

Holocene uplift of Aira caldera, southern Japan

Hiroshi Moriwaki¹, Mitsuru Okuno², Toshiro Nagasako¹, Akio Ohira³, Yoshiaki Matsushima⁴

¹Kagoshima University, Japan, ²Fukuoka University, Japan, ³University of Miyazaki, Japan, ⁴Kanagawa Prefectural Museum of Natural History, Japan

E-mail: morih@leh.kagoshima-u.ac.jp

Aira caldera, accompanied by Sakurajima volcano on its southern rim is filled with sea water, forming the inner part of Kagoshima Bay. Emerged sea-level records, i.e. emerged marine deposits and marine terraces occurring around Aira caldera, provide excellent data for obtaining the Holocene crustal movement of the caldera. We obtained the mode of crustal movement of Aira caldera in the past c. 7,000 years on the basis of the elevations of those marine records and their chronology using C-14 age and tephra beds. The highest sea-level at c. 7,000 years cal BP recognized in the northern to northwestern rim of the caldera, attains more than 10 m above the present sea level. The distribution of the sea-level records clearly indicates upwarping with a center of slightly western part of the caldera. The mean uplift rate, c. 1.4mm/yr and the mode of upwarping nearly coincide with those of the historical uplift associated with the volcanic activities of Sakurajima volcano during the past c. 500 years, suggesting that the Holocene upwarping of Aira caldera reflect the volcanic activities of Aira caldera including Sakurajima volcano. This means that the findings of Holocene crustal movements recorded in the coastal deposits and landforms are important for evaluating the future volcanic activities of Aira caldera and Sakurajima volcano.