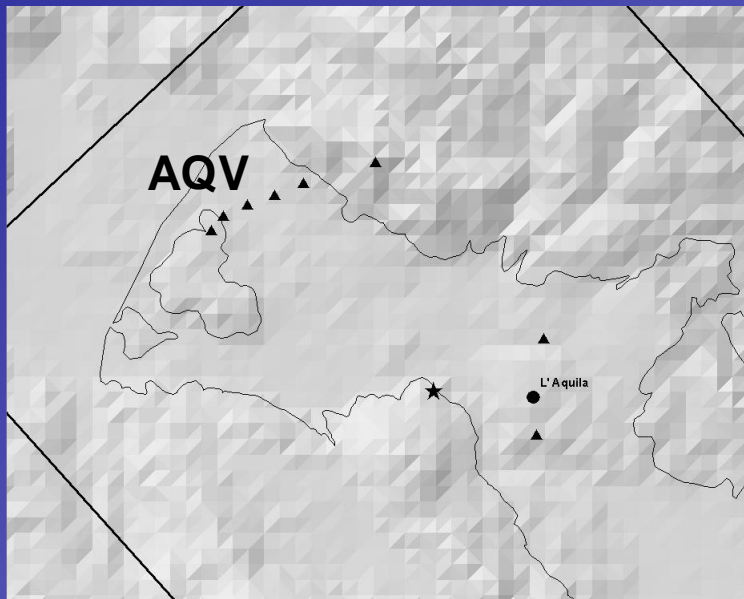
AQG FN



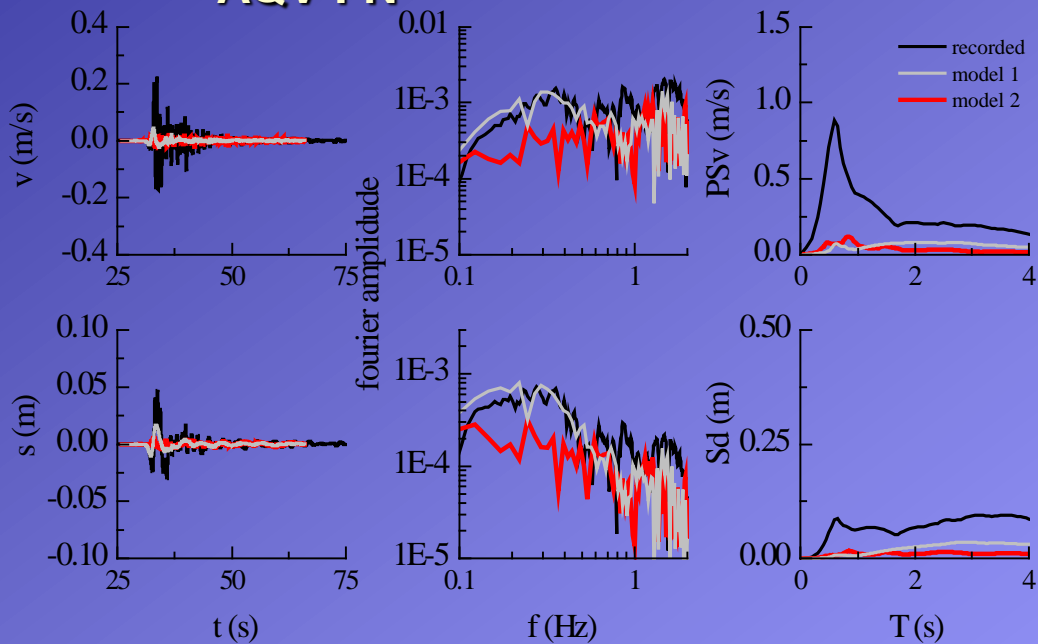
AQG FP



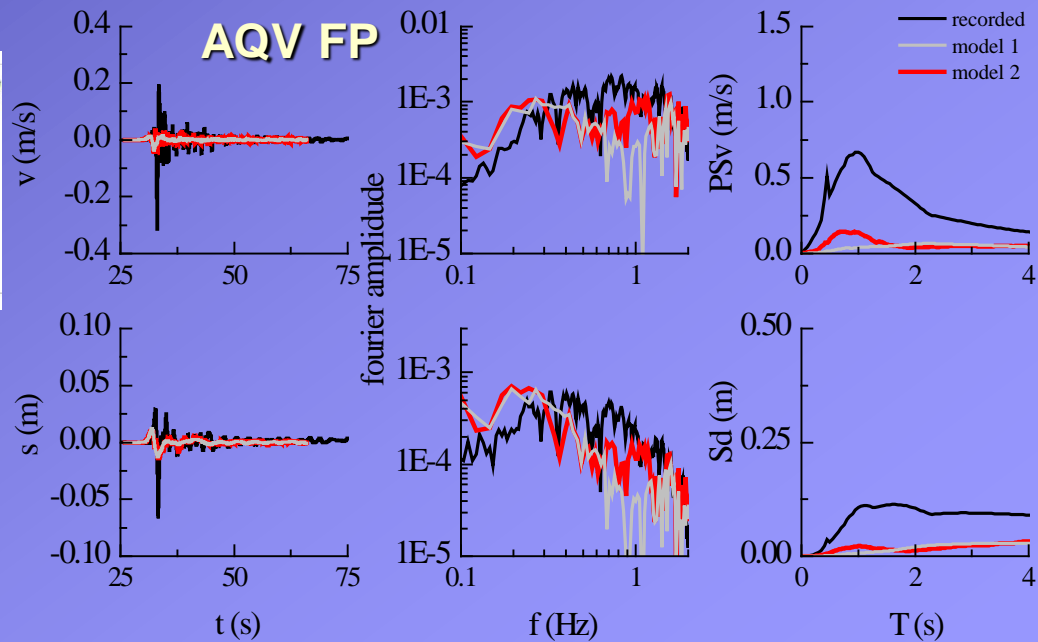
In AQG le ampiezze potrebbero essere sottostimate in quanto nel modello 3D la stazione giace su bedrock affiorante mentre in realtà si trova su 26 m di calcare fratturato

