



Detailed Mapping of the Alu Volcano, Ethiopia

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The Alu volcano in the Danakil Depression is interpreted as a forced-fold related uplift, related to progressive intrusions of sills, or similar tabular intrusions. Alu is in a very isolated and difficult to access area, but Google Earth provides high resolution images that can be used for mapping the structure and volcanic features. We use the imagery to map in as much detail as possible all the morphological features of Alu, which we separate into primary volcanic features and secondary structural features. The mapping has been undertaken by a group undergraduates, graduates and researchers. The group has checked and validated the interpretation of each feature mapped. The data set is available as a kmz, and has been imported into QGIS. The detailed mapping reveals a complex history of multiple lava fields and fissure eruptions, some which pre-date uplift, while others have occurred during uplift, but are subsequently deformed. Similarly, there are cross-cutting structures, and we are able to set up a chronology of events. This shows that uplift grew in an area which was already covered by lavas, that some lava has been probably erupted from Alu's flanks, while most eruptions have been from around the base of Alu. Early in the deformation, thrust faults developed on the lower flanks, similar to those described near the Grosmanaux uplift (van Wyk de Vries et al 2014). These are cut by the larger faults, and by minor fissures. The mapping provides an accessible way of preparing for dedicated fieldwork in preparation of an eventual field expedition to Alu, while extracting the most from remote sensing data.