

FEDERATION OF DIGITAL SEISMOGRAPHIC NETWORKS

Minutes of Meeting at Blanes, Spain, 19 June 1988

Present:

Representatives:

M.J. Berry	Chairman, CANDIS	G.S.C. Canada
B. Romanowicz	Vice Chairman GEOSCOPE	I.P.G., France
R. Butler	IRIS	Arlington, VA., U.S.A.
Y.T. Chen	CDSN	State Seismological Bureau, China
B. Dost	ORFEUS	Utrecht, The Netherlands
E.R. Engdahl	Chairman WG1 IASPEI	U.S.G.S., U.S.A.
R. Geller	POSEIDON	Tokyo University, Japan
D. Giardini	MEDNET	Roma, Italy
A. Gvishiani	USSR	Institute of Physics of the Earth, U.S.S.R.
W. Hanka	GBRA	Fed. Inst. for Geoscience, FRG
B. Kennett	Australia	Australian National University, Australia
A. Morelli	WG III & IV, MEDNET	Roma, Italy
R. Pearce	UK	University College, U.K.
E. Wielandt	Chairman, WG II	Inst. of Geophysics, F.R.G.

Observers:

M. Alexidze	Observer	Academie of Georgian, U.S.S.R.
V. Ansel	Observer	Ecole Normale Supérieure, France
G. Choy	Observer	U.S.G.S., Denver, U.S.A.
V. Cormier	Observer	Univ. of Connecticut, U.S.A.
A. Correig	Observer	Univ. of Barcelona, Spain
D. Doornbos	Observer	Univ. of Oslo, Norway
G. Ekstrom	Observer	Lamont-Doherty, U.S.A.
C. Froidevaux	Observer	Ecole Normale Supérieure, France
J.T.O. Garcia	Observer	Instituto Geografico Nacional, Madrid, Spain
H. Gupta	Observer	Univ. of Cochin, India
J. Nabelek	Observer	Oregon State Univ., U.S.A.
J. Orcutt	Observer	Scripps Inst., La Jolla, U.S.A.
R. Ortiz	Observer	C.S.I.C., Madrid, Spain
B. Pascal	Observer	I.P.G., France
A. Plesinger	Observer	Czechoslovak Acad. of Sciences, Czechoslovakia
A. Roca	Observer	Servei Geologic de Catalunya, Barcelona, Spain
M. Russi	Observer	Trieste, Italy
M.T. Susagna	Observer	Observatori Fabra, Barcelona, Spain
R. Yanick	Observer	Ecole Normale Supérieure, France

1. The Chairman opened the meeting welcoming those present and in particular Dr. A. Gvishiani the representative of the U.S.S.R. and a new member to the Federation. (Attachment A)

2. Adoption of Minutes of 1987 Vancouver Meeting

Several members stated that they had not received the Minutes of the Vancouver meeting either through a failure of the mails or because some member correspondents had not communicated with their representatives to the Blanes meeting. Berry undertook to circulate the Vancouver Minutes (without attachments) to Representatives present. It was agreed that formal adoption of the Minutes of the Vancouver Meeting would have to wait until the next annual meeting in Istanbul in 1989. (Attachment B)

There being no new items proposed, the agenda was adopted.

3. Members Reports

Each of the members present briefly reviewed the current status of their networks and future plans for their further development. (Attachment C)

4. Reports of Working Groups

Working Group 1 - Siting Plans (Chairman, Engdahl)

In reporting on the activities of his Working Group, Engdahl noted that its purpose was to coordinate the siting of stations in locations that provide optimum global coverage, and to identify overlaps and obvious holes in the global coverage. He distributed an inventory of existing, planned and proposed stations that meet the minimum FDSN design criteria, and that have a single data stream per component. Using a series of maps, Engdahl reviewed station plans by continent. (Attachment D) He asked all Members to check the listing carefully to ensure that it accurately reflected the status and plans of Member's Networks.

H. Gupta, representing ICL Working Group 3 and IASPEI/ICL/UNESCO Working Group for the African continent urged on members the careful coordination of network siting in Africa. This led to some discussion as to the plans of IRIS, GEOSCOPE and MEDNET for the northern part of the continent.

Working Group 3 - Data Collection and Exchange Formats (Chairman, Scheimer)

R. Butler, representing J. Scheimer, reviewed the history of the development of the Standard for the Exchange of Earthquake Data (SEED). Members welcomed this development. Several noted that there was an immediate need for a computer program to read data written in the SEED format and that at least one version should ideally be available in standard FORTRAN. After considerable discussion it was moved and unanimously adopted that SEED be the standard for the exchange of data among FDSN members. It was accepted that minor modifications to SEED might be required in the future and that the first opportunity for such minor changes would be provided at the 1989 Istanbul meeting. (Attachment E)

## Working Group 4 - Data Centres

### Data Distribution

Members welcomed the distribution of digital event data by the USGS on CD-ROM's. It was agreed that this distribution could incorporate all broadband digital data at this time, but that there would be a requirement for the selection of a "Federation Network" at the Istanbul meeting. By that time it is anticipated that the density of broadband stations in some regions will be greater than is appropriate for a "global" network.