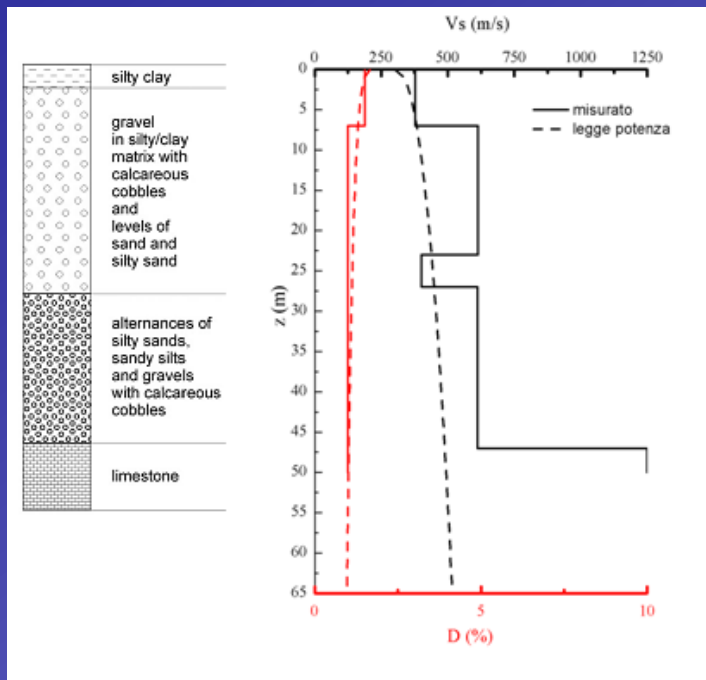


AQV FN

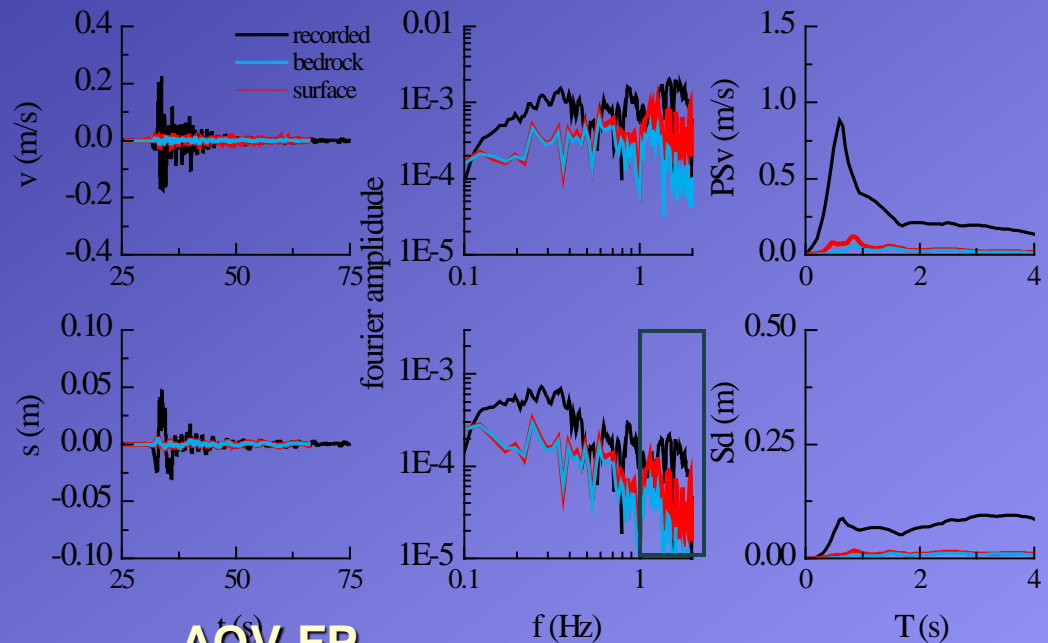


