

The Mj5.3 Earthquake at Central Tottori Prefecture (Sep. 16, 2002) and the Seismicity of the San-in District

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Major earthquakes (more than M6) along the coastline of the San-in district have individually NW-SE trend of aftershock distribution. Only the 1943 Tottori earthquake (M7.2) shows aftershock distribution of E-W direction. Precise aftershock distribution is important to know the geometry of the mainshock rupture.

During 1980-1989, seismic activities along the San-in district migrated from east to west. During 1990-2000, active seismicity was observed around western Tottori prefecture. Then, the Western Tottori Earthquake (Mj7.3) occurred in 2000. After the Western Tottori Earthquake, seismicity in the eastern Shimane prefecture, east side of Mt Daisen and the northern Hyogo prefecture are activated.

On September 16 in 2002, a Mj5.3 earthquake occurred at central Tottori prefecture. The epicenter is located at east foot of Mt. Daisen. This area is western end of the aftershock zone of the 1943 Tottori earthquake. Numerous number of aftershock occurred following the mainshock. Aftershock distribution shows E-W linear trend which is consistent with the focal mechanism of the mainshock. Also from the analysis of the directivity of the waveform, it is confirmed that the mainshock rupture is E-W direction. But 1 or 2 days after the mainshock, the aftershock area extended to South, and formed another E-W trend line. Finally entire aftershock distribution shows Z-shape. Total aftershocks are located in the area of 4km x 3km. Depth range of the hypocenter is 3-11km. Focal mechanisms of the major aftershocks are strike-slip, and the P-axis directions are nearly NE-SW.