

# International Association of Seismology and Physics of the Earth's Interior

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## NEWSLETTER No. 25 NOVEMBER 1989

To: National Correspondents, Officers and Representatives of the Association and related organisations.

Our recent General Assembly at Istanbul was one of our most lively, and we are grateful to our Turkish hosts for providing such a stimulating forum.

This Newsletter has been delayed in order to include details of the Regional Assembly in Africa in 1990, and the first information about the programme for the General Assembly in Vienna in 1991.

The next two years will be busy ones with the added impetus of the launch of the International Decade for Natural Disaster Reduction. The recent earthquake in North California has reminded us all that earthquakes are still an ever present threat in many parts of the world, but has also shown that earthquakes of this magnitude in populated areas need not be major disasters in terms of loss of life.

*Robin Adams*

R D Adams  
Secretary-General

## OBITUARY - DR. E A FLINN

Dr Edward A Flinn (known to us all as Ted) passed away on August 13, after a long debilitating illness. Dr Flinn is best known for his leadership of NASA's Geodynamics Program and especially for his impact on the scientific community in the geodetic area. The spectacularly successful international cooperation in NASA's Crustal Dynamics Project is exemplary of Dr Flinn's broad vision and scope. In IUGG, he was former Secretary-General of the Inter-union Commission on the Lithosphere and Chairman of the IASPEI Working Group on Regionalization. The work of this latter group is now nearing completion, as his colleagues are carrying out the projects Dr Flinn initiated, and still known generally as the Flinn-Engdahl regionalization.

We shall remember him not only for his significant scientific contributions (recently rewarded with Fellowship of the American Geophysical Union), but also for his ever cheerful personality, and particularly his courage in his last illness.

(E R Engdahl)

25th GENERAL ASSEMBLY, ISTANBUL, TURKEY. 21 AUG - 1 SEPT 1989

The 25th General Assembly of IASPEI was held at the Ataturk Cultural Centre, Istanbul, Turkey, 21 August - 1 September 1989. It was attended by 611 scientific participants and 53 accompanying persons from 52 countries.

OPENING CEREMONY, 21 AUGUST 1989

The Opening Ceremony took place at 1000 on 21 August, with the speakers being introduced by Mrs R Ates of the Local Organizing Committee.

The first speaker was His Excellency Cengiz Altinkaya, Minister of Public Works and Settlement of Turkey, who opened the Assembly on behalf of his Ministry, which was the sponsoring organization. Mr Altinkaya stressed the need for the reduction of earthquake effects by careful planning and scientific and engineering measures rather than being resigned to the repair of earthquake damage. He stressed the international aspects of our science and wished participants a happy and profitable stay in Turkey.

Professor C Kisslinger, Vice-President IUGG, brought greetings from our parent body and referred to the excellent seismological work being done in Turkey.

The next speaker was Major-General Cevat Ulkecul, President of the Turkish National Union of Geodesy and Geophysics, who wished the Assembly well on behalf of that body.

The President of IASPEI, Prof. St. Mueller, then thanked the Turkish authorities for hosting this meeting and stressed how appropriate it was to be holding this Assembly in a country of so much seismological interest.

Finally, Dr Otkay Ergunay, Chairman of the Local Organizing Committee, paid tribute to members of his staff who had helped in the preparation of the meeting and thanked the General Director of Disaster Affairs, Mr Sayhan Bayoglu, for his support. Dr Ergunay referred to the wide range of scientific topics on the programme and expressed the hope that participants would not only gain scientifically from the Assembly but would find time to explore Istanbul and become acquainted with its charms.

OPENING PLENARY SESSION, 21 AUGUST 1989

Present: Prof. St. Mueller (President) in the Chair and about 200 delegates and guests.

The President opened the meeting at 1115. After welcoming participants he asked those present to stand in memory of colleagues who had died since our last Assembly in 1987. These included:

Dr E A Flinn (USA)	Dr E M Fournier d'Albe (France, Unesco)
Sir Harold Jeffreys (UK)	Dr D Linehan, S.J. (USA)
Dr Kiyoshi Muto (Japan)	Prof. O W Nuttli (USA)
Prof. H Bolton Seed (USA)	

The Secretary-General reported that although there had been no Assembly in 1988, Association activities had remained at a high level through activities of the Commissions. Dr. Adams also reported that the Union scientific sessions for the 1991 General Assembly at Vienna had been recently decided by the IUGG Executive Committee, and the IASPEI programme to complement this would be decided during this Assembly. Discussions would also take place on the scientific programme for the IASPEI/Unesco/ICL Regional Seismological Assembly in Africa, which was now definitely scheduled for 22-29 August 1990, at Nairobi, Kenya. It was hoped that details would be available at the Closing Plenary Session on 1 September.

Prof. Mueller then announced the composition of the Resolutions Committee as follows:

Dr. D Denham (Australia), Chairman  
Dr. P Gulkan (Turkey)  
Prof. E Hurtig (GDR)

The President closed the formal part of the meeting at 1130 and explained that through illness, Prof. M N Toksoz had been unable to deliver his Association Lecture. We were most grateful that Dr A M C Sengor of Istanbul University had agreed at very short notice to deliver a lecture in his stead. Dr Sengor's topic was 'The Tectonic Evolution of the Aegean Region', in which he brilliantly combined geophysical and geological information to give a graphic picture of the development of this much studied but still imperfectly understood region.

