MONITORING ACTIVE VOLCANOES
BY ELECTROMAGNETIC AND OTHER GEOPHYSICAL METHODS

Application to Asian Volcanoes

Information: http://www.emsev-iugg.org/emsev/

February 25 – Sunday 28, 2010

PHIVOLCS auditorium
C.P. Garcia AVENUE, U.P. Campus Diliman, Quezon City, Philippines

Second Workshop organized by:
The Electromagnetic Studies of Earthquakes and Volcanoes Working Group[1]
and
The Philippines Institute of Volcanology and Seismology, Philippines[2]

1: EMSEV (http://www.emsev-iugg.org/emsev/) is an Inter-Association of the International Union of Geodesy and Geophysics (IUGG; http://www.iugg.org/)

2: PHIVOLCS (http://www.phivolcs.dost.gov.ph/) is a service institute of the Department of Science and Technology (DOST), Philippines.

Scope:
Following the first Workshop held in 2003 for initiating Seismic and Electromagnetic Monitoring in Asian Countries, this second workshop will highlight techniques and methodologies for monitoring active volcanoes with the application to Philippines and other Asian volcanoes. Topics will focus on advanced multi-methodological methods based on electromagnetic and other geophysical methods for understanding volcanic structures and monitoring awaking volcanoes and hydrothermal/magmatic unrests. A particular attention will be paid to volcanic hazards, public information and risk management in highly populated volcanic areas. The five years cooperation between EMSEV and PHIVOLCS on Taal volcano will be exploited for educating young scientists to field work.

Attendees:
- Scientific and Academic world
- Young scientists in Geology, Geophysics, Physics, Mathematic applications, risk mapping and management
- Public and private actors acting in developing international cooperation in developing countries
- Actors in risk assessment and governance

Main topics of the Workshop:
- Volcanic risks in Asian countries
- Volcanic risk assessment, education, information and education
- Historical activity of volcanoes in Asian countries: Exiting precursory phenomena?
- Advanced electromagnetic methodologies for imaging volcanoes
- Electromagnetic and other geophysical methodologies for monitoring hydrothermal/magmatic systems
- Satellite observations
- Data processing and modelling
- Special session on Taal volcano: historical eruptions, structure, hydrothermal activity and magma injection, what to monitor and how, real time monitoring and processing, risk mapping, predictability

Location:

PHIVOLCS auditorium
C.P. Garcia AVENUE, U.P. Campus Diliman,
Quezon City, Philippines

Deadlines:

Registration: January 10, 2008
Extended abstract: January 24, 2009 (~2 pages)

Contact:

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Tentative Program:

Wednesday 24 February

- Arrival of participants

Thursday 25 February

- Opening Ceremony

- ***Session 1***: **Volcanic risks in Asian countries**
  * Active faults systems and volcanoes in Philippines
  * Volcanic risks in Philippines, human and economical impacts
  * Volcanic risks in other Asian countries
  * Risk assessment, information and education
  * Historical activity of volcanoes in Asian countries: Existing precursory phenomena?

- ***Session 2:*** **Electromagnetic and other geophysical methodologies for imaging volcanoes**
  * Electric and magnetic methods
  * Electromagnetic methods
  * Geochemical methods; sources of degassing
  * Seismic, geodetic and gravimetric methods
- ***Session 3: Electromagnetic and other geophysical methodologies for monitoring volcanoes: From ground to satellite observations***
  * Self-potential, magnetic, electric and magnetotelluric methods
  * Geochemical and soil/water degassing methods
  * Volcano seismology
  * Geodesy: borehole tiltmetry, levelling, GPS and satellite interferometry
  * Real-time data monitoring, data processing and analysis, modelling

Friday26 February

- ***Session 4: Understanding and monitoring Taal volcano***
  * Regional tectonic setting, building of the volcano
  * Historical eruptions: impacts and precursory phenomena
  * Population settlement and economical growth: Risk assessment, information and education

* The usefulness of GIS in mapping volcanic hazards
* Geological instabilities, flank and crater collapses
* Imaging the hydrothermal system
* Bathymetry of Main Crater Lake
* Geothermal, fumaroles, bubbling and geysering activity
* Heat, gas and fluid transfers
* Features of the activity in Main Crater Lake

* The 1965-1977 eruption, teaching
* The sporadic activity since the 1965-77 eruption
* Monitoring volcanic seismicity and dikes injection
* Monitoring the hydrothermal activity by electromagnetic and geochemical methods
* Monitoring heat fluxes and soil degassing
* Monitoring the deformation of the volcano
* Real time monitoring, analysis and predictability

- ***Round table:***
* Needs for monitoring more accurately Taal volcano
* Further cooperation
* Closing ceremony

- ***Posters***

In addition to oral presentation, posters can be set during the meeting in PHIVOLCS lobby
Available sizes are 100 cm x 150 cm and 92 cm x 128 cm.

Saturday 27 February

Excursion to Taal volcano

Sunday 28 February

Departure of the participants

Direction of local organizing committee:

Jimmy Sinciocco
Mylene Villegas

Registration fees and support

- No registration fee
- EMSEV will cover materials for meeting (abstract booklet, coffee breaks …)
- Lunches at PHIVOLCS will be covered by EMSEV for participants doing presentations (February 25, 26)
- Excursion to Taal volcano will be covered by the meeting (bus and boat rentals, field guide)
- Ice breaker on February 24 and Workshop diner on February 26 will be paid by the meeting

- Hotel accommodation will paid by participants (about 40 €, $ 60 per night in local hotel nearby PHIVOLCS)
- Some rooms will also be available free of charge at PHIVOLCS (‘Magma chambers’)(i.e. for young scientists)
- Diners on February 24, 25, and 27 will be at the charge of participants (~ 10 €, $ 15 each)

Sponsors:

IUGG – EMSEV – JICA – PHIVOLCS – IAGA – IAVCEI – IASPEI -French Embassy (Manila,MAE)