United Nations Convention on the Law of the Sea

Commission on the Limits of the Continental Shelf

20 April 2000

ENGLISH ONLY

Seventh session
New York, 1-5 May 2000

UNITED NATIONS CONVENTION ON THE LAW OF THE SEA AND THE DELINEATION OF THE CONTINENTAL SHELF: OPPORTUNITIES AND CHALLENGES FOR STATES

Open Meeting of the Commission on the Limits of the Continental Shelf, held on 1 May 2000

Opening Statement by the Chairman of the Commission and Contents of the Visual Presentations by the Members of the Commission

Contents

1. Introductory Statement of the Chairman of the Commission on the Limits of the Continental Shelf (Yuri Kazmin)

1. Open Meeting

As Chairman of the Commission on the Limits of the Continental Shelf, I would like to welcome all of you to the first Open Meeting of the Commission, which is being held in accordance with Rule 22 of the Rules of Procedure of the Commission.

Before going into detail about the Commission itself, I would like to say a few words about the purpose of this meeting.

This open meeting is held with the aim of flagging the most important and challenging issues related to the establishment of the continental shelf beyond 200 nautical miles (hereinafter referred to as "miles"), and to give an opportunity for the Commission's members to present their views on those challenges.

This open meeting is also intended to give a general indication to policymakers and legal advisors what benefits a coastal State may derive from implementing the provisions of article 76 of the United Nations Convention on the Law of the Sea.

It is especially intended to explain to the experts in marine sciences who are involved in the preparation of submissions how the Commission considers that its Scientific and Technical Guidelines should be applied in practice.

Before going into more technical detail, let us consider important background information about the Commission.

2. What is the Commission on the Limits of the Continental Shelf ?

The Commission on the Limits of the Continental Shelf is an international institution created by the 1982 United Nations Convention on the Law of the Sea to facilitate the implementation of the Convention in respect of the establishment of a line delineating the outer limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

The Convention, which entered into force on 16 November 1994, and which now has 131 States and one international organization as Parties, constitutes the comprehensive international legal framework for the uses of the oceans and their resources, including those related to the continental shelf.

3. What is meant by the term "Continental Shelf

At present under the Convention and under current international law, "the continental shelf " is a juridical or legal term to define a submarine area where the coastal State exercises sovereign rights for the purpose of exploring the seabed and subsoil thereof and exploiting its natural resources.

The importance of the resources which may be exploited must not be underestimated - the continental shelf area will in future be the main source of oil and gas supplies for Mankind. For example, in the year 2000, it is estimated that expected offshore oil production will be 1.23 billion tons, and natural gas - 650 billion cubic meters.

It should be noted that the legal term "continental shelf" used throughout the Convention does not coincide with the geographic or geological continental shelf , which is generally a shallow-water offshore plain area, and which is the furthest landward of three elements of the continental margin. The continental slope and the continental rise are the other two elements. There is wide variation in the structure of the continental margins throughout the world and in the breadth of their various elements – shelf, slope and rise.

The legal term "continental shelf" in the Convention includes all three elements of the geographic continental margin (shelf, slope and rise) – this holds true in cases where the margin extends beyond 200 miles.

The Convention provides a methodology for determining the outer edge of the continental margin composed of two alternative formulae. It also establishes two alternative constraints for the application of these methods to ensure that they will not extend the legal continental shelf seaward endlessly.

The effect of the provisions of the Convention is that practically all seabed oil and natural gas resources will fall under the control of coastal States.

4. Why there is a need for the Commission?

Although the concept of the continental shelf in the Convention is a legal or juridical one, the basic points of departure and the terms used in the criteria for defining the outer limits of the continental margin are scientific: geodetic, geologic, geophysical or hydrographic.

The Convention does not provide any definitions of these scientific terms. Due to the variations of ocean floor morphology and structure, all the Convention's terms may be subject to scientific interpretation and their application may not be uniform for different areas of the oceans.

Therefore, it was felt that an international expert body, namely, the Commission, was required for two purposes: to verify the outer limits of the continental shelf beyond 200 miles proposed by States on the basis of the formula contained in the provisions of the Convention, and to provide appropriate scientific and technical advice to States if requested.

5. What is the present status of the Commission's work?

During the six sessions that have taken place since the establishment of the Commission in March 1997, the Commission has prepared the basic documents needed for handling the receipt and consideration of submissions by coastal States, as well as for assisting States in preparing their submissions.

The Commission is currently prepared both to accept submissions from coastal States, and to provide any scientific and technical advice that States preparing submissions may wish to obtain.

6. There is a time limit for establishing the continental shelf beyond 200 miles.

According to article 4 of Annex II to the Convention, a coastal state shall submit its proposal for establishment of its continental shelf beyond 200 nautical miles to the Commission within 10 years of the entry into force of the Convention for that State.

In 1995, at the Third Meeting of States Parties to the Convention, it was agreed that should any State, which was already a Party to the Convention by 16 May 1996, be affected adversely by the late establishment of the Commission, the 10-year time period may be extended for that State at its request, should the Meeting of States Parties so decide.

Nevertheless, for the majority of States the cut-off date will still be the 10-year rule dating from the entry into force of the Convention for the submitting State.

7. Nature and scope of the data and information to be submitted to the Commission.

In 1999 the Commission adopted its Scientific and Technical Guidelines in final form. The Guidelines are intended to provide assistance to coastal States regarding the nature and scope of the data and information to be included in their submission to the Commission.

The Scientific and Technical Guidelines are of a highly scientific nature. They deal with geodetic and other methodologies stipulated in article 76 for the establishment of the outer limit of the continental shelf, using such criteria as determination of the foot of the slope of the continental margin, sediment thickness, and structure of submarine ridges and other underwater elevations.

8. Some issues to be highlighted.

Although no submissions have yet been received, the Commission is aware that the process of preparing a submission is at an advanced stage in some coastal States. At the same time, the Commission feels that it is its duty to highlight some challenges to and opportunities for all States in order to facilitate the process of establishing the outer limits of the continental shelf under the Convention. Some of these challenges and opportunities are the following:

- The opportunity for certain coastal States to establish their continental shelf beyond 200 miles,

- The existence of a time limit for presentation of submissions,

- The complexity of the scientific and technical data to be obtained and submitted to the Commission,

- The wide variety in types of continental margins in different areas of the oceans, as well as the ways of applying the criteria contained in the Convention,

- The complexity of gathering the technical and scientific expertise to prepare a submission, and the procedure for its preparation and submission to the Commission.

Because of the challenging task ahead of those coastal States that intend to prepare a submission, my colleagues on the Commission have prepared presentations on several of the most important and difficult aspects of the work facing coastal States in this endeavour. As you can see from the programme, the Commission hopes to give general directions to assist States in preparing their submissions.

In order to do so, the Members of the Commission will present today a number of detailed explanations of the most important aspects of the delineation of the continental shelf in accordance with the provisions of article 76, and the submission of that delineation to the Commission. Included among the presentations are the mandate and work of the Commission, the procedure that the Commission will follow in considering the submissions made by States to the Commission, as well as of the scientific and technical standards necessary for the preparation of those submissions. There will also be a presentation on the geographic scope and scientific challenges posed by article 76 and an outline to simplify for States the preparation of a national submission.

The Commission hopes that the presentations given, combined with the opportunity for question and answer periods, will prove useful to those attending this meeting, and aid them in the difficult process of preparing submissions for the delineation of the outer limits of their continental shelves beyond 200 miles.

2. The United Nations Convention on the Law of the Sea and the Delineation of the Outer Limits of the Continental Shelf (Harald Brekke)

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Overview

- The continental shelf in international law
- Geoscientific concepts
- Part VI of the UN Convention on the Law of the Sea: a technical commentary
- Statement of Understanding: Final Act – Annex II
- Rights and obligations
- Summary

Slide 3

The continental shelf in international law

State practice and juridical opinions:

Truman Proclamation
ICJ North Sea Continental Shelf Cases

International conferences and conventions:

International Law Commission	1949 – 1956
First UN Conference on the Law of the Sea	1958
Convention on the Continental Shelf	1958
Third UN Conference on the Law of the Sea	1973-1982
UN Convention on the Law of the Sea	1982

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Truman Proclamation - 28 September 1945

"... regards the natural resources of the subsoil and seabed of the continental shelf beneath the high seas but contiguous to the coasts of the United States as appertaining to the United States, subject to its jurisdiction and control."