### SCIENTIFIC PROGRAMME

The following Scientific Sessions were held during the Assembly:

#### Symposia

- |              |  |
|--------------|--|
| 21 Aug       | Scientific Horizons in IASPEI. Convenor: St. Mueller (President, IASPEI)   |
| 22-23 Aug    | Geodynamical Processes: Quantitative Models and New Geophysical Constraints. Convenors: U Christensen (FRG), L Fleitout (France), K P Furlong (USA).   |
| 22-23 Aug    | Determination of Source Parameters Using Digital Seismograms. Convenors: S A Sipkin (USA), D Seidl (FRG).  |
| 23-24 Aug    | Seismotectonics of the Alpine Himalayan Belt and Other Major Orogenies. Convenors: A M C Sengor (Turkey), V Babuska (Czechoslovakia), M Barazangi (USA), N Pavoni (Switzerland).                     |
| 24 Aug       | Modelling the Earthquake Source. Convenors: C H Scholz (USA), T Mikumo (Japan), R Teisseyre (Poland).  |
| 25 Aug       | Detailed Structure and Processes of Active Margins. Convenors: H Shimamura (Japan), A Hirn (France), J Makris (FRG).   |
| 25 Aug       | Estimation of Site Specific Ground Motion for Large Earthquakes. Convenors: B A Bolt (USA), M Erdik (Turkey), L-l Xie (China).   |
| 25, 28 Aug   | Forward and Inverse Techniques in Geothermal Modelling. Convenors: V Cermak (Czechoslovakia), H J Sass (USA).  |
| 28-29 Aug    | Physical and Petrological Nature of Discontinuities in the Lithosphere (Joint with ICL). Convenors: W D Mooney (USA), D J Blundell (UK), J Hall (Canada), N V Pavlenkova (USSR), S V Sobolev (USSR). |
| 28-29 Aug    | Earthquake Prediction and Premonitory Phenomena. Convenors: M Wyss (USA), S Crampin (UK), A M Isikara (Turkey), S-x Xu (China).  |
| 28-29 Aug    | Correlation of Geothermal and Other Parameters. Convenors: D S Chapman (USA), G Ranalli (Canada), S Sacks (USA).   |
| 30 Aug       | Earthquake Hazard Assessment in the Interplate Setting. Convenors: R K McGuire (USA), P Gulkan (Turkey), V Schenk (Czechoslovakia).  |
| 30-31 Aug    | Computation and Interpretation of Seismic Wavefields in 2-D and 3-D Structures. Convenors: B L N Kennett (Australia), N Canitez (Turkey), L P Vinnik (USSR).   |
| 30 Aug-1 Sep | The Earth's Deep Interior and Dynamics of Subducting Slabs (Joint with ICL). Convenors: S Karato (USA), D J Doornbos (Norway), T H Jordan (USA), W R Peltier (Canada).                               |
| 31 Aug-1 Sep | Scattering and Attenuation of Seismic Waves. Convenors: K Aki (USA), E S Husebye (Norway), A V Nikolaev (USSR), H Sato (Japan), R S Wu (USA).  |

Special Sessions and Workshops

- 31 Aug IASPEI/Unesco Symposium on the Spitak, Armenia Earthquake, 7 December 1988. Convenors: J R Filson (USA), S A Pirouzian (USSR).
- 23 Aug IASPEI/Unesco/ICL Working Group on Seismology and Related Sciences in Africa. Chairman: H K Gupta (India).
- 24 Aug Regional Data Centres: State of the Art. (Joint with ICL). Convenors: J Bonnin (France), A D Gvishiani (USSR), E S Husebye (Norway).
- 25 Aug Instrumentation and Data Analysis in Developing Countries. Convenors: S E Pirhonen (Finland), R D Adams (UK), R Ates (Turkey).
- 28 Aug Travel Time Tables and Earthquake Location Problems. Convenors: E R Engdahl (USA), B L N Kennett (Australia), N V Kondorskaya (USSR).
- 30 Aug Comprehensive Mapping of the Lithosphere. Convenors: V V Belousov (USSR), E Hurtig (GDR).
- 30 Aug International Seismological Observing Period. (Joint with Unesco). Convenor: E R Engdahl (USA).
- 31 Aug Crustal Deformation Related to Earthquakes. Convenors: M Wyss (USA), J Zschau (FRG).
- 31 Aug Hazard Assessment Techniques. Convenor: R K McGuire (USA).
- 1 Sep Earthquake Statistics and Time Dependent Hazard. Convenors: M Wyss (USA), J Lomnitz-Adler (Mexico).

Meetings were also held of all IASPEI Commissions.

