

## On the termination of the recent Tokai slow event observed by GPS measurements

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On the slow event in the Tokai area beginning from fall in 2000, Shimada and Kazakami (2005) reported that the area of the abnormal crustal movements became smaller and the amount of the speed became slow since around May 2004. According to the analysis of the GPS observations of GEONET sites and NIED sites in the Tokai area after the report, referencing the USUD IGS site in the Nagano Prefecture, after the South of Honshu earthquake on September 2004, the horizontal components, especially the E-W components of the sites northeast of the Lake Hamana turned to move westward, just same as the motion before the beginning of the slow event in fall 2000. Mapping the horizontal components of the velocity vectors, for one-year period during spring 2004 and spring 2005, there existed the slow event in the Tokai area, although the amount of the velocity vectors became smaller than the peak velocities. For one-year period during summer 2004 and summer 2005, the southwestward vectors widely observed in the Tokai area. For one-year period during fall 2004 and fall 2005, westward to western southwestward velocity vectors were seen significantly along the southern coast facing the Pacific ocean and along the east coast of the Suruga Bay in the Tokai area with the maximum around the Peak Omaezaki, and the vectors became small inland Tokai area, just the same pattern as the case before the slow event. After the period, no evidence is seen to revive the slow event.

For the vertical component, referencing the USUD site, from the beginning of 2005 the uplift ceased for several months in the area northeast of the Lake Hamana, then the uplift motions began again and are still continuing until now in the area.

Thus there were the large variations in the crustal movements in the Tokai area after the South of Honshu earthquake in September 2004. Mapping the velocity vectors without any reference sites and applying the ITRF 2000 global geocentric reference frame, before the occurrence of the slow event, there were significant westward to western southwestward velocity vectors with the maximum around the Peak Omaezaki in the Tokai area. For the one-year period during summer 2003 and summer 2004 when the largest velocity vectors were observed in the inland Tokai area, the significant southeastward velocity vectors were observed in the northeast of the Lake Hamana, and the westward motions were seen only around the Peak Omaezaki. However after the South of Honshu earthquake in September 2004, the southward vectors were widely observed in the Tokai area and the USUD site, just the same sense of the co-seismic motion. Although the movements mostly ceased around the end of 2004, the southward motions were still observed with attenuating in 2005. Because the South of Honshu earthquake occurred in the Philippine Sea plate, the Philippine Sea slab subducting beneath the Tokai area is thought to move significantly southward triggered by the earthquake. With the southward motion of the Philippine Sea slab, the slow event in the area northeast of the Lake Hamana ceased.