



Volcano-tectonic evolution of Mt. Kanlaon, Negros Island, Philippines

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The challenge posed by dense vegetation and weathering to volcano-tectonic studies is being successfully addressed by combining Remote Sensing with volcanological data to extract geological information. Here we analyze Mt. Kanlaon, an active volcano located in the densely populated Negros island in central Philippines. We compared our field data with RS data (aerial photograph, optical images and 25m-res DEM) and previous geologic, petrologic and hazard maps (PHIVOLCS) to reconstruct the general eruptive stratigraphic units and perform a detailed morpho-structural analysis of the edifice. We recognized three main periods of edifice growth and destruction separated by two main angular and erosive unconformity surfaces. The older unconformity was generated by a large debris avalanche, which extends 30 km away from the actual active crater in SE direction. The youngest unconformity corresponding to a 15 km² angular and erosive depression located in the summit area and made of three principal collapsed and eroded structures. While during the last decades Kanlaon exhibited frequent summit phreatic eruptions, larger explosive and effusive eruptions have occurred in the previous centuries, highlighting the necessity to better evaluate the probability of recurrence of such hazardous events. Our study provided new insights into the volcano-tectonic evolution of Mt. Kanlaon and allows an improvement of the existent hazard map by redefining the general temporal succession of its volcanic units. Preliminary results will be utilized in assessing future volcanic unrest scenarios. This study is part of the MIAVITA project (Mitigation and Assessment of Volcanic Impacts on Terrain and Human Activities), a European Commission FP7 Research Project for cooperation.