

## **Re-evaluation for the Impact of a Gigantic Eruption from Ilopango Caldera, El Salvador, Central America, in the 3rd to 6th Centuries**

SHIGERU KITAMURA

Faculty of Social Welfare, Hirosaki Gakuin University, JAPAN

E-mail: [kitamura@hirogaku-u.ac.jp](mailto:kitamura@hirogaku-u.ac.jp)

The information on the impact of past eruption to human societies is important for the assessment of volcanic hazards. On the other hand, we must note that the influence of a gigantic caldera eruption in the age without historical documentation tends to be overestimated because of the scale of volcanic phenomena beyond our imagination. For appropriate assessment to the impact of caldera eruption in the past, multidisciplinary approach is valuable, of course, and re-examination under the academic progress in individual subject is also necessary. This presentation will summarize the latest pyroclastic eruption of Ilopango Caldera, El Salvador, Central America, in the 3rd to 6th centuries, and re-evaluate its impact to human societies in comparison with previous studies.

Ilopango Caldera (size; 8 x 11 km) is located in the neighbor area of San Salvador, the capital of El Salvador, Central America. In the latest gigantic eruption of the caldera, which occurred in the 3rd to 6th centuries, produced voluminous pumice flow and broadly dispersed air-fall ash. Mesoamerican archaeologists traditionally considered that the pyroclastic deposit called the "TBJ" should be the boundary between the Preclassic and the Classic horizon, and that destructive impacts of the eruption on the Prehispanic societies of Maya should caused remarkable cultural change (e.g., Sharer, 1978). This idea was supported by radiocarbon dates scattered around the end of the 3rd century (Sheets, 1983) and geological data suggesting thickly deposited volcanic ash such as a thickness of 50 cm at a distance of 70 km from the origin (Hart & Steen-McIntyre, 1983).

Recent tephrochronological work illustrated that the TBJ air-fall ash is not so thick as described in previous studies, only 20 to 30 cm thick outside the area 40 km from the caldera, where the the TBJ pumice flow was emplaced. It suggests that the area within 40 km of the caldera must be destroyed severely by the TBJ pumice flow, while it was possible to keep agriculture for life in the outside because the maize, one of principal foods in the area, can reach out its root over 30 cm deep to buried organic horizon under the ground (Kitamura, 2010). AMS radiocarbon dating added dates suggesting that the eruptive date should be postponed to the 5th or the 6th century (Dull, et al., 2001; Dull, et al., 2010). Some archaeologists also consider that the latest Ilopango eruption occurred in the Classic Period and the Classic culture was not interrupted by the eruption, on the basis of additional data obtained by stratigraphic excavation and precise positioning method in the ruin and broad correlation in the region (Shibata, et al., 2009).