Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies

IOC Editorial Board for the International Bathymetric Chart of the Central Eastern Atlantic

First Session

Lagos, 14-16 February 1990

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 IGOSS 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 IGOSS 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 IGOSS-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 IGOSS 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
53. First Session of the IOC Editorial Board for the International Chart of the Central Eastern Atlantic

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IOC/EB-IBCEA-I/3
Paris, 30 June 1990
English only

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1. OPENING OF THE SESSION

After being welcomed by the Director of the Nigerian Institute for Oceanography and Marine Research, Mr. T.G. Tobor, the First Session of the IOC Editorial Board for the International Bathymetric Chart of the Central Eastern Atlantic was opened at 14.30 on Wednesday 14 February 1990 at the premises of the Nigerian Institute for Oceanography and Marine Research by the IOC Senior Assistant Secretary for Ocean Mapping, Dr. Viktor Sedov, on behalf of the Secretary IOC. He informed the members of the Editorial Board of the background of this regional project and of some items contained in the IOC Manual concerning the Editorial Board as a group of experts.

Apologies were received from Mr. Federico Pazos Lozanos and Mr. Canavato Ruis (Spain) who could not participate in the Session due to other commitments.

A list of participants is given in Annex IV of this report.

2. ADOPTION OF THE AGENDA

The Editorial Board adopted the provisional agenda with minor amendments (see Annex I).

3. CONDUCT OF THE SESSION - DOCUMENTATION

Mr. André Roubertou was elected Chairman of the Session. The Technical Secretary for the Session, Dr. V. Sedov, presented the working documents of the Session and other relevant documentation.

4. TERMS OF REFERENCE OF THE EDITORIAL BOARD FOR THE IBCEA

Dr. V. Sedov informed the Editorial Board of current IOC ocean mapping activities and on the general working methods of IOC Editorial Boards.

He outlined the need to work mainly by correspondence, due to IOC's financial restrictions. He also informed the meeting that members of the Editorial Board should play the roles of National Co-ordinators of this project. He then presented the Terms of Reference of the Editorial Board, approved by the IOC Assembly at its Fourteenth Session (Resolution XIV-7- See Annex III).

The members of the Editorial Board carefully discussed these Terms of Reference item by item and agreed upon them.

5. SPECIFICATIONS FOR THE IBCEA

Mr. A. Roubertou presented the "Specifications for the International Bathymetric Charts produced under Regional Ocean Mapping Projects" which were adopted by the Second Session of the IOC Consultative Group on Ocean Mapping (Doc. IOC/CGOM-II/3 Annex IV).

The Editorial Board carefully reviewed this document and prepared a modified version for the International Bathymetric Chart of the Central Eastern Atlantic, which is given as Annex V to this Report. This modified version is very similar to that adopted for the IBCWIO.

6. ASSEMBLY DIAGRAM FOR THE IBCEA

The Editorial Board considered two preliminary draft versions of

the Assembly diagram for the IBCEA, bearing in mind so far as possible the following criteria:

(i) uniformity of the format of the sheets;
(ii) inclusion of all important geographical features;
(iii) avoid sheet limits cutting through undersea features;
(iv) the need to keep the number of sheets to a minimum;
(v) the desirability of keeping the limits of sheets coincident with limits of the British Admiralty plotting sheets series on a scale of 1:250 000.

After a lengthy discussion, the Editorial Board requested Mr. J. Sobral to prepare a further version, noting the remarks of the Members of the Editorial Board. This diagram should be discussed and approved by the Editorial Board by correspondence and presented later as Annex VI to this summary report.

7. POTENTIAL NATIONAL PARTICIPATION IN THE PROJECT

The Chairman of the Session, Mr. A. Roubertou, requested each member of the Editorial Board to present an outline of the possible national participation of their country.

Mr. Jean-François Bonnot informed the members of the EB-IBCEA of the following:

(i) France, through the Hydrographic and Oceanographic Service of the Navy (SHOM), accepts the responsibilities of Chief Editor of the International Bathymetric Chart of the Central Eastern Atlantic.

The SHOM will share these responsibilities with the Hydrographic Institute of Portugal in the framework of a bilateral agreement. This agreement will not be formalized until the definitive sheet assembly diagram has been adopted by the Editorial Board. It will deal with the sharing between the two services of plotting sheets for compilation and editing.

