

Aeromagnetic anomalies over Stromboli volcano, Aeolian Islands, Italy

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The Geological Survey of Japan, AIST and the Geological Survey of Austria (GBA) have been conducting aeromagnetic surveys over active volcanoes in the Aeolian Islands, southern Italy to better understand the subsurface structure of the area. One of such a survey was conducted jointly in 2002 and another one was conducted solely by GBA in 2004 over Stromboli volcano and its surrounding areas. The former survey was flown along NE flight lines with a spacing of 1.5 km, covering the area from Panarea volcano to Stromboli volcano. The latter survey was flown along the same direction as that of the previous one with a spacing of 0.75 km, covering Stromboli volcano and its vicinity. Incorporating those data, we have compiled a high-resolution aeromagnetic anomaly map of the volcano and its surrounding areas. This paper deals with the surveys themselves and general characteristics of the resultant aeromagnetic anomaly map.

Generally, a dipole magnetic anomaly lies over Stromboli volcano, suggesting a normal magnetization of volcanic rocks which compose the edifice. A similar dipole magnetic anomaly is distributed over a submarine topographic high offshore of the north-east volcano. A broad magnetic high also occupies offshore of the southern volcano, corresponding to marine topographic highs. It suggests an existence of products of former volcanic activities of the volcano and/or remains of an unknown volcanic edifice.