

Study of Extraction Method of the Slope tending to Cause Deep-seated landslide using Airborne Electromagnetic method

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Kind of landslide is mainly shallow landslide and deep-seated landslide, etc. Shallow landslide is a phenomenon that top soil layer collapse. On the other hand, deep-seated landslide is the relatively large scale collapse phenomena among the slope failures such as rock falls, slope failures, etc.; in which the slide plane arises in the deeper section than that in the case of the surface collapse; then not only the top soil layer but also the soil at deep layer becomes the colluvial clods. Although deep-seated landslide occurs less frequently than shallow landslide, sediment amount of deep-seated landslide are huge than shallow landslide's and it might occur serious sediment disaster. In September 2011, multiple of deep-seated landslides occurred by heavy rains associated with Typhoon Talas in Kii Peninsula.

It is considered that occurrence of deep-seated landslide is linked to strength and groundwater movement of bedrock. Hence, in order to estimate occurrence of deep-seated landslide, it is important to obtain information of bedrocks at wide area. Therefore, in this study, we focused on airborne electromagnetic method. This method can get obtain information of geology and groundwater at wide area. Then, we studied about extraction method of the slopes tending to cause deep-seated landslide.

Studies areas were Hayakawa River basin (Yamanashi Prefecture) and Byutanogawa River basin (Miyazaki Prefecture). Then, we focused on slopes of the past of deep-seated landslide and the specific resistance patterns of vertical directions of bedrock creeps in these basins.

In this study, we confirmed two-layer structure of specific resistance pattern that a shallow portion is high resistance and a deep portion is low resistance. However, in the slope that contains a lot of muddy, we confirmed two-layer structure of specific resistance pattern that a shallow portion is low resistance and a deep portion is high resistance. Moreover, we confirmed three-layer structure of specific resistance pattern. These are future tasks.

Keywords: Airborne Electromagnetic Method, Deep-seated landslide, Specific Electrical Resistance