

SVC052-07

Room:302

Time:May 26 15:45-16:00

## A new model of the Hakone Caldera

Kazutaka Mannen<sup>1\*</sup>

<sup>1</sup>Hot Springs Research Institute

In examining 24 boreholes drilled into the morphological caldera floor of Hakone volcano, Japan, which has been considered a typical Krakatau-type caldera, we found that newly recognised, relatively fresh lapilli tuff (Facies V) and overlying sand and siltstone (Facies S) form packages that we interpret as caldera-fill deposits. Based on the extent of the packages, we propose the existence of the Gora Buried Caldera Structure (GBCS) and the Kojiri Buried Caldera Structure (KBCS); we also infer the existence of two additional buried caldera structures. Based on the fossil pollen flora within Facies S and the age of a subsided lava block (Sub-facies XY), the subsidence ages of the GBCS and KBCS are determined to be younger than the caldera-forming stage (MIS 4). It is also inferred that the GBCS subsided during an older stage of caldera formation (MIS 7). The buried caldera structures are likely to be funnel or Nigorikawa-type calderas, a caldera type proposed by several studies that examined small calderas. Previous studies have interpreted the lapilli tuff that fills funnel calderas to be a fall-back deposit, representing blown-off material consisting of disintegrated vent rocks and essential ejecta; however, we interpret such caldera fill to be collapsed material rather than fall-back material, and, based on subsurface geology, we see no grounds for distinguishing funnel calderas from maar?diatreme systems. Some of the buried caldera structures at Hakone clearly formed within a pull-apart system associated with an offshoot of the Hirayama and Hakonemachi?Miyagino faults, which traverse the volcano. The buried caldera structures appear to only slightly modify the morphological caldera wall to create embayment structures; however, the fundamental caldera morphology seems to be controlled by tectonic structures rather than the newly found buried caldera structures.

Keywords: Hakone Volcano, caldera, Nigorigawa type caldera