Earthquake cycle modeling in Southwest Japan

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Recently, GEONET revealed that the deformation field in Southwest Japan is characterized by following two major features; (1) subduction of Philippine Sea plate (PHS) and (2) collision of Amurian plate (AM) to North American plate (NA).

Since the next interplate earthquake will release the deformation due to subduction of PHS, the net accumulation of stress in inland of Southwest Japan is dominated by the AM-NA collision. Thus, the quantitative estimate of collision process is important for forecasting the inland earthquakes in Southwest Japan.

In this study, we simulated temporal variations of failure stress in inland of Southwest Japan during the past several hundreds years, considering the earthquake cycle along the Nankai trough and AM-NA collision.

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Since the next interplate earthquake will release the deformation due to subduction of PHS, the net accumulation of stress in inland of Southwest Japan is dominated by the effect of AM-NA collision. Thus, the quantitative estimate of AM-NA collision process is important for forecasting the occurrence of inland earthquakes in Southwest Japan.

In this study, we simulated temporal variations of failure stress in inland of Southwest Japan during the past several hundreds years, considering the earthquake cycle along the Nankai trough and AM-NA collision.