

Geology of the subduction boundaries and suggestion for the future work - How to avoid ultra-mega-earthquakes -

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The Philippine Sea plate is surrounded by several subduction boundaries, which are subducted and subducting boundaries in the southern & eastern margins and northern & western margins, respectively. I have been working to establish the geological cross section of the Southern Mariana trench inner wall area, and mentioned that mantle peridotites exposed along the trench inner wall. I hope that those basic data from the southern end can contribute to consider the physical plate model in the northern end of the plate at Nankai trough. If subducting plate contacts with the mantle peridotite of the subducted plate like in the Southern Mariana, slippery serpentine mud layer can be deposited easily under hydrous environment at subduction boundaries. On the other hand, those geological evidences give us some ideas about how to avoid ultra-mega-earthquakes in the Japanese Islands. Injection of serpentine mud into the asperity zone may be a possible answer.

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