

Digital maps synthesized from 50m-mesh DEM: (3) Identification of volcanic landforms

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In the analysis of volcanic landforms, new digital image maps of slope and openness synthesized from the 50m-mesh DEM of Japan are used conveniently besides regular topographical and geological maps of volcanoes. Overground-openness is a characteristic quantity to describe sky extent over a grid point, and takes large value at convex landform, and underground-openness to describe underground extent and takes large values at concave landform. These openness maps relevantly represent topographical features such as the lines of ridge and valley. The synthesized slope maps can represent finer structures of slope variation in volcanic edifices. Those maps were effectively used to identify specific volcanic landforms.

The digital elevation model (DEM) of 50m-mesh for Japan was issued from the Geographical Survey Institute, Japan, recently. In the analysis of volcanic landforms, new digital image maps of slope and openness synthesized from the DEM of Japan are used conveniently besides regular topographical and geological maps of volcanoes. Overground-openness is a characteristic quantity to describe sky extent over a grid point, and takes large value at convex landform, and underground-openness to describe underground extent and takes large values at concave landform (Yokoyama et al., 1999a). These openness maps relevantly represent topographical features such as the lines of ridge and valley. The synthesized slope maps (Yokoyama et al., 1999b) can represent finer structures of slope variation in volcanic edifices. Those maps were effectively used to identify specific volcanic landforms.