Scientific Study Tour of the North Anatolian Seismic Zone 26-27 August

Nearly 200 participants and guests spent two days visiting areas where recent activity had occurred on the North Anatolian Fault. The first stop was at the site of the Mudurnu Valley earthquake of 22 July 1967, where evidence of strike slip faulting was still visible, to the south of Beldibi village. Next, a visit was made to the multiparametric research station at Dokurcun, part of the joint German-Turkish co-operative research project. A lunch stop was made at Karamurat Lake where active seismic experiments are carried out.

After a very comfortable overnight stop at Abant, the nearby fault trace of the earthquake of 26 May 1957 was inspected, and then the site of the movement of the earthquake of 1 February 1944. On the road from Bolu to Gerece fault breccia and mylonites were seen in a quarry, and finally there was a general view of the fault from the north of Gerece. At all of these sites explanations were given by members of the staff of Maden Tetkik ve Arama Enstitüsü and the Earthquake Research Division of the General Directorate of Disaster Affairs, Ankara.

**CLOSING PLENARY SESSION, 1 SEPTEMBER 1989**

Present: Prof. St. Mueller (President) in the chair and about 150 delegates and guests.

The President opened the meeting at 1600, and asked Prof. B A Bolt to begin the proceedings by paying tribute to the late Sir Harold Jeffreys, a former President of IASPEI, who died earlier this year.

Prof. Bolt, who had worked closely with Sir Harold over many years, spoke of his early life in the north of England and his many interests in both scientific and other fields. As well as his seismological contributions, among which are the travel-time tables derived with his student K E Bullen, he carried out significant work in geodesy, statistics and astronomy and in his early years contributed to studies of photography, botany and psychology. A shy man, he nevertheless enjoyed choral singing and cycling and was greatly supported in all his work by Lady Jeffreys.

PRESIDENT'S REPORT The President then reported on his activities on behalf of the Association since the 1987 Assembly. He and the Secretary-General took part in a review of the Association by the IUGG Bureau at Copenhagen in May 1988, during which he was also able to represent the Association at the celebration of the 100th birthday of Miss Inge Lehman. In view of the development of the International Decade for Natural Disaster Reduction he had made particular efforts to establish closer relations with the International Association for Earthquake Engineering and attended two meetings of their Executive Committee during the Ninth World Conference on Earthquake Engineering at Tokyo in August 1988. IASPEI and IAEE have set up a joint committee to coordinate work for the IDNDR. The committee is:

Prof. G W Housner (USA - IAEE) Chairman  
Prof. E G Kausel (Chile - IASPEI); Prof. J Petrovski (Yugoslavia - IAEE);  
Prof. T Toki (Japan - IAEE); Prof. Lili Xie (China - IASPEI)

In addition, IASPEI has established its own IDNDR Committee which as well as Profs. Kausel and Xie, comprises Prof. B A Bolt (USA, Chairman), Dr M J Berry (Canada) and Dr V Karnik (Czechoslovakia). Prof. Bolt is also representing IASPEI on the IUGG Committee for IDNDR.

NOMINATING COMMITTEE The President announced the composition of the Nominating Committee to propose a slate of officers at the 1991 General Assembly. This would be:

Prof. Z Suzuki (Japan, Chairman)  
Prof. B A Bolt (USA); Prof. H Berckhemer (FRG);  
Dr A D Gvishiani (USSR); Prof. E G Kausel (Chile)

SECRETARY-GENERAL'S REPORT Dr Adams reported briefly on matters not covered elsewhere in the agenda. He explained that as well as sponsoring much activity in its Commissions, the Association was becoming ever more involved in joint activities with other bodies. Within the Union, the Study of the Earth's Deep Interior (SEDI) has a strong IASPEI involvement. With IAGA we have a joint group Electromagnetic Lithosphere and Asthenosphere Sounding (ELAS) and also a Working Group on Seismo-Electromagnetic Effects. The Working Group on Effects of Surface Geology on Seismic Motion is jointly sponsored with the International Association for Earthquake Engineering. Our relations with Unesco include a joint group which has prepared an updated manual of seismogram interpretation. The IASPEI/Unesco/ICL Working Group on Seismology and Related Sciences in Africa arranged a Training Course for African Seismological Observers in Zambia in September 1988, and is actively involved in organizing the Regional Seismological Assembly in Africa in 1990. Formal rules for the operation of this Group have now been approved by the IASPEI Executive Committee.

PUBLICATIONS The Manual of Seismogram Interpretation is now with the printers, and first royalties have been received from the sale of "Seismological Algorithms" edited by Prof. D J Doornbos for the Sub-commission on Algorithms. The first publication of IASPEI symposia from the 1987 Assembly has now been published by Elsevier and another eight are in hand.

IASPEI SOFTWARE The Working Group on Personal Computers, under Dr. W H K Lee has now produced the first two volumes of the IASPEI Software Library, and is seeking financial support to continue this work.

FINANCIAL STATEMENT Dr Adams stated that about \$70,000 had been distributed as travel grants to participants at the Istanbul Assembly and related meetings. We have received grants for specific activities at this Assembly of \$30,000 from the US National Academy of Sciences, \$16,000 from Unesco and \$4,000 in special grants from ICSU. Without this additional support in grants, the Association's activities would have to be severely curtailed. From now on regular payments of royalties from publication of Assembly Symposia are expected to provide additional income.

