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Title of Abstract: Geophysical exploration and seismic response in the
Tagliamento alpine valley (NE Italy)
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Abstract: In the last decade, many seismological studies have shown that vibrations due to earthquakes are strongly amplified by sediment filled (post-glacial alluvium) alpine valleys. In the framework of the EU SISMOVALP project, where geotechnical and geophysical data of several Alpine valleys are analysed, we collect and perform some geophysical investigations in the Tagliamento river High Valley (Friuli area) to obtain a 3-D model of the valley shape and of its sediments. Seismic noise measurements have been performed at about 250 sites and are here analyzed according to the Nakamura's method (i.e., single station horizontal-to-vertical spectral ratios of passive seismic noise records). In situ shear wave velocities have been measured along seismic arrays and surface wave based methods are used to interpret dispersion properties of soils. A microgravimetric survey with about 250 points has been performed. A map of the valley basement is obtained by analyzing the residua

l Bouger anomaly with respect to the regional gravimetric field. Finally, in order to define the seismic response of the valley, 6 temporary seismic stations have been deployed for about 12 months along a transect crossing the valley south of the town of Tolmezzo. They recorded 140 events, including the July, 12 2004 M = 5.1 Kobarid earthquake. Here we present the results obtained in defining the valley shape and soil characterization by integrating the existing data (mainly shallow lithological info) and the new data. The seismic response of the valley is estimated using earthquake data and interpreted in the light of the updated valley configuration.
