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INTERNATIONAL ASSOCIATION OF VOLCANOLOGY AND CHEMISTRY OF THE EARTH'S INTERIOR

REMINDER

Abstract Submission Deadline is 31st January, 2013

for the IAVCEI2013 Scientific Assembly, Kagoshima, Japan, July 20 - 24, 2013

All members are reminded that the deadline for the IAVCEI2013 Scientific Assembly is fast approaching. The scientific program of symposia, workshops and fieldtrips is great. Don't miss this great volcanology conference. Abstract and registration details are available at **http://www.iavcei2013.com**. This year consider going to IAVCEI2013 instead of AGU and EGU for a more international volcanological conference experience.

REMINDER

Deadline for Nominations for IAVCEI Research Awards is 1st March, 2013

IAVCEI's prestigious Research Awards will be awarded to successful nominees for the

- Thorarinsson Medal
- Wager Medal
- George Walker Award
- Krafft Medal

See details below in the Newsletter for the nomination procedure.

REMINDER

Become or Renew Your IAVCEI Donor Membership for 2013 on-line.

The number of IAVCEI members has reached almost 2,000. IAVCEI now has the largest number of volcanologists affiliated with an international learned society, and is the only international volcanological learned or professional association. It holds major international conferences every 2 years (IAVCEI 2013, Kagoshima, Japan; IAVCEI2015, Prague, Czech Republic), it has numerous research commissions, which anyone can join and which hold their own focussed workshops, and it provides financial support for young scientists, students and scientists in need to attend its activities. Please consider becoming a IAVCEI Donor Member or renewing your donor membership (yearly, 4 years or for life) to allow IAVCEI to maintain its range of activities for its members. Go to **http://www.iavcei.org** for details.

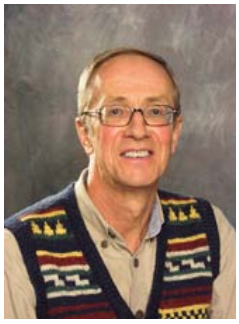
Ray Cas

President of IAVCEI

FROM THE PRESIDENT

The IAVCEI Response to the Conviction of six scientists in Italy over the 2009 L'Aquila Earthquake Disaster and the Issues Arising

Dear Colleagues,



Ray Cas
President of the IAVCEI

As many of you will know, since the last IAVCEI Newsletter I have been involved in representing the view of IAVCEI regarding the conviction of six scientists and one government administrator for manslaughter on 22nd October over their roles in monitoring and advising government about the L'Aquila earthquake disaster of 2008-2009 in Italy. The IAVCEI response is available on the IAVCEI website for those who have not seen it, and was also circulated through the volcano listserv email news service. The statement was unanimously supported by the IAVCEI Committee.

I received many reactions from IAVCEI members world-wide to this statement, with the overwhelming majority supporting the stance taken by IAVCEI. However, there were three responses from Italian scientists who felt that the convictions were justified, based on court transcripts and Italian and other media releases.

To say that this is a difficult issue is an understatement! Some people might even question whether or not IAVCEI should have released a statement in support of the convicted scientists because the disaster was not a volcanic one and because the matter had gone through the Italian judicial system and a conviction was made. My response to these views is first that we all need to be concerned about these convictions because there are many important implications and lessons for all scientists involved in natural hazard monitoring, including volcanic ones. Secondly, if we all just accept that every court decision is correct, there would be many innocent people in jail. In any true democracy, any court decision can be challenged, on various grounds. As members of the international scientific community we are all third party observers to this case, and that means we don't know all the facts, and details of conversations had. However, we are entitled to assess the context that these scientists were in, and to judge whether or not as scientists we feel they were fairly treated. That is the perspective that IAVCEI has presented, and the basis on which I have made a submission to the Italian President and Prime Minister (copy enclosed below).

In the rest of this article I will summarise the main issues and consider the implications, including some material from the IAVCEI statement.

The convicted scientists include Professor Franco Barberi, an internationally renowned volcanologist, the inaugural winner of IAVCEI's prestigious Wager Research Medal, and who at the time of the 2009 L'Aquila event was the Head of the Italian Serious Risks Commission. Professor Barberi has managed a number of volcanic crises in Italy with distinction. Others are also eminent scientists in their fields, including seismology; they are not novices. They were sentenced to 6 years in prison and fined over 6 million Euros to cover the court costs and pay compensation. They are appealing the sentences.

The L'Aquila region is well known in Italy for being earthquake prone, with major events over at least the last 8 centuries, some involving estimated deaths of thousands. However, not all seismic events in the region have led to fatalities. Given the region has a very long history of earthquake activity, it is surprising that not more had been done to rebuild or reinforce the buildings of the region to withstand major earthquakes. The earthquake on 6th April 2009 that killed over 300 people was a magnitude 5.8 on the Richter Scale, very significant but not at the extremes. Throughout Italy, historic earthquakes from magnitude 5 to 6 have been common, 6 to 7 less common, and over 7 rarer, but not totally unusual. It would seem incumbent on the Italian government to insist on building standards to withstand at least magnitude 7 earthquakes. Apparently, some standards were in place in L'Aquila, and one assumes the Risk Commission was aware of this, but these standards were clearly inadequate. From the beginning of the crisis in December 2008, up to the 6th April event, the magnitude of most earthquakes was below 4, and little or no damage occurred. However, given the damage inflicted by the 2009 event and two aftershocks of 5.1 and 5.3, it is clear that building standards in that region were not even up to magnitude 6. Whose fault or responsibility is that? Not the convicted scientists. Most deaths and damage would have been avoided had building standards to withstand earthquakes of at last magnitude 7 been in place and all habitable buildings had been upgraded to this standard. Given that the L'Aquila region is rated as the highest earthquake danger area in Italy, this is not an unreasonable expectation, and so past and present governments must take significant responsibility for the deaths and destruction.

The scientists were accused of providing misleading information, issuing reassurances and not adequately alerting the possibility of a major earthquake. They said a major earthquake was possible but unlikely, based on the situation up to a week before the major event. This is correct, given that the statistical likelihood of such an earthquake occurring is less than 0.001. However, clearly, to adequately cover their backsides, as we say, they should have highlighted the consequences of a worst-case scenario should it occur. So they were charged with negligence for not doing this, even though everyone knows the potential for major destruction from earthquakes all over Italy from past events.

However, what would have happened if the convicted scientists had forecast the worst-case scenario, a major earthquake, resulting in the evacuation of as many as a half a million people or more in the region, but then nothing happened? Would they then also have been charged with providing misleading information and causing unnecessary costs to government and community?

There is a very good parallel with the Christchurch, New Zealand September 2010 - 2011 earthquake disaster, during which 185

people were killed. The two major destructive earthquakes there could not be predicted either, they occurred amidst a swarm of thousands of lower magnitude earthquakes, and the city was not evacuated even when the earthquake crisis began. But no scientists there have been charged with criminal negligence because there is an understanding that providing exact predictions is impossible.

The prediction of the timing, frequency, location, magnitude and impact of all natural hazards (e.g. earthquakes, volcanic eruptions, tsunamis, landslides, floods, fires, cyclones, tornados, etc) and assessment of the risks involved are extraordinarily difficult. They can only be assessed approximately, with a spectrum of scenarios, from worst case to lowest impact. Scientists in positions of responsibility give advice based on their understanding of the current circumstances and their years of experience in relevant scientific fields. However, they cannot get it exactly right every time. This is not because the technology is deficient, or because the scientists are incompetent or negligent, but simply because nature is extremely unpredictable in the way it releases its energy, when it does so, where it does so, and the magnitude and impact of such events. As scientists we do the best we can in the circumstances, to assist and provide advice.

Natural disasters are bad news for everyone – affected communities, governments, civil authorities, industry and the scientific community. The real concern now for the scientific community is that civil authorities could try to deflect attention from themselves and the relief effort after a crisis by playing the "blame game" and taking legal action against scientists for "providing inaccurate information". It is also extraordinary that six scientists and one government administrator have been charged, but no civil and government personnel, who must also have been involved in the whole monitoring and decision making process. The word "scapegoats" springs to mind.

This conviction sets a terrible international precedent. It should cause all scientists employed in monitoring and advising government and civil authorities on potential natural hazards to be gravely concerned about the advice they give. It becomes imperative that scientists cover all possibilities in great detail, and present the range of possible scenarios with estimated statistical likelihoods. The problem with this approach is that the statistically least likely event (a major earthquake, or a super-eruption), is the highest risk one, with the greatest impact. Even if scientists give such an analysis, they will be pressed for the most likely scenario, because authorities will not want to evacuate hundreds of thousands or even millions of people to mitigate against the most unlikely, but greatest impact event. That seems to have been the case in the L'Aquila event, but unfortunately it happened.

So, in future, very importantly, every scientist in such a position should seek clarification from their employers as to what the expectations are of them, exactly what their responsibilities are, and what their legal liabilities are. They should seek a written guarantee from governments that they are personally exempt from any legal action, in the case of an extreme event that causes major damage to infrastructure and loss of life. Unless such an indemnity exists, no scientists will be prepared to propose what they think will be the most likely event based on the information available; they will always take the conservative option and over-estimate the consequences of an event, just to make sure, irrespective of the costs.

Does anyone seriously believe that the convicted L'Aquila scientists gave the advice they did knowing what the legal consequences would be? Was there a document setting out clearly their responsibilities and the consequences of providing misleading advice? I am not aware that such a document existed, and if they were not aware of the eventual consequences, they should not be held responsible and be convicted retrospectively. They and everyone else have learned serious lessons from this experience.

I am reminded that here in Victoria, my home state in Australia over 400 catastrophic fires occurred across the state on Saturday 9th February, 2009 ("Black Saturday"), a summer day with a temperature of 46oC and wind strengths of 120 km/h. 173 people died and over 2000 homes were destroyed. There have convictions against some arsonists, and power companies with poorly maintained infrastructure, but despite some attempts to bring charges against fire fighters for not doing enough (nothing could be done in that inferno!), they have been protected and indemnified by law because they were providing a service and doing the best they could under the circumstances and with the knowledge they had.

This is the type of indemnity all scientists involved in hazard management and prediction should seek, and if you can't secure that you should seriously consider other employment options. Governments will wake up when they realise that no scientists with suitable backgrounds are prepared to undertake positions of responsibility unless they are indemnified from legal action by government.

