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Attenuation tomography of the Southern Apennines.

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Aim of this study is to improve our knowledge of the attenuation pattern in the southern Apennines using a new amplitude ratio tomography method applied on both direct and coda measurements derived from 150 events recorded by 47 stations of the INGV national seismic network (RSNC). The 2D analysis allow us to take into account of the lateral variations and heterogeneities that involve the crust of this region.

Using the same event and station distribution a simple 1D methodology was also applied and the performance of the 1D and 2D path assumptions was tested by comparing the average interstation variance for the path-corrected amplitudes using coda and direct waves.

In general coda measurements results are more stable than using direct waves when the same methodology is applied. However, comparing the 1D and 2D performances the tomographic method gives better results for the same kind of wave because it takes into account of the lateral heterogeneity of the crust.

A comparison between Q tomography images obtained using direct and coda amplitudes show similar results, coherent with the geology of the region. In fact we observed a low Q along the apenninic chain toward the Tyrrhenian sea and higher values to the east, in correspondence of the Gargano zone that is related to the Apulian Carbonatic Platform.