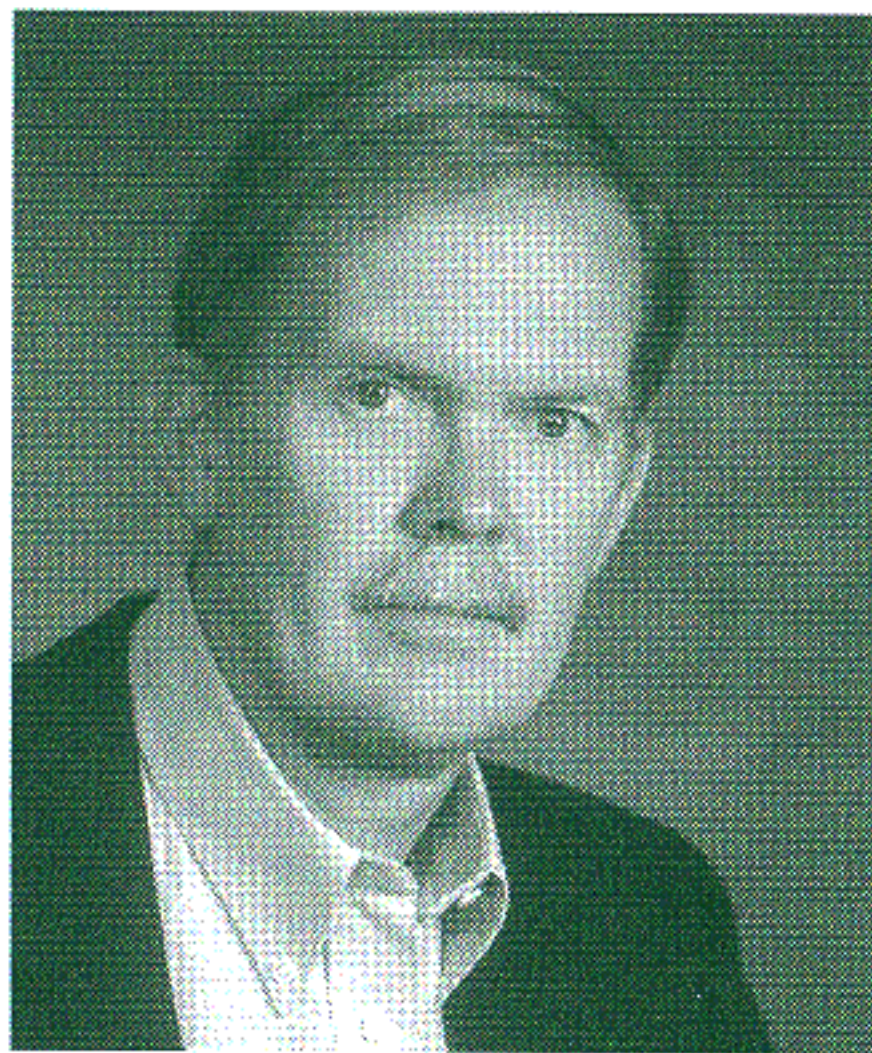


IAVCEI News 1998 No: 3

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



FROM THE PRESIDENT



Grant Heiken

Volcanologists are at heart strong-willed and independent and have a certain healthy disdain for bureaucracies. In spite of this general rebelliousness and the anarchic nature of its members, IAVCEI still has its day-to-day activities that require some form of management. That management exists as an Executive Committee, which in the past has been selected at IUGG General Assemblies by a vote of the National IAVCEI Correspondents. This committee consists of a President, Two Vice-Presidents, Secretary-General, and four members of the Bureau. The Secretary-General and the President are also IAVCEI's representatives on the Executive Committee of IUGG, the

Continued on page 14:>>

VOLCANISM IN CANADA

The 'Pacific Ring of Fire', that encircling chain of volcanoes, has a weak link – or so people think. Canada's western Cordillera is often depicted as a conspicuous gap in this chain, at least until recently. Now, in new compilations by the Smithsonian Institution, a few red dots are beginning to show, scattered along the western margin of Canada, connecting the Cascade volcanoes to the south and the Aleutians to the north.

These young volcanic centres are just the 'tip of the ice berg' of Quaternary volcanism in Canada (see Figure on page 15). Stretching northward from the Cascades, the Garibaldi volcanic belt culminates in a 20 km wide caldera complex at Mount Silverthorne. North of Silverthorne, the east-west trending Anahim volcanic belt shows the trace of a mantle hot spot, most recently active (~7,000 ka) in central British Columbia. Eastern British Columbia is strewn with young centres of alkali olivine basalt, many bearing mantle nodules and the north-western corner of the province has and is being torn apart by peralkaline volcanic centres which have been active over millions of years. Farther north in Yukon Territory, basaltic centres and flows cover the landscape in many areas.

Much of this wealth of volcanic material still awaits detailed studies. Regional mapping projects delineated the spatial and temporal limits of most of the young volcanic rocks, but few received more than cursory study. Although young flows were noted in 1872 by RC Selwyn during his investigations in the Wells Gray-Clearwater area of east central British Columbia, and GM Dawson described the White River Ash (Mount Churchill, Alaska) in his 1889 Memoir, the remoteness and difficult terrain of western Canada has discouraged investigation.

Detailed investigations into volcanic processes in Canada started about 50 years ago with the important pioneering 1942 work of Bill Mathews (University of British Columbia) in the Tuya-Teslin country of northern BC. In a graduate seminar in Berkley, Bill was assigned a 1931 paper by Richard Fuller that described chilled basalts from the Columbia River Plateau. Bill quickly realised that glacial ice could provide sufficient water depth to produce the flat-topped forms with foreset bedded breccias that he had found in the Tuya-Teslin country. Tuya Butte was a particularly well preserved example, thus arose the name 'tuya' for these subglacial volcanic landforms.

Bill put many young volcanic landforms on the map. However, his next most notable contribution was his work in the Garibaldi area of south-western British Columbia. His studies there included development of techniques for chemical classification using the refractive index of glass produced by melting volcanic rock powder and put Canadian volcanoes on the international map. This work was done in 1947. Garibaldi is still the only Canadian volcano that consistently shows up on international compilations!

Continued on page 15:>>

WORKSHOP REPORTS
VOTING
WAGER MEDAL



Several exciting field trips were run before and after the International Volcanological Congress in South Africa. This photograph, taken by Simon Turner, shows an impressive outcrop of a 75 m thick basalt unit (132 Ma) that flowed over and ponded into a crescent-shaped dune, Huab River valley, Etendeka, Namibia.

The 1998 International Volcanological Congress was held in Cape Town in July and brought together over 300 IAVCEI delegates to discuss their research. Set at the base of Table Mountain, the University of Cape Town provided a scenic venue with excellent facilities. The talks and posters presented over the 6 days well reflected the title of the meeting – ‘Magmatic diversity: volcanoes and their roots’ – with sessions dedicated to carbonatitic and alkalic magmatism, flood basalts, ultrabasic magmas, oceanic and arc volcanism, silicic magmas and peperites. Although the lecture theatres were a bit large for some of the smaller sessions, good debate and discussion were maintained. Some key topics included the role of plumes and magmatism in continental break-up, the origins of alkalic magmas, and the nature of magmatic plumbing systems, magma residence times and how these might control crustal contamination, the evolution of silicic magmas and eruptive mechanisms. There was an emphasis on studies of individual volcanic centres and the need to understand complexities at this level before attempting regional generalisations. The need for increasingly finer scale analytical resolution was also made clear.

Scientific debates carried on into the evenings in the convivial surroundings of the University Staff Club, excepting when bouts of the World Cup were being played.

However, most delegates also found some spare time to explore the sites and venues of the city or to head up Table Mountain. The meeting was broken up by a series of excellent mid-conference field trips around the Cape, which set new standards by serving fine South African wines on the buses throughout the day. Similarly, the catering for the icebreaker, conference dinner and closing drinks session was quite simply exceptional both in quality and in quantity. The last afternoon closed on a high note with the presentation of Wager medals to Dr Giovanni Macedonio and Dr Jon Davidson. Delegates then repaired to the by now all too familiar, Staff Club where the closing drinks ceremony was conducted. A large and varied range of highly successful pre- and post-conference field trips was for many the highlight of the meeting. I attended the C4 trip to Etendeka to be stunned, not only by the preservation of lavas flooding over sand dunes, but also by the amount of effort that had been put into the organisation and catering of the trip. I’m sure that all who attended the meeting and the associated field trips would agree that the organisers are to be heartily congratulated for producing such an excellent conference.

Simon Turner

E-mail: s.p.turner@open.ac.uk

Thirty-six participants from Papua New Guinea and from seven foreign countries gathered at the Walindi Plantation Resort, West New Britain, from 28 September to 3 October 1998 to discuss and assess the implications of volcano collapses for volcanic-disaster management throughout the south-west Pacific region. Attention was focused on Ulawun, which is one of the 16 volcanoes of the IAVCEI Decade Volcano Project identified for special study during the International Decade for Natural Disaster Reduction (IDNDR). Ima Itikarai and Herman Patia of the Rabaul Volcanological Observatory are the Co-Leaders of the Ulawun Decade Volcano Project.