I received many thoughtful comments in response to the release of the IAVCEI statement, but I wish to present one for your consideration below, from Warner Marzocchi, from INGV in Italy. It is a very balanced assessment of the situation at the time of the L'Aquila event and the context the convicted group were working in.

Guido Giordano has also proposed a change in attitude from government and the scientific community about hazard and risk assessments and communication. I have also included his very thoughtful volcano listserv article below. Guido has suggested that the IAVCEI Crisis Protocols Committee/Commission be resurrected in the light of the L'Aquila convictions, to consider the consequences for professional volcanologists and to propose guidelines on changing the approach, or paradigm, as he has called it. We also need guidelines for professionals. This is a very timely suggestion that the IAVCEI Committee will consider in the New Year, with a view to having a structure in place by the time of the IAVCEI Scientific Assembly in Kagoshima, Japan, in July next year.

Finally though from me, on behalf of the IAVCEI Committee, I wish all IAVCEI members and your families a relaxing Christmas and a happy and successful New Year.

Ray Cas,
President, IAVCEI.

See Letter to the President of Italy in the next Pages

***Emeritus Professor Ray Cas*,**
President,
International Association for Volcanology and Chemistry of the Earth's Interior (IAVCEI)

21st December, 2012.

The Honorable Giorgio Napolitano
President of Italy

Dear President Napolitano,

As the President of the International Association for Volcanology and Chemistry of the Earth's Interior (IAVCEI), I write to you to request that you intervene in the case of the seven scientists and administrators convicted of manslaughter on 22nd October this year over the 2009 L'Aquila earthquake disaster, during the appeals process.

The IAVCEI scientific community is the major international learned society for volcanology, and includes amongst its nearly 2,000 members many professional volcanologists whose job it is to monitor and manage volcanic hazards and crises. The conviction of the L'Aquila seven has shocked not only the IAVCEI community, but the scientific community worldwide, representing all scientific disciplines, and especially those scientists involved in natural hazards monitoring and mitigation, including hazards such as earthquakes, volcanic eruptions, tsunamis, landslides, floods, fires, cyclones, and tornados.

The precedent of the convictions of the L'Aquila seven has made all scientists very wary about giving scientific advice, and many are now considering resigning from their positions because of the prospects of legal action being taken against them, as has already happened in Italy following the convictions.

One of the convicted seven, Professor Franco Barberi, is well known in the volcanological community and within IAVCEI. Professor Barberi is an internationally renowned volcanologist, and is the inaugural winner of IAVCEI's prestigious Wager Research Medal. He has managed a number of volcanic crises in Italy with distinction, and is known for his integrity and sense of responsibility. The volcanological community finds to difficult to accept that Professor Barberi would have acted irresponsibly during the L'Aquila crisis. I cannot speak about the other convicted scientists, but I understand that they are also experts and distinguished in their fields, including seismology.

IAVCEI believes the L'Aquila seven were unjustly convicted and should be acquitted of the criminal convictions for the following reasons:

1. **Predicting the timing, *location*, magnitude and impact of earthquakes is extremely difficult.**

   The prediction of the timing, frequency, location, magnitude and impact of all natural hazards such as earthquakes, volcanic eruptions, tsunamis, landslides, floods, fires, cyclones, tornados, and the assessment of the risks involved are extraordinarily difficult. They can only be assessed approximately, with a spectrum of scenarios, from worst case to lowest impact. Scientists in positions of responsibility give advice based on their understanding of the current circumstances and their years of experience in relevant scientific fields. However, they cannot get it exactly right every time.

This is not because the technology is deficient, or because the scientists are incompetent or negligent, but simply because ***nature is extremely unpredictable in the way it releases its energy, when it does so, where it does so, and the magnitude and impact of such events.*** As scientists we do the best we can in the circumstances, to assist and provide advice.

2. **The assessment of the likelihood of a large earthquake by the L'Aquila scientists was correct.**

   The L'Aquila scientists were accused of providing misleading information, issuing reassurances and not adequately alerting of the possibility of a major earthquake. ***They said a major earthquake was possible but unlikely,*** based on the situation up to a week before the major event. ***This is correct***, given that the statistical likelihood of such an earthquake occurring is less than 0.001. Up to the catastrophic earthquake, the magnitude of all earthquakes was less than 4. It was most likely that this pattern would continue. Given the history of earthquake activity in Italy, with many major historic earthquakes, all government authorities should have been aware that this was a possibility, *as the scientists said*, even though a low possibility.

3. **Scientists and other workers in the natural hazards mitigation programs of other countries are legally indemnified against legal action in the event of a major disaster**

   During the Christchurch, New Zealand September 2010 - 2011 earthquake disaster, 185 people were killed and many buildings were destroyed. The two major destructive earthquakes there could not be predicted either, they occurred amidst a swarm of thousands of lower magnitude earthquakes, and the city was not evacuated even when the earthquake crisis began. No scientists there have been charged with criminal negligence because there is an understanding that providing exact predictions of the timing, location, magnitude and impact of earthquakes is impossible.

   In Victoria, my home state in Australia over 400 catastrophic fires occurred across the state on Saturday 9th February, 2009 ("Black Saturday"), a summer day with a temperature of 46°C and wind strengths of 120 km/h. 173 people died and over 2000 homes were destroyed. There have convictions against some arsonists, and power companies with poorly maintained infrastructure, but despite some attempts to bring charges against fire fighters for not doing enough (nothing could be done in that inferno!), they have been protected and indemnified by law because they were providing a service and doing the best they could under the circumstances and with the knowledge they had.

   Was a written agreement or set of guidelines in place between the L'Aquila scientists and government authorities at the time of their appointment to the Serious Risks Commission, specifying what the responsibilities of the scientists were, what was expected of them, and what the legal consequences would be if their predictions were wrong?

   Unless the scientists knew in advance that they would be personally legally liable for any disaster, and since they gave an accurate assessment of the likelihood of a major earthquake, it is totally unreasonable that they were charged and convicted.

   (Unless scientists are indemnified against legal action, Italy may have great difficulty in attracting appropriately qualified scientists to take positions of responsibility to monitor all types of hazards in the future. This is a serious problem.

Unless scientists are indemnified they will not be prepared to give their preferred prediction because they will always feel the need to focus of the most extreme possible event, which lead unnecessarily to evacuations of huge numbers of people at great expense to government.)

4. **The extent of the damage and deaths that occurred are largely due to the inadequate building standards in the L'Aquila region, not the actions of the convicted scientists.**

   The L'Aquila region is well known in Italy for being earthquake prone, with major events over at least the last 8 centuries, some involving estimated deaths of thousands. However, not all seismic events in the region have led to fatalities. Given the region has a very long history of earthquake activity, it is surprising that not more had been done to rebuild or reinforce the buildings of the region to withstand major earthquakes. The earthquake on 6th April 2009 that killed over 300 people was a magnitude 5.8 on the Richter Scale, very significant but not extreme, and similar magnitude earthquakes have been experienced many times throughout Italy. Throughout Italy, historic earthquakes from magnitude 5 to 6 have been common, 6 to 7 less common, and over 7 rarer, but not totally unusual. It would seem incumbent on the Italian government to insist on building standards to withstand at least magnitude 7 earthquakes. Apparently, some standards were in place in L'Aquila, and one assumes the Risk Commission was aware of this, but clearly they were inadequate. From the beginning of the crisis in December 2008, up to the 6th April event, the magnitude of most earthquakes was below 4, and little or no damage occurred. However, given the damage inflicted by the 2009 event and two aftershocks of 5.1 and 5.3, it is clear that building standards in that region were not even up to magnitude 6. This is clearly not the fault of the convicted seven.

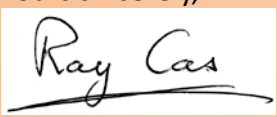
   It can be argued that past and present Italian governments have some responsibility because knowing the region is earthquake prone, they did not take adequate direct physical rebuilding or legislative actions to reinforce all buildings to a standard that would withstand an earthquake of at least magnitude 7. *The death toll and the damage bill would have been insignificant had local, regional and national government authorities taken action to legislate to change the building codes and to undertake restructuring works on all habitable buildings to increase their resistance to earthquakes.*

Summary

On behalf of IAVCEI, I respectfully request that the above points be considered and that you intervene in the case during the appeals process to ensure that the convicted seven are acquitted of criminal negligence relating to the L'Aquila earthquake disaster.

This will restore some faith amongst the scientific community that they cannot be convicted of negligence relating to natural hazards disasters. However, I also encourage the Italian government to introduce legislation to indemnify scientists from prosecution as a result of major natural disasters, because these events by their nature are highly unpredictable in their timing, frequency, location, magnitude, and impact. Scientists do their best, but they will not if threatened.

Yours sincerely,



Emeritus Professor Ray Cas,
President, IAVCEI, Monash University, Australia.

A COMMENTARY FROM WARNER MARZOCCHI, GEOPHYSICIST, INGV, ITALY

(an edited version of these thoughts will appear in the December issue of Physics World)

On April 6, 2009, a Mw 6.2 earthquake struck beneath the city of L'Aquila, Central Italy. The shock created significant damage in the city and caused more than 300 deaths in the city and environs. The event followed a seismic sequence that started at the beginning of the year, with its largest shock of Mw 4.2 occurring on March 30. On March 31, the Grandi Rischi Commission (CGR), composed of scientists and emergency managers, met in L'Aquila and released a brief report pointing out: 1) earthquakes are not predictable in a deterministic sense; 2) the L'Aquila region has the highest seismic hazard in Italy; 3) the occurrence of a large earthquake in the short-term is unlikely. These statements were interpreted by the community as a reassuring message. The need for such a message, and indeed for the meeting of the CGR, arose from the release of contradictory information from a local Civil Protection official and from the anxiety of the population generated by some earthquake predictions issued by Giampaolo Giuliani, a technician at the National Institute of Nuclear Physics, using his own personal method based on radon measurements. It is common knowledge amongst professional seismologists that radon is not a reliable earthquake precursor, and none of these predictions were proved to be correct.

After the earthquake, seven scientists and emergency managers who participated in the meeting were accused by the L'Aquila prosecutor of not having advised people to abandon their houses. This statement was interpreted by some Italian seismologists as an accusation of not having predicted the earthquake. They wrote an open letter signed by thousands of scientists worldwide denying this claim. The official indictment was released afterwards and did not contain such a bold statement about earthquake prediction, but it did charge them with manslaughter, asserting that scientists provided an inadequate risk assessment that led to scientifically incorrect messages being given to the public. The trial ended in October 2012 with the judge convicting the accused scientists and emergency managers, and sentencing them to prison terms of 6 years.

