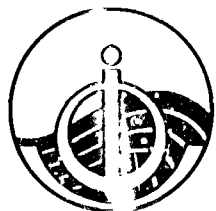


**Intergovernmental Oceanographic Commission**  
*Reports of Meetings of Experts and Equivalent Bodies*



**IOC Editorial Board for  
the International Bathymetric  
Chart of the Mediterranean  
and its Geological/  
Geophysical Series**

**Fourth Session**

Paris, 11-13 December 1989

**Unesco**

In this Series, entitled

**Reports of Meetings of Experts and Equivalent Bodies**, which was initiated in 1984 and which is published in English only, unless otherwise specified, the reports of the following meetings have already been issued:

1. Third Meeting of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans
2. Fourth Meeting of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans
3. Fourth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of "El Niño" (*Also printed in Spanish*)
4. First Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in relation to Living Resources
5. First Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in relation to Non-Living Resources
6. First Session of the Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
7. First Session of the Joint CCOP(SOPAC)-IOC Working Group on South Pacific Tectonics and Resources
8. First Session of the IODE Group of Experts on Marine Information Management
9. Tenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies in East Asian Tectonics and Resources
10. Sixth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
11. First Session of the IOC Consultative Group on Ocean Mapping (*Also printed in French and Spanish*)
12. Joint IOC-WMO Meeting for Implementation of IGOSX XBT Ships-of-Opportunity Programmes
13. Second Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
14. Third Session of the Group of Experts on Format Development
15. Eleventh Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of South-East Asian Tectonics and Resources
16. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
17. Seventh Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
18. Second Session of the IOC Group of Experts on Effects of Pollutants
19. Primera Reunión del Comité Editorial de la COI para la Carta Batimétrica Internacional del Mar Caribe y Parte del Océano Pacífico frente a Centroamérica (*Spanish only*)
20. Third Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
21. Twelfth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of South-East Asian Tectonics and Resources
22. Second Session of the IODE Group of Experts on Marine Information Management
23. First Session of the IOC Group of Experts on Marine Geology and Geophysics in the Western Pacific
24. Second Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in relation to Non-Living Resources (*Also printed in French and Spanish*)
25. Third Session of the IOC Group of Experts on Effects of Pollutants
26. Eighth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
27. Eleventh Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans (*Also printed in French*)
28. Second Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in Relation to Living Resources
29. First Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
30. First Session of the IOCARIBE Group of Experts on Recruitment in Tropical Coastal Demersal Communities (*Also printed in Spanish*)
31. Second IOC-WMO Meeting for Implementation of IGOSX XBT Ship-of-Opportunity Programmes
32. Thirteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asia Tectonics and Resources
33. Second Session of the IOC Task Team on the Global Sea-Level Observing System
34. Third Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
35. Fourth Session of the IOC-UNEP-IMO Group of Experts on Effects of Pollutants
36. First Consultative Meeting on RNODCs and Climate Data Services
37. Second Joint IOC-WMO Meeting of Experts on IGOSX-IODE Data Flow
38. Fourth Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
39. Fourth Session of the IODE Group of Experts on Technical Aspects of Data Exchange
40. Fourteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asian Tectonics and Resources
41. Third Session of the IOC Consultative Group on Ocean Mapping
42. Sixth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of "El Niño" (*Also printed in Spanish*)
43. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
44. Third Session of the IOC-UN (OALOS) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources
45. Ninth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
46. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico
47. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
48. Twelfth Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans
49. Fifteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asian Tectonics and Resources
50. Third Joint IOC-WMO Meeting for Implementation of IGOSX XBT Ship-of-Opportunity Programmes
51. First Session of the IOC Group of Experts on the Global Sea-Level Observing System
52. Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean

**IOC/EB-IBCM-IV/3**  
**Paris, 5 February 1990**  
**English only**

**SC-90/WS-7**

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- VII LIST OF PARTICIPANTS.

1. **OPENING OF THE SESSION**

1 The Chairman, Professor Carlo Morelli, opened the Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean (IBCM) and its Geological/Geophysical Series at Unesco Headquarters, Paris, at 09.30 on Monday 11 December 1989.

2 The Secretary IOC, Dr. Gunnar Kullenberg, welcomed the participants. He expressed his satisfaction with the development of the IBCM as the leading regional ocean mapping project. He outlined the most important IOC activities, especially those related to Ocean Mapping. He called the attention of the Editorial Board to the importance of the Ocean Mapping products such as the printed maps and the digital bathymetric databases for the promotion of many other IOC projects. Then he introduced the new IBCM Technical Secretary, Mr. Dmitry Travine.