The Hydrographic Institute of the Navy (Spain) will be approached by France and Portugal to check whether this institute is in a position to participate actively in the project, for example to take responsibility for the compilation of one or more sheets.

(ii) The project will consist of four successive stages. Irrespective of whether responsibilities will be shared between France and Portugal (and possibly Spain), the SHOM will undertake the following steps:

a) Data Collection:

- The bathymetric data collected by SHOM in the framework of its duties as a Volunteering Hydrographic office for up-dating GEBCO in the IBCEA region either in analogue or digital form;

- The SHOM will accept data delivered by the Members of the Board in any available form. Digital data will be preferred but analogue data will be acceptable if they are of the quality required for the digital GEBCO data base.

- The SHOM will approach other French institutions (IFREMER, BRGM, IFP) for data not yet integrated into the GEBCO data

base it manages. The same will be done with foreign institutes and organizations and/or with those outside the IBCEA area (F.R. Germany, Brazil, USSR, Canada, United Kingdom).

b) Data Quality Control:

SHOM will input the new data into the existing GEBCO data base after applying quality control tests and will deliver the data bases in three available forms upon request:

- classical analogue sheets
- magnetic tapes
- digital terrain models.

c) Geomorphological Interpretation

This activity will be carried out under the guidance of a scientist or organization specializing in marine geology, on the basis of the documentation prepared by the SHOM as described above.

This activity will therefore be sub-contracted and lead to the preparation of the chart (or plotting sheets) under SHOM control. The SHOM, in close relationship with the participants, will investigate possible candidates who might undertake this work, and prepare proposals.

d) Printing and Publication of the Chart

On completion of compilation work on each sheet, the SHOM will present it both as:

- a printed paper chart
- an electronic chart (data base combined with a management system).

(iii) Association with Portugal

It is clear that, given the wording of paragraph a) above, the four activities described in paragraph b) have to be shared at various levels and in accordance with the bilateral agreement between the SHOM and the Hydrographic Institute of Portugal.

However, the methods of work will have to be harmonized between the two services in order to achieve a homogeneous final product.

Mr. José Sobral reported on national participation of Portugal in the Project. The Portuguese Hydrographic Institute is willing to co-operate in the IBCEA project and will make available all the bathymetric data in its possession, from the coastal waters of the Portuguese continental margin, with old surveys dating back to 1975 in paper form. On the Portuguese continental margin there exist new surveys reaching out to 80 miles from the coast at scales from 1/25,000 to 1/150,000 which will be complemented with (Multibeam) surveys by the French on N.O. Jean Charcot, especially in the Nazaré Canyon area where a bathymetric chart at 1/150,000 scale was produced in 1989.

The compilation effort will be carried out by a special team of hydrographers and geologists from the Portuguese Hydrographic Institute, in

co-operation with the University Paris VI Team of Geography in a French/Portuguese Scientific co-operative programme.

If the Editorial Board wishes, Portugal could also help with the compilation and printing of the charts covering the above mentioned area. It would be possible to produce one chart per year.

As regard the charts along the Portuguese Continental Margin, the Portuguese Hydrographic Institute would like to co-operate with IOSDL, United Kingdom (GLORIA images) and IFREMER (J. Charcot cruises). For Madeira and the Azores, there are few data available and co-operation with IOSDL (GLORIA) and USA/France will be needed.

For the Cape Verde Islands the Hydrographic Institute is aware of German and US geological surveys that could complement Portuguese data.

Portugal will be willing to share Chief Editorial functions with France and a co-operative agreement will be established between SHOM and IHP once the assembly diagram has been adopted.

Mr. Peter Hunter informed the Editorial Board of the potential participation of the United Kingdom in the IBCEA.

The Hydrographic Department of the UK at Taunton have offered to provide copies of the 1 in 1 million scal GEBCO collected sounding sheets for the area of their responsibility. These are in manuscript form only. The IOSDL, which has a long history of bathymetric mapping for the northern part of the IBCEA region, will:

(i) provide copies of their manuscript, 1 in 1 million scale, contoured bathymetry. Most of these are contoured at an interval of 100 metres;

(ii) provide, on magnetic tape in MGD-77 format, all the digital cruise data available from IOSDL cruises;

(iii) attempt to provide as much of the present non-digital cruise data in digital form or in manuscript form;

(iv) provide copies of future IOSDL work in areas such as the Ghana Margin and others;

(v) obtain and provide cruise data from British University work in the area;

(vi) provide line interpretations of GLORIA sidescan sonar data, collected throughout the area; and

(vii) participate actively in the contouring of some part of the IBCEA.