This draconian sentence has raised widespread concern, and shocked the scientific community. Undoubtedly, this trial and the verdict represent an extremely worrisome precedent that must be considered by scientists when offering their services in the interests of public safety. The whole situation is still rather hazy. Newspapers reported partial descriptions, often without specifying the context and the chronological order of the facts.

After careful reflection, both the accusation and verdict leave me very confused. Prosecutors repeatedly claimed that it was not a matter of science. Yet, several scientists were called to challenge the CGR statements. Some of them, in opposition to what is generally believed by seismologists, disputed the validity of Probabilistic Seismic Hazard Assessment, which is a standard procedure in many countries to define the building code and had been used to identify the L'Aquila region as one at risk. Another scientist alleged that the seismic sequence could be a clear sign of an impending large earthquake, even though the majority of the seismological community agrees on the fact that it is not yet possible to identify a priori a seismic sequence that anticipates a large shock with respect to the many other seismic sequences that do not end with a big earthquake. In addition, the prosecutor, judge and lawyers discussed in the court the results and reliability of different earthquake occurrence models. Their naive, if not totally incorrect, interpretation of scientific results would have bewildered any scientist.

Along the same lines, the prosecutor talked about "negligence" and "underestimated risk", implying that he actually knew what the real risk was and what was the best practice to adopt in these circumstances. The accusation implicitly follows this logical fallacy: "if scientists say that an event is unlikely, but this event actually happens, this means that the scientists are wrong".

This accusation has other menacing aspects. At the beginning of the eighteenth century, the Swiss pioneer of probability theory, Jacob Bernoulli, wrote: "Do not judge human action by what happens". By definition, taking a decision under uncertainty means that you cannot always take the decision that you would have chosen after the event. If this basic concept is not accepted, scientists, decision makers, and indeed anybody involved in public safety, may always be prosecuted after the occurrence of an unlikely event.

So, was a mistake made at the March 31 CGR meeting? This is a very tricky question, and we have to put the situation into context. During a minor seismic sequence, the daily probability of a damaging event increases, but it remains almost always much below 1% (an unlikely event). Before March 31, 2009 (and even today), in Italy and in many other countries, there were no protocols for providing scientifically based advice and for communicating the risk to the affected population. It was also an issue that rarely receives attention in the seismological community. Therefore it is not surprising that the meeting was brief and the conclusions apparently trivial (even though substantially correct) and largely foreseeable in advance. Seismologists and decision makers learned a great deal from the L'Aquila event, but I think it is unfair to use what we have learned after the event to accuse people about what happened before. We have to be aware that this will happen again in the future. The next disaster likely will teach us something new. Can it be right to use what we will learn then to accuse scientists for what they know now?

An International Commission formed after the L'Aquila earthquake led by Thomas Jordan, director of the Southern California Earthquake Center, summarized the lessons learned (https://dl.dropbox.com/u/51584618/AG_jordan_etal_11.pdf). Beyond underlining once more that our best defense against earthquakes is to build according to a sound seismic building code, the International Commission emphasizes the need to establish transparent and objective decision making protocols to manage the seismic hazard in the short term, and the vital importance of effective communication. The trial dramatically slows down any progress in this direction. Now, scientists are afraid and will want to have legal protection before making any kind of public statements. For this reason, the new president of CGR, Professor Maiani, and many members of the commission, resigned immediately after the verdict.

Hopefully, this impasse will be overcome, and efforts to inform the public about earthquake hazards and actions that can reduce the risk may be resumed. Citizens and decision makers need to be

educated about the kind of scientific information that scientists can provide, its relative uncertainty, and its limitations. In particular, it should be recognized by all that unlikely events may always occur, in seismology as in many other hazard sciences like volcanology.

Warner Marzocchi
INGV, Italy

A CHANGE OF PARADIGM

From: Guido Giordano (guido.giordano@uniroma3.it)

The discussion of these days hosted meritoriously by Listserv on the L'Aquila earthquake and consequent trial and sentence shows how delicate are the relationships between science, politics and media.

I will not add to the many opinions already presented by many collegues, which perfectly illustrate the complexity of the issue. However I believe that the trial and sentence derive from the kind of "*rules of engagement*", both written and unwritten, currently existing between science and society [my view and experience is obviously mostly based on the Italian situation]. My understanding is that the convicted scientists acted by those rules, therefore seemingly correctly within the given cultural frame. However, this case interrogates my conscience of scientist and citizen about those rules and their effectiveness in protecting people and promoting empowerment of individuals against natural disasters.

I want therefore to focus on the need for a radical cultural change from a state-oriented to a person-oriented science action, which I feel is at the core of the problem, as I will try to show below.
At present most of the scientific activity applied to civil protection is aimed at delivering information to state agencies for the implementation of emergency and evacuation plans. We are required to and we deliver probabilistic maps that (should) guide priorities of interventions and explain where and when it is most likely that a hazardous event will occur, given a threshold and a recurrence time. This kind of approach is tailored for a cost-benefit evaluation, typical of insurance companies. This approach also largely disregards the communities who live in the affected territories. Persons are required only to "*behave*" when required to move, or to stay. A common understatement in civil protection procedures is for example not to create panic, implicitly considering the citizens incapable of handling the uncertainties associated with natural hazards or even of receiving information on the risks associated with the territories they live in. And in facts, peoples in general have very little access to educational programs on risks so that they are largely unaware of those risks and have a very little scientific alphabetisation. For these reasons people do not urge a steady spending policy oriented at prevention and mitigations of risks. For these reasons people cannot properly evaluate what media and officials report when the crisis arrives, nor take site- and person-specific actions based, for example, on the knowledge of the building they live in, or on the personal situation, such they would be the very different cases of a lone elderly person who may want to stay versus a young couple with kids who may want to go.

The needed change of paradigm is perfectly expressed by the words of the Commission on Human Security of the United Nations (2003) quoted in an insightful essay by D. Ikeda (http://www.sgi.org/sgi-president/proposals/peace/2012.html): "*The state remains the fundamental purveyor of security. Yet it often fails to fulfill security obligations*." That is why attention must now shift from the security of the state to the security of the people--to human security.

The primary question of every human security activity should not be: What can we do? It should be: How does this activity build on the efforts and capabilities of those directly affected?" (Commission on Human Security. 2003. "*Human Security Now: The Report of the Commission on Human Security*." http://ochaonline.un.org/OchaLinkClick.aspx?link=ocha&docId=1250396)

This change implies that we scientists should feel contracted both by the state and by the citizens and that our efforts need to deliver to each individual potentially affected.

With this I mean, first, to give a priority to protect each and any life, via the enforcement of policies for the reduction of vulnerabilities, and programs aimed at risk awareness and preparedness. People should be involved in directing applied science, presently instead largely driven by insurance companies. For example, the result of a recent investigation on volcanic risk perception in the Campi Flegrei area (Project V5 Speed; http://istituto.ingv.it/l-ingv/progetti/progetti-finanziati-dal-dipartimento-di-protezione-civile-1/progetti-dpc-convenzione-2007-2009/progetti_v/V5/V5-Speed) demonstrated that volcanic hazard is not perceived at all by the local population, and that the closest volcano is believed to be Vesuvius (!). Citizens have the right to know where they live in and choose accordingly what kind of public, private and personal policies should be enacted, including contributing to the direction of applied science. People have the right to know the basic information for self-protection and to see a consistent program of public and private investment in risk mitigation. And science needs educated ears to be understood. If that does not happen, then science will be perceived, as it unfortunately largely already is, as part of the "establishment" instead as a resource.

Second I see the need for a shift of emphasis from the probabilistic approach to the maximum expected event.
For example, the Italian territory is since 2003 very carefully subdivided into 4 classes in terms earthquake hazard and antiseismic building prescriptions, based on the expected horizontal peak acceleration with a probability exceeding 10% within the recurrence time of 50 years (http://zonesismiche.mi.ingv.it/pcm3274.html). The recent 5.9 M earthquake in northern Italy occurred in an area where the previous and only historically recorded event of that magnitude occurred in 1570 C.E. So while in terms of probability the classification of that territory in class 3 (low hazard; expected acceleration = 0.05-0.15g) is correct, for those who experienced that particular earthquake (local acceleration >0.3g) the probability is irrelevant while the actual occurrence is very relevant. Similarly, scientists in L'Aquila were asked to assess the probability of a large quake during the swarm, and they correctly answered that the occurrence of a swarm does not increase that probability. With the change of emphasis I suggest the question would have become "*what is the maximum expected event in this area?*" [note that the Italian catalogue report a major destructive

earthquake occurred in 1117 in northern Italy in many areas that are classified with a minimal probabilistic hazard].

I therefore think that we need to urgently implement a twofold process: a) the probabilistic approach should drive the economy-constrained priorities of intervention by the state, in terms of consolidation of public buildings etc.; b) the maximum expected event should drive the prescriptions (to land use, buildings etc) and the programs of education. This process needs to involve the end-users in decision-making and control. Note that by using the maximum expected event, the entire Italian territory would fall into a single high (class 1) hazard class, which I believe much more reflective of the actual risk

Third, I see the need for full, real-time publicity of scientific data. Fortunately this seems the clear present and future trend of science. For example the recent activation of the earth-obervational Supersites (http://supersites.earthobservations.org/) is an excellent initiative, aimed at providing public access to spaceborne and in-situ geophysical data in areas prone to geological hazards. However in a recent presentation of the Supersites initiative we were told that in many areas, local space agencies or observatories are still reluctant to fully contribute, often with the excuse that data during crises should only be available to the local scientist community to prevent confusion in the public opinion, again suggesting very little "*trust*" in both the scientific and local communities.

To conclude, I support the resumption of the IAVCEI sub-Committee for Crisis Protocol (see documents published on Bulletin of Volcanology between 1999 and 2000 and available at www.iavcei.org) and extend its view on the entire process that involves science for disaster mitigation, with a focus on how science can be applied to "*build on the efforts and capabilities of those directly affected*". A similar discussion should involve the entire geological community at IUGG.