3 A list of participants is given in Annex VII.

2. **ADOPTION OF THE AGENDA**

4 The Agenda was adopted without any changes (see Annex I).

3. **CONDUCT OF THE SESSION, DOCUMENTATION**

5 The Chairman presented the arrangements for the Session, and the IBCM Technical Secretary introduced the available documentation.

4. **COMPOSITION OF THE EDITORIAL BOARD**

6 The Chairman introduced two new members of the Editorial Board: Professor François Doumenge, General Secretary ICSEM, and Rear-Admiral Alfredo Civetta, Director IHO. The participants warmly welcomed the new members of the Board and expressed their satisfaction with the measures taken jointly by the IOC, IHO and ICSEM to provide for closer co-operation in Ocean Mapping and the IBCM in particular.

5. **STATE OF PREPARATION AND PUBLICATION OF THE IBCM  
GEOLOGICAL/GEOPHYSICAL SERIES**

5.1 **BOUGUER GRAVITY ANOMALIES SERIES**

7 Captain Sergei V. Val'chuk, Chief Editor, presented this series which had recently been published. Referring to minor errors in colour shading of two small areas on the one-sheet version of the Series, he requested the Editorial Board's advice as to whether the stock should be corrected. This was not found to be necessary. On the other hand, members of the Board requested him to add shiptracks on the large scale version. He agreed to undertake this work.

8 Referring to the incomplete plot of the Black Sea appearing on inset to Sheet 5, Professor Jannis Makris said that he had now created a separate file for the inset, but that the data held are still insufficient. Members of the Board recommended that he approaches Academician Yuri Boulanger, of the USSR Academy of Sciences, for additional data. Captain Val'chuk agreed to print a modified version of Sheet 5 if one is prepared.

- 9 Dr. John Hall reported that the explanatory brochure for the Series will be printed not later than September 1990. Members of the Board decided that the Bouguer Gravity Anomalies Series sheets sold or distributed before the brochure becomes available should be accompanied by a note saying that the brochure will follow.

## 5.2 SEISMICITY SERIES

- 10 The Chief Editor presented two variants of colour proof copies of this Series, one with a blue tint for the water area and the other in white. The opinions of members of the Board were sought as to which variant should be printed. By a majority of 3 votes the tinted variant was adopted. The Board thanked Captain Val'chuk for the work done and requested him to arrange for creditation note prepared by Professor Jean Bonnin to be inserted in the legend.

- 11 After a discussion the Editorial Board agreed that 2,000 copies of the one-sheet version and 1,000 of 10-sheet sets should be printed initially, provided that additional stock can be printed if and when necessary. The Chief Editor agreed to have the Series printed as soon as possible, and not later than June 1990.

- 12 The Editorial Board recommended that the sale price from Sojuzkarta for the maps be kept down to about \$ 4 per sheet.

- 13 The situation regarding the explanatory brochure (Chapter 3 of the Supporting Volume) was then discussed. Professor J. Bonnin reported that the total volume of the document may be considerably in excess of 100 pages and that it will be prepared and forwarded to Dr. Hall, the Editor of the Supporting Volume, within 3 months. After discussion, it was agreed that a small pamphlet of up to ten pages, containing essential information about the Series in general form, should be prepared for free distribution (as a preprint of Chapter 3) and be printed by the time the Series is published. The full publication of about 200 pages, including a catalogue of stations, will be placed on sale at a price of about \$ 25 per copy. 3,000 copies of the pamphlet and 750 copies of the full publication should be printed initially.

- 14 Professor J. Bonnin said that he has already received several requests for the seismicity files on magnetic tape and asked for the Board's advice on how he should react to such requests. It was decided that the tape should be put on sale through Mr. Desmond P.D. Scott at the same prices as those established for the IBCM tapes. It was also recommended that persons requiring a computer print-outs of the tapes should discuss their requirements with Mr. Scott.

## 5.3 MAGNETIC ANOMALIES SERIES

- 15 Dr. Armand Galdeano reported that the western sheets had been compiled at 3,000m above mean sea level. Problem areas are North Africa, Spain and, to a lesser extent, Italy. He will soon again be meeting with his Spanish colleagues and will request from them a magnetic anomalies map of Spain. Professor Pierre Burolet agreed to approach Libyan and Tunisian scientists requesting them to provide their data on a regional scale. Professor Morelli will contact his Italian colleagues for their data.

