

FEDERATION OF DIGITAL SEISMOGRAPH NETWORKS

Minutes of Meetings in Istanbul, Turkey, 24 and 29 August, 1989

The following were present during most or all of the 3 sessions:

<u>Name</u>	<u>Institution (Network)</u>	<u>Country</u>
<u>Members:</u>		
✓ M.J. Berry	Chairman, CANDIS, GSC	Canada
✓ A. Dziewonski	Harvard	U.S.A.
✓ R. Engdahl	IASPEI	U.S.A.
✓ B. Romanowicz	GEOSCOPE, IPG	France
✓ H. Aichele	SZGRF	F. R. Germany
✓ Y.T. Chen	Institute of Geophysics, SSB	China
✓ D. Denham	BMR	Australia
✓ B. Dost	ORFEUS	The Netherlands
✓ R.J. Geller	POSEIDON	Japan
✓ D. Giardini	MEDNET	Italy
✓ A. Levshin	IPE, Moscow	U.S.S.R.
✓ R. Massé	NEIC/USGS	U.S.A.
✓ J. Orcutt	IRIS, ISPG, La Jolla	U.S.A.
✓ R. Pearce	University of Edinburgh	United Kingdom
<u>Observers</u>		
R. Ates	Earthquake Research Dept, Ankara	Turkey
J. Berrocal	CERESIS	Peru
R. Buland	U.S.G.S.	U.S.A.
H. Bungum	NORSAR	Norway
P. Firbas	Geofyzilia BRNO	Czechoslovakia
K. Fuchs	ICL	F.R. Germany
A. Gvishiani	ICL	U.S.S.R.
W. Hanka	BGR/GRBN	F.R. Germany
R. Hansen	NORSAR	Norway
M. Hashizume	UNESCO	France
E. Hjortenberga	DWSSN, GDH	Denmark
E.S. Husebye	ORFEUS	Norway
E. Hurtig	Acad. Sc.	German Dem. Rep.
T. Jordan	MIT	U.S.A.
P. Lognonné	GEOSCOPE	France
A. Morelli	MEDNET, ING	Italy
L. Nicolaysen	BPI Geophysics, Johannesburg	S. Africa
R.P. Oesberg	Central Institute for Earth Physics	German Dem. Rep.
S.E. Pirhonen	Inst. Seismology, U. of Helsinki	Finland
A. Plesinger	Academy of Science	Czechoslovakia
B. Presgrave	NEIC/USGS	U.S.A.

Observers (continued)

M. Russi	Osservatorio Geofisico, Trieste	Italy
A. Sahin	IASPEI	Turkey
S. Sipkin	U.S.G.S.	U.S.A.
W. Smith	DSIR	New Zealand
G. Suarez	Inst. Geophysica, U. of Mexico	Mexico
R. Uhrhammer	U. of Cal, Berkeley	U.S.A.
M. Wiggins-Grandison	U. of the West Indies, Mono	Jamaica

The following summarizes the discussions held by the Federation over two days and does not attempt to be a detailed record of all of the discussions.

The chairman opened the meeting welcoming members and observers present.

1. Adoption of Agenda

The agenda was adopted as circulated.

2. Approval of Minutes of 1988 Blanes Meeting

The Minutes of the 1988 Blanes meeting were approved as circulated to members following that meeting.

3. Reports of Members

Each member of the Federation reported on the current status of his/her network and on plans for developments in the next 1-2 years. Those reports available from members are attached (Attachment A).

4. Reports of Working Groups

(i) Siting plans (Chairman, Engdahl)

E.R. Engdahl reviewed for the Federation the distribution of broad-band stations now in operation or planned for the immediate future. Using a series of overheads (Attachment B) he noted those areas where members have stations in close proximity one to another and conversely where there are areas of the globe inadequately covered. There was general agreement that remarkable progress has been achieved during the last three years in the deployment of broad-band stations, and that these now provide a sparse but nonetheless useful global coverage. Members were asked to carefully review the listings provided by Engdahl which was dated June 1989. Corrections should be sent to Engdahl.

(ii) Digital Seismometry

The Chairman noted that the FDSN Working Group on Digital Seismometry has completed its assigned task -- the specification of broad-band seismograph systems. However, he noted that the IASPEI Commission on Practice also has a Working Group on Digital Seismometry with a broader mandate. Dr. Uhrhammer, its Chairman, then described the work of this group. (Attachment C) There was some discussion as to whether it might be useful for the IASPEI group to become joint with the Federation. However it was concluded that this was unnecessarily complicated and that appropriate liaison between the FDSN and the Commission on Practice can be achieved by inviting the Chairman of the Digital Seismometry Working Group to FDSN meetings on a bi-annual basis, when the Federation meets with IASPEI.

(iii) Data Collection and Exchange Formats

Dr. Buland, the new Chairman of the Working Group, reported on the recent work in developing SEED. All agree that a common exchange format is required and that SEED is the only available candidate at this time. Concern was expressed, however, about the need for improved communication between IRIS and USGS, the prime developers of SEED, and the rest of the user community. Buland agreed to attempt to improve communication between the various groups using E-mail wherever possible.

