Seismic wave anisotropy determined by TCDP borehole seismic array

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Abstract

For the long-term monitoring scheme, the seven levels, three-component seismic array were installed in Taiwan Chelungpu-fault Drilling Project (TCDP) borehole (TCDP BHS). The seismometers were employed at the depth from 950 meters to 1250 meters where cover the possible location of Chelungpu fault including hanging wall and foot wall. We try to find the waveforms splitting in micro-earthquakes by analyzing seismograms recorded by TCDP BHS. After the calibration on the orientation of borehole seismographs, we would like to study the anisotropy feature within the borehole, and have the comparison with DSI (Dipole Sonic Imagers) from logging right after drilling the borehole, which was in year 2004. We expect to see the variation of the anisotropy through the borehole, and would l,ike to examine the possibility of the temporal variation of anisotropy. The experiment of Fluid Injection Test (FIT) might have triggered several events within the fault zone. The will continue the investigation through years with future repeating FIT to understand the fault zone healing process.