Ulawun is a high (2300 metres above sea level), steep-sided

cone volcano. No debris avalanche deposit from the collapse has been identified, but eruptions from the younger Ulawun cone may have covered it. Questions asked at the Workshop about Ulawun included: does the modern Ulawun now have the potential to collapse again; could debris avalanches from Ulawun enter the Bismarck Sea and generate tsunamis; what effect would tsunamis have on the coastline of West New Britain, where in recent years oil palm, timber, and eco-tourism industries have been developed; and what are the implications for emergency managers in the Province. A disastrous tsunami had taken place on 17 July 1998 at Sissano Lagoon about 970 kilometres to the west of Walindi with the loss of more than 2000 lives. This tragic event was a constant reminder



Ulawun volcano rises steeply above the Ulamona Mission and Sawmill where people of the Ulamona district treated participants of the Ulawun Decade Volcano Workshop to a spectacular welcome and outstanding displays of traditional dancing when the workshop visited Ulawun on 30 September. Remnants of a probable prehistorical cone collapse at Ulawun are seen on the extreme right. This photograph was taken more than 30 years ago and the modern cone of Ulawun has grown higher as a result of more recent eruptions. The potential for cone collapse at Ulawun was discussed at the Workshop.

(about 35°) stratovolcano that towers above the coastline of the Bismarck Sea. It is the most active of all of the many volcanoes in West New Britain Province of Papua New Guinea. Ulawun has a large, conspicuous escarpment on its southern flank that probably formed historically by

to participants of the importance of the Workshop and of the need to generate recommendations that might help mitigate geological disasters in the Papua New Guinea

Continued on page 11:>>

VOLCANOES

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

1999 CALENDAR



BROWN TROUT

The front of the IAVCEI calendar features Bromo caldera (foreground) and Semeru volcano (background) in eastern Java, Indonesia. Each month of the calendar has a photograph of a volcano or volcanic features from other parts of the world, together with the dates of important historical eruptions in that month. Indonesia will host the IAVCEI General Assembly in the year 2000 (see article in this issue of the News)

IAVCEI is pleased to announce publication of its 1999 calendar, in association with the Volcanological Society of Sacramento. You may recall that there was no IAVCEI calendar in 1998. This was because new plans for the publication of the IAVCEI calendar were being hatched between IAVCEI aficionados in the western USA and Browntrout Publishers (P.O. Box 280070, San Francisco, California 94128-0070, USA). Those negotiations have resulted in an impressive publication that is now available on the general market. It is easily purchased on the Internet at amazon.com (see below).

Thanks are extended to the small group of active people who have made it all happen – especially Brian Hausback, Bob Tilling, and Steve McNutt. IAVCEI is indebted to them for their enthusiasm and commitment.

‘STOP PRESS’ NEWS

First, the IAVCEI Secretariat has a limited stockpile of the calendars and will provide one free of charge to the first IAVCEI members who renew their 1999 membership!

Second, the calendar is selling well and the publishers have cut the price by 20 percent - down to only US\$8.79.

The specific Web page where the volcano calendar is available for purchase is:
<http://www.amazon.com/exec/obidos/ASIN/076311006X/002-5064071-5865240>

A FREE CALENDAR TO THE FIRST 150 1999-MEMBERSHIP-RENEWALS!

**A ROMAN HERITAGE: THE VOLCANO DAY
PROPOSAL FOR THE CREATION OF A VOLCANO AND VOLCANOLOGISTS' DAY**

Vulcanus was the Roman god of fire (formerly Hephaestus in Greek culture), son of Jupiter and Juno. He was Venus' husband and in his forges located underneath Etna, his son, the Cyclops, forged Jupiter's thunder bolts. Because Romans attributed volcanic activity to the superficial manifestation of Vulcanus' deep forges, they named one volcanic island, in the Eolian archipelago, Vulcano. Cicero, in the first century BC, called such archipelago, Vulcaniae Insulae. Curiously, however, Romans called volcanoes *mons ignivomus* which means 'mountains that vomit fire'. It is not surprising that in Japan, so far away from Rome, the word *kazan* is used as the volcano noun and means something similar, 'fire mountain'. We can deduce that there was a similar feeling about volcanoes in both ancient cultures.

Fred M Bullard wrote on page 12 of his book 'Volcanoes, in history, in theory, in eruption' (University of Texas press, 6th printing, 1973, p.422), that "During the reign of Romulus a temple to Vulcan was erected in Rome, and a festival called Vulcanalia was held on August 23 of each year, the ceremony consisting of a sacrifice to Vulcan for the purpose of averting all mishaps that might arise from the use of fire or light". As the Christian deities substituted the Roman ones, holidays did so as well. The people did not forget so easily, and kept in their language a rich heritage from their older religions. Vulcanalia as a holiday is gone (although it still appears in the calendar of 'Holidays and festivals around the world' on the web, copyrighted by Sylvia Lau-McDonald), but many words, however, remain in use today. *Exempli gratia* (e.g.), we borrow the word volcano and many others from Latin, as

derivations from the formal language in mythology toward a figurative vulgar use. The word volcano appeared for the first time in Portuguese (but the actual word in Portuguese is *volcao*), when they discovered in the XV century, active volcanoes in the Azores archipelago. From Portuguese the word spread to all Latin languages, Spanish (first appearing in a written document in 1524, as *bolcan* when the conqueror Pedro de Alvarado described volcanic ranges in Guatemala), French (in 1213 the word volcano appeared referring to Etna, but then not again until the XVII century) and Italian, and also other European languages, such as English and German.

Since the god Vulcanus is the father of the word that identifies our jobs, it seems fair to take his ancient festival and to celebrate our own day. Is it chance that the great eruption of Vesuvius in 79 AD, started on August 24, one day after Vulcanalia? I consider it appropriate and seriously propose to IAVCEI community that we celebrate once a year, on August 23, Volcano Day and International Volcanologists' Day. An earlier proposal was made by me and my colleague Guillermo Alvarado in the Newsletter of the Association of Geoscientists for International Development (N°60, Dec.1989, p.5). Commemorations could include events such as meetings, conferences, fireworks and, why not?, an eruption.

Gerado J Soto

5-20-4 Murasakibaru, Kagoshima-shi, 890-0082, Japan.

UNION SYMPOSIUM U6: VOLCANISM - MECHANISMS AND CONSEQUENCES

Volcanism will have a high profile during the 1999 IUGG General Assembly in Birmingham (United Kingdom). It has been selected from across the seven Associations of the Union for discussion during one of the Union Symposia. These symposia are designed to consider themes that have a wide appeal to participants of the IUGG General Assembly. They are generally very well attended. Union Symposium U6, entitled 'Volcanism – mechanisms and consequences', is being convened by Don Swanson (USA, and Executive Editor of the 'Bulletin of Volcanology'), R Wally Johnson (Australia, and IAVCEI Secretary General), AJ ('Fred') Prata (Australia, and representing IAMAS), and David Hilton (USA, and representing IAPSO). Following is the scoping statement for the Symposium, including the names of the eight invited speakers and provisional titles of their papers. The convenors hope that the eight papers together will provide a broad overview of the face of volcanology as we enter the twenty-first century.

'The mechanisms of volcanic activity affect the Earth's surface in dramatic fashion: widespread pumice and ash are produced from damaging explosive eruptions, and spreading lava flows destroy arable lands, lifelines, and structures. Yet the origin of volcanism is deep within the Earth and its consequences influence the hydrosphere and reach up to the middle and upper atmosphere. Earth history preserves episodes of volcanism far greater in scale and impact than any experienced in modern times – particularly the vast flood basalt provinces (for example, Parana-Etendeka, Karoo, Columbia River, and the Siberian Traps) whose large-scale volatile budgets may have influenced climate. Vast outpouring of basalt on the ocean floors (for example, forming gigantic oceanic plateau such as the Ontong Java Plateau) may have influenced oceanic circulation and water chemistry. Large-magnitude explosive eruptions from felsic volcanoes related to the world's great subduction systems also have had widespread consequences, leading to changes in global climate and weather patterns and which today would lead to disasters of global proportions. This interdisciplinary Symposium will attempt to focus attention on the interconnectivity of the many geophysical and geochemical processes that are linked through the process of volcanism. Topics will include: magma formation in the mantle and crust; differentiation of magmas and their interaction with conduit walls and other magmas during ascent; the effects of surface gas release; the large igneous provinces of the world; mechanisms of lava emplacement and explosive eruptions; and gas and aerosol budgets and their influence on the hydrosphere and atmosphere.'

Continued on page 6:>>

A COMMEMORATIVE VOLCANO DAY?