"... reasonable and just, ... since the continental shelf may be regarded as the extension of the land mass of the coastal nation and thus naturally appurtenant to it."

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ICJ North Sea Cases - 20 February 1969

"More fundamental than the notion of proximity appears to be the principle … of the natural prolongation or continuation of the land territory ..."

"… What confers the *ipso jure* title which international law attributes to the coastal State in respect of its continental shelf, is the fact that the submarine areas concerned may be deemed to be actually part of the territory over which the coastal State already has dominion, - in the sense that … they are a prolongation or continuation of that territory …"

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Finality of the outer limits of the continental shelf

Convention on the Continental Shelf 1958:

"… to where the depth of the superjacent water admits of the exploitation of the natural resources …"

UNCLOS 1982: "… shall be final and binding".

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Sketch of geological principles
[see page 8]

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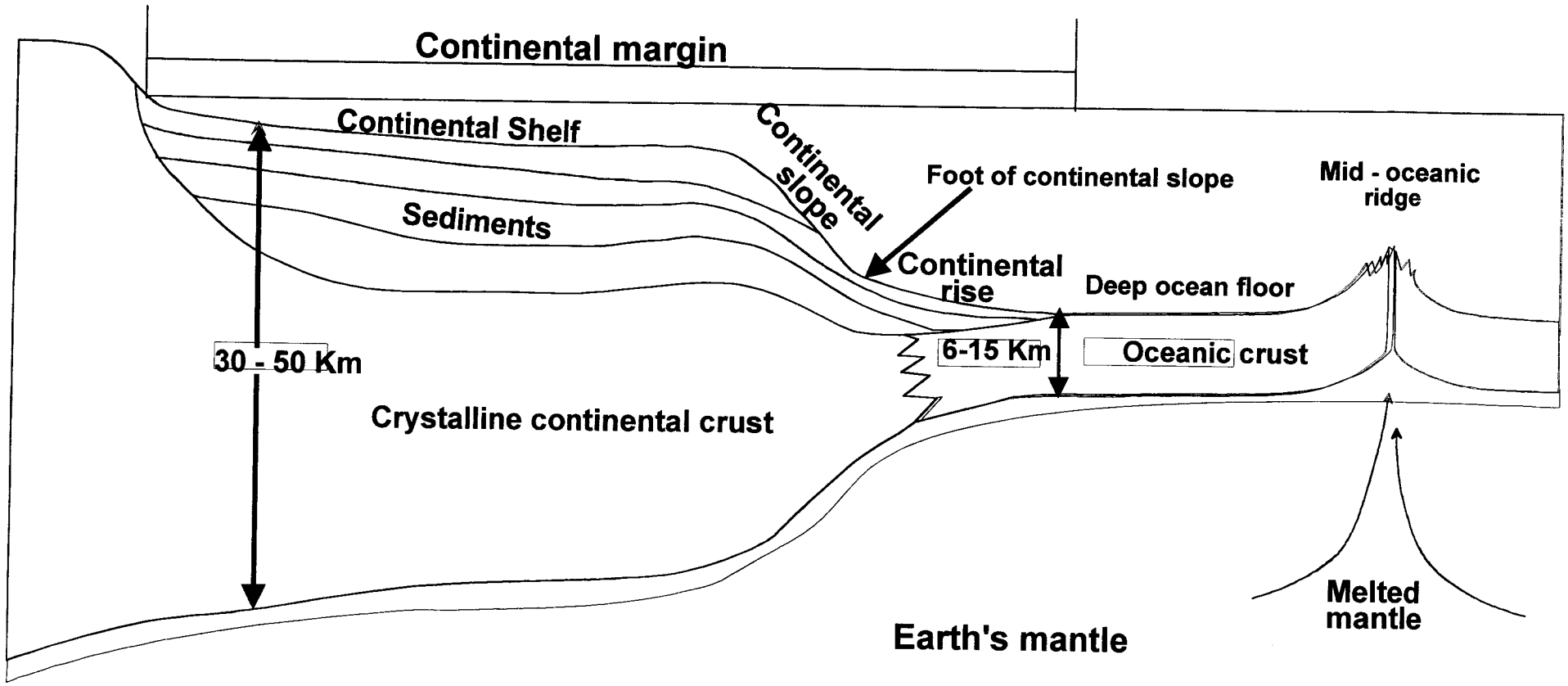
United Nations Convention on the Law of the Sea
Part VI
Continental Shelf
Article 76
Definition of the continental shelf

Sketch of geological principles



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Article 76, paragraph 1

"The continental shelf of a coastal State comprises the seabed and the subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance."

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Commentary on paragraph 1

The continental shelf comprises the seabed and the subsoil, i.e., the superjacent waters are not included.
This is a juridical definition and must not be confused with its traditional scientific definition.
The outer limits of the **continental shelf** are defined with a reference to the outer edge of the **continental margin**.

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Commentary on paragraph 1

The continental shelf extends either:

- to the outer edge of the continental margin, or
- to 200 nautical miles from the baselines where the continental margin does not extend that far

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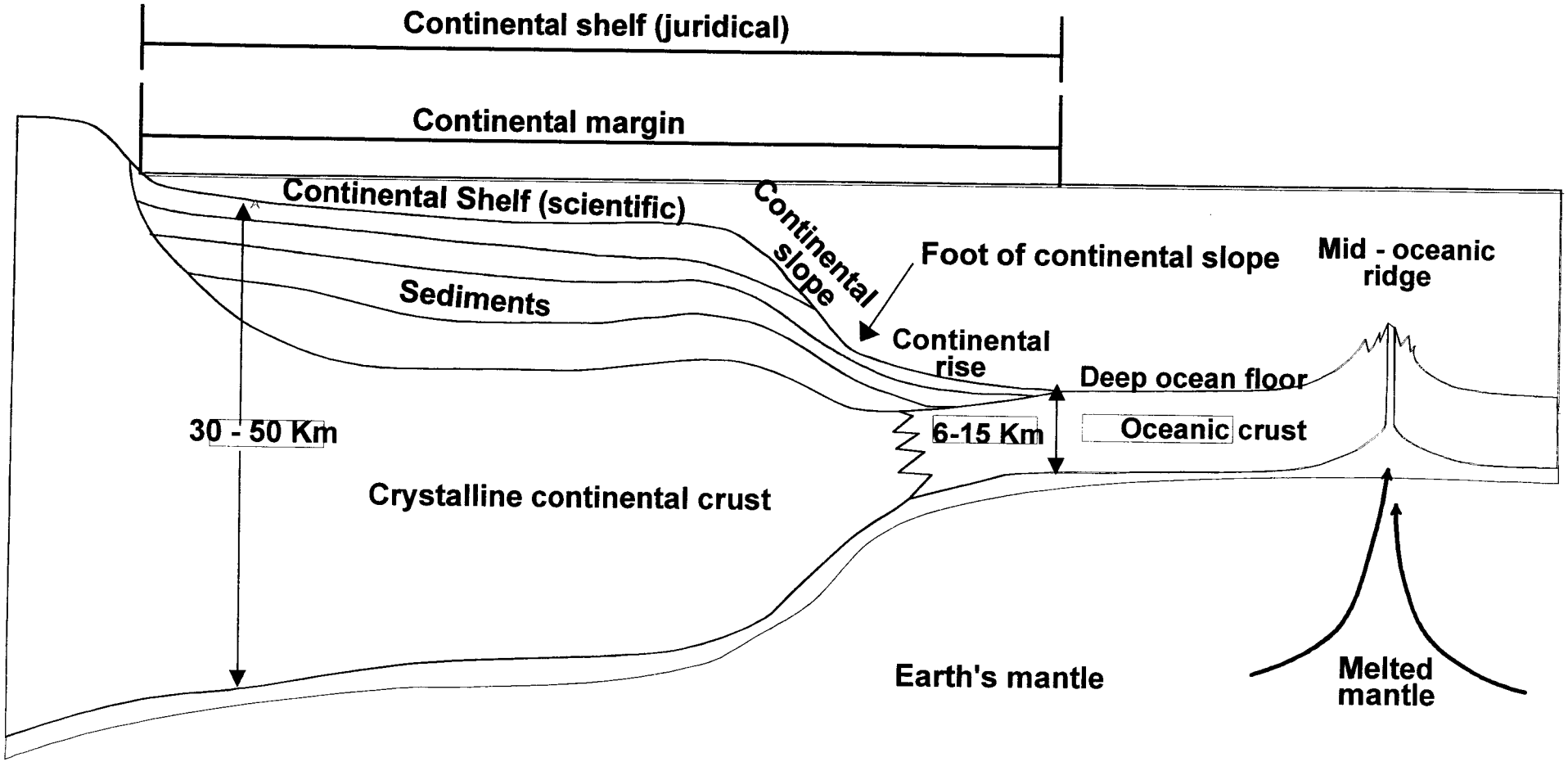
The continental shelf : juridical and scientific concepts
[see page 10]

