

## Frequency of a caldera forming eruption occurred in the Kyushu Island on the basis of the high-resolution tephra stratigraphic record in the Kinki district, central Japan

Yoshitaka Nagahashi

Fukushima University, Japan

E-mail: nagahashi@sss.fukushima-u.ac.jp

Extremely a large-scale explosive eruption, for example a caldera forming eruption, it is sometimes described that such eruption occurred once every 10,000 years. We have been constructed the high time resolution tephra stratigraphic record for Pliocene to Holocene strata in Japan.

A framework for the Pliocene to Holocene tephra stratigraphy in the Kinki district has been established by litho-stratigraphy of the Plio-Pleistocene Osaka Group in and around the Osaka Plain, in addition, by using a number of drilling cores sediments in the Osaka Group and from Lake Biwa. The Osaka Group is mainly composed of fluvial sand, gravel and silt intercalated with twenty-one marine clay beds and over eighty tephra beds. It is especially significant that marine clay beds had been deposited by the corresponding sea level change of the glacial / interglacial cycles. Depositional age of the Plio-Pleistocene tephra beds is determined by a combination of lito-, bio- and magneto-stratigraphy and radiometric age of tephra beds. In particular, stratigraphic positions of tephra beds in the past one thousand three hundreds years is accurate as the stratigraphic sequence because of corresponding the twenty-one marine clay beds to the Oxygen Isotope Stage 37 to Stage 1.

Most of the tephra beds can be individually traced to their source volcanoes based on the volcanic glasses chemistry using the microprobe (EDS) analysis and petrographic properties. As a result, we are identified nineteen co-ignimbrite ash beds during the last 130,000 years. these tephra beds have been mainly derived from Quaternary caldera volcanoes in the Kyushu district, named as the Shishimuta, Aso, Kakuto, Aira, Ata, and Kikai calderas. The excellent tephra stratigraphic record also shows the relation of the stratigraphic positions to the Oxygen Isotope Stage. In short, a many of the co-ignimbrite ash beds have emplacement at the low sea-level stand, and it is possible that the timing of eruption is related to local tectonics and hydro-isostatic stress in the upper crust corresponding to the sea level changes.