Minutes of the

« Service National d'Observation en Volcanologie » scientific committee meeting

Thrusday 10 June 2010, IPGP, Place Jussieu, 75005 Paris

Participants: Patrick Allard, Alessandro Bonaccorso, Jean-Luc Got, Joachim Gottsmann, Edouard Kaminski, Jean-François Lenat, Joan Marti, Jurgen Neuberg, Bruno Scaillet, Jean-Paul Toutain

Excusés : Edoardo Dell Pezzo, Alain Bernard

Invités : Steve Tait (Morning)

De droit : Bruno Goffé, Mireille Perrin

10:00-13:30: Meeting of the V SNO scientific committee with the services director

General welcome by Jean Virieux (CNRS/INSU, Commission des Services Nationaux d'Observation): On behalf of Bruno GOFFE, director of INSU in charge of Earth Sciences department, Jean Virieux makes a warm welcome and thanks participants for the time they are going to spend on the analysis of the SNO Volcanology. Many thanks to Edouard Kaminski of IPGP for room facilities and INSU for coffee & lunch.

A short presentation of the recent evolution of observatory services validated by INSU is presented as well as financial support for the current year. Full costs are not given (human resource costs are confidential) but numbers are indicative of overall spending for different entities (a presentation ppt is provided.).

Joan Marti is designated as the President of this committee and he proceeds as acting chairperson of this committee. As the President, Joan Marti provides some insight on current and future challenges for the scientific community in volcanology with various aspects related to the social and multidisciplinary issues of volcanic investigation (a ppt is provided).

Steve Tait then makes a global presentation of the different IPGP missions. The description of both research teams and observatory activities are presented as well as the different initiatives to improve data observation and data accessibility. He emphasises the difficulties of the working environment for people deployed at volcano observatories (career perspectives, lack of motivation when working on quiet volcanoes). He presents the different strategies he has tried to set up in order to improve efficiencies – long-term, mid-term and short-term observatory missions of people in charge of them (a ppt is provided).

Many of the items presented by Tait are related to specific missions of the observatories related to daily routines such as monitoring, establishing alarms and providing early warning. In addition, emphasis in the observatories is placed on research activities of natural phenomena. He reports on participation in international structures such as CARTWS for monitoring or the European initiative EVOSS which is a GMES initiative. Steve Tait raises his concerns of insufficient human resources for crisis management by the IPGP. Tait promotes the idea of a national task force for better management of a crisis. He reports that IPGP has made several advances regarding the availability of volcanological data through the data base VOLOBSIS. Tait is very concerned over the dissemination of the data because of lateral effects related to misus of data by non-scientists and those outside IPGP. He promotes the idea of a broader scale for volcano monitoring in observations, and proposes to place volcanic activity (or lack of) in a regional context such as on the scale of the Antilles arc.

Tait reports that data collected by observatories are necessary for studying physical processes, for linking tectonics & volcanism, for assessment of volcanic light-ups, the duration of the activity and for the understanding temporal variability volcanic arcs.

In addition to volcano-related activities of observatories, seismic monitoring is an essential routine. Tait emphases the need to collect high quality data to feed research efforts within IPGP.

Tait presents insights on financial issues such as on funds for improved observational capabilities; eg., through CPER (territory support) and INTERREG (European support) funding. (Guadeloupe: CPER 1.6 M€; Martinique: CPER 12.6 M€
INTERREG: 1.8 M€). He highlights the objective to develop a seismic network by the end of 2012.

Tait also provides an example for collaboration between IPG and of OVCF on remote-sensing observations on La Reunion. . The ANR UNDERVOLC (2009-2012) is pointed out as a good example of a research project with a significant contribution of observatory data.

Recent events in Iceland have stressed the necessity of being ready for the next volcanic crisis on French national territory. Interactions between different disciplines (volcanologists, meteorologists, aeronautics engineers, civil aviation officers …) should be constructed before the crisis.

In concluding Tait, the members of the scientific committee identify several aspects that would need a better clarification, which include: recent launching of large research projects, the funding system (which is not clear to the foreign members of the scientific committee), the necessity of incorporate remote sensing observations, and how to ensure the existence of a critical mass of scientists and technicians in observatories.

The second presentation is given by Jean-François LENAT on two SOEREs projects: one on radar interferometry, centered on the Piton de la fournaise volcano, Réunion (VOLInSar). The other (TELEVOLC) aimed at performing cross correlated remote sensing techniques on volcanic plumes, with a specific application to Etna.

An informal discussion about these presentations is starting with questions about instruments, human resources and the importance of defining the time scale of observations. Among others, issues regarding the present structure of the monitoring systems, financing, role and duties of volcano observatories, role and duties of IPGP in volcano surveillance and management of volcanic crisis, dissemination and accessibility to monitoring data, and human resources of volcano observatories, arise from the discussion and constitute the guidelines for the general afternoon discussion.

13.30-15.30: Meeting of the V SNO scientific committee: General discussion

According to what has been presented and discussed in the morning session, this general discussion focusses on the global strategy (long-term strategy, place into the national research system, place into the European framework) and technical recommendations (financial support, human resources and specific items) that the scientific committee considers necessary to improve the V SNO.