The continental shelf: juridical and scientific concepts



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Article 76, paragraph 3

"The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the sea-bed and the subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof."

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Commentary on paragraph 3

It identifies the continental margin by:

- Identifying its physical components, and
- Specifically excluding adjacent features

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Features identified in paragraph 3
[see page 12]

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Land generates rights over the sea

According to paragraphs 1 and 3, the landmass of the coastal State is the starting point for the continental margin, and generates rights over its continental shelf:

The continental shelf is the sea-bed and subsoil of the **natural prolongation of its land territory** (para. 1)

The continental margin is the submerged **prolongation of its landmass** (para. 3)

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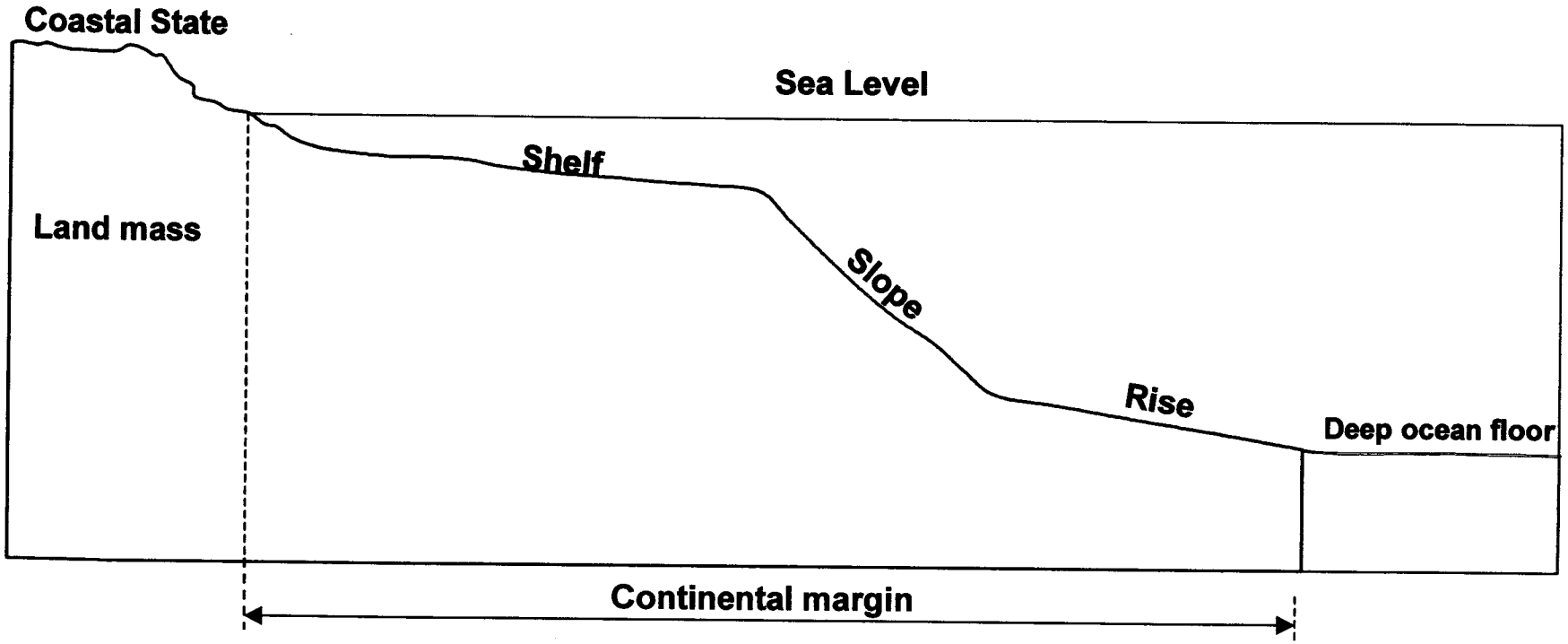
Article 76, paragraph 2

"The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 4 to 6."

Features identified in paragraph 3



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Article 76, paragraph 4(a)

"For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either: ...

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Article 76, paragraph 4 (a) (cont.)

"(i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or

(ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope."

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Determination of the outer edge of the continental margin
[see page 14]

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Article 76, paragraph 4 (b)

"In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base."

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Determination of the foot of slope
Sketch of geological principles
[see page 15]

