

## Anomalous uplift in the inland area of the Kinki district

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Central Japan is situated on a complex plate boundary region where multiple tectonic plates or microplates converging one another. A collision between northeast and southwest Japan and plate subduction along the Nankai Trough are the two main causes of crustal deformation in this area. Ozawa and Sagiya (2008) constructed a kinematic model for the crustal deformation in this region by applying a block-fault model to GEONET velocity data. They interpreted these data as a superposition of block rotations, interaction at block-boundary faults, and uniform strain within each block. As for the vertical velocity components, however, the kinematic model reproduces coastal uplift and subsidence well where plate interaction is dominant, but the inland uplift remains unexplained. The uplift is prominent between the western Kii Peninsula and Lake Biwa, with the maximum uplift rate of about 7mm/yr and an average rate of 3-4 mm/yr. The western Kii Peninsula has been known as the Kinki Spot where a mantle upwelling flow may exist [Sano and Wakita (1985), Nakajima and Hasegawa (2007)], and it has earthquake swarm activity.

In addition to GPS data, we will discuss the spatial extent, uplift rate, and their temporal changes based on leveling data and gravity anomaly data as well. We also discuss possible uplift mechanisms such as mantle upwelling, counter-flow in the mantle wedge, E-W shortening deformation of the crust, and so on.