1. Mantle plumes and basaltic volcanism: their global geophysical implications. Speaker: Mike Coffin (USA).
2. Melting, storage, and movement of magma. Speaker: Jon Davidson (USA).
3. Seismic tomography of igneous systems. Speaker: Bernard Chouet (USA).
4. Explosive volcanism: mechanisms and consequences. Speaker: Steve Sparks (UK).
5. Experimental physical volcanology using realistic materials. Speaker: Don Dingwell (Germany).
6. Gases of Planet Earth: mantle origins and atmospheric implications. Speaker: Bernard Marty (France).
7. Remote sensing: new ways to look at volcanoes and their gases. Speaker: Peter Francis (UK).
8. Chlorofluorocarbons, volcanoes, and ozone: a view of the past and a look at the future. Speaker: Susan Solomon (USA)

A BRIEF INTRODUCTION TO THE CHINESE NATIONAL COMMITTEE FOR IAVCEI

The Chinese National Committee for IAVCEI is a sub-organisation of the Chinese National Committee (CNC) for IUGG. The fourth extension meeting of CNC for IUGG was held in Beijing in 1998 and the sub-committee has been re-selected. Professor Z H Zhao is the new Chairman and Dr Y G Xu is the new Secretary of the CNC for IAVCEI. The Committee is composed of eight members who come from the Chinese Academy of Sciences, State Seismological Bureau and universities. The main research areas of these members include igneous petrology and geochemistry, geodynamics and volcanology. In addition, a new parallel sub-committee of IAVCEI has been attached to the Chinese Association for Mineralogy, Petrology and Geochemistry. Actually, the CNC for IAVCEI is preparing the national report for the 22nd IUGG meeting which will be held at Birmingham (UK) in 1999. The members of the Chinese National Committee for IAVCEI are: Zhenghua Zhao, (Guangzhou Institute of Geochemistry, Chinese Academy of Sciences)

- Yigang Xu, (Guangzhou Institute of Geochemistry, Chinese Academy of Sciences)
- Congqiang Liu (Institute of Geochemistry, Chinese Academy of Sciences)
- Xinghua Zhou (Institute of Geology, Chinese academy of Sciences)
- Jincheng Zhou (Department of Earth Sciences, Nanjing University)
- Jianren Mao (Nanjing institute of Geology & Mineral Resources, Ministry of Territory & Resources)
- Xuanxue Mo (China University of Geosciences, Beijing)
- Ruoxing Liu (institute of Geology, State Seismological Bureau)
- Tao Zhang (Chinese Academy of Sciences)

Recent main research areas are: crust-mantle interaction and lithosphere evolution (eastern China); volcanology and volcanic evolution (Mesozoic magmatism and recent volcanic activity); role of fluid in the Earth's interior (crust and mantle); and volcanic rocks and relevant genesis of Au and Cu deposits

Yigang Xu





Changbai Mountain is a historically active volcano on the border between the People's Republic of China and North Korea. It is perhaps best known in the western volcanological literature as Baitoushan volcano (see, for example, Simkin & Siebert, 1994, 'Volcanoes of the World', Smithsonian Institution, Washington DC). Changbai Mountain is known also for its superb scenery – its mountain peaks, lush forests, hot-spring areas, waterfalls, and caldera lake – which attract tourists from around the world. The Ministry of Posts and Telecommunications of the People's Republic of China in 1993 issued a set of postage stamps to celebrate Changbai Mountain's environmental worth. Three of the stamps are shown here (the black smears are the franked parts of the stamps).

Do you have a favourite volcano postage stamp? Why not send one to IAVCEI News, together with a short caption on the volcano and its worth, and we'll see if we can publish it. Thanks to Shen-Su Sun for providing these stamps of Changbai Mountain.

Send us your favourite volcano stamp with a caption

The First International Workshop on the Subduction Processes of the Kamchatkan-Aleutian volcanic arcs was held, in Petropavlovsk-Kamchatsky, Russia on July 1-9, 1998. The Workshop united volcanologists and seismologists to discuss a wide range of problems related to the subduction of the Pacific plate including Recent volcanism of the Kurile-Kamchatkan and Alaska-Aleutian island arcs, magma genesis, earthquakes, geodynamics, volcanic and tsunami hazards.

This was the first international volcanological meeting ever held in Kamchatka and 87 participants from 7 countries took part.

Three major sessions considered 'Volcanic activity and volcanic hazard', 'Petrology and geochemistry of volcanic process; magma genesis' and 'North Pacific geodynamics: seismicity and subduction'.

There was a field trip to Avachinsky Decade volcano where participants had the chance to examine Holocene pyroclastic deposits of the volcano including the pyroclastic block-and-ash flow of the 1937 eruption. A helicopter excursion to Karymsky volcano provided a chance to watch the ongoing eruption of Karymsky – one of the most active volcanoes of Kamchatka – of the Karymsky Lake.

The most important feature of the Workshop to my mind was the truly creative and informal atmosphere. Along with the scheduled presentations, many interesting discussions were held and promising new research partnerships were established amongst the well-known professors and young researchers who chose to work on the Kamchatka

Continued on page 11:>>



Avachinsky volcano (Kamchatka, Russia) viewed from the west. Inner (Young) cone formed about 3500 years BP inside a large crater left by a Late Pleistocene debris avalanche. The slopes of Koriaksky volcano are at the foreground. Photo by Nikolai Smelov.

Avachinsky and Koriaksky volcanoes were very active during the Holocene. Both volcanoes have the 'Decade volcano' status. The saddle between the volcanoes hosts a tourist camp and mountain skiing facilities. In summer it is one of the most popular tourist sites. The suburbs of the city of Petropavlovsk-Kamchatsky and the Elizovo airport are several kilometers outside the right edge of the photo and are exposed to lahar and ash-fall hazards.

IMPORTANT

NOMINATION OF THE IAVCEI EXECUTIVE COMMITTEE FOR 1999 TO 2003

Now is the time to nominate people to serve on the IAVCEI Executive Committee for 1999 to 2003. Nominations are required now for the following office bearers* of IAVCEI:

- President
- Vice President (two positions)
- Secretary General
- Members (four positions)

* See special note on page 16 regarding the position of Deputy Secretary

Look at your copy of the IAVCEI Statutes and By-Laws and you will see how to nominate and vote!

All nominations must be sent by mail, facsimile, or e-mail to the Chair of the IAVCEI Nominating Committee at the following address:

Professor S Aramaki, Department of Earth Sciences, Nihon University, Sakura-josui, Setagaya-ku, Tokyo 156, JAPAN.

Fax: +81 3 5317 9430 E-mail: aramaki@chs.mihon-u.ac.jp

The following conditions apply:

1. You must be an IAVCEI National Correspondent or a fully paid-up member of IAVCEI to be eligible as a nominator.
2. The person (or people) you nominate also must be an IAVCEI National Correspondent or a fully paid-up member of IAVCEI.
3. Each of your nominations, must be accompanied by the names of three people who (1) agree to second your nomination(s), (2) are themselves National Correspondents or fully paid-up members of IAVCEI, and (3) are from a country that is (a) different from that of the nominee and (b) is a member of the IUGG.
4. Your nominations must reach the Chair of the Nominating Committee before 15 January 1999

The Nominating Committee will select candidates for a postal vote to be completed by National Correspondents and paid-up members (see Statutes and By-Laws). Ballot papers will be distributed before 15 April 1999 and must be returned before 15 June 1999.

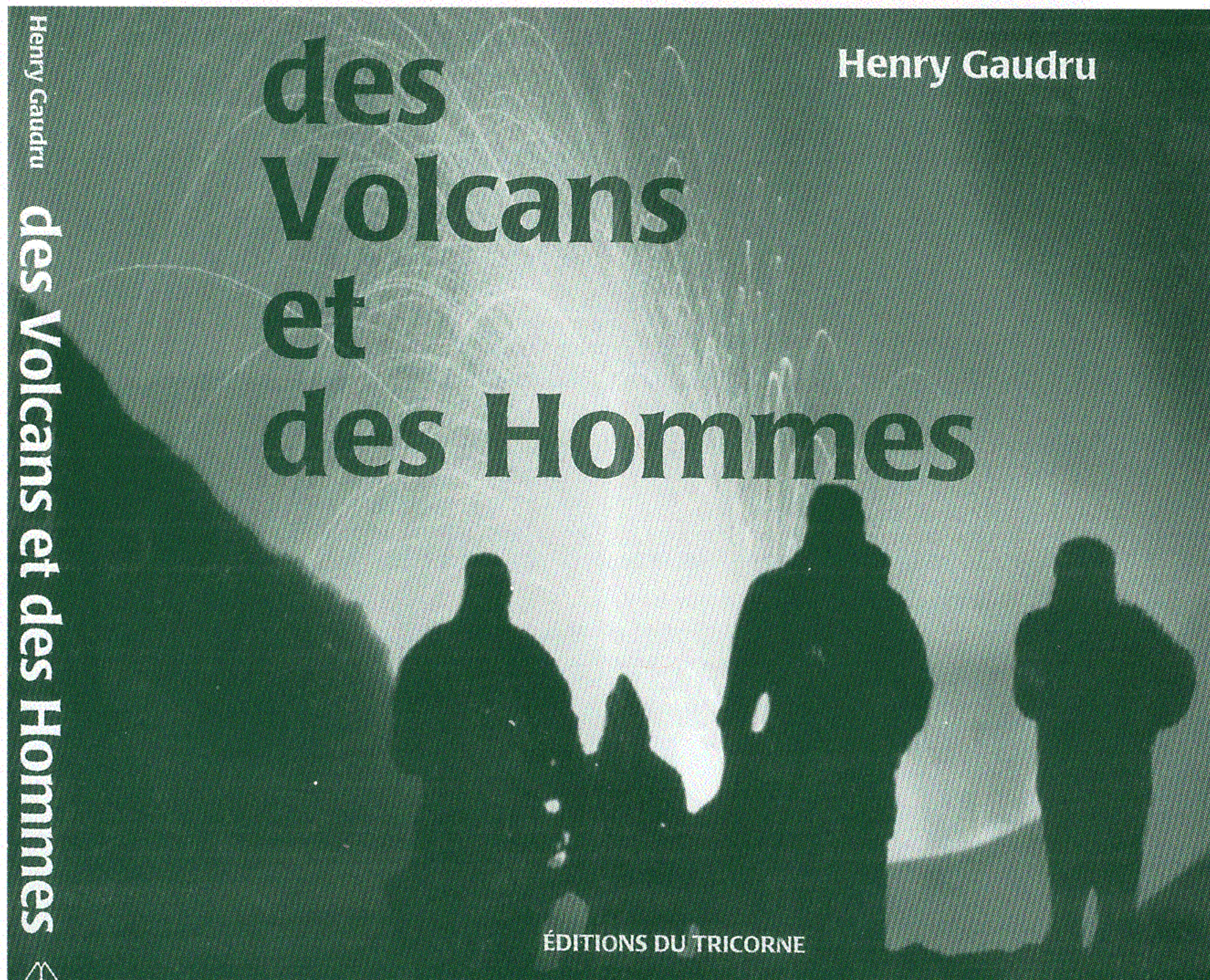
The Nominating Committee consists of the following members:

- Prof S Aramaki (Chair, Japan)
- Dr P Francis (UK)
- Dr J Lockwood (USA)
- Dr I Nicholls (Australia)
- Dr M Rosi (Italy)
- Dr J Stix (Canada)

**SECURE THE FUTURE OF IAVCEI BY SENDING IN YOUR
NOMINATIONS SOON!**

NOMINATIONS DUE NOW FOR IAVCEI EXECUTIVE

NEW BOOK



This is a representation of the front cover of a fascinating new book by Henri Gaudru that explores the impact of volcanoes on mankind. For more information about this book contact the publishers, Tricorne, by facsimile on +41 22 731 97 49.

CHANGING OF THE GUARD IN THE COMMISSION ON VOLCANOGENIC SEDIMENTATION

Grateful thanks are extended to Peter Vallance (New Zealand) and Nancy Riggs (USA) for their contributions while Co-leaders of the Commission on Volcanogenic Sedimentation (CVS). Peter and Nancy stood down from their positions last July during the International Volcanological Congress in Cape Town. They are replaced by James White (New Zealand) and Ian Skilling (South Africa). Congratulations to James and Ian on their appointments. CVS has been one of the more vigorous of IAVCEI's Commissions for some years now and has a reputation for effective leadership. We are sure that James and Ian will maintain the tradition! Following are their contact details:

Dr James White, Department of Geology, University of Otago, PO Box 56, Dunedin, New Zealand.
Telephone: +64 3 4797519 Facsimile: +64 3 4797527 E-mail: jwhite@gandalf.otago.ac.nz

Dr Ian Skilling, Department of Geology, Rhodes University, PO Box 94, 6140 Grahamstown, South Africa.
Telephone: +27 46 6038312 Facsimile: +27 46 6229715 E-mail: IPS@rock.ru.ac.za

ULAWUN DECADE VOLCANO WORKSHOP, PAPUA NEW GUINEA

>>Continued from page 3:

The Workshop was opened by the Governor of West New Britain, and followed by technical sessions that dealt in turn with: Ulawun volcano; volcano-cone collapses and debris avalanches (general principles and specific examples from the western Pacific); tsunamis of volcanic origin; monitoring and prediction of cone collapses; and, finally, emergency management implications and issues. The sessions were dominantly opportunities for discussion and the generation of recommendations, but each session was preceded by short, scene-setting presentations by selected speakers.

One day was spent in the field driving from Walindi to Ulawun, examining the tephra deposits from some of the large ignimbrite-producing caldera systems that exist in West New Britain, notably Witori and Hargy calderas. Participants stayed overnight at Ulamona Mission and Sawmill and were treated to a marvellous welcome and traditional evening dances from the people of the Ulamona district. Another half day involved a visit to Garua Island where Australian Museum archaeologists showed participants some of the fascinating results of their research work on artefacts of obsidian and Lapita Pottery trapped between tephra layers originating from Witori and Dakataua calderas. Many participants also visited Rabaul after the Ulawun workshop,

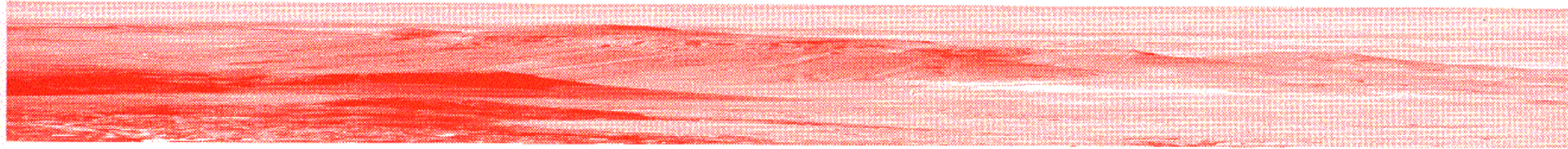
surveying the destruction of a large part of Rabaul town resulting from the 1994 eruptions of Tavurvur and Vulcan volcanoes, and visiting the Rabaul Volcanological Observatory.

Twenty-two recommendations resulted from the Ulawun Workshop. These range from, for example, improved monitoring on Ulawun, development of tsunami models for the West New Britain area, development of specific volcanic-emergency plans (including volcanic alert levels) throughout the south-west Pacific, to a geological-risk mapping project in order to identify hazard, vulnerability, and risk in West New Britain.

A full Workshop report is being prepared and is expected to be available in the New Year. Please contact the Rabaul Volcanological Observatory (rvo@datec.com.pg) if you would like your name added to the list of people who will receive a copy.

Wally Johnson

E-mail: wjohnson@agso.gov.au



KAMCHATKA INTERNATIONAL WORKSHOP

>>Continued from page 8:

The Workshop vividly demonstrated the importance of international co-operation in fields as diverse as monitoring active volcanoes for aviation safety; creation of a database of the largest explosive eruptions of the North Pacific; study of the large-scale geochemical variations in the volcanic rocks; seismic and geochemical investigations in the Kamchatka-Kurile/Aleutian 'corner' (arc junction) etc.

North Pacific island arcs offer a unique opportunity to study all the aspects of subduction process. Prolific (and incredibly beautiful) volcanoes, powerful earthquakes, active faults and huge landslides characterise the youth and activity of the region. The increasing presence of people invites further investigations of volcanic and seismic hazard. We hope that this meeting is the first step to focused international co-operative research in the North Pacific, which will result in better understanding of the fundamental Earth processes and help people to live better in this remote region.

Vera Ponomareva

E-mail: ponomareva@ginran.msk.su

BULLETIN OF VOLCANOLOGY New arrangements for ordering

Have you been confused about paying your membership fees to IAVCEI via the Secretariat in Australia, but paying Springer in Germany for subscriptions to the *Bulletin of Volcanology* ?