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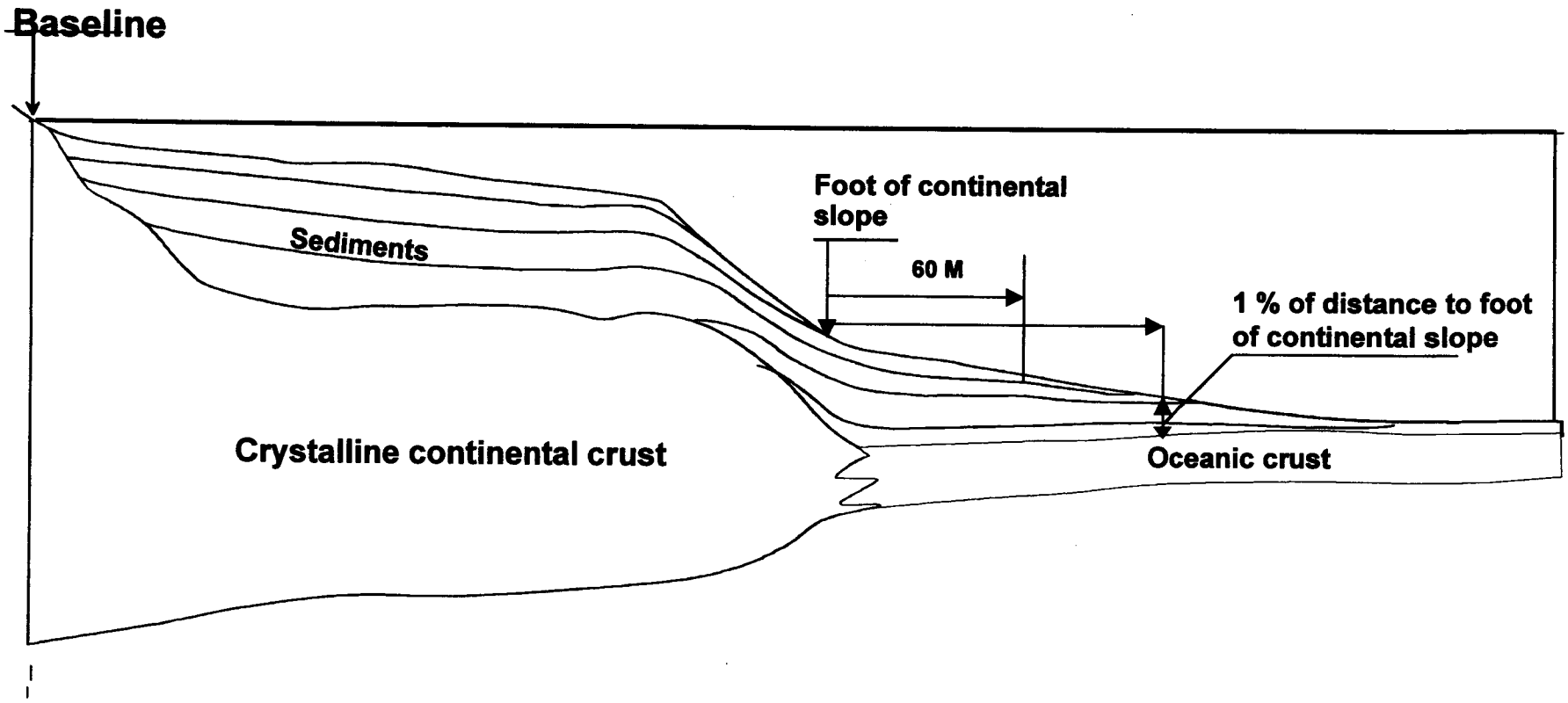
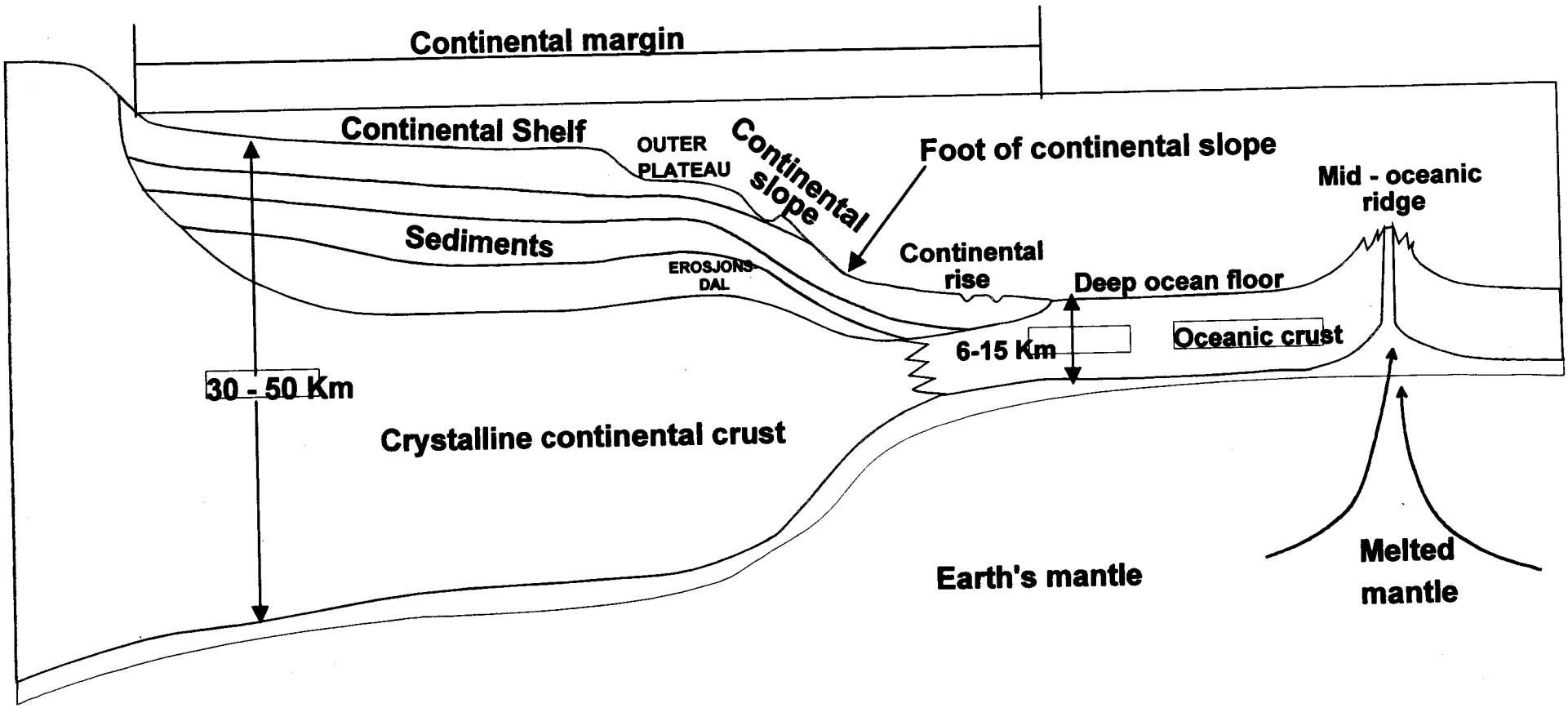
Commentary on paragraph 4

It gives operational definitions of the outer edge of **the continental margin** (para. 4 (a)), and **the foot of the continental slope** (para. 4 (b))

Determination of the outer edge of the continental margin



Determination of the foot of slope
Sketch of geological principles



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Commentary on paragraph 5

Constrains the maximum extent of the continental shelf to be no further seaward than either:

350 nautical miles from the baselines from which the breadth of the territorial sea is measured, or

100 nautical miles from the 2,500 metre isobath, which is a line of constant depth

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Maximum constraints over the outer limits of the continental shelf

[see page 17]

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Categories of submarine highs

Oceanic ridges of the deep ocean floor – paragraph 3
Submarine ridges – paragraph 6
Submarine elevations that are natural components of the continental margin – paragraph 6

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Commentary on paragraph 6

Maximum limits on submarine highs:
"Submarine ridges" – only 350 M
"Submarine elevations" – paragraph 5 applies, 350 M or 2,500 m isobath plus 100 M

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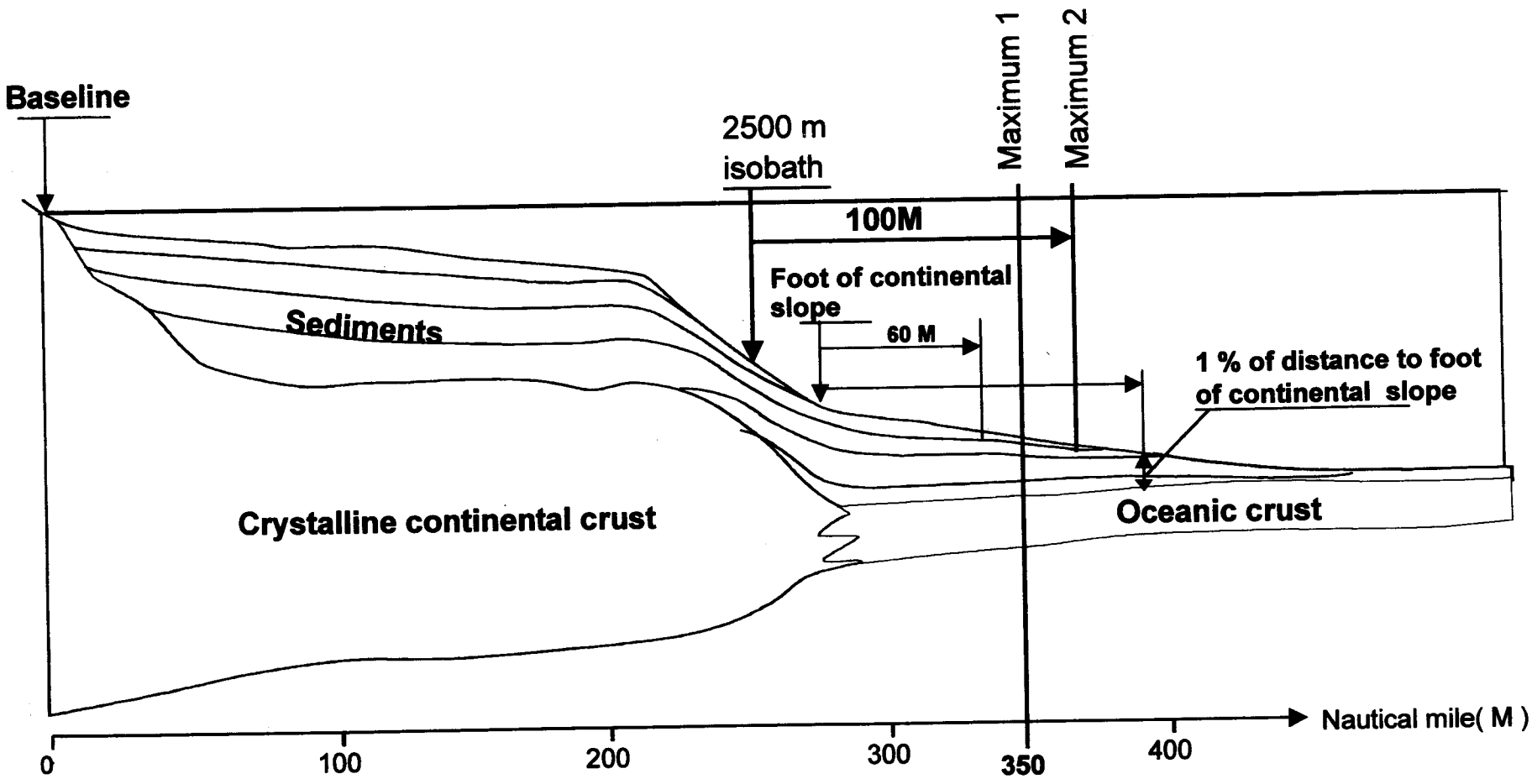
Commentary on paragraph 7

