

S wave splitting analysis in the aftershock region of 2000 Tottori earthquake

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We investigated the anisotropy in the aftershock area of the 2000 Western Tottori Prefecture Earthquake by analyzing the S-wave splitting. The S-wave splitting is expressed by the directions of the faster shear wave polarization and the ragtime between two S-waves. We analyzed the data recorded by the dense seismic network in the aftershock area in 2000. The direction of the faster shear wave polarization was parallel to the fault strike near the eastern area of the asperity. On the other hand, it was parallel to the direction of the regional maximum horizontal compressional stress in the rest area. We carried out the aftershock observation at the eastern area of the asperity in 2007 to confirm the cause of the anisotropy. The analysis show the direction of the faster shear wave polarization changed from that of the fault strike to the direction of the regional maximum horizontal compressional stress. We infer from these results that the direction which is parallel to the fault strike in 2000 was related to the cracks produced in the asperity area and that the temporal change of the direction reflects the fault healing process.