Guido Giordano,
Dipartimento di Scienze Geologiche
Università Roma Tre, Italy

BULLETIN OF VOLCANOLOGY : NEWS

Recent changes in Editorial Board Membership, Abstract Submissions, and Publication Policies are presented in an Editorial Article in the **Bulletin of Volcanology 2012 (December) 2012, Volume 74, Issue 10, pp 2219-2220** prepared by the Executive Editor *James White*.

IAVCEI COMMISSIONS AND LIAISON COMMITTEES: DRAFT GUIDELINES

The IAVCEI Executive Committee expects that commissions will adhere to the following guidelines, as appropriate:

- Each commission should have an active leader or chair (point of contact) and board of officers (for instance, ex-officio chair, vice-chair, secretary).
- Leader and board of officers should be elected every 4 years (or more frequently if desired), within commission.
- Report activities to IAVCEI Vice-Presidents every year (briefly) with a full report to be delivered to the Executive Committee every 4 years. If a commission receives IAVCEI funding for an activity then a report to the EC must be made one month after the end of the activity.
- The election of new office bearers for all commissions and presentation of final reports by the outgoing executives of all commissions should take place at a business meeting for each commission during IUGG General Assemblies.
- Leader and board of officers should promote advances in volcanology by coordinating working groups to study specific topics, or by some other mechanism.
- Leader and board of officers should promote the participation of young scientists in the activities of the commission and as board officers.
- Leader and board of officers should promote collaboration with other commissions.
- Organize a workshop or meeting (or equivalent activity) at least once every 4 years.
- Organize (or co-organize) symposia and workshops that contribute to IAVCEI/IUGG General and Scientific Assemblies.
- Keep a website that clearly acknowledges IAVCEI affiliation, and that includes an updated (at least once a year) register of members. Website shall be hosted, or have a webpage and link, on the IAVCEI V-Hub site.
- Use the above register of commission members to communicate with them at least once per year via an e-newsletter about commission activities and forthcoming commission workshops and programs at IAVCEI conferences.
- Ensure that commission members are IAVCEI members.

Liaison Committee roles and guidelines:

- Each liaison committee represents a group of commissions with overlapping interests.
- The role of liaison committees is to facilitate communication between related commissions about each other's activities and, where relevant, encourage and coordinate joint activities.
- Each commission within a liaison committee should provide a member to serve on the LC on a rotational basis. Desirably, the ex-officio commission chair or leader could be a candidate for the LC.
- Members decided by the boards of each commission would form the liaison committee. For example: Chemistry of the Earth; one person from each from Commission on Volcanic Gases, Volcanic Lakes, and Arc Magmatism, would initially constitute the liaison committee. They can be replaced each year at the discretion of the commission board or remain for the term of four years.
- Liaison committees will promote interactions and collaboration between commissions within its group.
- Liaison committees can promote new commissions and/or working groups, and explore strengths and weaknesses within the group.

ADVANCES IN VOLCANOLOGY
Springer Book Series

Advances in Volcanology is now accepting proposals for new book titles of any aspects of volcanology. The book series first book is due to be published in 2013 on *Crater Lakes*.

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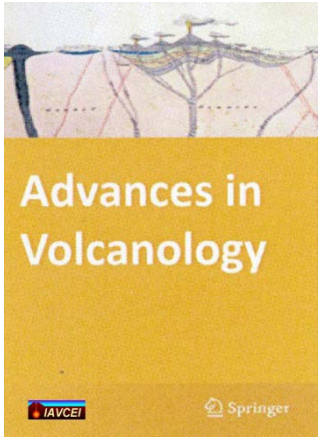

A new book proposal have been accepted by IAVCEI and Springer and a new book project starts shortly on "*Shallow level magmatic systems*" edited by *C. Breitkreuz* (Freiberg) and *S. Rocchi* (Pisa) and the book is planned to be completed by 2014.

Karoly Nemeth
Series Editor

IAVCEI 2013: Forecasting Volcanic Activity (Kagoshima, Japan)
July 20-24, 2013

Date: July 20-24, 2013, Kagoshima, Japan
Website: http://www.iavcei2013.com

The Steering Committee will provide information about IAVCEI 2013 until the time of conference in every news release. As you already know, detailed information are available on the IAVCEI 2013 website from Oct. 2012.

Please check the important dates and registration fees. Abstract submission deadline is coming soon at the end of January. Totally 11 pre- and post-conference field trips are planned at the IAVCEI 2013. In this issue, details of field trips are presented.

Important Dates :

○Grant Application Deadline January 31, 2013

○Abstract Deadline 12:00 (noon of JST), January 31, 2013

○Field Trip Application Deadline 12:00 (noon of JST), May 1, 2013

○Early Registration Deadline 12:00 (noon of JST), May 1, 2013

Registration Fees (Early Bird, until 12:00, May 1, 2013) :

○IAVCEI Donor Member : General JPY45,000, Student or Senior JPY20,000

○Others : General JPY55,000, Student or Senior JPY25,000

FIELD TRIPS

Pre-Conference Field Trips.

A1. Calderas and active volcanoes in central to eastern Hokkaido (July 13-19, 2013)

Photo 1. Me-akan volcano (left) and the outcrop of the Kutcharo pyroclastic flow deposits (right)

Hokkaido is situated at the junction of two arc-trench systems, the NE Japan and Kuril arcs, both of which have experienced intense volcanism since late Miocene. This trip will visit central and eastern Hokkaido, where locates at the southern end of the Kuril arc. This trip will focus on various types of younger volcanoes, calderas (Akan, Kutcharo, and Mashu), a volcanic complex (Taisetsu-Tokachi volcano group), and post-caldera volcanoes (Me-Akan and Atosanupuri). These volcanoes have erupted tephra deposits that are widely distributed in Hokkaido. This trip will investigate these deposits to reconstruct the eruption sequences and magmatic processes. In addition, this trip will climb Tokachi-dake and Me-Akan volcanoes to investigate their respective structures. The trip will also focus on the snow-melt lahar associated with the AD 1926 eruption of Tokachi-dake volcano, which caused severe hazards and killed 144 people.

A2. Unzen and Aso volcanoes, central Kyushu, Japan: New lava dome climb, 1991-95 pyroclastic flows (Unzen), an active crater, and one of the largest calderas in Japan (Aso) (July 15-19, 2013)

Photo 2. Unzen summit area, new lava dome and Mayuyama lava dome (left) and aerial view of Aso caldera (right)

This trip will visit two active volcanoes, Unzen and Aso, in central Kyushu, southwestern Japan, to observe volcanic deposits and study their impacts on the residents around the volcanoes. The 1990-1995 eruption of Unzen volcano resulted in one of Japan's largest volcanic disasters in the 20th century. Shimabara city and its environs were damaged by repeated pyroclastic flows and lahars. This trip will climb the new lava dome, visit the devastated area, and observe the 1991-1995 dome-collapse type block-and-ash pyroclastic-flow and lahar deposits. Furthermore, the trip will examine older deposits around the volcano and discuss the growth history starting from 500 ka.

Aso volcano, located about 70 km ENE of Unzen, is one of the most beautiful caldera volcanoes in the world. The caldera, which is 25 km north-south and 18 km east-west in diameter, was formed by four gigantic pyroclastic-flow eruptions from 270 to 90 ka. The post-caldera central cones initiated their eruptive activity just after the last caldera-forming eruption and have produced large volumes of fallout tephra layers and lava flows. Nakadake volcano, the only active central cone, is one of the most active volcanoes in Japan. Its recent activity is characterized by ash and strombolian eruptions and phreatic or phreatomagmatic explosions. This field trip will focus on the gigantic pyroclastic-flow deposits related to the caldera formation and the explosive and effusive post-caldera activity of the volcano.

A3. Suwanosejima - Lighthouse of East China Sea: Ongoing strombolian activity and proximal facies of the 1813 eruption (July 15-18, 2013)

Photo 3. The summit crater of Suwanosejima volcano (left) and tephra layers of AD 1813 eruption (right)

This field trip will visit Suwanosejima volcanic island, one of the most active volcanoes in Japan and sometimes called the "Lighthouse of East China Sea." This volcano has been active for more than 50 years, with strombolian to vulcanian activities that emit ash and ballistic ejecta. This trip will climb the summit of Mt. Otake, 799 m asl, to observe the current activities in the crater (very quiet as of October 2012). This trip will also visit some of the geophysical monitoring sites in the proximal area and examine the deposit from the 1813 eruption, the largest known eruption of this island. This trip will focus on some aspects of the proximal facies of the 1813 sub-plinian eruption, consisting of clastogenic lava flows and agglutinate, as well as the distal scoria-fall deposits. The trip will take the local ferry "Toshima" from Kagoshima to Suwanosejima island. This boat will pass along the volcanic islands of the Kirishima-Ryukyu arc. The trip will return to Yakushima aboard the chartered boat "Nanashima 2," which will go around Suwanosejima, allowing us to see coastal volcanic deposits, and then cruise along the volcanoes of the Tokara islands toward Yakushima island; this area is one of the most popular natural heritage sites in Japan.

Post-Conference Field Trips

B1. Active volcanoes in northeast Japan (July 26-30, 2013)

Photo 4. Bandai volcano (left) and the summit crater of Zao volcano (right)

Northeast Japan, a mature island arc, has many stratovolcanoes along with some other volcano types. Eighteen of these volcanoes are active. Most of the stratovolcanoes in NE Japan are thought to follow a general evolutional course consisting of
(1) cone building,
(2) caldera collapse, and
(3) post-caldera stages.

This trip will visit the following six active volcanoes and observe the geologic features of their activities during various evolutional stages: the Iwate volcano, which is in the cone-building stage; the Bandai volcano, which is in the caldera-forming stage; and the Azuma, Zao, Akita-Yakeyama, and Hachimantai volcanoes, which are in the post-caldera stage. The latest eruptions took place in AD 1888 at Bandai, in AD 1977 at Azuma, in AD 1940 at Zao, in AD 1919 at Iwate, and in AD 1997 at Akita-Yakeyama. Among these, the 1888 eruption in Bandai is famous for a sector collapse that accompanied a debris avalanche phenomenon, which was the first ever reported in the world. Around Akita-Yakeyama, one can enjoy a spectacular view of a geothermal field. This trip will also visit Ichinomegata maar (80 to 60 ka), which features mantle xenoliths, and the Toga tuff ring.

