Developing process of the erosional landform and the developmental mechanism of slope failure in Shirasu area

IGARASHI, Ryusuke[1*], SUGAI, Toshihiko[1], IMURA, Ryusuke[2]

[1]Graduate School of Frontier Sciences, The University of Tokyo, [2]Graduate School of Science and Engineering, Kagoshima University

Shirasu(Ito pyroclastic flow deposits) generated in Aira caldera located at Kagoshima bay approximately 29,000 years {14C : 26-29ka(calendar year correction value):Machida and Arai, 2003} before present. Previous studies have clarified the failure mechanism of Shirasu slope (Matsukura, 1987; Shimokawa et al., 1989) or the historical development of landform in southern Kyushu (Moriwaki et al., 2002; Okuno, 2002). On the other hand, Kirino(1988) indicated that few studies focus on the deposited layer containing gravel, sand and younger volcanic ash in the erosional feature of Shirasu. Moreover, the developing process of the erosional landform and the developmental mechanism of slope failure were not made clear former enough from the historical viewpoint of geomorphological evolution of land-surface.

In this study the landform classification map was made by aerial photo interpretation with respect to the circumference of a former site of slope failure which occurred in the area over which Shirasu deposits is distributed. Moreover, cliff morphology surrounding the Shirasu plateau was observed and the strength of the Shirasu deposit were measured with the Schmidt hammer in the field. Grain size, water content and major element of the deposits were also analyzed. From the obtained results, the relationship of the history of a macroscopic landscape evolution and the failure occurring place in Shirasu plateau is discussed in this presentation.

Keywords: Shirasu, Slope Failure, Records, Geomorphological Development, Southern Kyushu