

Geomorphic and geologic factors of rock failures at sea cliff of the Shakotan Peninsula, Hokkaido

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Primary causes of rock failures at sea cliff of the Shakotan Peninsula, Hokkaido were examined by geomorphic and geologic investigation, and additional data analysis for rock properties. Rock mass of the study area is composed of Miocene reworked hyaloclastites. It may be regarded to be homogeneous in the whole study area. This rock type is classified as the "soft rock" category from engineering viewpoint. Spacing of tectonic joints ranges to 10 to over 100 m.

Observation and examination by the rock mechanics including numerical analysis revealed that 1); a short initial flaw may propagate into failure under the stress condition of cliff. 2); overhang as topographic factor and weathered tectonic joints as geological factor both give some effects on scale and mechanism of rock failures.