# The preliminary GPS observation around Mayonvolcano. Philippines

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Mayon Volcano located at the southeastern extremity of the Luzon Island is the most active volcano in the Philippines.

Mayon has exhibited 47 violent eruptions since 1616 most of which produced andesite to basaltic andesite pyroclastic flows and lava flows and airfall tephra. Pyroclastic surges which swept the southern sectors of the volcano during the 1814 eruption killed
about 1,200 people so it is important to continuously monitor activity and provide sufficient warning to the growing population who rely on agriculture, commerce and tourism in this volcanic setting.

The main monitoring method of volcanic activity at Mayon is seismic observation. But historical observations has shown that some eruption occurred without clear earthquake precursors (e.g. 1993). In
such a case, it is difficult to estimate the trend of volcanic unrest at Mayon using earthquake monitoring alone.

A viewpoint to consider is that ground deformation should occur as a result of magmatic activity and that we may be able to detect such deformation leading to
eruption even if magmatic intrusions are aseismic. For example, surveys by the Philippine Institute of Volcanology and Seismology (PHIVOLCS) show evidence of
slight uplift or 'inflation' of the edifice by EDM observation before eruption. In addition, gravity changes have been documented before and after eruption. But these data are limited in space-time, so
that it is difficult to model the magmatic system and activity from these ground deformation data.

We, MRI, are planning a cooperative project with PHIVOLCS, Kyoto University and Ibaraki university. Our research project includes the following:
1)GPS observation around Mayon volcano
2)Gravity observation around Mayon volcano
3)Numerical experiment of Mayon volcano model by FEM.

Prior to the start of this research project, MRI and PHIVOLCS begana preliminary GPS observation around Mayon volcano in 2003. We would like to introduce the results of preliminary observations and brief overview of the proposed research cooperation programme.