

Interpretation of geologic structures and structural landforms using a digital stereoscopic topographic map

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Structural landforms depend on the differences of resistance of rock weathering and denudation. Especially, these reliefs are well preserved in the mountainous areas because of denudation processes to the areas reflected in the geologic structures such as fault and fold of the strata and zonal structure of plutons. As an example, we present the good correspondences between the results of geological observation and the reliefs of inner structure of zoned plutons, faulting, and folding in the Kitakami Mountains. In this study, the correspondences are demonstrated by 10m mesh DEM-derived digital stereoscopic topographic maps. These topographic maps can show the vertical information of the height of topography, therefore the differences of slope or relief are stereoscopically and clearly expressed as shaded information with the height of topography.

The 10m mesh DEM-derived digital stereoscopic topographic map is a good and effective tool to decipher the geologic structures from the structural landforms, and furthermore make possible to multiple and inter-disciplinary discussions. The new knowledge and interpretations can be expected and achieved from the use of this map.

Keywords: Digital stereoscopic topographic map, Kitakami Mountains, Geologic structures, Structural landforms