

Foundation of "Workshop on Collapse with No Rainfall etc."

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1. Establishment of "Workshop on Collapse with No Rainfall etc."

Slope failure that occurs after the stop of rainfall or when there is no rainfall at all without being affected by the effect of the latest rainfall ("collapse with no rainfall etc.") is a very hazardous collapse phenomena since prior warning / evacuation is difficult, and caused human damage in the past, as sediment disaster at Yabakei-machi, Nakatsu-shi, Oita-ken on April 11, 2018 (Photo 1). In addition, the risk of secondary disaster during rescue / search / recovery / inspection activities is high.

Multiple cases of such collapse occurred in the country and the trend of frequent occurrence has recently been confirmed centering on the peripheral area of pyroclastic flow plateau, particularly in the Kyushu Region, as seen in the events at Minamiosumi-cho, Kagoshima-ken (2010) and Tarumizu-shi, Kagoshima-ken (2015). It is therefore urgently required to take countermeasures for collapse with no rainfall etc. but effective measures have not been taken sufficiently because there are many unclear points in the mechanism of collapse.

Then, in order to establish the method of detecting slopes where the risk of collapse with no rainfall etc. is high in the Kyushu Region, NILIM and the Kyushu Regional Development Bureau established "Workshop on Collapse with No Rainfall etc."



Photo 1: Collapse with no rainfall etc. at Nakatsu-shi, Oita

2. Outline of the Workshop's activity

This Workshop consists of academic experts, NILIM, and administrative organs and intends to continue study for two years. It mainly conducts the following survey activities

First, it collects and organizes data on the past events

of collapse with no rainfall etc. and grasps the characteristics of topography, geology, etc. Next, using as well aerial measurement laser and airborne electromagnetic survey, it analyzes the microtopography and the internal hydrogeologic structure of pyroclastic flow plateau, considered to relate to collapse with no rainfall etc. Particularly, it is considered important to grasp the geological structure of permeable / impermeable layer relevant to concentration of groundwater and related microtopography. In parallel, hydrological observation of groundwater that flows out of the pyroclastic flow plateau is conducted. Field survey is also conducted on the slope where collapse with no rainfall etc. occurred (Photo 2). Considering the results of these surveys comprehensively, the Workshop examines the method of detecting hazardous slopes with the risk of collapse with no rainfall etc.



Photo 2: Field survey at Shinko River (Tarumizu-shi, Kagoshima)

3. Final results of the Workshop

This Workshop aims to consider the mechanism of collapse with no rainfall etc. and create a hazardous slope detection manual focused on the Kyushu Region based on the small-scale hazardous slope distribution map, microtopography interpretation, etc. Further, based on the findings in the Kyushu Region, we intend to develop them all over the country.

☞ See the following for details.

1) Workshop on Collapse with No Rainfall etc. (in the website of Kyushu Regional Development Bureau) <http://www.qsr.mlit.go.jp/n-kawa/mukouzuhoukai/mukouzuhoukai.html>