States that the outer limit of the continental shelf beyond 200 nautical miles shall be delineated by:

- fixed points not more than 60 nautical miles apart, and
- straight lines connecting the fixed points.

Maximum constraints over the outer limits of the continental shelf



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Delineation principles
[see page 19]

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Commentary on paragraph 8

The limits of the continental shelf established by a coastal State on the basis on the recommendations of the Commission on the Limits of the Continental Shelf are final and binding.

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Article 76, paragraph 10

"The provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts."

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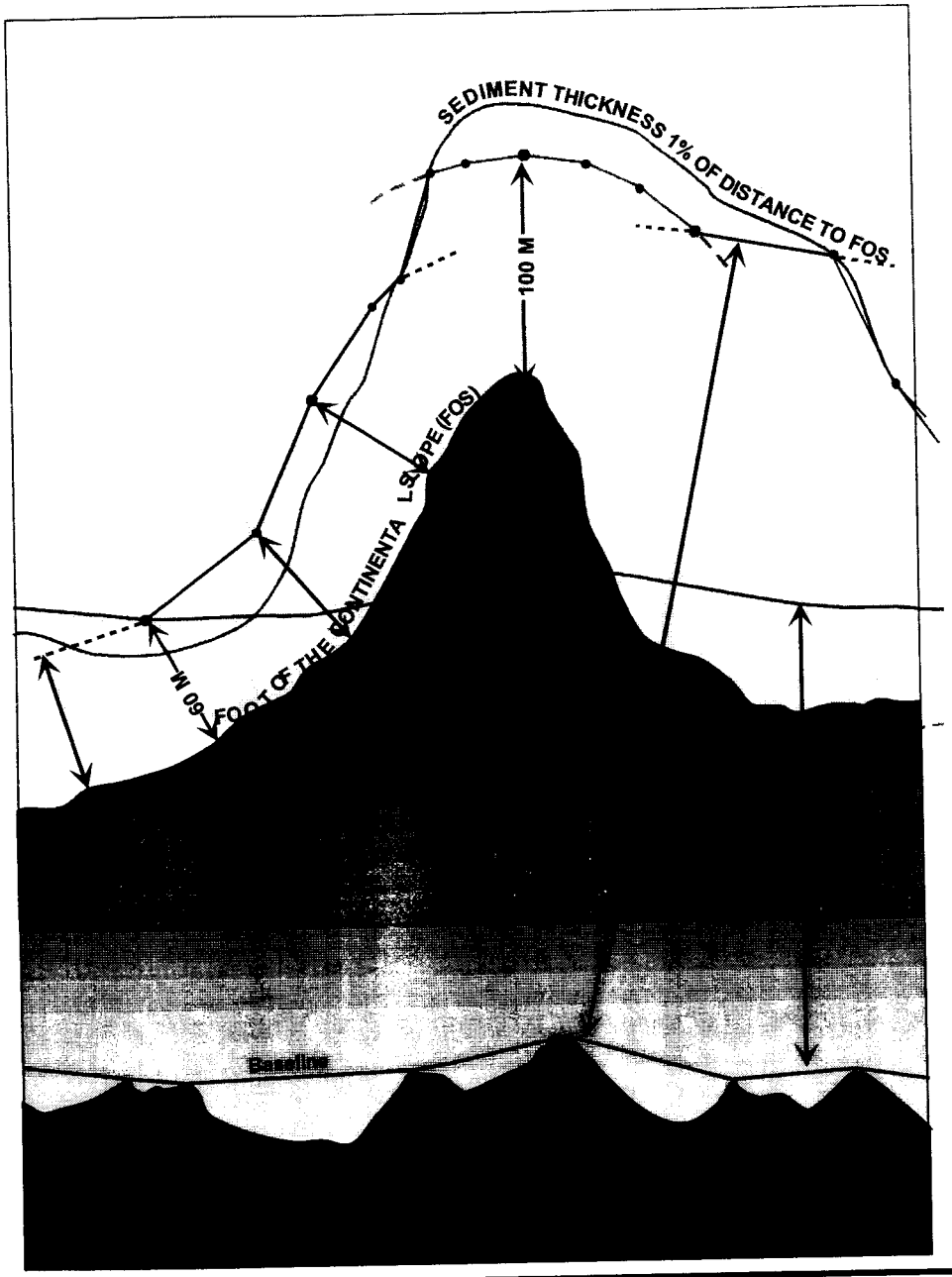
Statement of understanding concerning a specific method to be used in establishing the outer edge of the continental margin

Final Act – Annex II

A request from the Third Conference to the CLCS to let itself be governed by a set of special rules for the coastal States in the southern part of the Bay of Bengal.

These rules aim to compensate for the exceptional shape and sediment distribution of the continental margin in this region.



Delineation principles

Modified from:
UN DOALOS Publication E.93.V.16

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Rights and obligations of the coastal State concerning the delineation and exploitation of the continental shelf

- The right to delineate the outer limits of its continental shelf according to article 76
- Sovereign rights to explore and exploit the natural resources of its sea-bed and subsoil (article 77)
- The obligation to make a submission to the CLCS on the outer limits of its continental shelf beyond 200 nautical miles with ten years (Annex II, para. 4)
- The obligation to make payments and contributions to States Parties with respect to the exploitation of the continental shelf beyond 200 nautical miles (article 82)

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Summary

The United Nations Convention on the Law of the Sea:

- Defines the legal regime of the continental shelf, including the rights and obligations of States
- Makes provisions for final and binding outer limits of the continental shelf
- Creates a stable regime for the oceans

3. The mandate and work of the Commission on the Limits of the Continental Shelf (Peter Croker)

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Overview of presentation

- Mandate, election and members
- Term of office, and expenses of members, Secretariat
- Election of officers and sessions
- Principal documents of the Commission
- Estimating number and timing of submissions, future work

Slide 3

Mandate under the 1982 United Nations Convention on the Law of the Sea Article 76, paragraph 8

"Information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on the basis of equitable geographical representation.

Slide 4

Mandate under the 1982 United Nations Convention on the Law of the Sea Article 76, paragraph 8 (cont.)

- The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf.
- The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding."

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Mandate under the 1982 Convention Annex II, Article 3, paragraph 1 (a)

"The functions of the Commission shall be:

(a) to consider the data and other material submitted by coastal States concerning the outer limits of the continental shelf in areas where those limits extend beyond 200 nautical miles, and to make recommendations in accordance with Article 76 and the Statement of Understanding adopted on 29 August 1980 by the Third United Nations Conference on the Law of the Sea;

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Mandate under the 1982 Convention Annex II, Article 3, paragraph 1 (b)

"The functions of the Commission shall be:

(a) ...