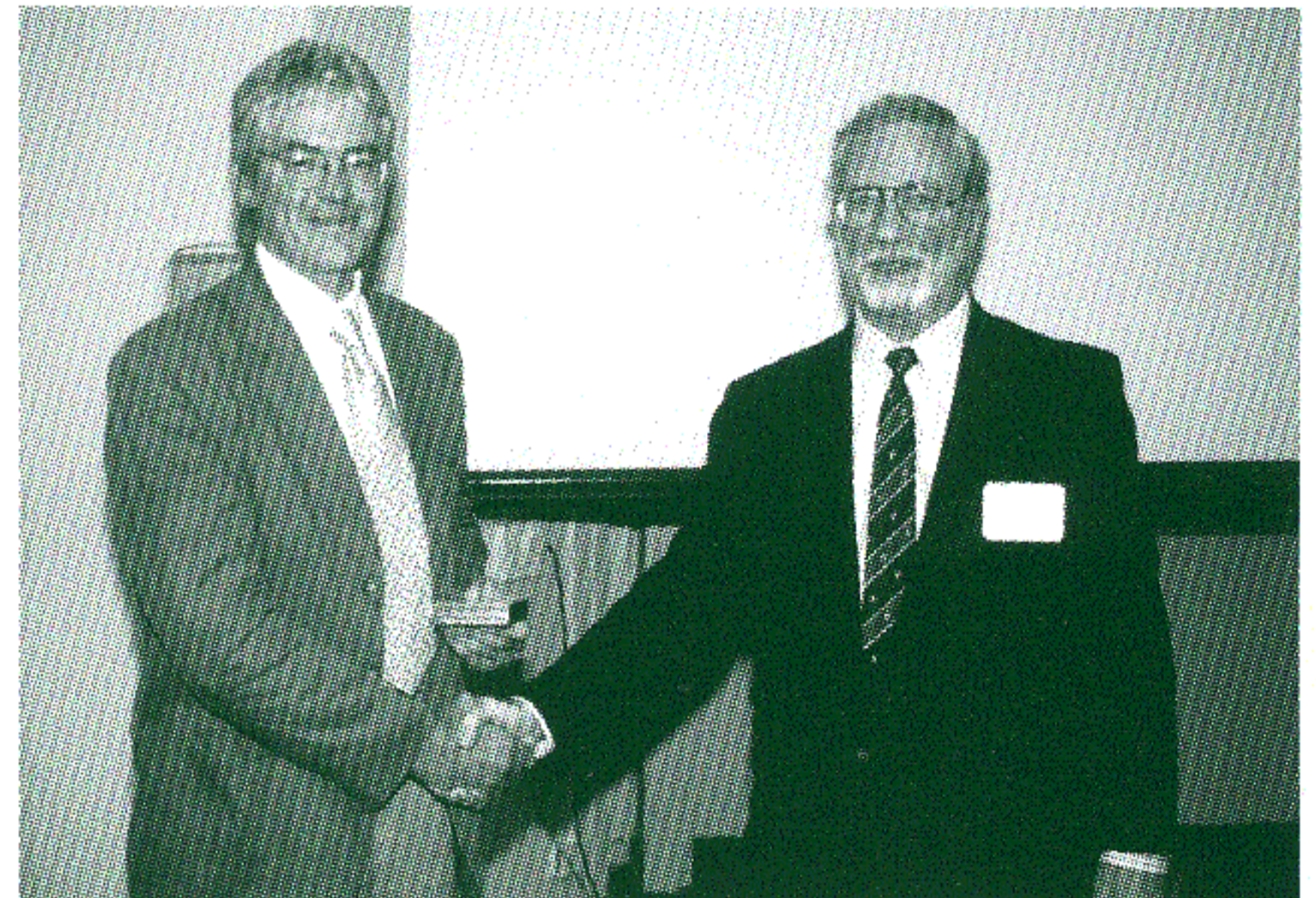
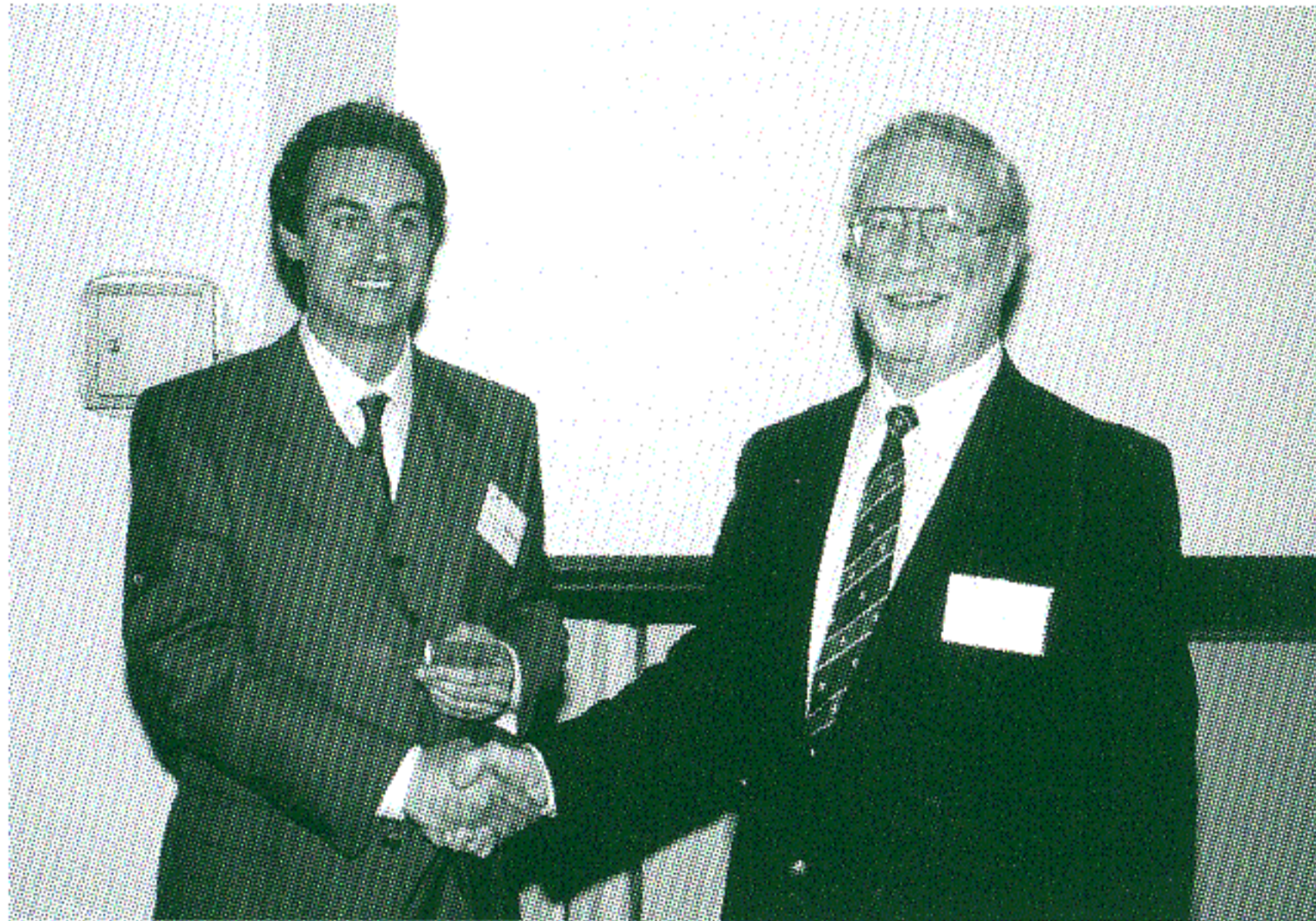
This problem no longer exists! - You must now order the *Bulletin of Volcanology* from the IAVCEI Secretariat along with your membership renewal . The IAVCEI Secretariat will be the point of contact for both membership matters AND *Bulletin* orders.

Your new personalised membership renewal notice/*Bulletin* order form has been included with the mail out of this issue of IAVCEI News.

****New arrangements for ordering the BULLETIN OF VOLCANOLOGY****

WAGER MEDALS AWARDED IN CAPE TOWN

Congratulations to Giovanni Macedonio and Jon Davidson joint winners of the inaugural Wager Medal!



Giovanni Macedonio (left) of Italy and Jon Davidson (right) of the USA being presented with their Wager Medals on 16 July 1998 by the IUGG President, Peter Wyllie, during the International Volcanological Congress in Cape Town, South Africa. Both winners gave lectures on their research work at the awards ceremony: Jon presented a paper entitled 'Sorting out subduction zone volcanoes from bottom to top', and Giovanni spoke on 'Physical modelling of volcanic eruptions'.

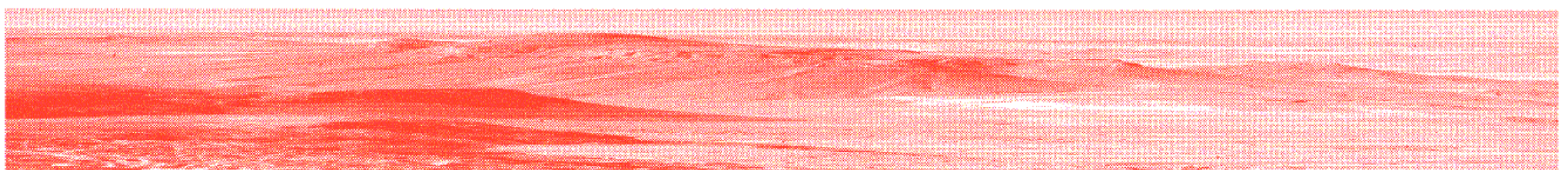
Following is the text of the introductory speech made by Wally Johnson at the Wager Medal award ceremony:

“IAVCEI honours scientific achievement with the award of two prizes - the Thorarinsson Medal and the Wager Prize. Those of you who attended the Puerto Vallarta IAVCEI General Assembly last year in Mexico will recall that Dick Fisher there was presented with the Thorarinsson Medal. The Wager Prize honours the memory of the late Professor L.R. Wager of the University of Oxford, United Kingdom. The prize normally is given every four years to coincide with a major IAVCEI conference and is awarded to a young scientist, under the age of 40 years, who has made outstanding contributions to the study of volcanic rocks, particularly in the eight-year period prior to the meeting.

The Wager Prize used to be a quite small sum of money, representing interest from a bequest. IAVCEI in 1993 proposed upgrading the Prize by striking a medal and increasing the monetary reward. We contacted the Royal Society in London and, working through Peter Kokelaar who then chaired the Volcanic Studies Group of the Geological Society of London, also contacted Mrs Wager. She graciously approved of the plan, providing a photograph of her late husband; and we had the portrait-style medal designed and manufactured in Australia. Here, then, we are bestowing the Wager Medal for the very first time.