Mr. Troy Holcombe summarized activities within USA which may contribute to the IBCEA project.

He reported that Mr. Norman Cherkis of the US Naval Research Laboratory is responsible for the compilation of bathymetry for GEBCO south of the Equator in the IBCEA area. Mr. Cherkis, with the support of his agency, has assembled and digitized available bathymetric data south of latitude 3° S, and is now assembling data for the region between the Equator

and latitude 3° S. Mr. Cherkis has confirmed that his agency will provide these bathymetric data to the IBCEA project through the US National Geophysical Data Center, either in digital or paper plotting sheet form. Reciprocally, Mr. Cherkis is keenly interested in acquiring additional data from the Atlantic Ocean south of the Equator.

Information was distributed to the Editorial Board members regarding the data holdings of the National Geophysical Data Center (NGDC). Dr. Holcombe proposed exchange of bathymetric data between NGDC and the IBCEA project. NGDC would provide its data holdings to the IBCEA project in digital form and would accept in exchange data in either digital or paper plotting sheet form. For good quality soundings on paper plotting sheets Dr. Holcombe will enquire as to the possibility of having a US Government agency digitize these data and provide a copy of the digital data back to the project.

Mrs. Isabelle Niang informed the Session that Sénégal will be able to participate in the following activities:

(i) Identification of potential sources of bathymetric data;
(ii) collecting national bathymetric data already available (national navy, scientific institutes and private companies);
(iii) furnishing of relevant national topographic maps and a list of geographical names for land features;
(iv) scientific interpretation (geology, geomorphology, sedimentology) based on the bathymetry of the continental margin.

Mrs. Niang said she hoped to participate personally in this specific task.

Mr. Boubacar Diallo reported on potential participation of Guinea in the project. He said that:

(i) he was completely at the disposal of the Editorial Board for the International Bathymetric Chart of the Central Eastern Atlantic at any time and place for any tasks that might be requested of him;

(ii) the Republic of Guinea, will facilitate hydrographic activities in its waters with the assistance of its national navy and CERESCOR which will take delivery of a ship of 400 tonnes during 1990;

(iii) his country has available the bathymetric data from its shelf collected in the last few years. He agreed to contact all competent authorities and explore modalities and conditions for the release of these data and inform the Board of the results of these discussions; and

(iv) he warned however that some time will be needed for negotiations and formalities.

Mr. K. Mensah Koffi Nutsudka informed the Editorial Board on the potential participation of Togo in the project. He said that being a specialist in this subject, he is completely responsible for his country's contribution to the project and for the collection of all bathymetric data from the EEZs of both Togo and Ghana. He will also be the national co-ordinator between the Commission and competent institutions in his country. He was very satisfied with the creation of this co-operative project which will permit closer collaboration of his country with international organizations and agencies. He reported that he had been responsible for marine affairs, particularly with nearshore bathymetry, out to a depth of

40 m since 1984 in the waters of Cote d'Ivoire, Ghana, Togo and Benin. He is also Chief Editor of the bathymetric charts of these waters. However, he noted that for investigations in deep water there will be a need for a ship fitted with necessary equipment. Technically, he was ready to co-operate closely with the project. He requested the Secretary IOC to forward all correspondence both to him and to the Rector, Chairman of the Council of the University of Bénin.

He concluded by saying that some data are available, but the Commission would need to take care of the education and training of young engineers so as to ensure the best contribution.

Mr. Lawrence Awosika informed the Editorial Board that the Nigerian Institute for Oceanography and Marine Research (NIOMR) is presently involved in geological, geophysical and physical/chemical research of the continental shelf. NIOMR is working in collaboration with the Nigerian Navy in many oceanographic surveys.

Bathymetric data are available from the continental shelf off Badagry between the longitudes of 2°45′ and 5°00′ E and from Cote d'Ivoire to Lagos. Gravity data is also available for the entire continental shelf. NIOMR is ready to make these and other data available to the project. Also NIOMR has a well equipped oceanographic vessel R/V SARKIM BAKA which was used during the IOCEA Cruise in the Gulf of Guinea 10 - 25 October, 1989.

NIOMR research officers will be ready to co-operate and participate in the project. The Hydrographer of the Nigerian Navy, Captain J.O. Abulu, has also agreed to make his staff and other data available to the project.

