

The results of researches on the seismic linkage among mega thrust earthquake seismogenic zones around the Nankai trough

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The recurrence of Nankai trough mega thrust earthquakes is the very severe problem to Japan. Therefore, MEXT of Japanese government has started to the research project on the estimation of seismic linkage around the Nankai trough mega thrust earthquake seismogenic zones. This project is composed of three research subjects as the observational research, simulation research and disaster mitigation research.

In results of observational research subject, the precise structures and seismicity around the western part of the Nankai trough are obtained. Especially, precise structures and characteristics of off Hyuga seismogenic zone including Kyushu-Palau

Ridge are obtained from refraction seismic surveys. Around off Hyuga, low frequency detected by the new analytical method. Furthermore, we have carried out observations of earthquakes and crustal deformations around off East Japan seismogenic zone from before 2011 East Japan earthquake, so, results of off East Japan observations indicated crustal activities among the pre shock, the main shock and aftershocks at 2011 East Japan. As results of simulation research subject, the crustal deformation database has been constructed and tsunami sediments were sampled and analyzed for the estimation of historical large tsunami recurrences. And some simulation technologies have been developed for advanced simulation researches including recurrence cycle simulations and data assimilations. .

Finally, in disaster mitigation research subject, precise seismic wave and tsunami propagations have simulated for the reliable hazard estimation. Furthermore, for the disaster mitigations and improvements of regional disaster measures, we have discussed with local governmental people and lifeline industrial people at some regional disaster prevention research societies. Results from this project contributed to the new estimation of maximum Nankai trough seismogenic zones, tsunamigenic zones and damages by Japanese Cabinet office.

Keywords: Nankai trough, Mega thrust earthquake, Seismic linkage