- 16 Professor Makris admitted that shortage and inhomogeneity of data for the Eastern Mediterranean had forced him in the recent past nearly to

abandon work on the eastern sheets, but now, with the Russian data that had already received been and more that hopefully will be obtained in the near future with the help of Dr. Gleb B. Udintsev, as well as with the Turkish data which will perhaps be obtained, the work can be continued. He will also try to obtain the Egyptian data. Dr. Pavel Kuprin said that the revised data for the Sheet 5 will be presented to Professor Makris in the first quarter of 1990. Dr. Hall will try to obtain data for 10. The Editorial Board decided that for areas such as parts of Greece, where total values had not been measured, vertical component values would have to be accepted. In such cases isoanomalies will be shown with a different symbol.

- 17 Dr. Udintsev said that there already exists a preliminary agreement on transmission of magnetic data from the Eastern Mediterranean, obtained by R/V Akademik Nikolai Strakhov in 1987, to Professor Makris, and that during Professor Makris's planned visit to Moscow in January 1990 they will together see the Director of the Institute of the Earth Magnetism, at present holding the data.

#### 5.4 PLIO-QUATERNARY/MESSINIAN SERIES

- 18 Professors Pierre Burollet and Maurice Gennesseaux made a presentation of compilations of this Series. They noted that for certain areas sources used give exaggerated values of sediment thickness. Professor Morelli suggested that this opinion be reflected in the explanatory brochure. A lively and detailed discussion then followed on various aspects of the compilations.

- 19 The following actions were agreed upon:

- (i) that a copy of the sheet covering the Adriatic be passed to Professor Morelli for him to incorporate all data at his disposal;
- (ii) that Dr. Hall will pass a copy of the sheet for the Eastern Mediterranean to Professor Gvirtzman of the Geological Survey of Israel;
- (iii) that neotectonics should be shown for the land and that the tectonics map of Europe, which is being published in the USSR, should be used for this purpose; Dr. Kuprin agreed to send a copy of this map to Professor Gennesseaux in February or March 1990;
- (iv) that Drs. Oleg Kazakov and Pavel Kuprin will send Professor Gennesseaux their copies of their material, as well as their contribution to the explanatory brochure, by February 1990;
- (v) that requests for contributions to insets showing Messinian evaporites will be sent by Professor Gennesseaux to the interested scientists as soon as possible and that these insets should be returned to him by April 1990;
- (vi) that profile data should be returned to Professor Gennesseaux by April 1990 and that corrected sheets should be returned to him by March 1990;
- (vii) that the first draft of the explanatory brochure for the Series, as well as the draft legend, should be prepared by March 1990, and that the draft legend be considered by the Board by correspondence;

- (viii) that by June 1990 fair compilations and the adopted legend be sent to Captain Val'chuk for preparation of colour proof copies of the Series which will then be considered by members of the Board at their informal consultation to be held in October 1990 in conjunction with the XXXII Congress of ICSEM.
- (ix) that Captain Val'chuk will send to Professor Genesseeux, as soon as possible, two transparent plastic sheets with cartographic grids corresponding to sheets land 6;
- (x) that a one-sheet version of the Series will not now be printed, (this may be reconsidered later) .

20 It was understood that fair compilations will be presented to the Chief Editor on transparent stable plastic sheets.

#### 5.5 UNCONSOLIDATED SEA-BED SURFACE SEDIMENTS SERIES

21 Dr. Pavel Kuprin presented a "state of the art" map on a scale 1:5 million, a limited stock of which had been printed by the Head Department of Navigation and Oceanography, a list of sedimentologists interested in the Mediterranean, and a draft of a letter to be sent to them together with the map requesting contributions of data. After some discussion it was decided that members of the Board would consider the map after the meeting and send their comments to Dr. Kuprin. The draft letter was approved for distribution through the IOC Secretariat.

22 Members of the Board agreed that fair compilations should be presented to the Chief Editor by the spring of 1991, in order that the Series could be printed in 1992.

#### 6. DIGITAL VARIANTS OF THE IBCM GEOLOGICAL/GEOPHYSICAL SERIES

23 Captain Val'chuk offered, on behalf of the Head Department of Navigation and Oceanography, to undertake preparation of digital variants of the IBCM Geological/Geophysical Series and of draft specifications for them (see Annex III). This offer was accepted by the Board with satisfaction.