8. ELECTION OF THE CHAIRMAN AND VICE-CHAIRMAN OF THE IBCEA

Dr. V. Sedov explained that, in accordance with the IOC Manual, the Board should elect a Chairman and Vice-Chairman to carry out work during the intersessional period and the next session.

Mr. P. Hunter proposed Mr. André Roubertou as Chairman. This proposal was supported by Mr. J. Sobral, Mr. L. Awosika and RAdm. A. Civetta. Mr. A. Roubertou was duly unanimously elected Chairman.

Mr. A. Roubertou proposed Mrs. Isabelle Niang as Vice-Chairman. This proposal was supported by Mr. J. Sobral. Mrs. Niang was duly unanimously elected Vice-Chairman.

9. DATES AND PLACE OF THE NEXT MEETING

The Editorial Board agreed to hold the Second Session during the second week of April 1991 in Dakar, Sénégal.

10. APPROVAL OF THE SUMMARY REPORT

The Members of the Editorial Board discussed the first draft of the Summary Report item by item and made the necessary corrections before approval.

11. CLOSURE OF THE SESSION

The Session was closed at 14.00 on Friday 16 February 1990.

ANNEX I

AGENDA

1. OPENING OF THE SESSION
2. ADOPTION OF THE AGENDA
3. CONDUCT OF THE SESSION - DOCUMENTATION
4. TERMS OF REFERENCE OF THE EDITORIAL BOARD FOR THE IBCCA
5. SPECIFICATIONS FOR THE IBCEA
6. ASSEMBLY DIAGRAM FOR THE IBCEA
7. POTENTIAL NATIONAL PARTICIPATION IN THE PROJECT
8. ANY OTHER BUSINESS
9. ELECTION OF THE CHAIRMAN AND THE VICE-CHAIRMAN OF THE IBCEA
10. DATES AND PLACE OF THE NEXT MEETING
11. APPROVAL OF THE SUMMARY REPORT
12. CLOSURE OF THE SESSION

ANNEX II

LIST OF RECOMMENDATIONS

The Editorial Board for the IBCEA, recognizing the importance of the Chart as a key project for the exploration of many other ocean parameters of the Central Eastern Atlantic, recommends to the IOC Secretary:

(i) to take the necessary steps to involve the largest number of African countries to participate in the project;

(ii) to foresee, at an early stage, the organization of training courses in bathymetric mapping for countries of West Africa;

(iii) to provide the necessary funding for the organization of annual sessions of the Editorial Board;

(iv) to appoint Mr. J.F. Bonnot and Mr. J. Sobral, representing their Hydrographic offices, as Co-chief Editors of the IBCEA, subject to a formal agreement regarding division of responsibilities for the task.

ANNEX III

TERMS OF REFERENCE FOR THE EDITORIAL BOARD FOR THE INTERNATIONAL BATHYMETRIC CHART OF THE CENTRAL EASTERN ATLANTIC
(Annex to Resolution XIV-1)

The IOC Editorial Board for the International Bathymetric Chart of the Central Eastern Atlantic shall:

1. **BASIC FUNCTIONS**

Supervise the preparation and publication of the IOC International Bathymetric Chart of the Central Eastern Atlantic (IBCEA) using all available bathymetric data as input to the series, taking into account, in particular, the holdings of the World Data Centre for Bathymetry (IHO) and World Data Centre "A" (Marine Geology and Geophysics), and subsequently consider the need to prepare and publish overlay sheets of geological and geophysical parameters.

2. **PROGRAMME DEVELOPMENT**

2.1 PLANNING

Prepare a detailed plan of action for carrying out the project and activities, to be submitted to the IOC Consultative Group on Ocean Mapping (CGOM) for its consideration.

2.2 PROMOTION

Promote the IBCEA and related supporting activities in the Member States of the IOC Regional Committee for the Central Eastern Atlantic (IOCEA) and in their marine scientific communities.

2.3 CO-ORDINATION

Identify the participating entities (institutions, individual scientists and experts), keep them informed of the actions that each of them is expected to undertake in the implementation of the IBCEA and on activities being taken by the other participating entities, so as to avoid unnecessary duplication of effort and to optimize results.

2.4 SCIENTIFIC AND TECHNICAL ADVICE

Advise the participating entities, as appropriate, of the methods and procedures to be used in carrying out the work related to the agreed project and activities and on any methodological questions falling within the Editorial Board's sphere of competence.