A call for nominations for the Wager Medal was made a year ago. These nominations were considered by the IAVCEI Awards Sub-Committee currently chaired by Grant Heiken, President of IAVCEI. Grant convened a group of six and the Sub-Committee exchanged views on the nominations, mainly using e-mail. Rankings were made and several iterations completed. The process was thorough. The Sub-Committee in the end reached the conclusion that it could not decide between two particular nominations. The nominations were equally outstanding and both were supported by exceptionally strong nomination packages.

The joint winners of the inaugural Wager Medal are Giovanni Macedonio of Italy and Jon Davidson, USA. This is a very pleasing result because it represents awards to young scientists representing the two parts of IAVCEI – volcanology on the one hand, and chemistry of the Earth's interior on the other. On behalf of IAVCEI, and speaking for Grant Heiken, I would like to extend our congratulations to Jon and Giovanni on their awards. Grant, of course, would have liked to have been able to present the medals himself, but I know will be pleased that Peter Wyllie, as IUGG President, is able to take his place this afternoon to make the presentations.”



We listed in the previous IAVCEI News those symposia, lectures, etc. that have been programmed for the IUGG General Assembly and which we thought would be of interest to IAVCEI people. Now the Third Circular is released and the Web site (<http://www.bham.ac.uk/IUGG99>) has been updated. Following is a slightly modified list.

A few people have said how few IAVCEI symposia there are at the 1999 General Assembly. Not true! Read the Circulars! Our approach for this Assembly has been to work hard with other Associations so that our VCEI science can benefit from the inter-disciplinary input of people in other IUGG Associations, and so that their science can benefit from us. Please study the program with this in mind. Concentrate on the Inter-Association Symposia. Let's break out of our comfort zone during this General Assembly!

Union Lecture:

UL3: Volcanic Hazards, Cities, and Public Awareness – Franco Barberi (Italy, IAVCEI Vice President)

Union Symposia:

U1: Geoscience in the Service of Society

U4: Megacities and Geophysics

U5: Geophysical Hazards and Risks: Predictability, Mitigation and Warning Systems

U6: Volcanism – Mechanisms and Consequences

U7: Integrated Global Monitoring Networks

Inter-Association Symposia:

JSS02: Physics and Chemistry of the Earth's Interior

JSS07: Anisotropy: from Mountain Building to Geodynamo

JSA09: Polar Geophysics

JSA10: Planetary Exploration

JSS13: Constraints on Global Mantle Circulation

JSA15: Electromagnetic Methods for Monitoring Earthquakes and Volcanic Eruptions

JSA17: Mantle-Core Structure, Properties, Coupling, and the Geodynamo

JSV22: Oceanic, Continental and Continental Margin Volcanic Provinces

JSP23: Geophysical Hazards and Risks: Predictability, Mitigation, and Warning Systems

JSP26: Chemistry and Transport in the Upper Troposphere and Lower Stratosphere

JSV29: Magma Physics versus Volcano Physics

JSV30: Arc Magmatic Rocks as Building Blocks for the Continents

JSV36: Understanding Volcanoes by Geodesy, Seismology, Electromagnetics and Geochemistry

JSM41: The Contribution of Satellite Observations to Global Climate, Ocean, and Terrestrial Monitoring

JSS42: Tsunami Observations, Modelling and Hazard Reduction

JSS44: Structure of the Continental Lithosphere from Integrated Geophysical, Geological and Geochemical Studies

JSS46: Seismic Tomography on Volcanoes and Volcanic Fields

JSV47: Volcano Seismology

JSA48: Characterization of the Lithosphere-Asthenosphere Boundary

JSP49: Small-scale Flow, Turbulence, and Mixing

IAVCEI Symposia:

VS1: Volcaniclastic Sedimentation in Iceland

VS2: Magma Fragmentation and Explosive Eruptive Flows

VS3: Environmental Forcing of Volcanic Eruptions



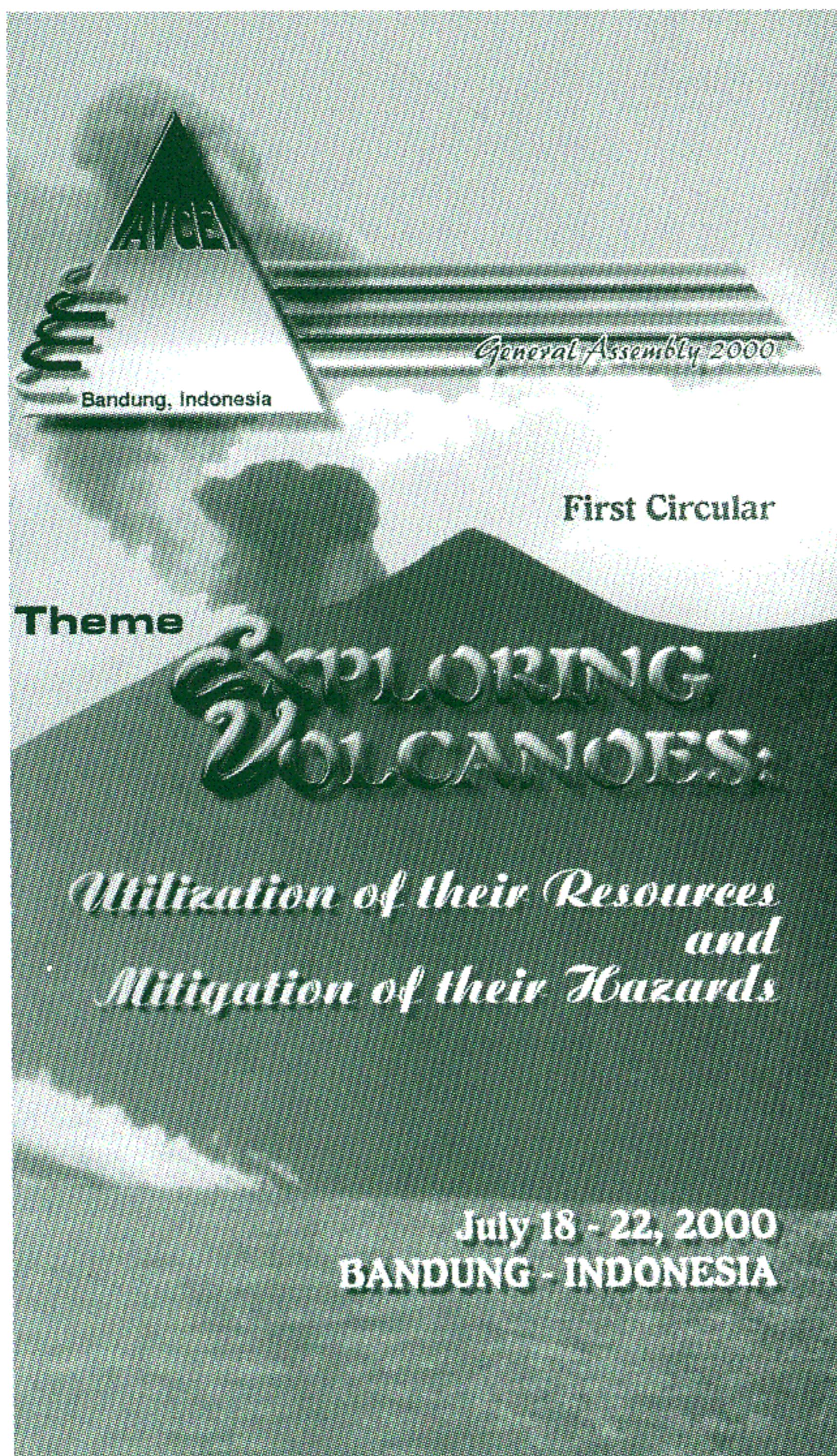
The compilers of the IUGG Second Circular omitted the IAVCEI Symposium 'Environmental Forcing of Volcanic Eruptions' and have been embarrassed by their oversight. Here we help make amends by reproducing the scoping statement and convenor details for this particular symposium:

VS3: ENVIRONMENTAL FORCING OF VOLCANIC ERUPTIONS

Magma-charged, critically-poised volcanic systems may be induced to erupt by small changes in their physical environment. Triggering factors may be global, including variations in Earth tides or the redistribution of planetary water during the ice ages, or of more limited spatial extent involving, for example, variations in local atmospheric pressure or sea levels due to the passage of weather systems, or the unloading of ice-covered volcanoes at times of glacial termination. Both poster and oral papers are invited that address the nature, importance and extent of environmental forcing of volcanic eruptions, both within the geological record and at the present time. Papers that highlight potential links between global environmental change and volcanic eruptions are particularly welcome.

