

韓国マノ山における岩塊流の形成プロセス Formation processes of block stream in Mt. Maneo, South Korea

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This study revealed that formation processes of slope deposits include block stream near Mt. Maneo, South Korea. Using a satellite image reading from Naver site (<http://www.naver.com/>) and a field survey, we studied the positional relationship between the Mt. Maneo block stream and its surrounding terrain, as well as the general shape of the block stream. The satellite image scale was about 1:5000, which had a resolution sufficient to identify the block stream. Next, we superimposed the interpreted satellite image on a 1:25000 topographic map, and read the contour lines over the location of the block stream. The plan view of the block stream on Mt. Maneo has a belt-like shape. The top end of the slope is the steepest, having an incline of around 20 degrees. On examining the contour lines crossing the block stream, the contour lines in the top section are found to be more or less straight and represent an even slope with no obvious ridges or valleys. In the central part of the block stream, the contour lines are convex in the upslope direction, indicating a wide valley. In the lower section of the block stream, the contour lines are convex in the downslope direction, indicating the presence of a ridge.

A cross-section of the block stream is visible in the central part of the out crop and can be split into two parts: a matrix of fine-grained materials on the northwestern side, and a matrix-free deposit on the other side. For the purpose of this study with respect to sedimentary facies, we counted the sections having matrix as part of the block stream. In the matrix-free deposit section, blocks with a larger diameter tend to be concentrated in the lower portion. The overall cross section has an upward convex shape.

We observed ground water flow and soil saturation by five tensiometers. All observation points were located at the top of block stream. Depth of the tensiometers were about 30cm. Tensiometers were inserted fine slope deposits at the upper part of the block stream. Observation period was Jul. 9, 2014 to Jul.14, 2014. We observed that slope deposits were rapidly saturated associating with rainfall event. Rain fall event was occurred in Jul. 13, 2014. Rainfall amount was 30mm/day. All tensiometers responded this rain fall event. Suction was decreased very rapidly at this rainfall event. This means that saturation of soil layer occurred at the head of block stream associating with rainfall event. Water was concentrated in the valley created by this landslide. We can recognize from observation of suction that the unsolidified weathered fine-grained material forming the landslide block was washed out by this water flow, leaving only the core stones behind.

We believe that the area of the Mt. Maneo block stream is an old landslide site. This could have been a deep seated landslide that reached the deep weathering layer of the upper section of Mt. Maneo, and it is thought that a large section of the landslide block consisted of core stones and weathered fine-grained material.

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