

Abstract details

5224 - Seismic anisotropy and its relation with faults and stress field in the Val d' Agri (Southern Italy).			
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Title	Seismic anisotropy and its relation with faults and stress field in the Val d' Agri (Southern Italy).		
Abstract	<p>Shear-wave splitting is measured at 17 seismic stations deployed in the Val DAgri by INGV, which recorded local back-ground seismicity from May 2005 to June 2006 . The splitting results suggest the presence of an anisotropic upper crust (max hypocentral depth 15.5 km). The dominant fast polarisation direction strikes NW-SE parallel to the Apennines orogen and is approximately parallel to the maximum horizontal stress in the region and also parallel to the strike of the main normal faults in the Val DAgri. The size of the delay times, average is 0.1 second suggests 4.5% shear-wave velocity anisotropy. At stations located at the North West portion of the deployment average delay times are larger on the order of 0.2s.</p> <p>These parameters agree with an interpretation of seismic anisotropy in terms of the Extensive-Dilatancy Anisotropy model which considers the rock volume to be pervaded by fluid-saturated microcracks aligned by the active stress field. We cannot completely rule out the contribution of aligned macroscopic fractures as the cause of the shear wave anisotropy even if the parallel shear-wave polarisations we found are diagnostic of transverse isotropy with a horizontal axis of symmetry. This symmetry is commonly explained by parallel stress-aligned microcracks.</p>		
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