B2. Active volcano in central Japan: Asama volcano (July 26-29, 2013)

Photo 5. Asama volcano (left) and its summit crater (right)

Asama volcano, located near the Tokyo metropolitan area, is one of the most active volcanoes in Japan. It has had frequent vulcanian eruptions since the beginning of the 20th century, and small eruptions recently occurred in AD 2004 and 2009. This trip will investigate the eruptive history of the volcano, including stratovolcanoes, pyroclastic cones, and lava domes. Focusing on its famous, great eruption in AD 1783, this trip will discuss the eruption style based on the latest research on the proximal depositional processes of pyroclastic materials to form pyroclastic cones and clastogenic lava during a plinian eruption. This trip will also discuss how the volcanic edifice grows through such proximal processes.

B3. Fuji and Hakone volcanoes: Typical Japanese stratovolcanoes (July 25-28, 2013)

Photo 6. Mt. Fuji and the Hoei crater

Fuji and Hakone volcanoes, on the northern end of the Izu-Bonin-Mariana arc, are famous sightseeing spots in Japan because of the great views, hot springs, and many amusement facilities in their surrounding areas. However, both Fuji and Hakone are active volcanoes with potential hazards. The field trip will visit the AD 1707 Hoei crater and the AD 864-866 lava flows of Fuji volcano and the active fumarole vent of Hakone volcano.

The AD 1707 plinian eruption was the most explosive activity of Fuji volcano. The eruption began at the SE flank, and its fallout was dispersed eastward toward Tokyo. The volume of tephra was estimated to be 0.7 km3 DRE. The AD 864-866 lava flow was one of the most voluminous in Fuji volcano. The lava was extruded from fissure vents at the NW flank, and its volume reached 1.5 km3 DRE. Hakone volcano, located east of Fuji, is accompanied by a 10-km-diameter caldera and central cones. There are many hot springs within the caldera. This trip will visit the Owakudani tourist site and observe the fumarolic activity of Hakone volcano.

B4. Basaltic and rhyolitic island volcanoes in the Izu islands (July 26-29, 2013)

Photo 7. Niijima island (left) and tephra layers of Izu-Oshima volcano (right)

This trip visits two topographically and petrologically contrasting active volcanoes in the Izu islands, the basaltic Izu-Oshima and the rhyolitic Niijima volcano. Izu-Oshima has erupted more than a hundred times during the last 20,000 years. Its latest 12 eruptions in the past 1,500 years, including the caldera formation, have been well investigated. This trip will view a spectacular tephra sequence, the caldera topography, and a chain of fissure vents. In view of the continuing inflation of the volcanic edifice on the island, this trip will visit the well-equipped observation stations and see how data are monitored in preparation for any forthcoming eruption. Niijima volcano consists of more than 16 rhyolite lava domes. The recent products of dome-building eruptions, such as pyroclastic surge and flow deposits, fallout pumice, and dome lava, are exposed along the sea cliff and quarry. This trip will closely observe the pyroclastic materials and their depositional structures, which suggest eruptions in the shallow submarine to subaerial environment.

B5. Kirishima and Sakurajima volcanoes and their source calderas in southern Kyushu (July 25-27, 2013)

Photo 8. Sakurajima volcano (left) and the summit crater of Shinmoedake volcano (right)

This trip covers two active volcanoes in southern Kyushu, Kirishima and Sakurajima, where volcanic deposits and their impacts on residents can be observed. This trip also look at some large-scale ignimbrites and their source calderas. Sakurajima is a

post-caldera volcano of the Aira caldera, which produced a vast ignimbrite plateau in southern Kyushu in ca. 30 cal KBP. Kirishima consists of more than 20 vents, which are also post-caldera volcanoes of the Kakuto caldera. Shinmoedake, one of the active post-caldera volcanoes, erupted sub-plinian pumice in January 2011. This trip can observe the new tephra deposit at the foot of the volcano.

B6. Kikai caldera and southern Kyushu: Products of a large silicic magmatic system (July 25-29, 2013)

Photo 9. Satsuma Iwo-jima volcano

The Kikai caldera is one of the most active volcanoes in Japan. Most of the caldera is now submerged except for two major islands, Satsuma Iwo-jima and Take-shima. The last caldera-forming eruption, called the "Akahoya eruption," occurred 7,300 years ago. This eruption produced voluminous pyroclastic flows (Koya ignimbrite) and widespread ashfall (Akahoya ash), which had devastating impacts on the culture and natural environment of western Japan. After this eruption, new volcanoes formed inside the caldera through bimodal magmatism. One of young silicic cones, Iwo-dake, has continued to emit volcanic gases for more than a hundred years. On this field trip, this trip will visit Satsuma Iwo-jima island and southern Kagoshima area to observe the eruptive products from the Kikai caldera, mainly focusing on pyroclastic deposits (plinian fallouts and ignimbrites with various lithofacies) from the Akahoya eruption, and young tephra and lava flows from post-caldera volcanoes. Two young volcanoes (the silicic Iwo-dake and the basaltic Inamura-dake) in Satsuma Iwo-jima island make for a spectacular scenery. The recent activities, deposits, and current landscape represent the evolution of a large silicic magmatic system beneath the sea. This trip will also visit silicic pyroclastic deposits from the Ikeda caldera in Ibusuki area.

B7: Explore recent volcanism in the Kamchatka volcanic arc (July 27-Aug. 2, 2013)

Photo 10. Kliuchevskoi volcano group (left) and Tolbachik volcano (right)

The Kamchatka peninsula hosts a highly active and explosive volcanic arc, which forms the northwestern part of the Pacific Ring of Fire. Our field excursion will concentrate on the Holocene volcanism, with a special focus on recent tephra deposits. The highlights of the excursion include trips to the most active and prolific volcanoes of the arc. Near the city, this trip will be able to see the Avachinsky and Koriaksky "home volcanoes" and examine their Holocene deposits. Then this trip will drive 500 km northward toward the Kliuchevskoi volcanic group, which comprises the largest Kamchatka volcanoes. Kliuchevskoi (4850 m asl) is one of the most productive volcanoes on Earth, erupting an average of about 90 Mt of magma every year. Ash clouds shooting from the volcano reach an altitude of ~20 km and regularly affect the air traffic between SE Asia and North America. Tephra from Kliuchevskoi, as well as other volcanoes, has been accumulating on its slopes over the last 12 kyr at a rate of ~1 mm/yr. This tephra sequence represents one of the longest and highest resolution record of explosive volcanism in Kamchatka. This trip will examine tephra deposits and visit a number of Kliuchevskoi's flank cinder cones and their lava flows. Then this trip will go to the Tolbachik monogenetic lava field, from where you can climb Plosky Tolbachik volcano (3085 m asl) to see its summit caldera and then visit the cinder cones and lava flows of the monogenetic field, including those formed during the 1975 eruption. The trips will be guided by volcanologists from the Kamchatka Institute of Volcanology and Seismology.

B8. Changbaishan Tianchi volcano, a magnificent gift of nature (July 26-29, 2013)

Photo 11. The summit caldera, Tianchi, Changbaishan volcano

Changbaishan volcano is the biggest and has the greatest potential eruption risk among all the active volcanoes in China. Tianchi (Sky Lake), the highest volcanic pond in the world at an elevation of 2,744 meters, is situated in the 5-kilometer-wide caldera known as Mount Paektu in Korea. During this trip, this trip will visit the caldera summit, a waterfall on the north flank, a pyroclastic valley, an underground forest, a stone forest formed in the pyroclastic deposit, etc. Finally, this trip will stop at the Changbaishan Volcano Observatory for a brief seminar on the current volcanic activity of Changbaishan volcano based on monitoring data.

Capacity is limited in each course. Registration is on a first come, first served basis. If you are planning to attend the field trip, please register today!!

You can send your questions and comments to the Steering Committee of IAVCEI 2013 (info@iavcei2013.com).

Detailed information on the conference is available in the 2nd circular on IAVCEI 2013 website (http://www.iavcei2013.com).

Shinji Takarada
Geological Survey of Japan, AIST

INTERNATIONAL CONFERENCE "BASALT 2013"
24.04. - 28.04.2013 in Görlitz, Germany
email: basalt2013@senckenberg.de
web: www.senckenberg.de/basalt2013

Co-sponsored by the IAVCEI Commissions on Monogenetic Volcanism AND Volcanogenic Sediments

Conference fee
•Early Bird Registration (Deadline: 31st January 2013) 100 €
•Regular Registration (1st February to 31th March 2013) 130 €
•For one day trip incl. transportation and catering ~ 50 €

Field trips
Pre-conference trip: (24TH APRIL 2013)
Osečná complex and the Ploučnice area in Northern Bohemia (CZ):

So called "Devils Dyke" near the Type localities of polzenite group rocks in the Osečná Complex (Czech Republic). - Ultramafic pre-rift volcanism in the Eger-Graben.

Midd-conference trip: (26TH APRIL 2013, morning, 3 HOURS TRIP)
Luban lava flow (PL):

Mantle xenoliths in nephelinite lava in Luban (Poland)

Post-conference trip: (28TH APRIL 2013)
Lusatian volcanic field (D):

The Landeskrone Hill – a remnant of a large nephelinitic lava lake is a landmark for the whole area of the Lusatian Volcanic Field (Germany) - Volcanology of the Lusatian Volcanic Field – New insights in old well-known

Further Information on the conference please read the Second Circular and/or contact the conference organizors .

Jörg Büchner
Senckenberg Museum für Naturkunde Görlitz
PF 300154, D-02806 Görlitz

CONFERENCE REPORT ON THE AGU CHAPMAN CONFERENCE ON HAWAIIAN VOLCANOES: FROM SOURCE TO SURFACE

An AGU Chapman conference entitled "*Hawaiian Volcanoes: from source to surface*" was held in Waikoloa, Hawai'i, August 20–24, 2012. The conference marked the Centennial of the Hawaiian Volcano Observatory (HVO), established at the summit of Kīlauea Volcano by Professor Thomas A. Jaggar in 1912. Committed to improving upon understanding earthquake and volcanic hazards through systematic observation and long-term monitoring, Jaggar recognized the opportunities that Hawaiian volcanoes afforded as excellent natural laboratories.