COMMISSION REORGANIZATION The President announced that during this Assembly the Executive Committee had decided on further rationalisation of Commission structure. The Commission on Microseisms is now incorporated within the Commission on Practice, and the Commission on Seismological Theory and the Commission on Wave Propagation in Real Media have become a new Commission on Wave Propagation under the Chairmanship of Prof. B L N Kennett. Dr. D M Finlayson becomes the new Chairman of the Commission on Controlled Source Seismology, and Prof. A M Dziewonski has been elected Chairman of the joint IASPEI/ICL Federation of Digital Broadband Seismograph Networks.

IASPEI AWARD The possible setting up of an IASPEI award or medal has been raised from time to time. The Executive Committee has looked at this closely and there were some strong objections both to the general concept and to the details proposed. The Executive therefore decided to recommend that no such award be instituted at present.

IASPEI/UNESCO/ICL REGIONAL SEISMOLOGICAL ASSEMBLY IN AFRICA, 1990 The first circular for this Assembly, to be held 21-29 August 1990 at Nairobi, Kenya, is now available and the main items of the programme decided.

27th GENERAL ASSEMBLY OF IASPEI, 1993/94 During this Assembly, the Executive Committee received delegations from the Soviet Union and New Zealand, both of whom presented very attractive invitations to host the 27th General Assembly of IASPEI. After considering many aspects, and in particular the Association's responsibility to ensure the international spread of its activities, the Executive decided to recommend the acceptance of the invitation of the Royal Society of New Zealand to host the 27th General Assembly of IASPEI at Wellington, New Zealand in January 1994. The recommendation was accepted. Dr. E G C Smith, Principal Delegate for New Zealand, thanked the meeting for their decision, and briefly described the facilities that would be available.

RESOLUTIONS Dr P Gulkan, on behalf of the Resolutions Committee, then proposed the resolutions given below, which after minor modification to Resolution 13, were accepted. A proposal to amend Resolution 14 to include reference to the work of ORFEUS was withdrawn after some discussion.

There being no further business, the President once more thanked the organisers, and Dr. Ergunay for the Local Organizing Committee thanked his helpers for their support, and expressed the hope that participants had enjoyed their stay in Turkey.

The President closed the meeting at 1715.

IASPEI RESOLUTIONS ADOPTED AT PLENARY SESSION,  
ISTANBUL, TURKEY, 1 SEPTEMBER 1989

1. International Decade for Natural Disaster Reduction

Whereas a major part of the International Decade for Natural Disaster Reduction is the development of full understanding and prediction of the ground motions in damaging earthquakes, and

Whereas the basic research in this area of seismology is a particular concern of its members,

IASPEI declares its strong support for the IDNDR, and

Requests that the U.N. Secretariat, ICSU, IUGG and other organising scientific bodies of IDNDR incorporate and support the basic scientific research programmes and their application, which are necessary for the effective mitigation of seismic hazard.

2. Strong Motion Recording

Whereas the effective use of recordings of strong ground motion from earthquakes is essential to the improvement of seismic zonation and construction around the world, and

Whereas the IDNDR is supported by a resolution of the United Nations calling for joint co-operative efforts of all countries in reducing natural disasters, including the effects of earthquakes,

IASPEI requests that the relevant national and international organisations regard strong motion recordings as part of a common data base which serves the benefit of all mankind, and

Further that new efforts be made, with high priority, as part of the IDNDR to achieve a fully accessible and complete library of all significant strong motion earthquake recordings.

3. Magnitude Determination

Recognising the continuing importance of the traditional parameters  $m_b$  and  $M_s$  in estimating the sizes of earthquakes, and also the deficiencies in the attenuation factors currently used to determine these parameters,

IASPEI recommends that efforts be made to revise these factors, particularly in the context of the recent developments of new earth models and travel times.

4. Seismic Energy Determination

Recognising that the radiated seismic energy is an important measure of the size of an earthquake, and also the difficulties involved at present in estimating this parameter,

IASPEI recommends that research proceeds with the aim of developing methods for estimating seismic energy release.

5. Satellite Transmission of Data

Noting the importance of meteorological data collection satellites for many aspects of seismology, and the high-cost policy adopted by some agencies for the transmission of non-meteorological scientific data, which has resulted in the curtailment of important seismological programmes,

IASPEI urges that these agencies reconsider their pricing policy, particularly in the context of the International Decade for Natural Disaster Reduction.

#### 6. World-wide Standard Seismograph Network

Noting the recent degradation of the World-wide Standardized Seismograph Network,

IASPEI urges that, until an adequate broadband digital network is established that meets the needs of global seismology, every effort be made to sustain the quality and availability of WWSSN and Global Digital Seismograph Network data.

#### 7. Travel-time Model

Aware of the commendable work which has been carried out towards the construction of a new global travel-time model,

IASPEI encourages its adoption for systematic testing by national and international agencies responsible for the routine processing of seismic data.