AQV FP

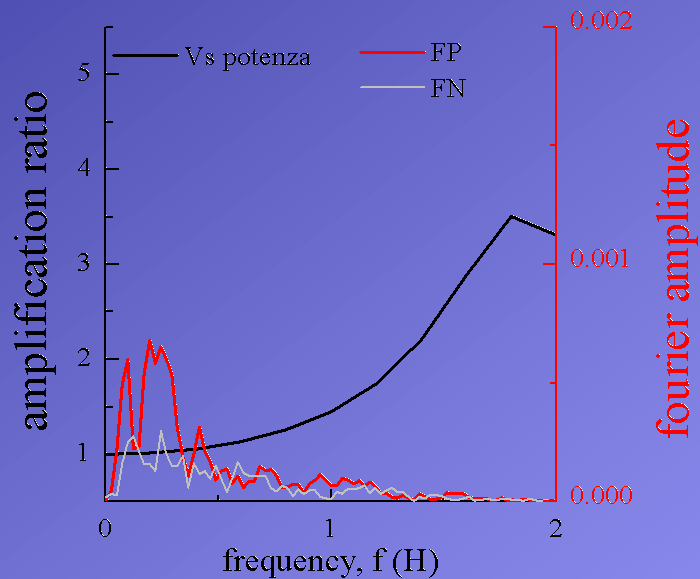
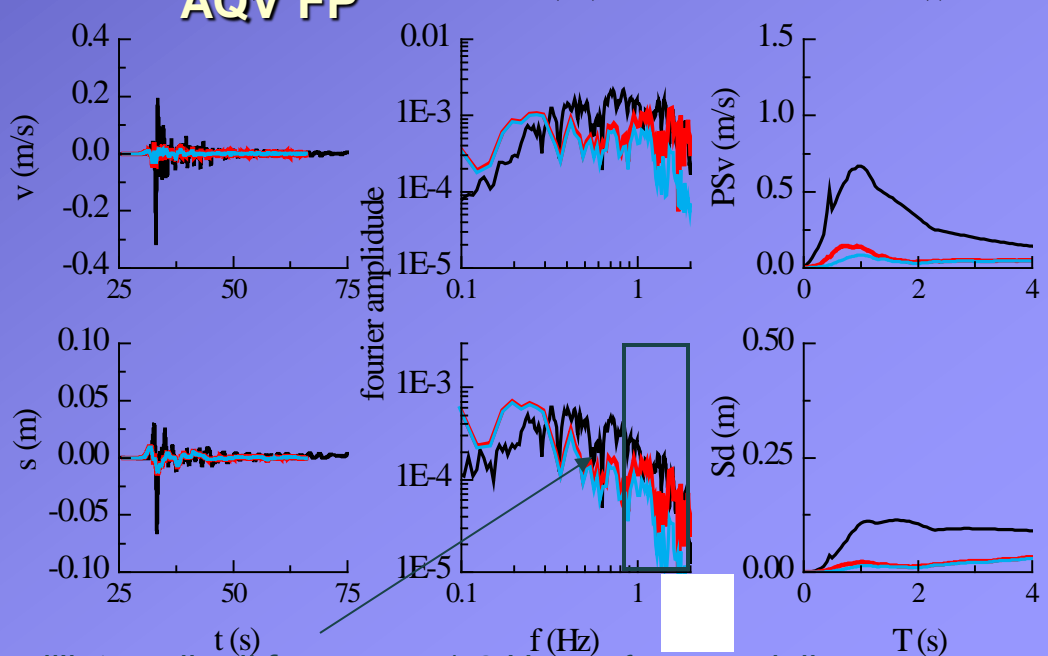




