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Seismic quiescence off coast of Nemuro and Kushiro detected by a carefully re-determined seismic catalog

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Many authors reported in the previous studies that the seismic quiescence was observed several years prior to a great earthquake. This is the seismic quiescence hypothesis. However there are cases that they obtained wrong results based on seismic catalogs which were not homogeneous in space and time. Therefore more reliable case studies should be required for confirming whether the seismic quiescence hypothesis is true or not. In this study I examined all waveform data from 313 earthquakes with $M=3.3$ or larger, shallower than 200 km, and within the Pacific plate, which were recorded by the Institute of Seismology and Volcanology, Hokkaido University from January 1994 to December 2009. As a result I found a significant seismic quiescence off coast of Nemuro and Kushiro in the elliptical area 180 km long. The northeast boundary of the area is around (43.2 N, 146.6E) and the southwestern boundary is around (42.3N, 144.5E). The seismic quiescence started in January 2006 and has continued at the present.

Keywords: seismic quiescence, relocation, seismic catalog, Nemuro-Oki earthquake