#### 8. Historical Seismicity

Aware of the need to extend the seismological record as far back as possible for the determination of seismic patterns and hazard, and in particular

Conscious of the special needs in developing countries where the recent seismological record may not be complete,

IASPEI urges that studies of historical seismicity and paleo-seismicity be undertaken whenever these are practical.

#### 9. International Institute of Seismology and Earthquake Engineering

Recognising the importance, particularly in the context of the International Decade for Natural Disaster Reduction, of maintaining high-quality skills world-wide in earthquake engineering, and

Appreciating the unique contribution made by the Japanese Government to the International Institute of Seismology and Earthquake Engineering over the last 25 years in training seismologists and earthquake engineers particularly from developing countries,

IASPEI urges the Japanese Government not only to continue but also to expand its support for the operation of the IISEE, as a major contribution to the assessment and mitigation of earthquake hazard.

#### 10. Training in Digital Techniques

Recognising that many modern networks, including digital instruments are now being installed in developing countries,

IASPEI emphasises the continuing need to arrange training courses in appropriate modern techniques for scientists in developing countries, and Requests qualified agencies to arrange such courses.

#### 11. Evaluation of Earthquake Predictions

Recognising that many countries do not have the expertise readily available for the evaluation of predictions of damaging earthquakes affecting their territory,

IASPEI directs the Commission on Earthquake Hazard and Prediction to develop a plan to assist these countries for consideration by IASPEI at the 1991 Assembly.

## 12. Assessing Seismic Risk

Recognising the importance of the International Decade for Natural Disaster Reduction,

IASPEI resolves to take appropriate and necessary action to ensure that the expertise represented by IASPEI is fully brought to bear on reducing casualties and property losses caused by earthquakes, and in assessing seismic risk in areas known to experience infrequent large earthquakes.

## 13. Hazard Assessment and Earthquake Prediction Research

Recognising the importance of the International Decade for Natural Disaster Reduction, and the benefits that can be expected from improved seismic hazard assessment and from reliable timely forecasting of earthquakes, IASPEI will take steps to initiate an international programme of earthquake hazard assessment and earthquake prediction research based on several selected sites in a range of representative tectonic settings. One such region recommended for immediate study is in the area affected by the 1988 Spitak earthquake. IASPEI also recommends that comprehensive studies on Carpathian earthquake prediction be intensified.

## 14. International Seismological Centre

Recognising the importance of collecting, processing and publishing high-quality global seismological data,

IASPEI commends most highly the International Seismological Centre for its continuing achievement in this field, and

Thanks sincerely the Director and staff for the substantial contribution to the support of the IASPEI Secretariat.

## 15. Appreciation

Recognising the time, effort and dedication that was applied into making the 25th IASPEI General Assembly so successful,

IASPEI thanks and congratulates all those members of the Local Organising Committee, the Turkish National Commission for Seismology and Physics of the Earth's Interior and the General Directorate of Disaster Affairs of the Ministry of Public Works and Settlement who accepted the challenge to help organise, with such warm hospitality, a meeting that will be memorable for its scientific achievements.

### IASPEI/UNESCO/ICL REGIONAL SEISMOLOGICAL ASSEMBLY IN AFRICA NAIROBI, KENYA. 22-29 AUGUST 1990

This Assembly will provide a unique opportunity to bring together those working on seismological and related topics in Africa, and those outside Africa with an interest in African seismological problems. The First Circular is now available, and the Second Circular with full programme details and the call for papers will be distributed before the end of 1989. Those who wish to receive these circulars should contact:

Mr J D Obel  
Secretary, Local Organising Committee  
C/o Survey of Kenya  
P.O. Box 30046  
Nairobi, Kenya.

The following scientific sessions have been arranged, together with provisional dates:

- Theme 1:  
Earthquake Disaster Assessment and Mitigation in Africa 22 - 24 Aug
- Principal Convenor: Co-convenors:  
Dr C Weber Dr L M Asfaw (Ethiopia)  
BRGM Dr D Bensari (Morocco)  
B.P. 6009 Dr G W Stuart (UK)  
F45060 Orleans, Cedex 2  
FRANCE
- Theme 2: 28 - 29 Aug
- Africa from Above and Below -  
Satellite Imagery and Lithosphere  
Probing
- Principal Convenor: Co-convenors  
Dr J D Fairhead Dr M Fofana (Ivory Coast)  
University of Leeds Dr O Haddiouche (FRG)  
Dept. of Earth Sciences  
Leeds LS2 9JT, UNITED KINGDOM
- Theme 3: 24, 27 Aug
- African Rift Systems -  
Structure and Tectonics
- Principal Convenor: Co-convenors:  
Dr C Prodehl Dr M A Khan (UK)  
Geophysical Institute Prof. B R Rosendahl (USA)  
University of Karlsruhe  
Hertzstr. 16  
D-7500 Karlsruhe  
Federal Republic of Germany
- Theme 4: 24, 27 Aug
- Induced Seismicity - Mining &  
Reservoir
- Principal Convenor: Co-convenors:  
Dr H K Gupta Prof. R M Kebeasy (Egypt)  
Vice-Chancellor Prof. A J Kijko (Poland)  
Cochin University of Science &  
Technology  
Cochin 682 022  
INDIA
- Theme 5: 22 - 23 Aug
- Thermal Regimes and Geothermal  
Resources: Comparative Studies with  
Emphasis on the Rift System
- Principal convenor: Co-convenor:  
Dr P Morgan Dr P S Bhogal (Kenya)  
Geology Department  
Northern Arizona University  
Box 6030  
Flagstaff, AZ 86011  
U.S.A.

