

Seismic quiescence around trench synchronized temporally with activation of intermediate-depth earthquakes

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Mogi(1972) found that large deep earthquakes occurred prior to shallow great earthquakes in subduction zone. We investigated long-term microearthquake seismicity within the Pacific plate in Hokkaido region, and found that not only large deep earthquakes but also intermediate-depth microearthquakes were activated prior to the 2003 M=8.0 Tokachi-Oki earthquake, which was a shallow great earthquake in the Kurile subduction zone. The activation synchronized temporally with the seismic quiescence in the asperity of the main shock. The synchronization started approximately five years before occurrence of the main shock. We detected another synchronization around the Nemuro peninsula, which started in May 2000. It is possibly a precursor to a shallow great earthquake in the Nemuro-Oki area.