Field trip moment on the way to Mauna Kea led by John Sinton and Floyd McCoy

The conference was supported by the U.S. Geological Survey, the National Science Foundation, and IAVCEI. It was the first scientific meeting dedicated to the subject of Hawaiian volcanism since the "Hawaii Symposium on How Volcanoes Work", convened in 1987 on the occasion of HVO's 75th anniversary. The Centennial meeting's structure imagined following ascending magma from its source within Earth's mantle to eruption at the surface. Conference goals were to:

- review the current understanding of Hawaiian volcanism.
- identify important problems requiring future research.
- explore how Hawai'i might inform research elsewhere on the Earth and other planets (and vice versa).
- inspire the next generation of researchers to focus attention on Hawai'i and similar volcanoes.

Approximately 180 scientists from 12 countries attended the meeting, including about 40 students.

The conference highlighted, surprisingly, a number of fundamental questions about Hawaiian volcanism that, despite decades of focused research, remain enigmatic. For example:

- what are the volumes and geometries of individual volcanoes that make up the Island of Hawai'i?
- what are the origins of the "Loa" and "Kea" compositional trends and how far back in time can those trends be distinguished?
- what are the volumes and geometries of subvolcanic magma storage zones?
- what controls the style of eruptive activity, especially explosive versus effusive styles?

Field discussion on the way to Mauna Kea led by John Sinton and Floyd McCoy

Discussions emphasized several ways that the scientific community could address such questions. Specifically, greater interaction among scientists from different disciplines is essential. Such interactions could lead to integrating a range of observations (seismic, deformation, petrology, gas geochemistry, visual, etc.) into development of more physically-relevant and realistic models of volcanic processes. Significant focus should be placed on the contemporary configuration of the magmatic plumbing systems beneath the active volcanoes because they exert a primary control on the composition and style of eruptive products. A lack of information regarding the long-term evolution of the volcanoes was also cited. Sampling is biased by the available exposures, which generally feature the most recently erupted lava at any given volcano. Submarine outcrops provide a glimpse into the early history of a few volcanoes, but such exposures are rare and difficult to access. The Hawaiian Scientific Drilling Project (HDSP) sampled Mauna Kea eruptive products to a depth of about 2 km, providing important constraints on magma supply and compositional evolution at a "Kea" trend volcano. Deep drilling into a "Loa" trend volcano would address the mechanism for compositional differences between adjacent Hawaiian volcanoes and provide information about the chemical and temporal evolution of volcanoes typified by Mauna Loa.

Group photo of participants of the conference

An ultimate objective may be to establish an Ocean Island research initiative dedicated to the study of basaltic hot spot volcanism. Such programs already exist at the National Science Foundation to focus research on both convergent and extensional plate boundaries (GEOPRISMS and RIDGE, respectively). A similar effort emphasizing ocean islands could focus on processes ranging from mantle plume genesis to the physical evolution of basaltic islands, and potentially even biodiversity problems (as highlighted by a 2011 Chapman conference held in the Galápagos Islands). A major research initiative would also best coordinate and organize the numerous currently independent groups that focus on Hawai'i and other hot spot volcanoes, like the Canaries, Azores, Iceland, and Réunion.

A forthcoming product of the Chapman conference will be a summary document presenting the most important research goals for Hawaiian and similar volcanoes, as well as suggestions for how to achieve these goals and address other important questions. When finalized, the document will be freely accessible on-line for reference and use among scientists, research organizations, and funding agencies. Many of the presentations and posters from the conference, including keynote talks, are available on-line at http://hilo.hawaii.edu/~kenhon/HawaiiChapman.

Conference Organizers:
Michael Poland (U.S. Geological Survey, Hawaiian Volcano Observatory)
Paul Okubo (U.S. Geological Survey, Hawaiian Volcano Observatory)
Ken Hon (University of Hawai'i, Hilo)

[Report provided by Mike Poland, USGS.]

2012 Meeting of IASPEI/IAGA/IAVCEI Inter-Association Working Group on Electromagnetic Studies of Earthquakes and Volcanoes (EMSEV)

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

October 3, 2012, Gotemba, Japan

Following the 2010 conference held at Chapman University, Santa-Ana, USA, the 2012 international meeting of EMSEV Inter Associations on Electromagnetic Studies of Earthquakes and Volcanoes (http://www.emsev-iugg.org/emsev/) took place at Gotemba Kogen Resort, Gotemba City, Shizuoka, Japan, from September 30 to October 4, 2012 (http://www.emsev-iugg.org/emsevJAPAN/). The meeting place was in front of the 3776m high and active Mount Fuji volcano. This meeting was supported by the three IUGG Associations (IAGA, IASPEI and IAVCEI) to which EMSEV belongs, SGEPSS (Society of Geomagnetism and Earth, Planetary and Space Sciences) and Tokai University,

Mt. Fuji in front of the workshop site, about 22 km east from the summit.

For three days (October 1-3) more than 75 participants from 13 countries, including ten new young scientists, presented their latest results at both plenary oral and poster sessions. Papers were organized within five different sessions, (i) Electric, magnetic, and electromagnetic phenomena associated with active processes: earthquakes, tsunamis, volcanoes, active fault movements, landslides, and geothermal activities, (ii) Electromagnetic imaging based on land and space monitoring techniques, (iii) Pre-seismic, co-seismic and post-seismic phenomena related to the Lithosphere- Atmosphere-Ionosphere Coupling using multi-parametric observations to ensure reliable interpretation, (iv) Generation mechanisms of electromagnetic signals related to active processes: Theoretical and laboratory studies, and (v) Seismic, Geodetic and Electromagnetic studies related to the off Tohoku M9 Earthquake and tsunami on March 11, 2011. The session (iii) was dedicated to late Professor Oleg Molchanov, Russia, one of the most active EMSEV members, who passed away last year.
The lively discussions have shown that more and more reliable observations of abnormal electromagnetic variations may be recorded before earthquakes and volcanic eruptions. They may be observed with the magnetic or electric field in ground-based stations, with regional disturbances of broadcast radio emissions in the atmosphere, and with electromagnetic, electronic and plasma changes in the ionosphere, and by infra-red anomalies detected by satellites as well. Different mechanisms at the origin of these signals were formulated (heat or/and gas release, ionization of the air, transfer of electric charges, etc.). And for the first time, several laboratory measurements were discussed at depth in order to provide a basis for physical mechanisms.

EMSEV 2012, Gotemba, Japan

The meeting was followed by general discussion concerning EMSEV activities in developing/interested countries. In Volcanology, EMSEV first formed a co-operative program with The Philippines Institute of Volcanology and Seismology (PHIVOLCS), on Taal volcano in November 2004. (http://www.phivolcs.dost.gov.ph/). At present, this international cooperation now involves teams from Japan, France, USA, Greece, Italy, and Belgium. A report on the state of the cooperation, discussions of problems encountered and the latest results were presented during EMSEV 2012 meeting. It was pointed out that EMSEV has a primary responsibility to help PHILVOLCS to monitor the volcano. On Active faulting, the EMSEV working group started a new cooperative research effort with Kyrgyzstan (Bishkek Research Station) in 2011. At this site an active electrical resistivity experiment using an extremely high

power magneto- hydrodynamic (MHD) generator is being used to induce earthquakes and some outstanding research on the relation between EM phenomena and electrical resistivity changes with earthquakes has been accomplished during the last past 30 years. A formal cooperation Agreement between EMSEV and Bishkek Research Station was signed in November 2011. The purpose of this Agreement is to provide scientific and technical interaction between the two partners during a 4-years collaborative research on active faults and physical processes generating earthquakes in Central Asia, to promote new investigations with electromagnetic and other geophysical methods, and to enhance data processing and analyses. The Agreement will promote the development of scientific relations between participants for solving fundamental problems on the generation of earthquakes and the way to monitor and mitigate them along different active faults of Central Asian continental lithosphere.

At the EMSEV business meeting, it was announced that the next volcanological meetings will be 'Cites On Volcanoes 7' (COV7) at Colima, Mexico, during November 18-23, 2012, and 'IAVCEI Scientific Assembly-2013' at Kagoshima, Japan, during July 20-24, 2013. At the latter meeting, EMSEV has proposed a session entitled 'Land and satellite multi-parameter observations of active volcanoes and geothermal fields: Electromagnetic and other geophysical methods for imaging and monitoring ongoing activity' (Convenors: Zlotnicki, Sasai, Johnston, Tramutoli, Currenti, Hashimoto).

Participants just in front of the Hoei Crater.

On the final day of the workshop (October 4), participants joined a field excursion to Mt. Fuji and Hakone volcano. Participants visited the Hoei crater of Mt. Fuji, halfway up on the southern slope of the volcano. The eruption took place from this newly-formed crater in 1707, only 45 days after the great Hoei earthquake of M 8.6, a large subduction quake along ~1000 km long Nankai Trough. Petrologists suggest that there might be some intruded magma batch which may cause the next eruption after 300 years' repose. How to detect such an intrusive dyke by EM methods was discussed. Participants visited the geothermal field of Owaku-dani, Mt. Hakone, which is the most popular sight-seeing place near Tokyo. Several foreign participants then visited Sendai, Tohoku region, where some ruins of tsunami waves due to the Great Tohoku Earthquake of M 9.0 on March 11, 2011, still remain.

HOPI BUTTES VOLCANIC FIELD WORKSHOP - REPORT

The IAVCEI Hopi Buttes Volcanic Field workshop ran in late October (21–27th) and was led by James White and Nathalie Lefebvre (University of Otago, New Zealand), Michael Ort (Northern Arizona University), Bruce Kjarsgaard (Geological Survey of Canada), Jorges Vazquez (USGS Flagstaff) and Greg Valentine (University of Buffalo)—a fantastic and knowledgeable team with years of experience working in this area. Nathalie Lefebvre, who did the Lion's share of the organising, is just about to finish her PhD on this area, and was both hugely enthusiastic in the field –showing off the most exciting parts of her field studies—and an excellent organiser…not once did we go hungry or thirsty. The participants included graduate students, industry and survey geologists, postdocs and professors from all over the world including participants from Mexico, Germany and Australia. The workshop was sponsored by *IAVCEI*, *International Association of Sedimentologists*, the *IAVCEI Commission of Monogenetic Volcanism* and the *US National Science Foundation*, with many of the graduate students were supported with travel grants.

Our fearless leaders – from left to right; James White, Bruce Kjarsgaard, Nathalie Lefebvre, Greg Valentine, Jorges Vazquez and Michael Ort – thank you for a fantastic trip!

