

## Expansion of quiescence area in the Philippine Sea Slab with progress of the Tokai Slow slip event

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In Tokai area, Long-term Slow Slip Event (L-SSE) started in 2001 and terminated in 2005. Quiescence of seismic activity in the Philippine Sea Slab was observed during and after the L-SSE. Migration and extension of the quiescence area was analyzed by using ZMAP with unificatory seismic catalogue bigger than M2.0. The quiescence area generated off Omaezaki, and migrated or expanded to around under the Lake Hamana. After that, when the L-SSE almost terminated, the quiescence area expanded eastward and westward. Eventually, whole area of assumed locked zone for Tokai earthquake and Aichi prefecture was covered by the quiescence area.

These observations suggest following scenario. During the L-SSE, stress would have decreased in the slab beneath off Omaezaki and the Lake Hamana, and quiescence area was generated. Around the same time, the Philippine Sea Plate would be pressed into deep area where stress would be built up and seismicity was activated under the Aichi prefecture. On the other hand, seismicity was also activated in the assumed locked zone because of pulling the plate downward. After stagnancy of the L-SSE, speed of subduction of the plate slow down and pushing and pulling the plate would have weakened. This would be cause of quiescence in the assumed locked zone and Aichi prefecture. The slab beneath the Lake Hamana would have started accumulation of stress for resuming seismic activity.

On the contrary, seismic activity in crust on the assumed locked zone showed contrastive change. During the L-SSE seismicity was quiet, and after the L-SSE it has been active. We can interpret that coupling of plates in the assumed locked zone partially weakened during the L-SSE and stress weakened in floated crust. After the L-SSE, coupling and stress would have come back and seismicity was activated.