At the suggestion of A. Dziewonski, members agreed to a data exchange experiment. The purpose of this would be to exercise the SEED format and to develop some real experience in the exchange and distribution of broad-band data. R. Buland agreed to act as the collector of such data for the month of September, 1989, and the following networks volunteered to participate:

NORSAR
IRIS
ORFEUS
MEDNET
SZGRF (in connection with ORFEUS)
POSEIDON
BMR Australia
GEOSCOPE
CANDIS

(iv) Data Centres and Data Distribution

Following a wide-ranging discussion during the afternoon of 24 August and the morning of 29 August, it was agreed that regional data centres such as ORFEUS will be responsible for distributing event data from

all the stations within their regional networks to the user community and, in particular, the seismologists within the countries involved. (An alternative proposal was carefully considered, Attachment D)

As a number of broad-band stations is increasing at a considerable rate, it was agreed that the FDSN event data distributed by the USGS should be from a relative sparse network of approximately 100 stations, distributed as evenly as possible about the globe. It was recognized that some stations will only be picked up by the USGS-FDSN event CD-ROM and thus these stations must be treated as special cases. The USGS-FDSN event CD-ROM will be complete down to magnitude 5 3/4. (ref. item 5 below)

(v) IRIS GSN Data Policy

Dr. Orcutt stated that the IRIS Data Management Centre (DMC) will archive all data generated by the IRIS/USGS Global Seismic Network (GSN). IRIS members will be free to use the database functions of the DMC to acquire small amounts of data and to exercise limited searches. It may be necessary to limit the use of DMC resources for large projects by requiring a scientific proposal for usage. The DMC would, in this way, be operated in a fashion which is very similar to that adopted for the U.S. National Science Foundation's Supercomputer Centers.

IRIS will seek to archive all continuous FDSN data at the DMC. The composition of the FDSN network is the responsibility of the FDSN. In order to develop a full understanding of the issues associated with data exchange and the use of the DMC archive, IRIS will initially develop an MOU (Memorandum of Understanding) with GEOSCOPE. This MOU will set standards for data exchange including data format, data quantity and timeliness and specify the appropriate level of support which GEOSCOPE can reasonably expect, in exchange, from IRIS. This agreement will serve as a template for additional MOU's with other operators in the FDSN.

Generally, data supplied by the IRIS DMC will be written on an inexpensive, compact medium such as Exa Byte cartridges. As a DMC background process, IRIS will seek to develop FDSN Network volumes for limited distribution to participating institutions. The production of these volumes will require that data from participating networks and stations be available as soon as possible. In order to include sites with infrequent data return (Kurguelen and South Pole, for example) the network volumes will lag by approximately one year.

5. FDSN Network

At the invitation of the Chairman, Drs. Engdahl, Romanowicz, Dziewonski and Orcutt and Massé proposed a Federation network of approximately 100 stations giving optimal global coverage. (Attachment E)

6. FDSN Open Stations

Engdahl reported that 11 FDSN stations are existing or planned as open stations, but with different access protocols. After discussion it was agreed that the concept of a limited number, (perhaps 10), of FDSN open stations continues to be a desirable goal. To be effective it was agreed that the protocols for accessing these stations should be as similar as possible. To this end Dr. Shane Ingate has volunteered to lead a small group, including W. Hanka and B. Berger, in developing the appropriate protocols. This group will report back at the next FDSN annual meeting. (Appendix F)

7. Station Code Assignments

The Chairman noted that the question of station code assignments has now been resolved with agreement to follow tradition. Codes will continue to be assigned by NEIC without any indication of network affiliation.

8. Relations with ODP

Orcutt described the interest within the Ocean Drilling Program community in the installation of downhole seismographs. He described a workshop that was recently held at Woods Hole on this subject and noted the publication of the "Proceedings of a Workshop on Broad-Band Downhole Seismometers in the Deep Ocean", edited by G.M. Purdy and Adam M. Dziewonski. He invited any member interested in cooperating with JOI/ODP to contact him or JOI officials. It was agreed that Orcutt's presence at the meeting served the purpose of potential coordination between FDSN and JOI/ODP. A formal working group is probably not necessary at this time.

9. Membership

Before the meeting the Chairman received informal inquiries as to membership from the Bernard Price Institute (L. Nicolaysen). During the meeting inquiries were made by Dr. G. Suarez on behalf of the Institute of Geophysics, University of Mexico, R. Ates on behalf of the Earthquake Research Department, Turkey, and H. Bungum on behalf of NORSAR. The Chairman will write to each of these institutions spelling out the objectives of the Federation.

10. Election of Executive Committee

At the beginning of the meeting and with the agreement of the members present, the Chairman appointed a nominating committee to be chaired by A. Hales and to include R. Engdahl and K. Fuchs. At the conclusion of the third session Professor Hales reported that the nominating committee recommended the following slate of officers for the FDSN for the period 1989-91:

Chairman: A. Dziewonski

Members: B. Romanowicz
H.-P. Harjes
Y.T. Chen
R. Engdahl

Secretary: D. Giardini

The slate was approved unanimously by the members

11. It was agreed that the 1990 meeting would be held in Golden at the office of the U.S.G.S. where experience in the data exchange experiment would be one of the major items for discussion. It was agreed further agreed that the Federation would meet in 1991 during the IUGG Assembly in Vienna.

Michael Berry

Nov. 31, 1989.