

The difference of the Ground Motion characteristic that assumes earthquake in the Osaka plain

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To estimate damage by earthquake with high accuracy, modeling an underground structure has been advanced. In the Osaka area, an underground structural model by whom the geologic structure was considered was made by Horikawa et al (2003), and it was being improved by Osaka Prefecture (2005). These models were made with the seismic reflection method data and gravity data, etc. Especially, these models have the feature of giving fault dip angle presumed by the reflection method and the surface of the surface investigation on the basin edge, the estimated strong ground motion result are expected with high accuracy.

There are severe fault zone in Osaka plains, and estimation of ground motion was by using the Osaka Prefecture model for three faults. Assumed faults are the Ikoma fault belt, and Arima-three faults of the Takatsuki tectonic line, and the assumed moment magnitude (M_w) of these faults are that Uemachi fault is 7.0, Arima - Takatsuki tectonic line is 7.0, and Ikoma fault is 6.8.

A remarkable difference is seen in later phase in the center part in Osaka plains, when the earthquake on the Ikoma fault is assumed, though the earthquake scale is a little small compared with other earthquakes. And it can be recognized surface wave with large amplitude thought to be made at the Ikoma fault. This phase is thought corresponding to the following wave (Toriumi phase) pointed out by the Toriumi et al, and it is presumed to have reflected the basic rock head structure in the Ikoma fault assumed in the Osaka basin model.

Moreover, though Uemachi fault and Arima-Takatsuki tectonic line of the long period of acceleration response spectra is large in the fault neighborhood and small away, but the Ikoma fault is assumed, the long period response is large also in a place left from the hypocenter compared with other earthquakes. Some point response spectra in long period are larger compared with the assumed Nankai-earthquake ground motion made by Kamae, and Ikoma fault is regarded in the viewpoint of long period ground motion.