AQV FN



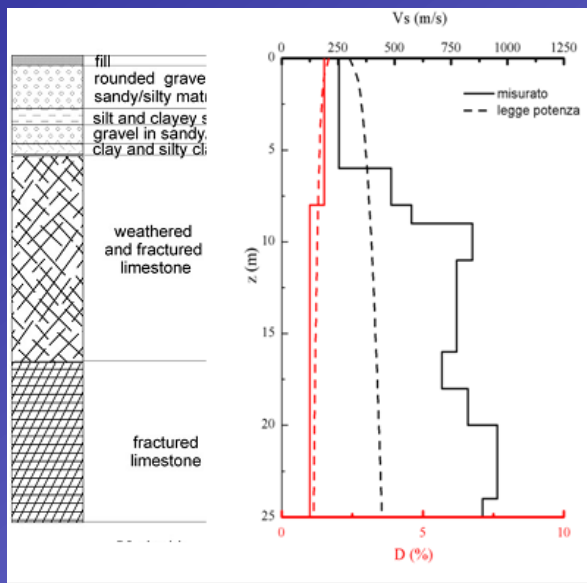
AQV FP



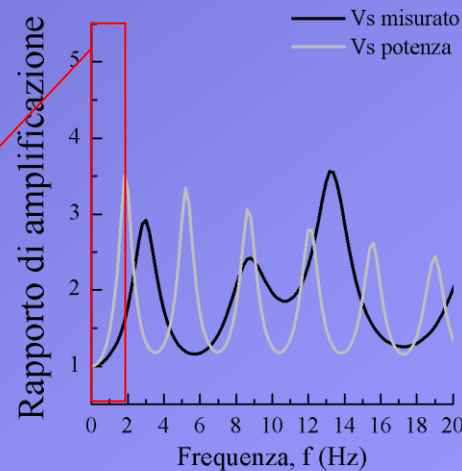
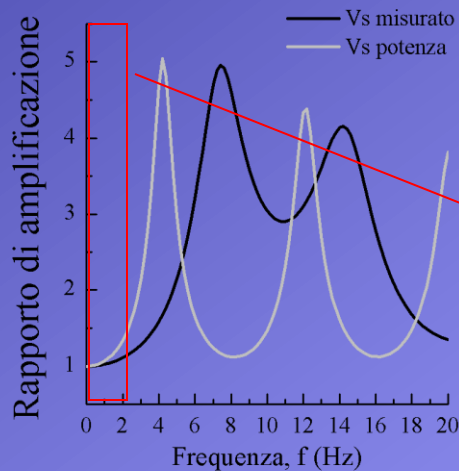
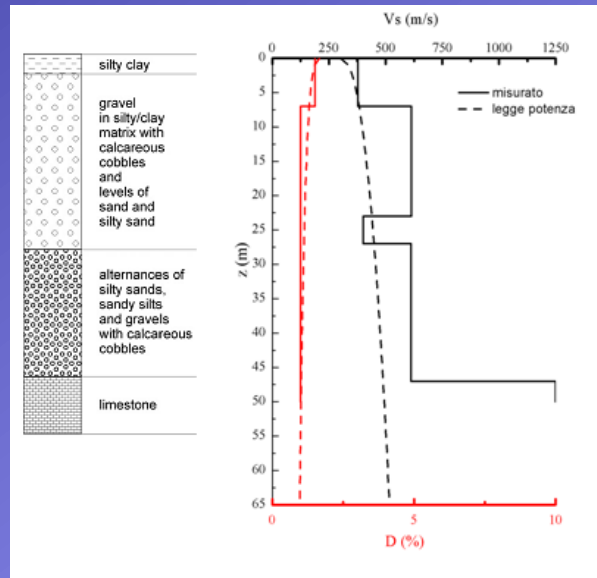
leggera amplificazione stratigrafica nell'intervallo di frequenze 1-2 Hz confermata dalla funzione di amplificazione 1D in corrispondenza della stazione AQV

Influenza della semplificazione del modello di Vs

AQA



AQV



Intervallo di frequenze propagate col modello

Dal confronto fra le funzioni di amplificazione non ci si attende un significativo errore nell'intervallo di frequenze propagato col modello