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ANALYSIS OF THE MOUNT MAYON IN PHILIPPINES USING ERS (INTERFEROMETRY) & SPOT DATA

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ABSTRACT

1. GIS Database Development for Disaster Mitigation. This work was a part of a project for the development of disaster mitigation master plan around Mt. Mayon funded by JICA The data used are Aerial Photographs, SPOT, LANDSAT, JERS-SAR, ERS, RADARSAT. Landuse map was created based on these RS data. Riverbeds change cause by very active mud-flow has been mapped. Potential amount of sediment production from each river were estimated using a model which considers river network, vegetation, river depth and etc.

2. Utilization of Coherence image for volcanic morphology. ERS coherence images were used to differentiate volcanic topographic morphology such as lava, mudflow and etc. Two ERS images were used to obtain good information at all direction of the volcano.

3. Lave Deposit Depth Estimation using IN-SAR ERS Interferometric pair of ERS in 1996 were analyzed to estimate the depth of Lava deposit in 1993. The elevation was estimated by developing a error model. The depth of the lava flow was successfully estimated from difference between the IN-SAR based elevation and a topomap before the eruption. The accuracy was evaluated based on topomap developed by aerialphotograph in 1999.

4. Relationship between Coherence and DEM Accuracy & Vegetation. Coherence and DEM accuracy was investigated and good relationship was found. Further the relationship between Coherence and Vegetation index was also analyzed.

5. Real time volcanic activity mapping system using ground fixed camera. A system to map volcanic activities using a ground fixed digital camera was developed. Skyline edge matching technique was developed. (This application is not using SPOT or ERS, but the mapped image can be compared with ortho SPOT image)