Advise the Member States of the Regional Committee for IOCEA on the requirements for Training, Education and Mutual Assistance in the marine sciences (TEMA) related to the IBCEA, and advise the IOC of these requirements.

2.5 COLLABORATION

Collaborate with the IOC Consultative Group on Ocean Mapping concerning the technical specifications for the IBCEA, taking into account the "Specifications for International Bathymetric Charts" (Annex IV to Document IOC/CGOM-II/3) produced under Regional Mapping Projects, and, when appropriate, with similar Editorial Boards and other expert groups active in the field of ocean mapping.

2.6 EVALUATION

Evaluate progress in the implementation of agreed projects and activities, with a view to proposing new approaches or new directions in the light of results achieved.

3. OTHER FUNCTIONS

3.1 TECHNICAL POLICY

Advise the Member States participating in the IBCEA on technical requirements for the effective implementation of the agreed projects and activities for the achievement of the Editorial Board's objectives in this field.

3.2 REPORTING

Present a Report on its activities and progress to each session of the Consultative Group on Ocean Mapping, and inform the Regional Committee for the Central Eastern Atlantic (IOCEA) on scientific and technical aspects of its activities.

ANNEX IV

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ANNEX V

SPECIFICATIONS FOR THE INTERNATIONAL BATHYMETRIC CHART OF THE CENTRAL EASTERN ATLANTIC

SECTION 100 - GENERAL

101 - **Introduction**

A. The International Bathymetric Chart of the Central Eastern Atlantic is a continuation and further development of the General Bathymetric Chart of the Oceans (GEBCO), under the general guidance of the IOC Consultative Group on Ocean Mapping. This chart is prepared and published with the co-operation of volunteer hydrographic Offices and/or groups of scientists from appropriate institutions.

B. The Editorial Board of IBCEA was established by Resolution of the Fourteenth Session of the IOC Assembly for the purpose of technical direction of its compilation and publication.

SECTION 200 - BASIC SPECIFICATION

201 - **Projection**

A. Sheets for IBCEA will be portrayed on Mercator Projection using WGS-84 reference ellipsoid.

202 - **Scale**

A. A scale of 1:1 000 000, using the 20N as a reference parallel.

203 - **Graticule**

A. A scaled border of each sheet shall be shown subdivided into 1 minute increments of latitude and longitude.

B. Meridians and parallels shall be drawn every 2° (even values).

C. Labelling of the graticule shall be every 1°.

D. The tropic of Cancer shall be shown.

204 - **Size**

The neat line size of each sheet shall not exceed 750 x 1100 mm, so as to allow printing on an A0 size paper sheet.

205 - **Numbering**

A. For each chart a consecutive sheet number shall be used as shown in the Assembly Diagram.

B. Sheet numbers shall be printed in 8 mm Arabic figures in the lower right-hand and top left-hand corner of each sheet.

206 - **Dating**

The date of the chart publication to be shown on each sheet shall be the date of the end of compilation.

207 - **Units of measurement**

Depths and topographic heights shall be shown in metres. Depths should be corrected from the last edition of the Echo-Sounding Correction Tables, published by the United Kingdom Hydrographic Department, and this should be stated on the face of the chart.

208 - **Marginal information**

A. All marginal information shall be in English, or bilingual in English and another language.

B. This shall include:

1. The general title of the chart.
2. Sheet number.
3. Projection, ellipsoid and scale (see 201, 202).
4. Unit of measurement used for depths and heights.
5. Code of colours used to portray hypsometry.
6. Code of colours used to portray bathymetry.
7. An index of areas and names of countries whose Hydrographic Offices or groups of scientists prepared plotting sheets for the sheet.
8. The names of scientific co-ordinators of the chart series and of scientists responsible for the scientific content of the sheet.
9. The logo of the Intergovernmental Oceanographic Commission (IOC) of Unesco.
10. Edition number and date of publication (see 206) followed by the statement:
"Published by the ..... (name of printer) under the authority of the IOC (of Unesco)".
11. List of the sources of the data used.

C. Additional more detailed information may be given in the form of an accompanying booklet or additional chart.

SECTION 300 - TOPOGRAPHY

301 - For the land part, topographic maps shall be used.

302 - The best available agreed upon coastline shall be used. The coastline shall be shown as a firm line in black.