24 There was a thorough discussion regarding digital variants of the magnetic and gravity data. It was agreed that the digital variants would only include regional-scale gravity and magnetic data printed in the IBCM Geological/Geophysical series.

#### 7. PROBLEMS RELEVANT TO THE BATHYMETRY OF THE MEDITERRANEAN

##### 7.1 DIGITIZATION OF THE IBCM BATHYMETRY

25 Dr. John K. Hall expressed an opinion that the majority of users would prefer gridded data to digitised contours.

26 He raised a question regarding the size of the grid to be used for a Digital Terrain Model (DTM) variant of the IBCM land topography and marine bathymetry. After discussion the members of the Board decided that a 0.25NM grid should be adopted. Dr. Hall and Professor Makris agreed to produce such a DTM within one year of receiving the digitized land and marine contours from Captain Val'chuk. Professor Makris will grid the six western sheets and Dr. Hall will grid the four eastern sheets.



## 7.2 STATE OF COMPILATION OF NEW BATHYMETRIC DATA

- 27 Rear-Admiral Alfredo Civetta presented a Report on progress in compilation of the Oceanic Plotting Sheets (OPS) and incorporation therein of available digital data (see Annex IV). He said that in order to deal with problems of effective updating of plotting sheets, a working group is being established. He mentioned, as one of the problems, insufficient contribution of 'external' data, e.g., from scientific organisations, and informed the Board about a joint letter recently sent by the IHO, ICSEM and IOC to their members requesting them to send the data in their possession to the VHOs. Amongst other problems requiring attention the lack of an agreement on the areas of responsibility in the Black Sea was mentioned. Fruitful discussions were held which led to a decision that areas of responsibility for the 1: 250,000 plotting sheets in the Black Sea should be divided by parallel 43° 30'N, subject to the agreement of the Turkish authorities (see Annex V).
- 28 Ingénieur-en-Chef J.F. Bonnot presented a paper on the state of compilation of new bathymetric data in the French area, as well as the results of an experimental study of automatic tracing of contours in various colours.
- 29 He reported that all 10 plotting sheets of the IBCM in the French area are available in graphic and digital forms. New data are incorporated only after the careful quality control. The dataset consists of 109,413 echo soundings (on 5 December 1989), but the results of 1988 and 1989 investigations have not yet been incorporated.
- 30 Mr. Scott reported on GEBCO experience and plans, in particular that a "GEBCO Digital Atlas" is being developed, which will contain separate files for contours, shiptracks, DTMs, etc. He also explained the role of the GEBCO reviewers in updating these files and said that the IBCM will be incorporated into the "Atlas".
- 31 After consideration of problems in compilation of bathymetric data, it was decided that the GEBCO example with reviewers should be followed. Dr. Hall agreed to accept responsibility for the area south of 36°N and the operational Unit will be responsible for the area to the North of 36°N.
- 32 Dr. Udintsev presented a chart for the area of Cyprus based on multibeam data obtained during a cruise of R/V Akademik "Nikolai Strakhov" to the Eastern Mediterranean. He informed the Board that "Strakhov" will again work in the Eastern Mediterranean from March to May 1990 (Chief Scientist Dr. A. Sheraskin), carrying out depth sounding, seismic reflection and refraction, and magnetics surveys. Dr. Hall, who has copies of Strakhov's data, was of opinion that it is suitable for a DTM grid of 50m along the ship's tracks. The members of the Board thanked Dr. Udintsev for his information and were especially satisfied to that data from the forthcoming "Strakhov" cruise will be made available to the international scientific community.
- 33 Members of the Editorial Board agreed that the expected date for publication of the 2nd edition of the IBCM will be 1994-1996.

## 8. SALES ARRANGEMENTS AND PUBLICITY

- 34 Mr. Mark Maliavko reported that "V/O Sojuzkarta" had not lived up to expectations and that Mr. Scott remains at the present time the sole

operational sales agent for the IBCM. He said that various alternatives have been studied in the IOC Secretariat since 1988, but no firm arrangement had as yet been decided upon. He noted the willingness of ICSEM to co-operate in selling the IBCM and other IBCM-related products, which potentially may be very helpful. Members of the Board agreed that it would be highly desirable to have an additional sales outlet in Monaco. Professor Doumenge indicated interest on the part of the Musée Océanographique. The Secretary IOC was therefore requested to take all necessary steps to realise this possibility.