Theme 6:  
Volcanism and Associated Seismicity 28 - 29 Aug  
in Africa.

Principal Convenor:  
Dr H Hamaguchi  
Earthquake and Volcano  
Observation Centre  
Faculty of Sciences  
Tohoku University  
Aramaki-Waza-Aoba  
Sendai 980  
JAPAN

Co-convenors:  
Dr B Chouet (USA)  
Dr N Zana (Zaire)

Theme 7:  
Seismological Instrumentation and 27 - 28 Aug  
Data Analysis in Africa

Principal Convenor:  
Dr S E Pirhonen  
Institute of Seismology  
University of Helsinki  
Et. Hesperianku-4  
SF 00100 Helsinki  
FINLAND

Co-convenors:  
Dr D Giardini (Italy)  
Mr J H Kanyanta (Zambia)

Theme 8:  
Global Geoscience Transect Project 23 - 24 Aug  
in Africa.

Principal Convenor:  
Prof. J. Sougy  
Laboratoire de Geologie  
Faculte des Sciences,  
Centre de St. Jerome  
13397 Marseilles Cedex 13  
France

Co-convenors:  
Dr J W H Monger (Canada)  
Prof. B T Rumvegeri (Zaire)

Abstracts should be submitted by the end of March 1990. The original should be sent to the Local Committee, and two copies to the Principal Convenor of the appropriate session.

Registration fees will be as follows, in US dollars:

	Participant	Accompanying Person	Student
Before 1 April 1990	150	125	100
After 1 April 1990	170	140	110

GENERAL ASSEMBLY, VIENNA, 11-24 AUGUST 1991

The 26th General Assembly of IASPEI will be held in conjunction with the 20th General Assembly of IUGG at Vienna, Austria, 11-24 August 1991. A preliminary First Circular has already been issued and those interested in receiving this and subsequent circulars should contact:

IUGG 91 Organizing Committee  
C/o ZAMG Hohe Warte 38  
A-1190 Vienna  
Austria

The Union scientific sessions have already been decided by the IUGG Executive Committee, and at our Istanbul Assembly IASPEI provisionally arranged its own complementary programme. Details, together with convenors where known, are as follows:

IUGG Symposia in which IASPEI has an interest

Interrelation Between Geophysical Structures - Jeffreys Symposium  
(IUGG lead. Convenor: K Aki, USA)

Non-linear Dynamics and Predictability of Critical Geophysical Phenomena.  
(IUGG lead. IASPEI co-convenor: J Lomnitz-Adler, Mexico)

Application of Gravimetry and Space Techniques to Geodynamics and Ocean Dynamics (IAG lead. IASPEI co-convenor: C Froidevaux, France)

Dynamics of the Earth's Deep Interior and Earth Rotation (IAGA lead. IASPEI co-convenor: K Lambeck, Australia)

Water and Ice as Geophysical Agents (IAHS lead. IASPEI co-convenor: R D Hyndman, Canada)

The Application of Topographic Data Bases to Geodynamic Prediction and Interpretation (IAG lead. IASPEI co-convenor: Y Ricard, France)

Structures Beneath Marginal Sea Basins. (IASPEI lead. Convenor: H Shimamura, Japan)

Chemical Evolution of the Earth and Planets. (IAVCEI lead. IASPEI co-convenor: R Jeanloz, USA)

IASPEI Symposia (Provisional)

Earthquake Hazard and Risk

Heat Flow, Rock Mechanics and Seismicity (G Ranalli, Canada)

Progress in Seismic Interpretation of Complex Structures (B L N Kennett, Australia)

Application of Strong Motion Records to Seismological Problems

Plate Tectonic Signatures in the Continental Lithosphere (Joint with ICL)  
(A G Green, Canada)

Shear Waves and Shear-Wave Splitting (J-P Montagner, France)

Physical Processes in the Deformation of the Lithosphere: Observations, Laboratory and Numerical Modelling (Joint with ICL)

Earthquake Sources

Lateral Heterogeneity and Earthquake Location (Joint with ICL) (D Giardini, Italy)

Physical Properties of the Earth's Interior : Mantle to Core

A programme of workshops is also being planned.

## 27th GENERAL ASSEMBLY IASPEI, WELLINGTON, NEW ZEALAND 1994

At the Final Plenary Session at the Istanbul Assembly it was decided to accept the invitation of the Royal Society of New Zealand to host our 27th General Assembly at Wellington. The Assembly will be held in the southern summer, probably early in January 1994 at Victoria University of Wellington, which is situated on a hill above the central city, a short walk from the Geophysics Division of the Department of Industrial and Scientific Research. Available accommodation will range from University hostels to luxury hotels, and field trips both on local and national scales are planned.

