



Estimating eroded soil in Daisetsuzan National Park in Hokkaido, Japan

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This study has two objectives: (1) to estimate changes of the eroded volume of mountain trails by making DSMs from 2014 to 2017, and (2) to understand a relationship between the trail erosion and the number of trekkers.

Trail erosion has been investigated near Mt. Hokkai-dake in Daisetsuzan National Park, Hokkaido, northern Japan, with a drone (UAV) and monopod from 2014 to 2017. Seven segments with the soil erosion from starting sites to ending sites were selected to make DSMs and Orthophotographs by Agisoft, which is one of the Structure from Motion (SfM) software.

As a result of comparing DSMs, the eroded volume in the segment with the largest eroded value attained 282.37 m³ for the four-year period although extremely heavy rain hit this area in the 2016 summer. These seven segments are located in the most seriously damaged trail in the entire national park. The number of annual visitor in the entire national park was approximately three-hundred thousands in 2016. But the number of trekkers who actually passed these segments was less than seven hundreds. This suggests that the number of trekkers is not likely to affect the volume of trail erosion in the case of the study area.