35 Professor Doumenge noted that the XXXII Congress of ICSEM, to be held in Perpignan, France, in October 1990, could provide excellent possibilities for advertising IBCM products.

36 \* Admiral Civetta said that the IHB could help by advertising the maps in the IHB Catalogue of publications.

37 Mr. Scott reported that the total worth of IBCM maps he had sold in 1989 was \$ 1300, or approximately 170 sheets. Referring to the copyright problem with the Petroconsultants tape, he noted that this has now been resolved. The reformatted Petroconsultants tape can be obtained (through him) for \$ 200 by scientific and for \$ 2,000 by commercial users.

38 A tape generated at the Head Department of Navigation and Oceanography which contains not only digitized contours for marine areas, but single depths and digitized land features, is being checked and compared with the Petroconsultants tape by Dr. Meirion T. Jones, Chairman of the GEBCO Sub-Committee on Digital Bathymetry. Mr. Scott recommended that these tapes should for the present be sold through the British Oceanographic Data Centre which is already selling the reformatted Petroconsultants tape, because only an organisation of this kind has the facilities to respond to specific user needs. Members of the Editorial Board expressed their wish that distribution of free copies of tapes to the members of the Board should be continued.

39 A modified text for a coloured IBCM postcard was adopted and Dr. Hall provided Captain Val'chuk with a scitex-produced set of colour offset separation films. He was asked to print 25,000 copies of the postcard (only 10,000 of them with the present text) by May 1990. The ICSEM was requested to encourage mail-out of promotional leaflets and brochures to be provided by the Chief Editor.

40 Dr. Hall suggested sending copies of all the IBCM products with their full description to the Library of Congress, as yet another advertising measure. This suggestion was accepted.

41 He also volunteered to investigate the use of DTM variants of the Series and to produce machined moulds from which printed vacuum-formed plastic 3-dimensional exhibition models of the Series could be produced. Printing of stereo versions of certain data sets so that one data set could be seen together with another would also be investigated. Members of the Board expressed their great appreciation of these initiatives.

#### 9. ANY OTHER BUSINESS

42 Dr. Oleg Kazakov informed the participants of an "Album of Structure and Thickness Maps of the Black Sea Basin Cenozoic Deposits", which has been prepared by V/O Yuzhmorgeologia, Gelendzhik, USSR, and will

be published in 1990. It will include 5 structural maps, 5 maps of sediment thickness, a sheet of seismogeological sections, a detailed illustrated report in Russian and English, and an appendix. More detailed information on this album and an order form are given in Annex VI.

- 43 Mr. Scott informed the participants that the "List of Geographical Names of Undersea Features shown on the IBCM and on the Small-scale IHO IHO International Charts", prepared by the Operational Unit for the Mediterranean, had been cleared by the GEBCO Sub-Committee on Geographical Names and Nomenclature of Ocean Bottom Features. The List will be published shortly by the International Hydrographic Bureau as an annex to the Gazetteer of Geographical Names of Undersea Features shown (or which might be added) on the GEBCO and on the IHO Small-scale International Chart Series (IHB publication BP-0008). Professor Fabricius requested that copies of the List be sent to the members of the Board when the List is printed. This was agreed.

- 44 The Chairman invited members to consider the future direction of the work of the Board for example interpretations of the Geological/Geophysical Series and their use as guiding documents in investigations directed to a better understanding of various geological and geophysical characteristics of the Mediterranean. An extensive discussion followed. It was noted that the origin of many features in the Mediterranean, such as the East Mediterranean Ridge, Tyrrhenian and Calabrian arcs, etc., is not known and is of great interest to scientists. Professor Makris said that geological/geophysical investigation of the Mediterranean, which is being made on an ever increasing scale by scientists of various countries, needs international co-ordination. As a result of this discussion a "Recommendation for Future Actions" was adopted (Annex II).

- 45 Members of the Board thanked Mr. Maliavko for his excellent work during his term as IBCM Secretary and wished him successful future activities upon his return back home.

#### 10. DATE AND PLACE OF THE NEXT SESSION

- 46 The Editorial Board considered two invitations: from the Head Department of Navigation and Oceanography, USSR, to hold the next Session of the Board in Leningrad in June 1991, and from the Academy of Sciences of Israel. Members of the Board expressed their sincere gratitude, respectively, to Captain Val'chuk and Dr. Hall and decided that the final choice should be left to the discretion of the Secretary IOC.