The Hopi Buttes volcanic field lies in the Hopi Reservation (permission to access required) which is northeast of Flagstaff, Arizona, USA. It comprises many small monogenetic volcanic centres eroded to various depths. Almost all (all?) of the volcanoes in the field are maar volcanoes—the products of explosive magma-water interaction in the shallow subsurface. This type of volcanism is not well understood but poses very real hazards in many volcanic regions around the world. The volcanic field, emplaced some 7 Ma ago has been eroded to different levels, such that both surface parts (tephra rings) and deeper parts (diatreme structures) are accessible. These "Buttes" often stand 200 m or more above the surrounding plains; needless to say the scenery was breath-taking!

Workshop participants at Round Butte with the diatreme-fill country rock mega-breccia in the background. Courtesy of James White.

Our fearless leaders took us on a geo-adventure starting in the feeder dykes and roots of these volcanoes, climbing up into the diatremes and finally out into the vents and extra-vent deposits. Each volcanic centre offered beautiful (and sometimes confusing!) outcrops and each provided a piece of the puzzle used to build a valuable understanding of this 7 Ma year old volcanic field. The workshop kicked off with a series of introductory presentations by the leaders in a cozy mountain retreat in Flagstaff, Arizona. A highlight was the introduction to the country rock geology by George Billingsley from the USGS, who has created a work of art and towering genius through his lifelong dedication to mapping the Grand Canyon. These talks set the scene for week ahead and whetted our appetites for the geology. Day 1 saw us visit the Castle Butte trading post to allow discussion of spatter dikes and introduce us to maars and diatremes. The spatter dikes, the subject of a recent geology paper (Lefebvre et al., 2012) are incredible towering walls of steeply-dipping spatter that formed within subsurface fissures that may represent arrested root zone formation. These unique outcrops stimulated much discussion. Adjacent were some superb outcrops of crater-filling sediments with dramatic slumped and contorted beds and collapse breccias. Day 2 in the field took us to the Standing Rocks diatremes to examine the detailed nature of rocks found in this poorly understood volcanic environment. Nathalie introduced the detailed, methodical study she has been doing to try to understand the architecture of the diatremes (exhaustive lithic clast counts and geological mapping) and elucidate how they form. We were introduced to the geological complexities of the highly irregular intrusions that cut through the volcaniclastic rocks. Day 3 saw us mover higher within a maar-diatreme volcano to look at upper diatreme deposits. At the Hoskietso maars we were treated to incredible outcrops of bedded reworked tuffs and lapilli-tuffs and we got to touch the contact with the country rock. Discussions focussed on the generation of these beds (from neighbouring diatremes? How much primary pyroclastic material is present?) and on subsidence mechanisms within maars. Day 4 took us above ground to look at tuff rings. The triplets at Woodchop Mesa provided many excellent cross-sections through pyroclastic deposits and through sediments and were capped by an extensive, late-erupted lava flow. Jorge Vasquez took us through the lateral variations in the pyroclastic density current deposits in the tuff ring and discussions centred on the transport and depositional mechanisms of density currents, which pose the greatest hazard during eruptions at maar volcanoes. The final day in the field continued our investigation of tuff ring deposits, with a visit to Teshim Butte. The first half of the day focussed on sediments that had been deposited (Gilbert-type deltas) as water flooded into the crater. The second half was a traverse along classic pyroclastic deposits of traction-stratified pyroclastic density currents ('pyroclastic surges'). This highlighted the rapid changes in lithofacies with distance from the crater. Superb dune-bedforms made for very impressive photos. This also gave us a chance to consider how the many thin and stratified beds that make up the tuff rings relate to the massive deposits in the diatremes we had seen in the early days. Are the two deposits synchronous, or do they represent the deposits of different stages of a maar eruption? The evenings were packed full with talks and poster presentations, creating a hotbed for discussion. Amongst other things, we were treated to video footage of large-scale explosion experiments, introduced to the variety of Mexican maars, and given a compilation show of photos from a collection of maars around the world.

Day two at the Standing Rocks diatremes (background) with a feeder dike resembling a dinosaur backbone capturing the interest of the geologists.

Our final morning in Flagstaff was hosted by the US Geological Survey where we recapped on the sights of the week. We were polled as to what we thought the interesting questions were that needed to be addressed and then we broke off into discussion groups to brainstorm solutions and methodologies. This was a highly instructive and useful way to end the workshop with all of us pooling our understanding (and lack of understanding) together to forge a way forward. Four main topics were highlighted: (1) fragmentation – how does fragmentation proceed and what evidence is preserved for water-magma interaction? What is the role of intrusions in generating clastic (peperitic) material? (2) Conceptual models - how well do current models capture the generalities of maar-diatreme volcanism? Do all maars sit above diatremes and vice versa? (3) Facies models - how do we link together all the different parts of a maar-diatreme volcano? What can we deduce from evidence in the diatreme or the root zone about the nature of the explosions? (4) Hydrology - How exactly does magma and water interact? Do the dynamics of the hydrological system control the explosivity or is it those of the magma? Now all we have to do is find a sponsor for the several drill holes we all want to sink!

The workshop was a huge success on all fronts. We were introduced by experts to some superb, world-class geology. The leaders fostered stimulating discussions and thinking on relevant and pressing issues and we were superbly looked after in very great company. Everyone went home with their heads spinning with ideas, crammed full of knowledge, and content with the warm, fuzzy feeling you only get from being served bacon at 2:30 am in Denny's! A big thanks goes to all the organisers and the participants for making this a most enjoyable and thought-provoking trip.

References Cited

Lefebvre, N.S., White, J.D.L. & Kjarsgaard, B.A. (2012) Spatter-dike reveals subterranean magma diversions: Consequences for small multivent basaltic eruptions. Geology 40(5): 423-426 [DOI: 10.1130/G32794.1]

Rich Brown (**Durham University**)
Lucy Porritt (**University of Bristol**)

MY WORK ON SIWI CALDERA, AND THE 2012 CCC COURSE AND WORKSHOP

In September 2012, I attended the 2nd course and participated to the 4th workshop on collapse calderas organised by the IAVCEI Collapse Calderas Commission. It was an incredible opportunity to broader my knowledge on calderas all around the word, and to meet prominent scientists in my discipline. Stimulating discussions clarified notions, raised new questions and provided new ideas for future work. I realised the importance of such workshops in confronting methods and points of views, and how much science could move forward by gathering many specialists on the same topic. I could attend these two events due to financial support granted by the Commission, to whom I would like to express my gratitude. The workshop and course, held in Bolsena, Italy, were a very important and enriching experience, especially near the beginning of a Ph D study.

Siwi caldera is a 5 km-wide elliptic depression on the south-east part of Tanna Island, in Vanuatu (West Pacific). Poorly studied because of its remote location and difficult field conditions, this caldera hosts one of the most active associations between a volcano, named mount Yasur, and a resurgent stucture known as Yenkahe resurgent dome. Mount Yasur has been in eruption (Strombolian to Vulcanian explosions) at least since the first description by pioneers in 1774. Data on uplifted coral reef limestone reveals that Yenkahe resurgent dome has grown with a mean uplift rate of 156 mm/yr for at least the last 1000 years. The very important degassing of Yasur is compatible with the emplacement of large quantities of magma in the Siwi area. Yet, the inner structure of the Yenkahe-Yasur complex and the exact relationships between the volcano and the dome are still poorly known.

Yasur ash cone, on the border of Yenkahe resurgent dome, and (inset) GPS measurements in the volcano area (July 2012, Tanna Island, Vanuatu)"

Since September 2011, I have been working on a PhD on Siwi at the Laboratoire Magmas et Volcans (University Blaise Pascal of Clermont-Ferrand, France), under the supervision of Jean-François Lénat, Olivier Merle and Aline Peltier. My work includes structural analysis, remote sensing data (visible images, photogrammetry, thermal infrared images), geodetic and geophysical data from several field campaigns (GPS, Self-Potential, Electrical Resisitivity tomography, gravimetry, magnetism, etc.) in order to better constrain the source and the complex history of deformation of the Yenkahe resurgent dome. The understanding of these ongoing processes is vital for providing new insights into the formation mechanisms of similar systems in past and currently restless calderas.

Elodie Brothelande
Laboratoire Magmas et Volcans,
University Blaise Pascal of Clermont-Ferrand, France

STUDENT RESEARCH ON KARTHALA VOLCANO: A PASSION OR A NECESSITY?

My name is Sam Poppe and I finished a Masters Degree in Geology at the end of June 2012. Since my Bachelors Degree research internship on analogue models of volcano intrusion and spreading, I have been passionate about the science of volcanology. Why? Because volcanoes are evidence of our restless earth, are locations where "geology" is being made while we stand and watch. Therefore, it was obvious to continue the fruitful collaboration with my supervisor, Prof. Dr. Matthieu Kervyn, one of the youngest professors in Belgium. For my Masters project, our attention shifted towards calderas on basaltic shield volcanoes and, after a brief search, we ended up at Karthala volcano. I invite you to carry out a Google Earth search to understand my immediate fascination for the summit caldera complex at Karthala. We think of it as our terrestrial equivalent of Olympus Mons, our very own scale model. During five consecutive weeks in July 2011 I visited the Grande Comore island, interacted with the volcanologist at the Karthala Volcano Observatory, and climbed Karthala's flanks twice to carry out short volcano-structural surveys within the calderas. The complexity of the collapsed summit and the extensive amount of

wall sections, volcanic constructs, collapse features, etc., are beyond imagination, and made my fascination complete, determined, and everlasting.

Sam Poppe at the intracaldera crater of the Karthala summit caldera complex, Karthala Volcano, Grande Comore, Western Indian Ocean, July 2011.

Why this unique volcanological terrain remains understudied is a riddle to me, but one thing I know: I'll be back. I guess you, reader, will understand when I tell you that Karthala volcano has on average one eruptive event every 15 years. These eruptions threaten the local population which has no choice on the island than to live on top of their active volcano, and which will erupt again soon in Hawaiian-style rivers of fire, or worse, ash clouds covering Karthala's slopes, destroying crops and polluting the water. Then, I think, the volcanologists and islanders had better be more ready than we are today.
Therefore it was with greatest pleasure and appreciation that I received financial support from the IAVCEI Executive Committee and Collapse Caldera Commission to attend the 4th Collapse Caldera Workshop in Bolsena, Italy, in the last week of September 2012. It was a great opportunity to share my above findings, to report on the initiation of my Karthala research, and to continue building up my professional network, a necessity for a starting young professional like myself. I can only hope this is the start of a career in the fascinating world of volcanology. Thank you IAVCEI and the CCC, and see you again soon.

