

VOLCANIC HAZARD MAPPING IN THE PHILIPPINES USING REMOTE SENSING AND GIS

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One of the 22 active volcanoes in the Philippines is Mt. Bulusan. The volcano erupted more than 15 times in recent history, but the majority of these eruptions were mild phreatic eruptions. Field evidence shows however that Bulusan is capable of producing lava flows, domes, pyroclastic currents and lahars. Bulusan therefore poses a potentially major risk to the dense population at the footslopes of the volcano. Hence the volcano is constantly monitored with seismic equipment. To mitigate the potential hazards posed by this volcano, a volcanic hazard mapping program has been undertaken. Because of lacking existing geological and geographical data, it was decided to use optical and radar remote sensing techniques to acquire additional data. A GIS database was created at a medium scale, which was used as a reference for the development of preliminary hazard maps for each of the volcanic hazards that have been identified. An elementary approach, making use of the 'Energy cone' concept, was followed to outline the areas subject to potential pyroclastic flows and surges. Lava- and lahar flow path predictions were made based on the Digital Terrain Model (DTM). This work was carried out between 1996-1999 in the framework of the UNESCO/IUGS Geological Application of Remote Sensing (GARS) programme