

GEOMORPHIC ELEMENTS IN THE DRY VALLEYS REGION,
ANTARCTICA: WITH REFERENCE TO GEOMORPHO-
LOGICAL MAPPING PROGRAM (ABSTRACT)

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Geomorphic elements in the Dry Valleys region of McMurdo Oasis in Antarctica are preliminarily examined for the purpose of preparing geomorphic maps. The geomorphological mapping is important for the synthetic representation and analysis of landforms of an area. We are attempting to prepare detailed geomorphological maps of ice-free areas and to establish mapping system in Antarctica. The mapping has been carried out in the Lützow-Holm Bay region so far. On the other hand, the Dry Valleys region is the largest ice-free area in Antarctica, and many geoscience results, including invaluable chronological data, have been accumulated since the beginning of the research in the region. Therefore, it is the type region to be referred to very frequently in Antarctic geoscience studies. Therefore, it is important to attempt to produce geomorphological maps of the region for the elaboration of the mapping system and the comparative study of landforms in the Antarctic region. This is emphasized because there has been almost no research from the viewpoint of geomorphological map.

At present, the work is at the preliminary stage such as aerial photography and map interpretation is under way, using 1 : 50000 USGS topographic maps and about 1 : 52000 vertical aerial photography, taking into account various documented data and a few authors' unpublished data. As the first step, classification of landforms in the Wright Valley is examined in terms of the following elements: 1. Hydrography: 1) Glaciers; mountain (several kinds), outlet, piedmont. 2) Lakes and pools; freshwater, saline, with or without perennial ice cover; 3) Streams; 4) Snow-drift. 2. Morphogenesis, geomorphological processes and their traces: 1) Glacial; (a) denudational-trunk valley, mountain glacial trough, cirque, secondary erosional (overridden?) form, (b) depositional-trunk valley moraine, mountain glacier moraine. 2) Periglacial; patterned ground (polygon), stripe, solifluction lobe, eolian features, etc. 3) Gravitational; talus or colluvium. 4) Meltwater (fluvioglacial) phenomena; stream and/or channel alluvial plain (outwash), alluvial cone, esker? 5) Old strandlines of lakes (and river terrace?). 6) Tectonic and volcanic landforms. 3. Morphology and morphometry: ridge line, valley axis, slope classification, hillock and depression. 4. Bedrock lithology and geological structure.

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