### COMMISSION REORGANISATION

As noted in the minutes of our Istanbul Assembly, some significant changes have been made in IASPEI's Commission structure.

The new Commission on Wave Propagation has members as follows:

B L N Kennett (Australia, Chairman); K Aki (USA); V Cervený (Czechoslovakia); C H Chapman (Canada); E M Chesnokov (USSR); S Crampin (UK); D J Doornbos (Norway); A M Gabrielov (USSR); A V Levshin (USSR); G Nolet (Netherlands); B Romanowicz (France); P Silver (USA).

Subcommissions and their Chairmen are:

Subcommission on Geotomography - G Nolet  
Subcommission on Heterogeneity - V Cervený  
Subcommission on Anisotropy - S Crampin  
Subcommission on Earthquake Algorithms  
(with Commission on Practice)- B L N Kennett

The Commission on Practice has been reorganized into a Bureau and a number of Working Groups, incorporating as one of these the former Commission on Microseisms.

Bureau: Chairman: E R Engdahl (USA), Vice-Chairman: N V Kondorskaya (USSR), Secretary: J Vanek (Czechoslovakia)

Working Groups:

Microseisms (A A Ostrovsky, USSR)  
Manual of Seismogram Interpretation (O Kulhanek, Sweden)  
Personal Computers (W H K Lee, USA)  
Telegraphic Formats (B Presgrave, USA)  
Historical Seismograms and Earthquakes (J N Taggart, USA)  
Regionalization (J B Young, UK)  
Magnitude Calibrating Functions (S J Duda, FRG)  
Estimation of Seismic Energy (G L Choy, USA)  
Digital Seismometry (R A Uhrhammer and D Seidl, FRG)  
Space-Oriented Seismology (G Poupinet, France)  
Digital Seismogram Interpretation (A Plesinger, Czechoslovakia and S Alexander, USA)  
Regional Data Centers (J Bonnin, France)  
Standards for Geophysical Observatories (A V Nikolaev, USSR)

and a Sub-Commission joint with the Commission on Theory as follows:

Algorithms (B L N Kennett, Australia)

### IASPEI SOFTWARE LIBRARY

These very practical aids to seismological analysis on IBM-compatible personal computers are being published jointly by IASPEI and the Seismological Society of America, with Dr W H K Lee as editor, under the guidance of an editorial board chaired by Prof. H Kanamori.

Vol.1 "Toolbox for Data Acquisition, Processing and Analysis" is already published and on sale.

Vol.2 "Toolbox for Plotting Seismic and Other Data" will be available by the end of 1989.

Vol.3 "Digital Seismogram Analysis and Seismic Moment Inversion", will contain programs for analysing digital seismograms, generating synthetic seismograms and seismic moment inversion.

Vol.4 "Toolbox for Bibliographic References and BSSA Database" includes programs to automate reference preparation in manuscripts and includes a database of all articles in BSSA (1911-1990).

Each volume includes an executable code and examples on floppy diskettes, and printed documentation. The regular cost is \$250 for each volume, but pre-publication orders are \$150. Separate source code packages for each volume are available at \$250 each.

Enquiries and orders to Seismological Society of America, 210 Plaza Professional Building, El Cerrito, CA 94530, USA.

PLEASE REMEMBER THAT THE SUCCESS OF THIS VENTURE DEPENDS ON CONTINUING SALES.

### GEODYNAMICS AND SEISMIC SOURCE PROCESSES - STRESS, STRENGTH AND VISCOSITY IN THE LITHOSPHERE

A meeting with the above title took place at the Gohren-Lebbin Castle, GDR, 28 March - 2 April 1989 to mark the centenary of the first recording of a teleseism at Potsdam on 17 April 1889. It was attended by more than 100 scientists from 15 countries.

This was one of a series of Potsdam Meetings sponsored by the International Lithosphere Programme, the Commission of Academies of Sciences of Socialist Countries for Problems of Planetary Geophysics (CAPG), the International Heat Flow Commission and the European Seismological Commission.

In addition to the centenary commemoration, the following scientific sessions were held:

- Instrumental and observational techniques
- Stress distribution and viscosity in the lithosphere
- Regional results on the stress field in the lithosphere
- Rheology of the lower crust
- Seismic and rheological stratification of the crust and upper mantle
- Induced seismicity
- Laboratory high pressure and high temperature results

Proceedings of most sessions will be published in international journals.

( E Hurtig, P Knoll)

## INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION

At the meeting of the IUGG Executive Committee in August 1989, the President, Prof. V I Keilis-Borok, advised that an ICSU group had approved 18 projects of scientific activities for ICSU scientists to work on in relation to IDNDR. IASPEI has expressed an interest in the following, and appropriate IASPEI groups will liaise with the lead organization:

- Instability of Megacities (Lead: International Association of Engineering Geology)
- Intermediate-Term Earthquake Prediction Research (Lead: International Centre for Theoretical Physics)
- Regional Models and Test Sites for Earthquake Prediction (Lead: IUGG, IASPEI)
- World-wide Map of Major Active Faults Based on Neotectonic Regionalization of the Earth (Lead: Interunion Commission on the Lithosphere)

## WORKING GROUP ON REGIONALISATION

The meeting at the Istanbul Assembly was a sad occasion for the Group as it remembered its past Chairman, Ted Flinn (USA). Ted started the Group after the Tokyo Assembly in 1985 and his influence is such that the new regionalisation is going to be still called the "F-E Code". John Young (UK) has been appointed the new Chairman and he is busy gathering up the strands of regionalisation and mobilising the Group to tackle the task of defining the new "local" regions of the Earth. Prof. Peishan Chen (China) and Dr David Denham (Australia) have recently joined the Group.