Convenors: **W J McGuire** (w.mcguire@ucl.ac.uk) and **C R J Kilburn** (c.kilburn@ucl.ac.uk). Benfield Greig Hazard, Research Centre, Department of Geological Sciences, University College, London, Gower Street, London, UK. and **G Zielinski** (Greg.Zielinski@grg.sr.unh.edu). Climate Change Research Center, University of New Hampshire, Durham NH 03824 3525, USA

*** All membership renewals for 1999 are due now! ***



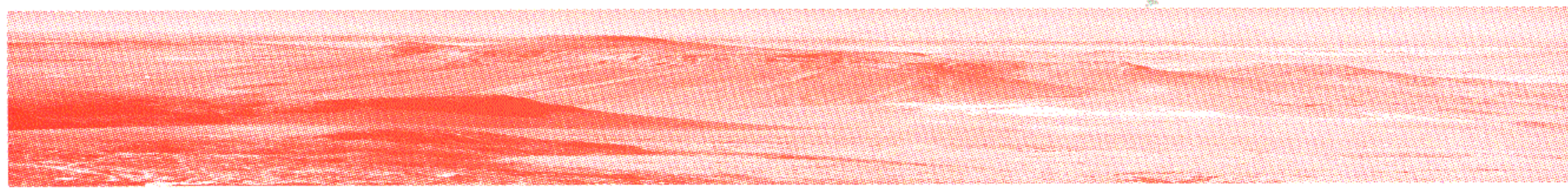
'EXPLORING VOLCANOES – UTILIZATION OF THEIR RESOURCES AND MITIGATION OF THEIR HAZARDS'

The first IAVCEI General Assembly of the new millennium will be held in Indonesia. Some of you may have seen the First Circular already or accessed the Web site (<http://www.vsi.dpe.go.id/iavcei.html>) and will know that the General Assembly will be held 18-22 July 2000, together with pre-Assembly field excursions and post-Assembly activities. A wide range of volcanological topics has been identified, covering magmatic processes, utilisation of volcanic energy, mineralisation, volcanic hazards, and so forth.

What you may not know is that the venue of the General Assembly has been changed. Bandung is identified as the location in the First Circular, but this has been changed now to Denpasar in Bali where the range of available of hotels and conference centres is wide and where access to Indonesia for international participants is good through the international airport at Denpasar. So, remember – **Bali in the year 2000.**

The Organising Committee for the 2000 General Assembly is being chaired by Dr R Sukhyar of the Volcanological Survey of Indonesia (VSI) which is where the General Assembly Secretariat is located.

For further details contact the Secretariat at VSI, Jalan Diponegoro 57, Bandung 40122, Indonesia.
 Telephones: +62-22-772606 (or -771402)
 Facsimile: +62-22-702761
 E-mail: iavcei@vsi.dpe.go.id



FROM THE PRESIDENT

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umbrella organisation for IAVCEI and its six sister associations.

The selection process for the Executive Committee has changed and for the term 1999-2003, YOU will elect the officers. In the last issue of IAVCEI News was a call for nominations of officers to serve on the Executive Committee. To repeat, these nominations are due to the Chair of the Nominating Committee (Shigeo Aramaki) before January 15, 1999. Postal ballots will be distributed to you before April 15, 1999.

There has been much grumbling in the past about the method

of selecting officers by a vote of National Correspondents. This has changed and you now have a chance to determine who will lead the Association. While you are waiting for the next blast at your favourite volcano or for a furnace to reach working temperature in the lab, please give some thought as to where you believe the organisation should be headed during the new term. Determine who would be best to lead us in that direction, prepare a nomination package, and in April or May – VOTE!

Grant Heiken
 E-mail: heiken@lanl.gov

VOLCANISM IN CANADA

compilations!

Close on the heels of Bill Mathews was Jack Souther (Geological Survey of Canada – Vancouver (GSC)). He added the several hundred more Quaternary volcanoes to the map of Canada. A regional mapper for most of his career, Jack's work in the Stikine country put Mount Edziza (a major peralkaline centre) and a host of other centres on the map.

Over the next decade, a much clearer picture of Cordilleran volcanism and tectonics emerged. In 1977 the book, *Volcanic Regimes*, with a chapter on Cordilleran tectonics by Jack Souther contributed significantly to our early understanding of quaternary volcanism in Canada. After Bill and Jack, Don Francis (McGill University) and his students carried on notable work in northern BC and Yukon. Don's work has focused on the nature of the mantle beneath the northern cordillera, and challenged our earlier notions on the nature of volcanism in the region.

These pioneering workers paved the way for a vibrant and active volcanological community in Canada, but this is only half the story. Many Canadian researchers work in the Archean, where the greenstone belts are the best exposed in the world. Lorne Ayers (University of Saskatchewan) and Maurice Lambert's (GSC – Ottawa) work on the reconstruction of ancient edifices of the Archean and Proterozoic showed that processes then were very similar to those going on today. Bob Baragar's (GSC – Ottawa) work on the Coppermine Flood basalts of the North West Territories proved that the tectonic setting of even these ancient rocks could be determined. In fact, greenstone belts exposed in cross section by folding and subsequent glacial scour revealed textbook examples of pillows, volcanic clastics deposits and intrusions.

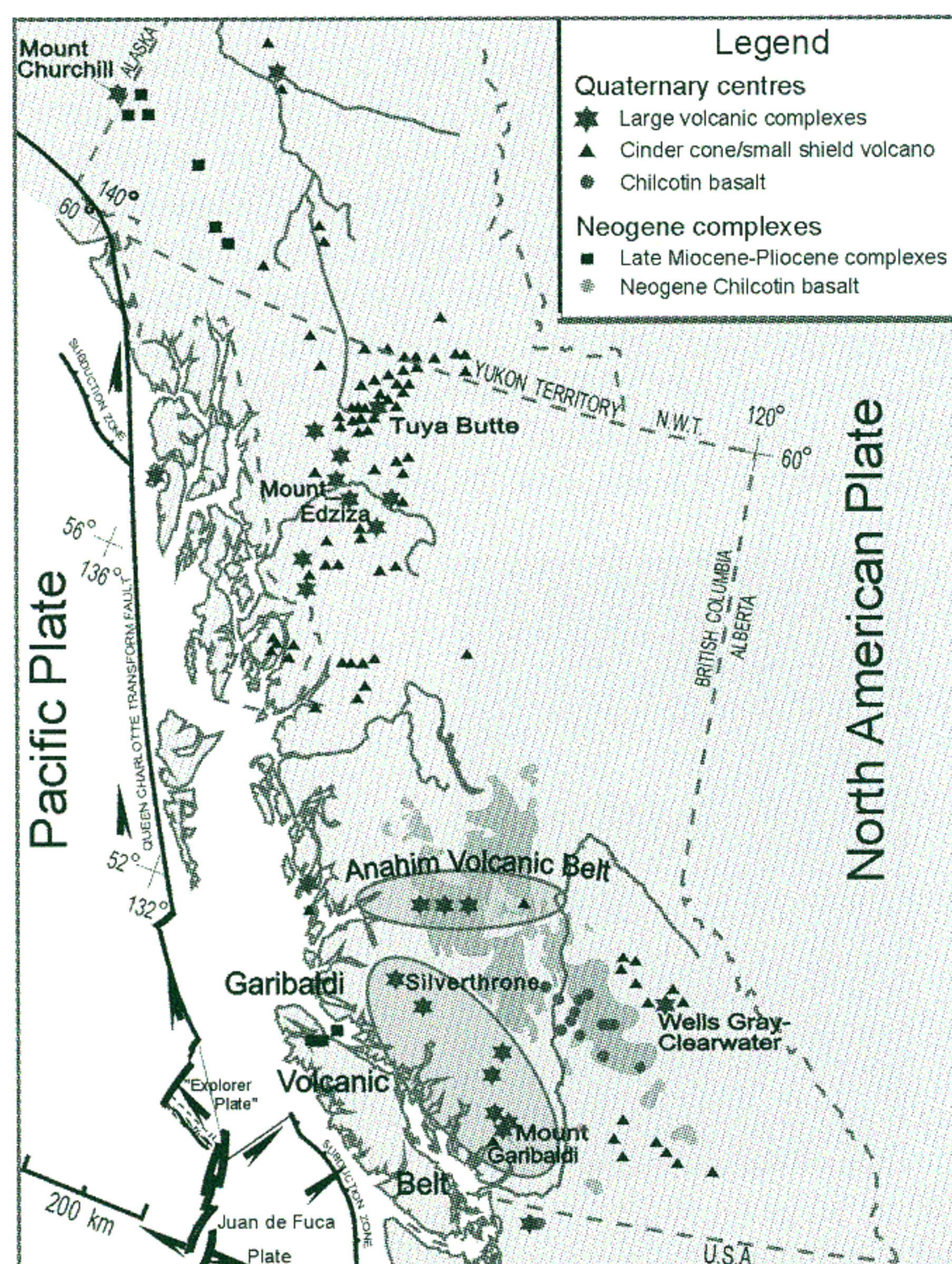
A tradition of national and international involvement in volcanology, established by these early workers, carries on today. The Geological Association of Canada has a small active group in its Volcanology and Igneous Petrology Division, which meets once a year at the Annual General Meeting of the Society. Here members are often identified, by their research and participation in other activities, to represent the Country on international committees. Many Canadians sit on international committees overseen by learned societies such as the International Union of Geodesy and Geophysics. The Canadian National Committee (CNC) has two members representing each of the branches of IUGG. For each, there is a senior and junior member. Every effort is made to choose people who are active researchers and can be of benefit both to the larger community of volcanologists at home and to the society.