Butler, speaking on behalf of IRIS, formally offered the facilities of the IRIS archive as the full waveform archive of the Federation. He noted that FDSN members would be permitted equal access to the archive and that the archive would represent a sub-set of the total global data base. This generous offer was welcomed by the Chairman and led to a wide ranging discussion. Gvishiani suggested that there might be a role for the World Data Centres in this and specifically World Data Centre C. Kennett noted that regional data centres will be the only way that the entire continuous data set can be preserved.

In drawing the discussion to a close the Chairman asked Butler if it would be possible for IRIS to provide a written proposal to the Federation for its consideration at Istanbul. Butler believed that this could be done and in turn invited FDSN members to participate in the data centre planning.

### Event Data Windows

B. Dost, acknowledging that long period data for the study of surface waves could be derived from the current broadband data window, noted that the window excluded important later body wave phases (S, SKS, etc.). He suggested the need to window broadband data around these later phases. Engdahl, while recognizing the problem, noted that the volume of data would rapidly become unmanageable if the window criteria were opened too widely. He suggested that the question should be resolved by a survey of user needs. (FDSN members are encouraged to express their views on this subject directly to the USGS.)

Upon further communication with S. Sipkin, B. Dost acknowledged that most later arriving body phases of interest are included in the current broadband window and that the expanded window proposed by Sipkin should be adequate for most purposes. Furthermore, derived long-period and very-long-period data will be acceptable as long as the broadband data streams are processed in a uniform manner. This was also the consensus of the ORFEUS Executive Committee.

## 5. Standard for Exchange of Earthquake Data (SEED)

(see above)

## 6. Open Station Designation

It was agreed that it would be highly desirable for FDSN Members to have immediate access to the data from a sparse network (about 10 stations) of seismographic stations so that they would be able to calculate rapidly the focal parameters of large earthquakes of immediate concern. Engdahl noted that the data from the U.S.N.S.N. will be available through the Golden Archive. Butler commented that two IRIS stations were now 'open' (IPAS and HRV) and a third would be soon (IKIP). Romanowicz stated that a few of the GEOSCOPE stations could probably be made 'open' in the future. Berry added that the GSC planned to make one of the CANDIS stations at Yellowknife available through Ottawa.

In concluding the discussion, the Chairman asked WG I (Engdahl) to gather information on FDSN open stations for review at the next meeting. He asked WG III (Scheimer) to investigate what access protocols are in place at this time, and to establish if one of these could be made generally available to Members so that just one protocol is implemented on all FDSN 'open' stations.

## 7. Station Codes - Assignment

The Chairman opened the discussion noting that concern had been expressed by some Members that some broadband stations were being given station codes that identified them as being part of a particular network. This was regretted by some because:

1. The enhanced visibility of a particular network would surely lead to all other networks wanting to similarly designate their stations,
2. Some countries may not wish to have foreign stations so clearly designated on their soil,
3. Multiple designations for the outputs from a particular seismic vault will lead to confusion (KIP and IKIP represent outputs from one set of seismometers), and make computer searches more difficult (Travel-time data from Pasadena is listed under PAS, but its BB IRIS data is to be coded under IPAS).

In commenting upon the practice, Butler noted that IRIS wanted to clearly identify those of its stations that had reached the IRIS design goals (and the Federation VBB standard). He pointed out that this practice had been started in the 1970's with the SRO stations -- codes end with '0'.

Engdahl reminded FDSN Members that current practice was as follows:

### Procedure:

- A new code is requested by the station operator.
- NEIC assigns a unique three- or four-letter code.
- The code is registered by NEIC and ISC.

### Conditions:

- A new code is assigned should the stations be located more than 1 km from an existing or former station.
- However, a new code may be assigned should the operator wish to make a clear distinction between stations located within 1 km of one another. (Attachment F)

There being strongly held views on this matter the Chairman asked Engdahl to work with Butler, Romanowicz and Kennett to develop a code of practice that would attempt to reconcile the various needs and views of Federation Members. He asked that a draft of this should be developed in time for consideration by Members at Istanbul in 1989.

8. Deployment of Ocean Bottom Seismometers. J. Orcutt reported on a recent workshop held at Woods Hole Oceanographic Institution on 'Downhole Seismometers in the Deep Ocean'. The workshop participants had concluded that there was a pressing need for such installations if the FDSN network was to provide even approximately uniform global coverage.

9. Schedule of Election of Federation Officers

The Chairman drew to the attention of Members the Federation Terms of Reference, and specifically Section III, item 4: "The steering committee will be headed by a chairman elected for a two-year term, assisted by two vice-chairmen" (Attachment G).

Engdahl, speaking as the representative of IASPEI, suggested to the Meeting that it would be convenient for the election of Federation officers to coincide with the bi-annual meetings of IASPEI. To this end he proposed, seconded by Giardini that the terms of the present Chairman (Berry) and Vice-Chairman (Romanowicz and Dziewonski) be extended by one year to August 1989. The motion passed unanimously.

10. There being no further business the meeting closed at 12:45. The next annual meeting will be held during the IASPEI General Assembly in Istanbul, August 21 - September 1, 1989.

Michael Berry

Aug. 15, 1988.