303 -

A. Contours on land shall be at 200 m intervals.

B. The thicker lines shall be at 200, 1 000, 2 000, 3 000, etc., m. intervals.

C. Additional contours which may be required by the data must be shown.

D. A colour change for hypsometry shall be used at the following intervals: 0-200, 200-1000, 1000-2000, etc., m.

E. The significant heights shall be shown.

304 - **Hydrology of the land**

On the chart shall be shown:

- rivers and channels;
- lakes;
- lagoons.

305 - Major cities and towns, priority being given to those on the coast.

SECTION 400 - BATHYMETRY

401 - **Soundings**

A. A sparse pattern of numerical soundings shall be shown to indicate maximum and minimum (and other significant) depths, where known, over major undersea features in such a way as not to detract from the paramount objective of indicating sea floor relief by means of contours.

B. The exact position of all numerical soundings shown shall be indicated by a dot. The depth shall be written as cartographically convenient against the dot using 1.5 mm sans-serif figures. Where space does not permit the juxtaposition of the figures they may be offset and linked by a fine line to the dot placed in the exact position.

C. Actual data control will be shown as data representing discrete soundings or as lines representing continuously sounded traverses, possibly printed on the reverse side of the paper. Areas of detailed surveys where sounding lines are closely spaced may be delineated using numbered boxes which are referenced in the margin.

402 - **Depth contours and colours**

A. Basic contours shall be at 200 m intervals.

B. The 200 m contour line and all contours at 1 000 m intervals shall be drawn using thick lines.

C. 20, 50 and 100 m contours, as well as intermediate 100 m contours,

if necessary, shall be drawn using thin lines.

D. A colour change for the bathymetry shall be used at the following intervals: 0-200, 200-1000, 1000-2000, 2000-3000, etc., m.

403 - Digital chart should be prepared at the same time or before conventional printed charts.

SECTION 500 - NOMENCLATURE AND GEOGRAPHICAL NAMES

501 -

A. A proposed list of names for inclusion on each sheet will be submitted by Chief Editor for approval to the GEBCO Subcommittee on Geographical Names and Nomenclature of Ocean Bottom Features. In preparing this list account should be taken of the guidelines contained in the IHO-IOC publication BP-006 "Standardization of Undersea Feature Names". Names already in use, referring to the GEBCO gazetteer, will be accorded preference, with new names being given only to previously unnamed features.

B. As a general policy, local names (cities, towns, mountain ranges, rivers, etc.) shall be in exact agreement with the form prescribed by the most authoritative national source. However, in those cases where the national names differ substantially from the normal English usage, the English version shall be shown alongside in parenthesis.

C. The nomenclature for undersea features shall be shown in the English language.

APPENDIX TO ANNEX V

RECOMMENDATIONS FOR PREPARATION OF PLOTTING SHEETS FOR THE INTERNATIONAL BATHYMETRIC CHART OF THE CENTRAL EASTERN ATLANTIC

1. For plotting and contouring purposes the British Admiralty's plotting sheets for oceanic soundings should be utilized.

2. Soundings should be in metres corrected using the last edition of the "Echo Sounding Correction Tables".

3. The position of the sounding should be the central point of the group of figures representing it. But the position may also be indicated by a dot with the sounding figure alongside, and if necessary, by a thin line drawn to connect the two.

4. The soundings figures should be inscribed across the track; the figures should be easily readable, the recommended average size being 1.5-2 mm in height.

5. The largest possible number of soundings should be shown on the plotting sheets so long as their clarity is not impaired. When soundings are very dense, the number may be reduced if care is taken not to eliminate the more important soundings: maxima and/or minima.

6. The margin of each plotting sheet should contain the following legend:

"Compiled by ....."
"Last brought up to date on ....."
"Prepared under IOC (International Bathymetric Chart of the Central Eastern Atlantic Project)".

7. Each plotting sheet should be accompanied by two overlays:

   a) overlay contour lines with contouring made through each 100 metres, additional contours may be drawn through 50 and 10 metres, where arranged (on the shelf and abyssal plains);

   b) overlay source materials on which should be shown the following:

      - areas of soundings and position of isolated soundings with the appropriate legends required to indicate the source and the date of such soundings;
      - information on the method of navigation and its precision;
      - information on the type of the echosounder and its precision.

8. On each plotting sheet and overlay the date of completion of compilation should be indicated.

ANNEX VI

ASSEMBLY DIAGRAM FOR THE INTERNATIONAL BATHYMETRIC CHART OF THE CENTRAL EASTERN ATLANTIC