(b) to provide scientific and technical advice, if requested by the coastal State concerned during the preparation of the data referred to in subparagraph (a)."

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Election of Members
Annex II, Article 2, paragraph 1

"The Commission shall consist of 21 members who shall be experts in the field of geology, geophysics or hydrography, elected by States Parties to this Convention from among their nationals, having regard to the need to ensure equitable geographical representation, who shall serve in their personal capacities."

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Annex II, Article 2, paragraph 2

"The initial election shall be held as soon as possible but in any case within 18 months after the date of entry into force of this Convention. At least three months before the date of each election, the Secretary-General of the United Nations shall address a letter to the States Parties, inviting the submission of nominations, after appropriate regional consultations, within three months. The Secretary-General shall prepare a list in alphabetical order of all persons thus nominated and shall submit it to all the States Parties."

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Election of Members

- Under the terms of the Convention, which entered into force 16 November 1994, the initial election of the CLCS should have been held by 16 May 1996
- The Third Meeting of States Parties to the Law of the Sea Convention (SPLOS) held in November-December 1995 agreed to postpone the election of the members of the CLCS until March 1997
- The Fifth Meeting of States Parties (July-August 1996) agreed to hold the first election of the 21 members of the Commission on 13 March 1997 during the Sixth Meeting of States Parties (SPLOS/14, para. 41)

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SPLOS and the change in election date
SPLOS/5, paragraph 20

If States, which were already Parties to the Convention by 16 May 1996, are affected adversely in respect of their obligations under article 4 of its Annex II (10 year rule) as a consequence of the change in the date of the election, the States Parties, at the request of such States, would review the situation with a view to ameliorating the difficulty in respect of that obligation.

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Election of Members
Annex II, Article 2, paragraph 3

"Elections of the members of the Commission shall be held at a meeting of States Parties convened by the Secretary-General at United Nations Headquarters. At that meeting, for which two thirds of the States Parties shall constitute a quorum, the persons elected to the Commission shall be those nominees who obtain a two-thirds majority of the votes of the representatives of States Parties present and voting. Not less than three members shall be elected from each geographical region."

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Election of Members

- The election of the first Commission was duly held at the Sixth Meeting of States Parties to the Convention at United Nations Headquarters on 13 March 1997
- There were 25 candidates nominated by States Parties as of 6 February 1997, 27 by the day of the election
- The Sixth Meeting of States Parties agreed that, for the purpose of the first election only, the third seat not filled by a candidate from the Group of Eastern European States would be filled by a member from the Western European and Other States Group

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Regional Representation
(agreed at Sixth Meeting of SPLOS)

- Five members from the Group of African States
- Five members from the Group of Asian States
- Two members from the Group of Eastern European States
- Four members from the Group of Latin American and Caribbean States
- Five members from the Group of Western European and Other States

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Election Results
Round 1

- 5 African Group members elected
- 5 Asian Group members elected, 2 candidates eliminated
- 2 Eastern European Group members elected
- 3 Latin American and Caribbean States Group members elected
- 2 Western European and Other States Group members elected

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Election Results
Rounds 2 and 3

- Round 2
  - 1 Latin American and Caribbean States Group member elected, 1 candidate eliminated
  - 2 Western European and Other States Group members elected

- Round 3
  - 1 Western European and Other States Group member elected, 3 candidates eliminated

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Members of the Commission

- Alexandre Albuquerque (Brazil)
- Osvaldo Pedro Astiz (Argentina) **
- Lawrence Awosika (Nigeria) **
- Ali Beltagy (Egypt)
- Samuel Betah (Cameroon)
- Harald Brekke (Norway)
- Galo Carrera (Mexico)
- André Chan Chim Yuk (Mauritius)
- Peter Croker (Ireland) ***
- Noel Francis (Jamaica)
- Kazuchika Hamuro (Japan)
- Karl Hinz (Germany
- Bakar Jaafar (Malaysia)
- Mladen Juracic (Croatia)
- Yuri Kazmin (Russian Federation) *
- Iain Lamont (New Zealand)
- Wenzheng Lu (China)
- Chisengu M'Dala (Zambia)
- Yong Ahn Park (Rep. of Korea) **
- Daniel Rio (France)
- Krishna-Swami Srinivasan (India)

* Chairman ** Vice-Chairman *** Rapporteur

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Members of the Commission
(map of nominating States)
[see page 26]

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Term of office
Annex II, Article 2, paragraph 4

- "The members of the Commission shall be elected for a term of five years. They shall be eligible for re-election."

- The members of the Commission elected at the first election began their term of office on the date of the first meeting of the Commission, i.e. 16 June 1997 (CLCS Rules of Procedure, Rule 7.2)

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Expenses of members, Secretariat
Annex II, Article 2, paragraph 5

"The State Party which submitted the nomination of a member of the Commission shall defray the expenses of that member while in performance of Commission duties.

The coastal State concerned shall defray the expenses incurred in respect of the advice referred to in article 3, paragraph 1 (b), of this Annex.

The secretariat of the Commission shall be provided by the Secretary-General of the United Nations."

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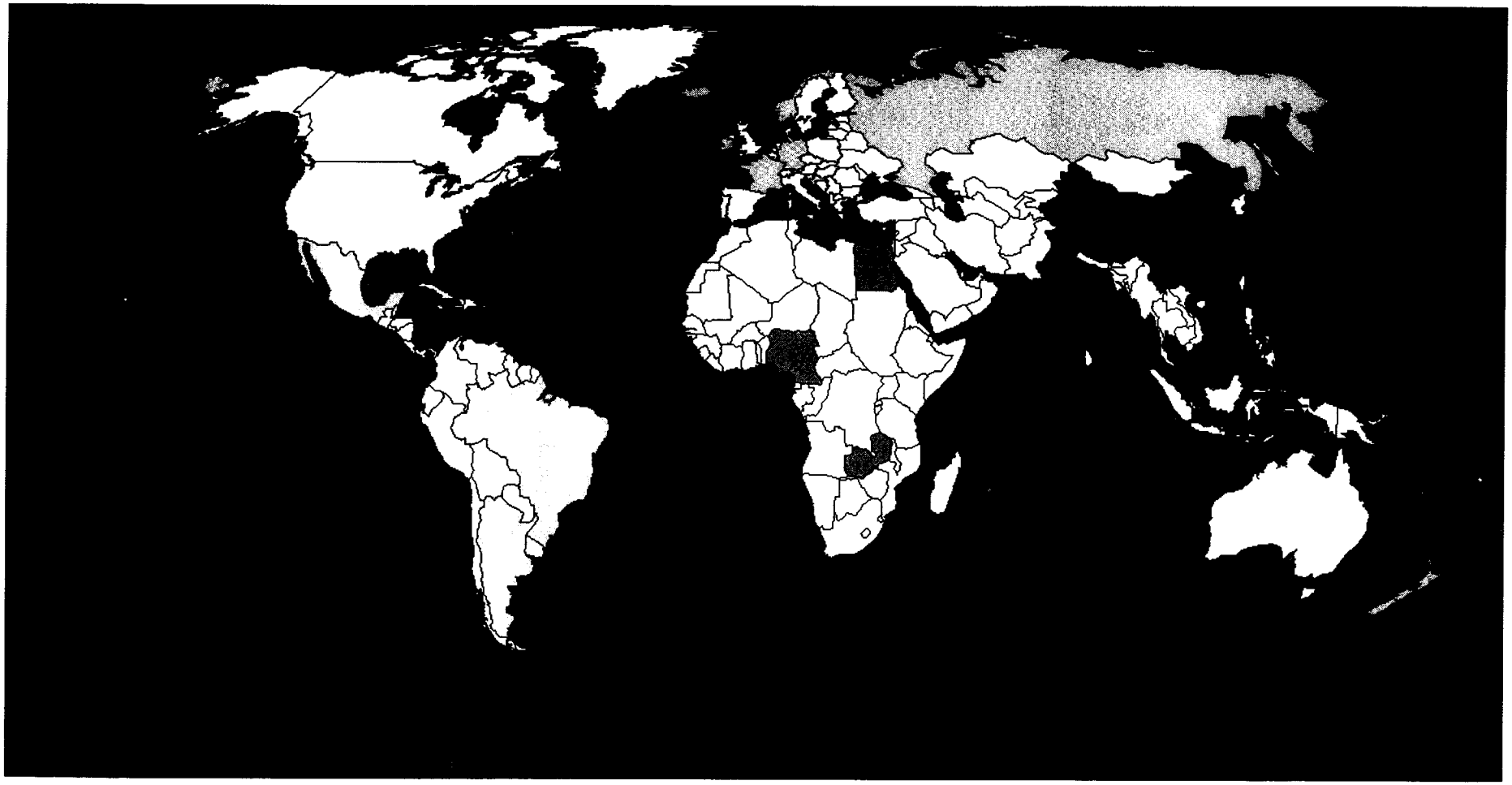
Election of Officers

