Zircon U-Pb and (U-Th)/He dating to Omachi Tephra

*Hisatoshi Ito[1], Danišík Martin[2], Masayuki Oishi[3], Hiroomi Nakazato[4]

1. Central Research Institute of Electric Power Industry, 2. Curtin University, 3. Rissho University , 4. Institute for Rural Engineering

Omachi Tephra, one of the Pleistocene marker tephras in Japan, was dated by LA-ICP-MS U-Pb method using zircons. The dated tephras are A1Pm and DPm collected from an outcrop in Omachi City, Nagano Prefecture. At the outcrop, we observed 6 tephra layers: A1Pm, A2Pm, A3Pm, B Scoria, DPm, and EPm in ascending order. The dated tephras (A1Pm and DPm) were identified by measuring refractive indices of orthopyroxene and the stratigraphic order. The obtained U-Pb age of the A1Pm was 0.43±0.02 Ma (error shown as 95% confidence level), which is in accordance with the stratigraphy and some previously reported fission-track ages. On the contrary, the U-Pb age of the DPm was 0.28±0.05 Ma, which is much older than the stratigraphically estimated age of ~0.1 Ma. Since zircon U-Pb age indicates the time of crystallization in the magma, it does not always show the time of tephra eruption. Meanwhile, zircon (U-Th)/He age indicates the time of tephra eruption. Zircon (U-Th)/He dating is now underway, therefore we will report both U-Pb and (U-Th)/He dating results at this session.

Keywords: Quaternary, tephra, U-Pb dating, (U-Th)/He dating