- 47 It was understood that the next Informal Consultations between members of the Board will take place in conjunction with the XXXIInd Congress of ICSEM which will be held in Perpignan, France, from 15 to 21 October 1990. Members of the Board agreed that the Informal Consultations should start on 15 October 1990, at 09.00.

#### 11. ADOPTION OF THE SUMMARY REPORT

- 48 The Editorial Board considered and adopted the Draft Summary Report.

#### 12. CLOSURE OF THE SESSION

- 49 The Chairman closed the Session at 14.00 on Wednesday 13 December 1989.

**ANNEX I**

**AGENDA**

1.        **OPENING OF THE SESSION**
2.        **ADOPTION OF THE AGENDA**
3.        **CONDUCT OF THE SESSION, DOCUMENTATION**
4.        **COMPOSITION OF THE EDITORIAL BOARD**
5.        **STATE OF PREPARATION AND PUBLICATION OF THE IBCM GEOLOGICAL/  
GEOPHYSICAL SERIES**
6.        **DIGITAL VARIANTS OF THE IBCM GEOLOGICAL/GEOPHYSICAL SERIES**
7.        **PROBLEMS RELEVANT TO THE BATHYMETRY OF THE MEDITERRANEAN**
8.        **SALES ARRANGEMENTS AND PUBLICITY**
9.        **ANY OTHER BUSINESS**
10.       **DATE AND PLACE OF THE NEXT SESSION**
11.       **ADOPTION OF THE SUMMARY REPORT**
12.       **CLOSURE OF THE SESSION**

**ANNEX II**

**RECOMMENDATION FOR FUTURE ACTIONS**

The Editorial Board for the International Bathymetric Chart of the Mediterranean and its Geological/Geophysical Series (EB-IBCM),

Having realized the significance of its published compilations, and having been informed that the remaining planned series will be published within the next two years,

Strongly recommends that the following actions be undertaken at an early date:

- (i) To encourage international co-operation of specialists from various disciplines in defining and addressing problems that may be solved using available data;
- (ii) To encourage co-ordinated activities for the optimal use of ships's capacities, thus avoiding duplication of effort, and addressing problems that can only be solved as co-operative ventures;
- (iii) To encourage multinational co-operation in raising funds from national and international agencies, in order to undertake further geological/geophysical studies needed to complement the existing data.

Proposes that development of the scientific aims and international co-operation be undertaken by IOC jointly with the International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEM);

Suggests that the Joint IOC/ICSEM Operational Unit for the Mediterranean in Monaco would be the most appropriate body for co-ordinating ship operations and programmes, acting on the advice of the Editorial Board for the IBCM.

Invites Professor J. Makris, President of the Geological/Geophysical Scientific Committee of ICSEM, to contact appropriate scientists and organizations inviting their participation in the scientific programmes and asking them to define their goals.

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Note: A similar recommendation will be placed before the XXXIInd Plenary Congress and Assembly of ICSEM in October 1990.

**ANNEX III**

**DIGITAL VERSIONS OF THE GEOLOGICAL/GEOPHYSICAL SERIES**  
(Offer by the Head Department of Navigation and Oceanography,  
Ministry of Defence, USSR)

As the computerized usage of the Geological/Geophysical Series of the Mediterranean is of undoubted interest, we consider it reasonable to envisage its distribution not only in the form of paper maps, but also in the form of datasets.

Using the experience gained from the work on the IBCM datasets we could accept responsibility for the preparation of datasets which include the IBCM cartographic and bathymetric information together with the geological/geophysical information presented on the appropriate maps, in GF-3.2 format.

In this connection it is necessary to come to an agreement on the following principal matters:

- (i) Adoption of a single system for geological/geophysical information coding;
- (ii) Elaboration and adoption of specifications for the Geological/Geophysical Series datasets;
- (iii) Setting the order and the deadline for preparations the datasets;
- (iv) Fixing the order for the distribution of the datasets.

The Head Department of Navigation and Oceanography could accept responsibility for preparation of draft agreements on the above-mentioned matters and after the adoption of these agreements (at the next EB-IBCM session or by correspondence), for preparing and distributing the Geological/Geophysical Series datasets.