- The Officers of the Commission were elected by consensus (one from each regional group) at the First Session of the CLCS in June 1997. Under the terms of its Rules of Procedure (Rule 12) they serve for a period of 2 ½ years (i.e. until 15 December 1999) and are eligible for re-election

- The officers of the Commission for the Second Term, i.e., 16 December 1999 – 15 June 2002, were elected during the Sixth Session on 1 September 1999

Members of the Commission (map of nominating States)



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Sessions of the Commission

• First session	16-20 June 1997
• Second session	2-12 September 1997
• Third session	4–15 May 1998
• Fourth session	31 August - 4 September 1998
• Fifth session	3- 4 May 1998
• Sixth session	30 August - 3 September 1998
• Seventh session	1-5 May 2000

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Principal documents of the Commission

- Rules of Procedure of the Commission on the Limits of the Continental Shelf (CLCS/3/Rev.2, 4 September 1998)
- *Modus Operandi* of the Commission (CLCS/L.3, 12 September 1997)
- Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf (CLCS/11, 13 May 1999)
- CLCS/11/Add.1, 3 September 1999

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Rules of Procedure
CLCS/3/Rev.2, 4 September 1998

- Based on Draft Rules of Procedure of the Commission on the Limits of the Continental Shelf (SPLOS/CLCS/WP.1, 26 July 1996) prepared by the Secretariat at the request of the Meeting of States Parties
- Considered and amended at First and Second Sessions of the Commission
- Adopted at Second Session (excluding Annex I and II)
- Final document adopted at Fourth Session (4 September 1998)

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Rules of Procedure, Annex I

(Submissions in case of a dispute between States with opposite or adjacent coasts or in other cases of unresolved land or maritime disputes)

- "The actions of the Commission shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts" (Annex II, Article 9)
- Text, agreed at Third Session, forwarded to 8th Meeting SPLOS (18-22 May 1998) for comment
- Editorial changes made at Fourth session prior to final adoption

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Rules of Procedure, Annex I (Cont.)

(Submissions in case of a dispute between States with opposite or adjacent coasts or in other cases of unresolved land or maritime disputes)

- Allows for a partial submission by a coastal State
- Allows for joint or separate submissions from two or more States by agreement
- Allows the Commission to examine a submission where a dispute exists provided that prior consent is given by all parties to the dispute

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Rules of Procedure, Annex II (Confidentiality)

- Text, prepared by the Working Group on confidentiality, agreed at Second Session, forwarded to 8th Meeting SPLOS (18-22 May 1998) for comment
- Several amendments and new rule added at Fourth Session prior to final adoption on 4 September 1998
- Allows the coastal State making a submission to classify data or material as confidential
- The members of the Commission must not disclose any confidential information to which they have had access, even after they cease to be members

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Legal Opinions on Confidentiality

- In dealing with such classified material and in the exercise of all their other functions, the members of the Commission enjoy the privileges and immunities as experts on mission for the UN (Opinion of the Legal Counsel of the UN, CLCS/5, 11 March 1998)
- In the case of an alleged breach of confidentiality, the Commission may institute appropriate proceedings and shall make known its findings and recommendations to the Meeting of States Parties (Opinion of the Legal Counsel of the UN, CLCS/14, 30 April 1999)

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Organizational Aspects contained in the *Modus Operandi* CLCS/L.3, 12 September 1997

- Drafted by the Working Group on *Modus Operandi* and adopted at Second Session of the Commission
- Commission shall meet not less than 3 months after publication of receipt of submission, with the following items on the agenda:
  - presentation of the submission by coastal State representatives
  - selection of 7 members to serve in the sub-commission
- When the sub-commission has completed its work, the next meeting of the Commission will consider its report

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Organization of work preparing the Scientific and Technical Guidelines (CLCS11, 13 May 1999 and CLCS/11/Add.1, 3 September 1999)

Six research groups

- Disciplinary: geodesy, geology, geophysics and hydrography
- Inter-disciplinary: foot of the continental slope and outer edge of the continental margin

Editorial Committee

- Twelve drafting working groups (Chapters 1-10 and two Annexes)
- Oversight working group on issues raised in DOALOS sponsored studies in 1993 and 1995

Slide 30

Subsidiary bodies of the Commission

- Advice to Coastal States Committee (Rule 53.2)
  - 5 members, regional representation (Beltagy, Francis, Hamuro, Hinz (Chair) and Juracic)
  - set up at First Session

- Editorial Committee on the Scientific and Technical Guidelines
  - 21 members, 13 Working Groups, Carrera (Chair)
  - set up at Third Session

Slide 31

Subsidiary bodies of the Commission

- Working Group on *Modus Operandi*
  - 21 members, Carrera (Chair)
  - set up at Second Session

- Working Group on Confidentiality
  - 14 members, Carrera (Chair)
  - set up at Second Session
  -
- Working Group on training
  - 16 members, Awosika (Chair)
  - set up at Fifth Session

Slide 32

Time limit on submissions
Annex II, Article 4

"Where a coastal State intends to establish, in accordance with article 76, the outer limits of its continental shelf beyond 200 nautical miles, it shall submit particulars of such limits to the Commission along with supporting scientific and technical data as soon as possible but in any case within 10 years of the entry into force of this Convention for that State. The coastal State shall at the same time give the names of any Commission members who have provided it with scientific and technical advice."

Slide 33

Number of coastal States with potential extended continental shelves (A/CONF.62/C.2/L.98/Add.1)

- The number of coastal States having continental shelves extending beyond 200 nautical miles was estimated to be 33* according to a study prepared at the request of the Third UN Conference on the Law of the Sea by the Secretariat in 1978
- Fourteen of these States had ratified by 16 November 1994 when the Convention entered into force and therefore would be required to make a submission by November 2004, i.e., within the next 4 years, subject to SPLOS/5, para. 20

Slide 34

Number of coastal States with potential extended continental shelves (A/CONF.62/C.2/L.98/Add.1)

- Angola, Argentina, Australia, Brazil, Canada, Denmark, Ecuador, Fiji, France, Guinea, Guyana, Iceland, India, Indonesia, Ireland, Japan, Madagascar, Mauritius, Mexico, Micronesia (Federated States of), Myanmar, Namibia, New Zealand, Norway, Portugal, Russian Federation, Seychelles, South Africa, Spain, Suriname, United Kingdom of Great Britain and Northern Ireland, United States of America and Uruguay

Slide 35

Location of potential extended continental shelves (1978 Map)
[see page 32]