At the meeting in Istanbul the Group finalised the framework for the new regionalisation. A "local" regionalisation of the Federal Republic of Germany is being used as the prime example for the rest of the world. This work should be published next year. The new regionalisation will be designed to be used on an IBM-compatible Personal Computer so that the software can easily be transferred to other computers.

Meanwhile, the Group proposes correcting some of the gross errors in the present "F-E Code" and is reviewing all the region names. It is hoped that this work will be completed by the end of next year. If you have any comments or views on regionalisation or problems over the computerisation, please let the Chairman, John Young, know or pass them via Robin Adams.

J B Young

## PUBLICATIONS

Two further special issues on proceedings of IASPEI Symposia from the 1987 Vancouver Assembly have now appeared. We congratulate the guest editors on producing two very attractive volumes:

- Earthquake Hazard Assessment and Prediction. M.J. Berry, Editor, Tectonophysics, Vol. 167, No. 2-4, 1989.
- Seismoelectromagnetic Effects. M. Parrot and M.J.S. Johnston, Editors. Physics of the Earth and Planetary Interiors. Vol. 57, No. 1-2, 1989.

A special issue of the Proceedings of the Indian Academy of Sciences (Earth and Planetary Sciences) is devoted to Seismology in India. (Vol. 98, No.1, 1989). The guest editor is Prof. J.N. Brune.

FORTHCOMING MEETINGS

The following is a selection of forthcoming meetings in the field of interest of the Association:

- 1990 Apr 23-27 EUROPEAN GEOPHYSICAL SOCIETY - GENERAL ASSEMBLY  
Copenhagen, Denmark  
Prof. P V Sharma, Geophysical Institute, University of  
Copenhagen, Haraldsgade 6, 2200 Copenhagen, DENMARK
- 1990 May 17-19 THE VALENCIA TROUGH : GEOLOGY AND GEOPHYSICS  
Mallorca, Spain  
R M Botey, Institut de Geologia "Jaume Almera" C.S.I.C.,  
Marti i Franques, s/n., 08028 Barcelona, SPAIN
- 1990 Jul 2-6 4th INTERNATIONAL WORKSHOP ON SEISMIC ANISOTROPY  
Edinburgh, U.K.  
J Lovell, B.G.S., Murchison House, West Mains Road,  
Edinburgh, EH9 3LA, U.K.
- 1990 Aug 5-11 REVERSALS, SECULAR VARIATION AND DYNAMO THEORY - SEDI  
SYMPOSIUM  
Santa Fe, New Mexico, USA  
Dr G Glatzmaier, IGPP, Los Alamos National Laboratory,  
Los Alamos, NM 87545, USA
- 1990 Aug 22-29 IASPEI/UNESCO/ICL REGIONAL SEISMOLOGICAL ASSEMBLY IN AFRICA  
Nairobi, Kenya  
Mr J D Obel, C/o Survey of Kenya, P.O. Box 30046,  
Nairobi, KENYA
- 1990 Aug 27-31 SEISMIC STUDIES OF LATERALLY HETEROGENEOUS STRUCTURES -  
INTERPRETATION AND MODELLING OF SEISMIC DATA  
Kiel-Fellhorst, FRG.  
Commission on Controlled Source Seismology - Workshop  
E R Flueh, GEOMAR, Wischhofstrasse 1 - 3, Building 12,  
D-2300 Kiel 14, FRG.
- 1990 Sep 4-7 4th INTERNATIONAL SYMPOSIUM ON DEEP SEISMIC REFLECTION  
PROFILING  
Bayreuth, FRG
- 1990 Sep 17-22 EUROPEAN SEISMOLOGICAL COMMISSION  
Barcelona, Spain  
Dr A Roca, Geological Survey of Catalunya, Diputacia 92,  
08015 Barcelona, SPAIN
- 1990 Oct DYNAMIC EVOLUTION OF ACTIVE ZONES AND CASE STUDY OF  
EL ASNAM EARTHQUAKE  
Algiers, Algeria  
Dr M Bezzeghoud, CRAAG, BP 63, 16340 Bouzareah, ALGERIA
- 1990 Oct 20-25 GEODYNAMICS OF THE ARABIAN PLATE  
Kuwait  
Dr W E K Warsi, Dept. of Geology, University of Kuwait,  
Box 5969, Safat 13060, KUWAIT
- 1991 Aug 11-24 XX GENERAL ASSEMBLY, IUGG  
Vienna, Austria  
IUGG Committee, ZAMG, Hohe Warte 38, A-1190 Vienna,  
AUSTRIA