International work has helped Canadians become more aware of the growing threat of volcanoes. In Canada, although some volcanoes pose a significant threat to local communities, and any sizeable eruption would impact the economy of western Canada, research is limited. Because no large explosive eruptions have occurred in Canada in

>>Continued from page 1:

the last few hundred years, volcano monitoring is not a priority. Seismic networks, already in place, can be used to reawaken, but in many areas, this network will alert authorities only if the impending eruption is potentially large. Additionally, the threat from without seems much greater than the threat from within. Volcanoes in Alaska, Washington, Oregon and California are much more frequently active than those in Canada.

Growing awareness of volcanism, especially the threat from volcanoes to the south and north, have led to a number of changes in the way Canadians are dealing with volcanic



hazards. The near disaster, that occurred when a KLM flight over Alaska in December 1989 flew into an ash cloud from Mount Redoubt, sent echoes of concern throughout the international aviation community – enough, in fact, that the question of Canada's readiness to respond to volcanic crises was raised in the House of Commons. This resulted in the development of a comprehensive plan for dealing with volcanic hazards. Initially the work centred on the aviation hazard issue and Canadians from the aviation industry and regulators were helpful in bringing the hazard to the attention of the International Civil Aviation Organisation (ICAO) by lending their voices to those from other countries. This eventually resulted in the adoption and updating of airline procedures in the event of encountering volcanic ash and in the establishment of Volcanic Ash Advisory Centres (VAACs). The Canadian Meteorological Center in Dorval

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*** Do you have 1998 membership? ***

FROM THE SECRETARY GENERAL-AND THE DEPUTY SECRETARY

We have been discussing with other members of the IAVCEI Executive Committee the role of the Deputy Secretary in IAVCEI and now have a proposal we would like to put to IAVCEI members and National Correspondents for comment and, hopefully, support. One of us (Wally) currently holds the position of Secretary General and the other (Ray) is currently Deputy Secretary.

The IAVCEI Statutes and By Laws approved in 1995 at the IUGG General Assembly in Boulder dictate that the Deputy Secretary for the 1999-2003 period should be elected by formal nomination and postal vote. The duties of the Deputy Secretary, as stated in the By Laws, are 'to assist the Secretary General, to maintain a mailing list of members of the Association and to receive and process Affiliate applications'. However, circumstances have changed since the drafting of the 1995 Statutes and By Laws. In particular, maintaining the mailing list and processing Affiliate (i.e. membership) applications, as you know are being done in Canberra at the IAVCEI Secretariat by the IAVCEI Executive Officer, Caroline Giddings. This seems to be working satisfactorily but means that the primary role and 'raison



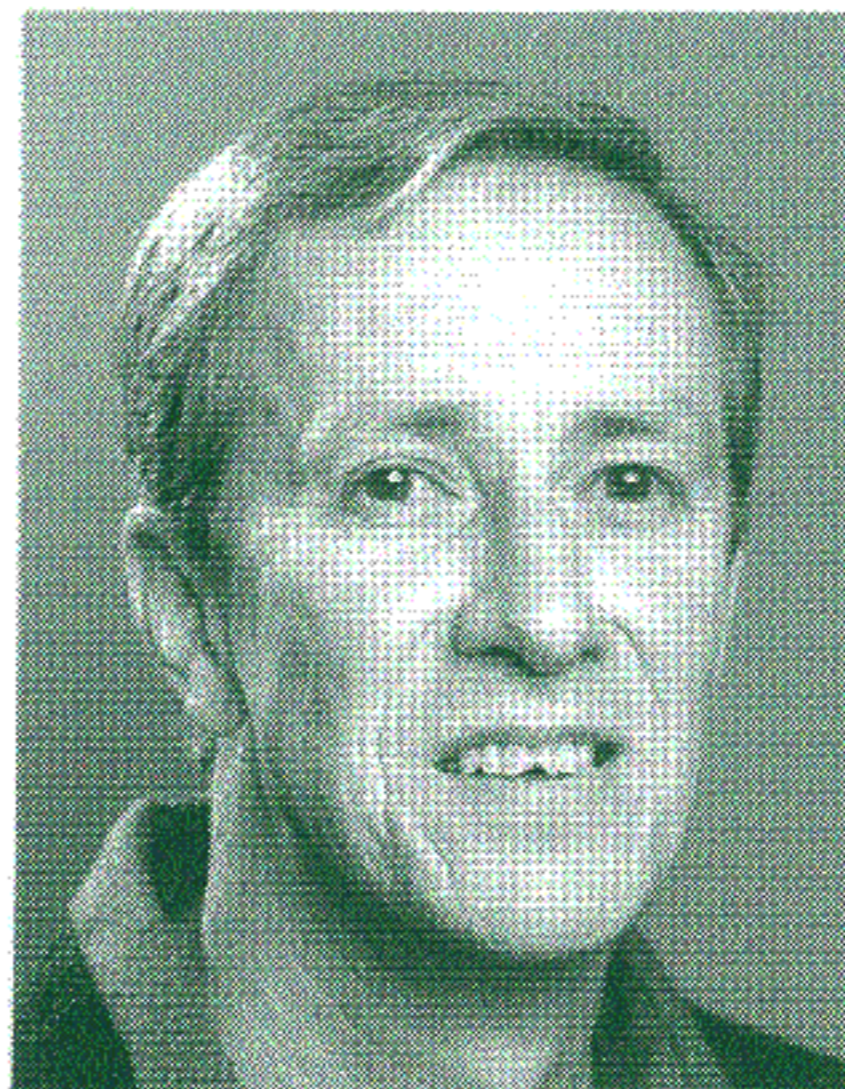
Wally Johnson

d'être' for the Deputy Secretary's position - as specified in the 1995 Statutes and By Laws - has been transferred from Ray to Caroline. This has led us to rethink the role of the Deputy Secretary in IAVCEI.

We propose that the role of the Deputy Secretary be changed back to the situation that existed when Ray first took on the position in 1995. At that time the Deputy Secretary was appointed to provide general assistance to the Secretary General where needed, rather than being voted in to look after the mailing list and membership applications, as per the existing Statutes and By Laws. The advantage of this would be that the new Secretary General for 1999-2003 - whoever that person is - would be able to appoint someone from the same institution or in the same town/city to assist with IAVCEI duties. We both live in Australia but find that living in separate cities, even in the same country, does not permit an effective working relationship being developed. The new voting system could lead to a situation where the Secretary

General would be in one country and the Deputy Secretary in another. We believe that this should be avoided.

The Executive Committee therefore has decided that IAVCEI members and National Correspondents should be asked to vote on changing the Statutes and By Laws by agreeing that the position of Deputy Secretary should be made by appointment by the Secretary General. A voting slip for you to complete will be included with a forthcoming issue of

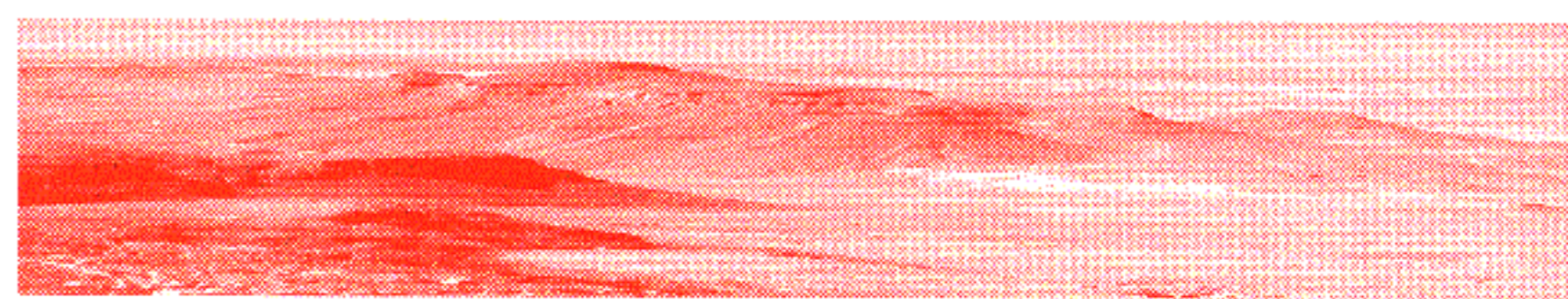


Ray Cas

IAVCEI News. This means, therefore, that no call will be made for nominations for the position of Deputy Secretary, at least until the matter is resolved by the postal vote.

We hope that you will participate in making this decision. This will be first time that the Association will be testing its new, democratic way of doing and changing things!

Wally Johnson and Ray Cas



VOLCANISM IN CANADA

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told that Canada has experienced violent volcanic eruptions in the last few thousand years, plans are in place to protect their safety and that of the aviation industry and flying public. Volcanic research is alive and well in Canada.

Catherine Hickson

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