Earthquake potential inferred from turbidites on the Sado Ridge in the eastern margin of the Japan Sea

Takeshi Nakajima[1]

[1] Inst. Geo-Resources and Environment, AIST

Several earthquakes larger than M7.5 have taken place along the eastern margin of the Japan Sea during the last century. Although many active faults are distributed along the eastern margin of the Japan Sea, their activities have not been well understood. Recently, earthquake potential of the northern part of the eastern margin of the Japan Sea has been studied by using recurrence intervals of deep-sea turbidites. The results suggest the recurrence intervals of earthquakes of 250 to 3000 years in this part of the eastern margin of the Japan Sea. However, earthquake potential of the southern part of the eastern margin of the Japan Sea has yet been evaluated. In this study, earthquake potential in the Sado Ridge is evaluated from the recurrence intervals of deep-sea turbidites.

Study of sediment cores obtained from the southern part of the eastern margin of the Japan Sea reveals spatial distribution of turbidite frequency. The result shows recurrence intervals of turbidites about 1,000 and 500 years on the southern and northern part of the Sado Ridge, respectively. The recurrence intervals of turbidites in the southern Mogami Trough is the lowest (2,000-10,000 years intervals).

The result suggests that the Sado Ridge is one of the most active seismic zones in the eastern margin of the Japan Sea. This observation is consistent with the geologic structures of the Sado Ridge.The result presented herein would indicate the future risks of earthquakes on the Sado Ridge.