**ANNEX IV**

**REPORT OF THE IHO ON THE PROGRESS IN THE COMPILATION  
OF THE OCEANIC PLOTTING SHEETS (OPS) AND THE  
INCORPORATION OF THE AVAILABLE DIGITAL DATA BY  
VOLUNTEERING HYDROGRAPHIC OFFICES (VHO)**

The progress in the updating of the Oceanic Plotting Sheets (OPS) of the IBCM area by the IHO Volunteering Hydrographic Offices (VHO) and their availability in graphical or digital format have been monitored by the IHB and dealt with through Circular Letters and GEBCO letters. The most relevant of these are those of May 1988 (GEBCO Letter No. 15) and January 1989 (GEBCO Letter No. 18) concerning the present status of the OPS.

As can be seen from the annexed Table, OPS are today available in digital format only in France, Greece, Spain and USSR. UK has reported that it is not their policy to add data, derived from digital sources, to their OPS but that they have started to compile separate plots for each set of digital data. At the moment they hold a data set made with data obtained from the US NGDC of Boulder, which affects 3 UK OPS.

France has reported that they have undertaken an experimental study of automatic tracing of isobaths in different colours. The result of this study will be presented during this meeting.

Italy and Turkey still maintain the OPS only in the traditional graphic form.

With regard to the updating of the OPS, according to the information provided by the various VHOs this is proceeding but, in our view, not always as desired.

Greece, Turkey and USSR report that the OPS under their responsibility are being updated, and that data gathered in recent hydrographic surveys are included in the existing charts. Spain and France have given more detailed information on the additions to the original data: in particular, Spain reported that the OPS of the Gibraltar area (Nx6113 and 8103) now include data obtained during recent hydrographic surveys and France gave information on the total number of soundings in their files which is 109,413. In this number are included the latest additions which were 867 in 1985, 344 in 1986, 34 in 1987, 1 in 1988, a continuous decrease but the data obtained in the 1988 and 1989 surveys have not yet been included.

The OPS under Italian responsibility are now complete after the IHB provided them with a copy of plotting sheet 6208 that was reported as missing during the last MBSHC meeting.

In order to increase the external contribution of data to the VHOs, a Circular Letter, jointly signed by the Directors of IHO, IOC and ICSEM, was recently distributed to national oceanographic institutions asking them to send the data in their possession to the VHOs.

Maintenance of the OPS, progress in their updating, their transfer to digital format and relevant problems will be dealt in the future by a specific WG which is being formed and which will be composed of 8 VHOs plus a representative from IHB. France and UK are both represented on the WG and their representatives could take account of the specific problems of the IBCM.

