

Hypocenter of the 1911 great earthquake occurred around Kikai-jima, Japan

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The hypocenter of the 1911 great earthquake occurred around Kikai-jima, Japan is 28.0N, 130.0E and 100km depth in a general opinion. However, it is not known what kind of seismic data were used to determine the epicenter and the depth of hypocenter is known to be estimated qualitatively. In the present study, we determine hypocenter by using selected data of S-P time with care. The hypocenter is revealed to be 28.90N, 130.25E and 15km depth, where is about 60km NNE off Kikai-jima. We consider the depth of hypocenter, however, is about 30km by referring the latest distribution of hypocenters because of the reliability of estimated one being low. The 1911 great earthquake locates at the deeper rim of low seismic active area on the plate boundary, which extends about 80km length parallel to trench axis. If the low seismic activity is the result of strong coupling on plate boundary, this area may be the focal region of the 1911 great earthquake. Tsunami heights accompanied with this event are reported recently to be more than 5m at Kikai-jima and Amami-oshima, which may support the depth of hypocenter being shallower than 100km.

Keywords: great earthquake, Kikai-jima, Nansei-shoto, plate boundary