General discussion starts on how to open this SNO to other observatories, named Observatoire des Sciences de l'Univers (OSU) such as those of Clermont-Ferrand (OPGC), Toulouse (OMP) or Orléans (OSUC) or Grenoble. The "Service National d'observation in Volcanologie" should work on a national French scale. A better co-ordination among all organisms and institutions involved is clearly needed.

Discussion continues regarding duties and benefits of the different aspects between observatory specific goals, those from a research structure, and those of an operational organism. In general, the main purpose of a volcano observatory is to acquire and disseminate monitoring data, not to be a research centre. The latter is a role to take up when the first one is fully accomplished. Monitoring data should be used to elaborate the corresponding reports that the authorities need, but they should be also open to the wider scientific community in order to enable assessment of the state of the monitored volcanoes and to foster research. It is emphasised that IPGP responsible for French volcano observation should accomplish this role. There is general consensus on the lack of effectiveness in dissemination of monitoring data from IPGP. The committee agrees that since one of IPGP's main duties is volcano observation on French territory, IPGP should first ensure the operation of French volcano observatories for obtaining and providing data on these volcanoes. Conducting research is regarded second order in this context. The commission aggres that there is currently a lack of effective management and transparency regarding dissemination of data and information among the French scientific community.

During the discussion, the committee also compares the situation in France with that in other countries in Europe wheresystems have been implemented in the recent past to ensure that volcano monitoring data and information is openly available to the scientific community without restriction. The cases of Italy and Spain were singled out where INGV and IGN, respectively, are responsible for this role. In the UK a virtual National Earth Observatory Centre has been established to collect and disseminate all monitoring data.

16h-17h: Conclusions and recommendations

Looking at the long-term strategy for volcano surveillance in the context of a European framework, the committee recognizes the critical role French observatories play. It is at the same time also recognised that resources (human and instrumental) currently allocated to French observatories may be insufficient to react to and to manage an evolving crisis efficiently. The committee makes several recommendations which are considered as first priorities.

Recommendation A: A cost/benefit analysis of activities and resources of the current structure and a integrated structure within a "Service Nationale d'Observation en Volcanologie" is necessary in order to evaluate effectiveness and efficiency dimensions of the services.

Recommendation B: The "Service National of Observations" of CNRS/INSU is devoted to data acquisition, and data dissemination to the entire national (and international) scientific community. Therefore, the distribution of raw data, preliminary data and qualified data which may come from ad-hoc interpretation of initial data should be available in quasi-real time. Reaching this target should be recognized as the prime goal of SNOs. Only difficulties of data transmission, data mining using well-defined protocols, might slightly delay the distribution. While real-time dissemination is desirable, delays of up to 15 days from time of collection are

acceptable. The committee is very concerned by the backward upgrading of previous collected data under national funding schemes for observations, some of which are at present inaccessible to a significant part of the French research community. A virtual observatory structure is strongly suggested for a constructive interaction and transparency in data distribution, and identification of data origin (meta data).

Recommendation C: The committee is concerned about the current strategy of volcanic monitoring regarding the current link between observations and research entities on a wider scale, or lack of it. Monitoring effort should benefit from recent advances in research, yet research needs data from observatories as a vital input. Both disciplines are mutually dependent. In this respect there is a need for a critical mass of people for scientific analysis of data inside observatories. It is also recommended that observatory personnel performing their contractual duties be considered for fast-track internal promotion and a better integration of observatory scientists for research publication efforts. Enlarging the number of engineers associated with permanent observations appears also to be necessary requirement to cover the workload.

Recommendation D: The present level of monitoring in the French volcanoes should be revised and improved in cases where deemed necessary. This will secure maximum efficiency of working observatories. Compared with other volcano observatories in Europe and beyond, monitoring of seismic, gas emissions, and ground deformation signals in addition to erupted volume calculations, are deemed an essential set of operations. It is necessary to look for the balance between instrumentation and available staff to undertake these tasks in each case.

Recommendation E: A remote sensing component (data collection via satellite, archiving and analysis before distribution) headed by the Clermont-Ferrand Observatory should be integrated as part of the "Service National d'observation" in Volcanology. Improving in-situ observations, especially in La Réunion using Volvorad instrumentation is also promoted. A better networking between OSUs seems to be necessary for improved efficiency and recognition

Recommendation F: In order to strengthen the interaction within the volcanological scientific community, platforms should be funded where both instrument & software developments as well as key scientific issues related to volcanoes will be discussed. For example, an online forum might be part of a virtual observatory structure..

An open question arises with the long-term observations outside the French territory, as, for example, Indonesia: is it something that should be supported and funded by CNRS/INSU? The committee asks Jean Virieux to pose this question to CNRS/INSU.

The committee also suggests that in order to provide timely advice it should meet once per year or with a higher frequency in case of specific problems. It would be also convenient that a small group of committee members could visit the observatories in order to evaluate in-situ their operations. Meanwhile, in order to have a more complete framework, it would be convenient for the scientific committee to know about the different monitoring instrumentation and technologies used at the French observatories. Therefore, a synthetic scheme of the different monitoring networks (type and number of instruments, type of methodologies, technical details, etc) would be appreciated.

Joan Martí

Barcelona, June 16, 2010