Geophysical Research Abstracts
Vol. 20, EGU2018-19580, 2018
EGU General Assembly 2018

The cubesat revolution in volcano monitoring – examples from PlanetScope.

Talfan Barnie (1), Ragnar Thrastarson (2), Ingibjörg Jónsdóttir (3), and Yves Moussallam (4)

(1) Nordic Volcanological Center, Institute of Earth Sciences, University of Iceland, 101 Reykjavik, Iceland, (2) Icelandic Meteorological Office, 108 Reykjavík, Iceland, (3) Volcanology and Natural Hazard group, University of Iceland, 101 Reykjavik, Iceland, (4) Université Clermont Auvergne, CNRS, IRD, OPGC, Laboratoire Magmas et Volcans, F-63000 Clermont-Ferrand, France

The ongoing revolution in UV-VIS-IR imaging of volcanoes is taking place in space as well as on the ground. The development of fleets of small inexpensive satellites (cubesats) for Earth Observation presents new opportunities for volcano monitoring. This revolution, driven by new technologies and business models, allows the Earth surface to be imaged at a combination of high frequencies and spatial scales that is not currently possible with conventional satellites. This allows small changes in volcanic phenomena to be identified on a daily or even sub daily basis. Here we present examples using the PlanetScope cube sat fleet, which provides images with a resolution of 3-5m on an approximately daily basis within hours of acquisition. The images are also provided with view and illumination geometry, which can be used to extract useful 3D information from the scenes. We present examples of how PlanetScope has been used to track the growth of lava domes, recover plume heights, as well as monitor lava lakes and ice cauldrons.