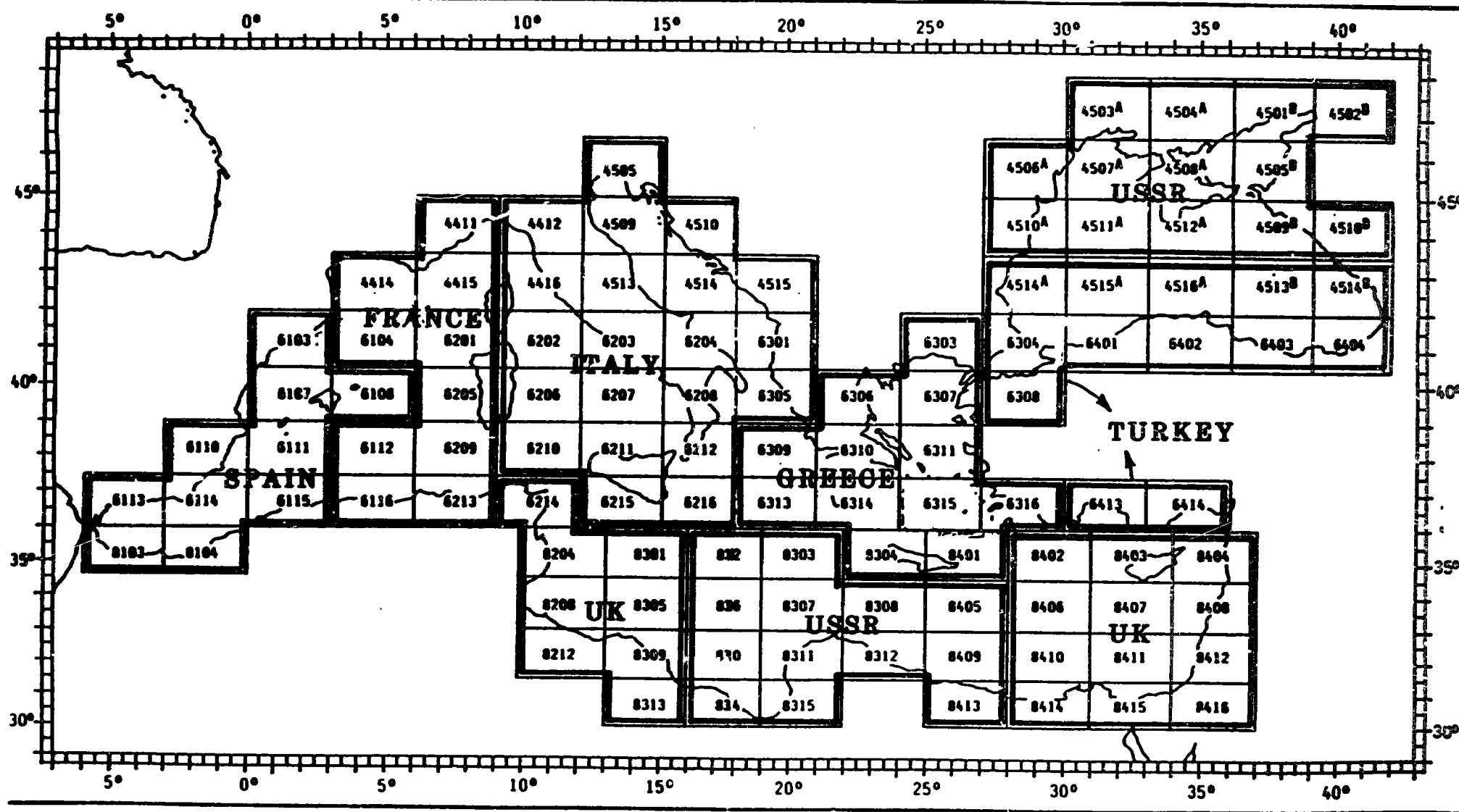
AVAILABILITY OF DATA IN THE MEDITERRANEAN  
AND BLACK SEA

N°	Volunteering H.O. (VHO)	Graphical Data ( a )	Digital Data	(a) + (b)	Notes ( b )
1	FRANCE	Yes	Yes	Yes	-
2	GREECE	Yes	Yes	Yes	-
3	ITALY	Yes	No	No	-
4	SPAIN	Yes	Yes	Yes	-
5	TURKEY	Yes	-	-	-
6	UK	Yes	-	-	Also in plastic paper. On mutual exchange basis or at charge of £3.50 per paper copy.
7	USSR	Yes	Yes	Yes	



# ANNEX V

## INDEX OF 140 BATHYMETRIC PLOTTING SHEETS AT 1:250 000 WITHIN THE MEDITERRANEAN SEA



ANNEX VI

ALBUM  
OF STRUCTURE AND THICKNESS MAPS OF BLACK SEA CENOZOIC DEPOSITS

Scale 1:1 500 000

Editor D.A. Tougolesov

Autor-compilers: A.S. Gorshkov, L.B. Meisner, V.V. Solovjev, D.A.  
Tougolesov, E.M. Mahalev  
Nedra, GUGK, 1990

This Album is compiled from CDP seismics materials, obtained in the Black Sea basin by investigators of USSR Ministry of Geology, Yuzhaorgeologiya Association, Research and Designing Institute of Geophysical Ocean Exploration Methods (NIPiokeangeofizika). The CDP profiles, with spacing of 15-25 ka, have yielded an unrivalled detailed volumetric picture of this too complicated tectonic basin. It is impossible to reach the clearing up of formation history and modern structural representation of so large and detailed studied tectonical form only by compiling only one tectonic map. These both problems would be obviously and simply solved by compiling a series of structural maps for a number of reference stratigraphic surfaces, complemented by thickness maps and geological sections. They differ from modern tectonic maps by a small number of symbols and are very simple for reading. The structure of each sedimentary filling "stage" is ascertained with details according to structural maps of its top and base and to corresponding thickness map. Correlation of these maps for different "stages" allows to trace the deep temporal structure changes and to extract the history of its formation maximally free from hypothetic constructions.

Album offered includes 5 structural maps, 5 thickness maps, and a sheet of seismo-geological sections, and is substituted by detailed illustrative report in Russian and in English with a huge amount of figures in text and with appendix of 20 time-sections.

In order to estimate the circulation of the Album, we request to address about interest in its purchase: Geology Department, NIPiokeangeofizika, Kryaskaya street, 18, Gelendzik, USSR, 353470.

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We ask to foresee ..... copies while printing the Album of Black Sea Basin Cenozoic deposits.

Association .....

Name of Customer.....

Address.....

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