Sam Poppe
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II. International Course in Volcanology (in Spanish)

14-27 October 2013 (Olot, Spain)

This course aims to explain how volcanoes work and the risk and benefits associated with them. The course will be held at the Garrotxa Volcanic Zone (Olot, Spain), which offers the possibility of combining theoretical sessions with field trips. The course will offer a review of the latest developments in the understanding of volcanic eruptions dynamics , as well as their effects, monitoring techniques , hazard assessment, educational and social aspects . The course is addressed to spanish-speaking students in their final year of career, PhD students and professionals and technicians working at volcano observatories.

For more information and pre-registration please consult the website (in spanish): http://www.gvb-csic.es/CURSO/Home.html or contact Adelina Geyer (ageyertraver@gmail.com).

CITIES ON VOLCANOES 7 COLIMA, MEXICO 19 – 23 NOVEMBER 2012 CONFERENCE REPORT

The Cities on Volcanoes conference series has the aim of bringing together all involved in volcanic risk: including the generation of the hazards, analysis of their impact, risk mitigation, education and studies of vulnerability. The idea is to motivate dialogue between earth scientists, social scientists, Civil Protection workers, insurance analysts, the general public, amongst others. Following on from the most recent conferences in Tenerife, Japan and Ecuador, the City of Colima played host to the 7th event of the series, with the University of Colima providing the necessary infrastructure. The conference was a huge success, not only with many splendid talks highlighting research being carried out in many areas, but also the social programme, and how it managed to rekindle the original inclusive aims of this particular meeting. In total 342 subscribed from 35 countries, with particularly large contingents from the UK and New Zealand. Local participation was estimated to include a further 200 people, meaning a total of about 550 participants.

Opening Ceremony
Photo: Information, Universidad de Colima

Being situated on the extensive apron of debris avalanche deposits that originated from the most active volcano in Mexico, Colima was an obvious choice for a Cities on Volcanoes conference. Indeed, it is one of the most prolific producers of flank collapses anywhere. The volcano had only recent finished an eruptive

period that lasted from 1998 until 2011. The motivation to submit a proposal was also fuelled by the proximity to an important anniversary: the last large eruption was in January of 1913 and the volcano has been through several cycles of an approximate 100 years repose period between Plinian or sub-Plinian events.

COV7 featured traditional academic sessions, but this was supplemented by a range of alternative activities such as open forums, where the microphone was offered to anyone who wanted to raise an issue, photographic and children's art competitions, and art and photography exhibitions. The forums were particularly successful with many interesting debates covering topics relevant both to the local and international community. The programme was supplemented by both pre- and post-excursions to a variety of volcanic regions in Mexico, including El Chichón, Paricutin and Jorullo, and Ceboruco and San Pedro. Two excursions were offered to the Colima Volcanic Complex, one to study debris avalanche deposits and the other an overview of evolution based upon evidence from tephrochronology, petrology and geochemistry. In addition a very popular traditional mid-conference excursion covered local communities to present the opportunity for interaction with the population and civil protection workers, as well as several stops that featured geology, an overview of recent eruptive activity and the influence of the volcano upon prehispanic cultures.

Workshops included one dedicated to monitoring techniques, another organized jointly by the Volcanic Ashfall Impacts Working Group and the International Volcanic Health Hazard Network, one to show the strengths of the VHub online network and the last on the critical subject of "Volcanic unrest: Interfacing science and decision-making". All were well attended. A pre-conference workshop was also given to members of the local media. The idea here was to discuss terminology and the general concepts of volcanology and risk mitigation. The scientific programme consisted of 17 sessions which were divided amongst 4 symposia: Volcanoes and their hazards; Evaluating Volcanic Risk; Volcanic Risk Reduction in Developing Countries; Volcanoes, Society and Government. In total 372 presentations were made, roughly divided equally between posters and oral.

Open Forum discussion
Discussion during one of the Open Forums. Photo: Information, Universidad de Colima

The cultural highlight was certainly a street party organized in the picturesque local village of Nogueras. Here participants had ample opportunity to sample local foods, drinks and watch dancing and listen to a Mariachi band. Many participants took the opportunity to meet the locals. Other tastes of local culture were provided by the local municipalities of both Colima and Villa de Alvarez.

La Becererra excursion
Meeting with locals and discussing volcanic risk in La Becererra

Ceboruco excursion
Examining tephra & surge deposits from ~1000 BP Plinian eruption at Ceboruco

Report prepared by

Nick Varley
Universidad de Colima

5th International Maar Conference
November 2014, Quretaro, Mexico

Sponsored by the IAVCEI Commission on Monogenetic Volcanism

Maar volcanoes are very common volcanic features forming, together with scoria cones, large monogenetic volcanic fields in México. Due to their young age (commonly late Pleistocene) excellent examples of this volcanism can be found in different volcano-tectonic settings (subduction and intraplate-related) in Central México.

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TENTATIVE SESSIONS
1. Architecture and Evolution of Maars. Geology, Petrology, Geophysics
2. Enviromental studies in Maars - Biology, Limnology, Paleoclimate, Lake sedimentation
3. Monogenetic Volcanic Fields. Structural Settings, Scoria Cones, Domes, Maars
4. Maar Hazards
5. Economic and Cultural Aspects Related to Monogenetic Volcanism. Mineral Resources,
Quarries, Tourism, Land Management
6. Experiments and Modeling of Water-Magma Interactions and Other Physical Processes

FUTURE EVENTS for IAVCEI member's interest

Volcanism, Impacts and Mass Extinctions: Causes and Effects
27 – 29 March 2013 – London, UK

Registration, Abstract Submission 15 January 2013
Web: http://massextinction.princeton.edu/

EGU, Vienna, Austria
07 Apr 2013 - 12 Apr 2013
Web: http://www.egu2013.eu/home.html

Basalt 2013 - Cenozoic Magmatism in Central Europe

basalt 2013
Cenozoic Magmatism of Central Europe

24 – 28 April 2013, Goerlitz, Germany
email: basalt2013@senckenberg.de
web: www.senckenberg.de/basalt2013

Sponsored by the IAVCEI Commission on Monogenetic Volcanism and Volcanogenic Sediments

Commission on Monogenetic Volcanism

CVS Commission on Volcanogenic Sediments

Meeting of the Americas – Cancun, Mexico
14 – 17 May 2013
Web: http://moa.agu.org/2013

ECROFI — 22nd European Current Research on Fluid Inclusions – 5 – 9 June 2013
Antalya, Turkey
Contact: Dr.Gulcan BOZKAYA Cumhuriyet University Department of Geological Engineering TR-58140 Sivas/ TURKEY Dr.Nurullah Hanilci Istanbul University Department of Geological Engineering 34100 Avcilar -Istanbul TURKEY;
Email: info@ecrofi2013.org
Web: http://www.ecrofi2013.org

Isotope Workshop XII – Freiberg, Germany
12 – 14 June 2013
Web: http://www.esir.org.pl/

IAVCEI Scientific Assembly - 2013: Forecasting Volcanic Activity (Kagoshima, Japan)
July 20-24, 2013
Web: http://www.iavcei2013.com/

IAVCEI 2013
Kagoshima

Surtsey 50Anniversary Conference 2013

Reykjavík, Iceland - August 12-15, 2013
Contact: Páll Einarsson palli@raunvis.hi.is
Web: http://www.surtsey.is
June 2012: First Circular.
Timeline:
November 1, 2012: Expression of interest deadline
February 2013: Second Circular
February 15, 2013: Registration opens
April 1, 2013: Early registration deadline
May 1, 2013: Abstract deadline
August 12, 2013: Conference starts

Goldschmidt 2013 – Florence, Italy
25 – 30 August 2013
Abstracts: April 2013
Registration: June 2013
Web: http://www.goldschmidt.info/2013/

Fourth Global Geotourism Conference
***L**earning **A**bout **V**olcanic **A**ctivities [LAVA]*
Reykjanesbær, South West Iceland
25 – 28 August 2013
Web: http://icelandgeotourism.is/

8th IAG/AIG International Conference on Geomorphology Geomorphology and Sustainability
Paris, France
27 – 31 August 2013
Web: http://www.geomorphology-iag-paris2013.com/en

30th Meeting of the International Association of Sedimentologists
Manchester, UK
2 – 5 September 2013
Web: http://www.sedimentologists.org/ims-2013

10th International Eclogite Conference
Courmayeur, Aosta Valley – Italy
2 -10 September 2013
Web: http://www.iec2013.unito.it/

14th Congress of Regional Committee on Mediterranean Neogene Stratigraphy
Istanbul, Turkey from 8th to 12th of September, 2013
Web: www.rcmns2013.org
Prof. Dr. M. Namık ÇAĞATAY
Chairman of RCMNS 2013, Turkey

II INTERNATIONAL COURSE IN VOLCANOLOGY
(in Spanish)
14-27 October 2013 (Olot, Spain)
For more information and pre-registration please consult the website (in Spanish):
http://www.gvb-csic.es/CURSO/Home.html
or contact Adelina Geyer (ageyertraver@gmail.com).

Geological Society of America Annual Meeting
125 Years Anniversary Meeting
Denver, Colorado
27 – 30 October 2013
Web: http://www.geosociety.org/meetings/2013/

21st General Meeting of the International Mineralogical Association (IMA2014)
Johannesburg, South Africa
1 – 5 September 2014

Web: http://www.ima2014.co.za/

5th International Maar Conference
Queretaro, Mexico – November 2014 (date to be confirmed)
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Sponsored by the IAVCEI Commission on Monogenetic Volcanism and Volcanogenic Sediments

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IUGG 2015 General Assembly, Prague, Czech Republic. Suggestions for IAVCEI symposia scientific themes are invited. Ideas from IAVCEI Commissions are especially welcomed. Please send your ideas to any of the IAVCEI Executive Committee members and/or Commission leaders.

Next Issue of the **IAVCEI News** will be published on **15th April 2013**. Articles, notes, news or any items relevant to the IAVCEI community must be submitted by **1st April 2013** to be published in the next Issue.
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