

# A simultaneous model with rigid rotations and slip deficits for the GPS derived velocity field in and around Kinki district

# Sou Nishimura[1]; Manabu Hashimoto[2]

[1] RCEP, DPRI, Kyoto Univ.; [2] DPRI., Kyoto Univ

There are many active faults and high seismic activities in Kinki district. It is important to understand the crustal deformation in the Kinki district in terms of active tectonics there. In this study, we carry out the following two analyses in order to understand crustal deformation and to discuss on its relation with the active faults and high seismicity.

- 1, Calculation for the strain rate field,
- 2, Application of the simultaneous model to the velocity field.

Strain rate field obtained by the analysis 1 provides us with important information for the crustal deformation in Kinki district. Significant NW - SE contraction (  $3 - 4 \times 10^{-7}$  /yr ) in Shikoku and Kii Peninsula might be due to the strong drag at the plate interface by the subducting Philippine Sea slab. Some other features can be found in strain rate field. Remarkable strain rates (  $2 - 3 \times 10^{-7}$  /yr ) are also seen along the narrow zones from Awaji Island to Lake Biwa and from Wakasa Bay to Ise Bay. They might indicate the deformation associated with the active fault zones in the Kinki district.

We show the maximum shear strain rates in and around Kinki district in the figure. In this figure, we can see the characteristics of the strain rates concentrated in the narrow zones. Remarkable right ( left ) lateral shear strain rates along the NE - SW ( NW - SE ) direction are seen along the narrow zone from Awaji Island to Lake Biwa. Such strain concentrations along the narrow zones are mostly coincident with the active fault zones or the linear distribution of the shallow crustal seismicity. Between the narrow active zones with strain concentration, there are regional tectonic blocks with lower strain rates.

Based on the results of the analysis 1, we carry out the analysis 2. We refer to the block and fault model in Hashimoto and Jackson, 1993. We also refer to the main active fault zones and geological tectonic zones such as the Median Tectonic Line. We show the result of the analysis 2 and the discussion on its implication to the tectonics in southwest Japan for the presentation in the Joint Meeting.

