

Firenze June 19, 2009

## **Report on the Research Activity at ERI**

During my stay at the ERI in Tokyo I have been mainly involved in the project of the installation of an infrasonic array on volcano Asama.

Asama is a quite active volcano characterized by steam explosions of generally moderate intensity. This activity, quite persistent in time, is interrupted by strong vulcanian explosions where large andesitic blocks are ejected at several hundreds of meters of distance from the crater. This explosive activity of Asama generates seismic signal, which have a very long period (VLP) seismic waveforms, which origin is still object of study. The infrasonic array aims to detect small pressure signals (below 1 Pa) generated by this activity of Asama volcano in order to disclose physics of the explosive mechanisms and to help in the interpretation of the VLP seismicity.

I have worked in strong cooperation with the Volcano Research Center (VRC) of the ERI to make the installation of the array at Asama possible. The array developed consists of 4 stations equipped with 5 differential pressure transducers deployed in a star configuration at 1500 m of distance from the crater. Response of the pressure sensor depends strongly on the way the sensor is installed. Installation procedure is then a delicate equilibrium of solutions, which tend to protect the sensor from the hostile volcanic environment on one side and to induce the minimum waveform distortion on the other side. The actual solution was reached after several calibration tests carried out first at ERI labs and then in the field, in strong cooperation with the VRC of ERI.

I have visited Asama for a field recognition on May 26, and then again from 2 to 5 June for the installation of the array. I was again June 10 for a final check of instruments and data transmission.

The array is now properly working and most of the problems linked to data transmission to Asama Volcano Observatory, and then to ERI in Tokyo, have been partially solved. On my side I wish to thank all the colleagues that have worked to realize this installation and the ERI International Office for the kind support which made this installation possible.

Looking for more constructive future cooperation,  
Sincerely,

Maurizio Ripepe