Slide 36

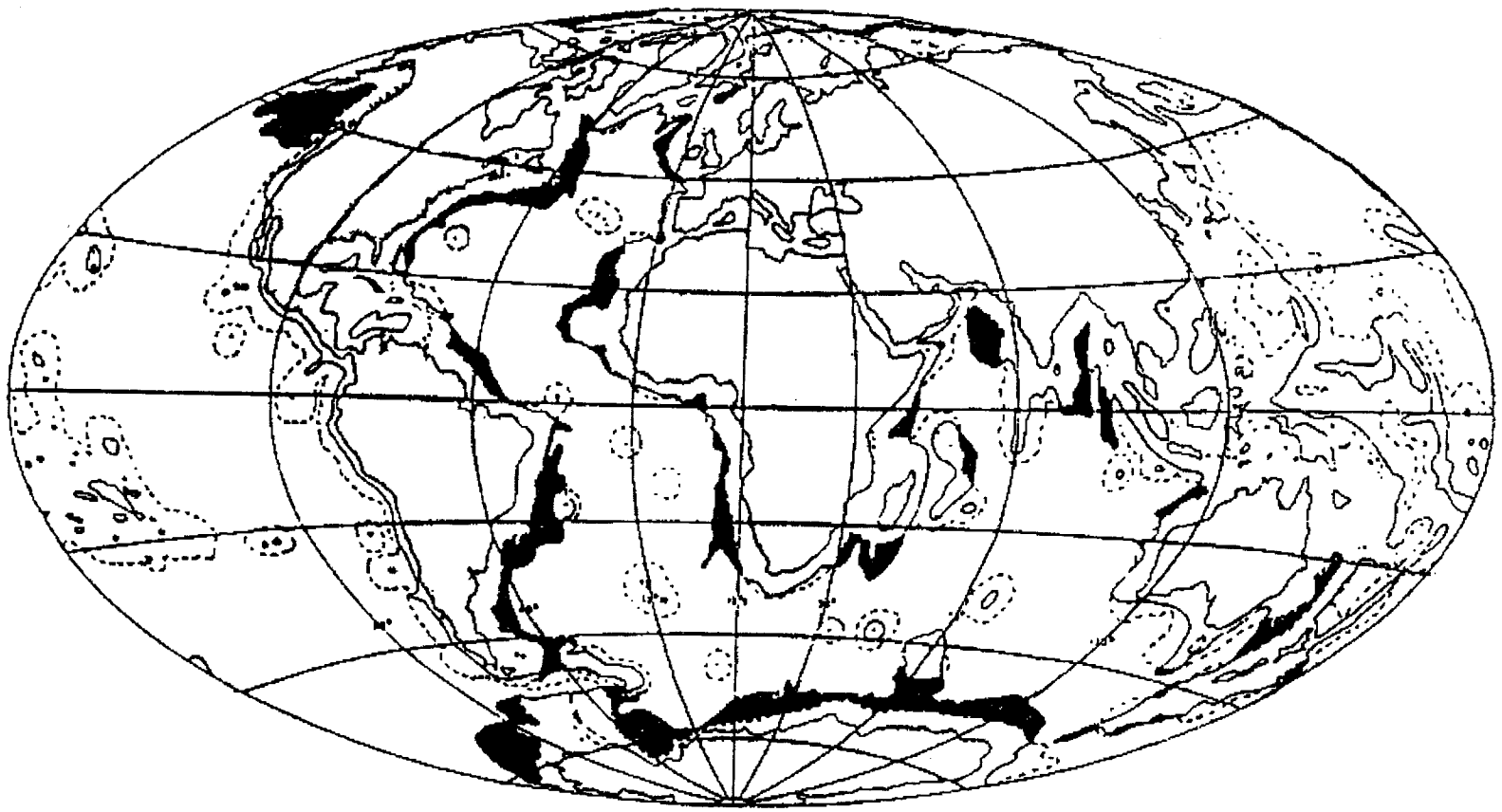
Coastal States with potential extended continental shelves (1978 Study)
[see page 33]

Slide 37

Prescott Study

- Victor Prescott produced a somewhat similar map which showed 29 areas beyond 200 nautical miles, but involved a total of 56 coastal States
- This study included 30 of the 33 States listed in 1978 plus 26 others

Location of potential extended continental shelves (1978 Map)



Coastal States with potential extended continental shelves (1978 Study)

Slide 38

Prescott Map
[see page 35]

Slide 39

Number of coastal States with potential extended continental shelves

- A recent study by Galo Carrera, however, indicates that the number of coastal States which might investigate the feasibility of preparing a submission for a potential extended continental shelf under the provisions of article 76, may in fact be significantly larger than that estimated in the 1978 study

Slide 40

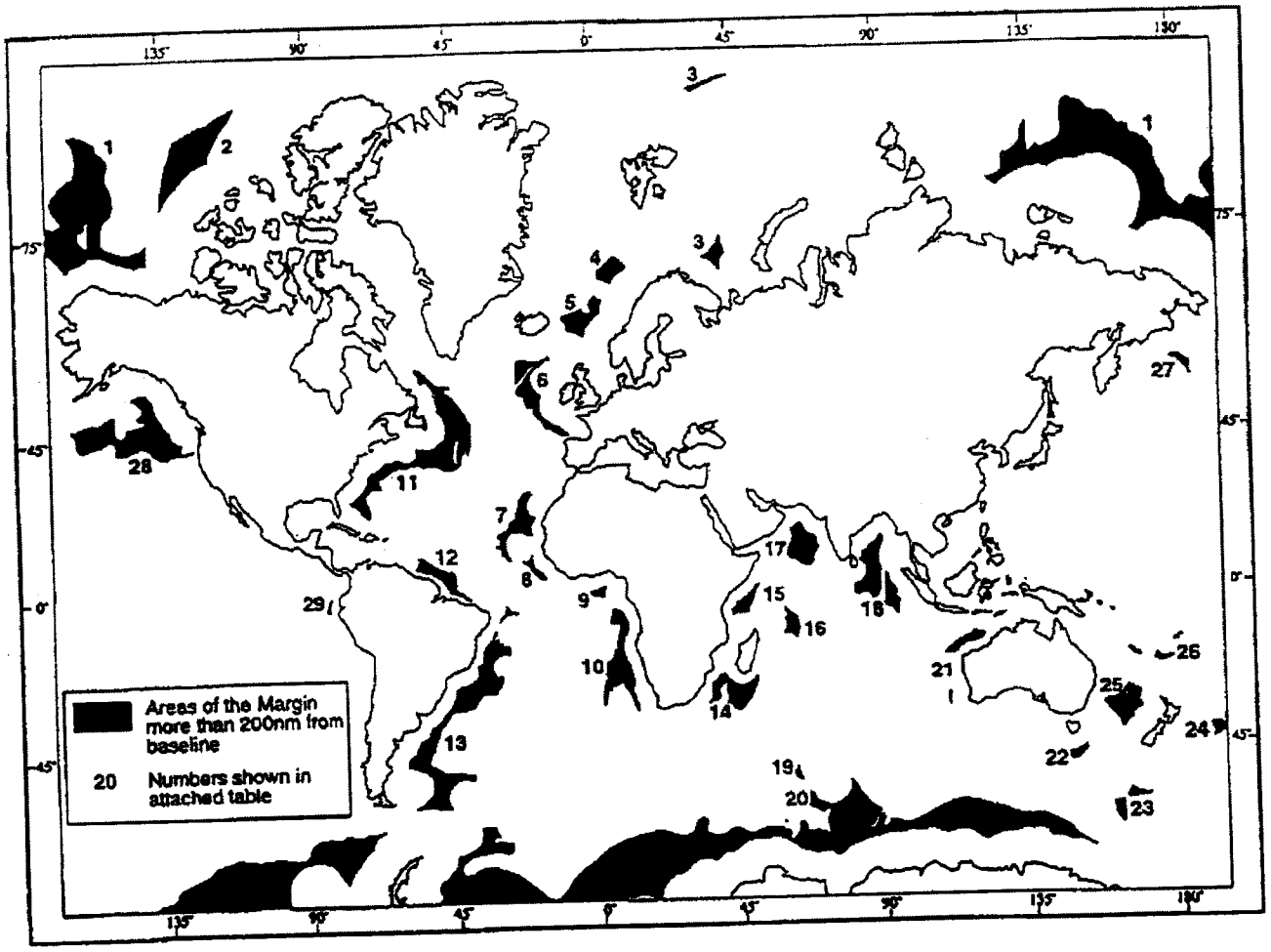
Regions investigated by Carrera subject to further research and data compilation
[see page 36]

Slide 41

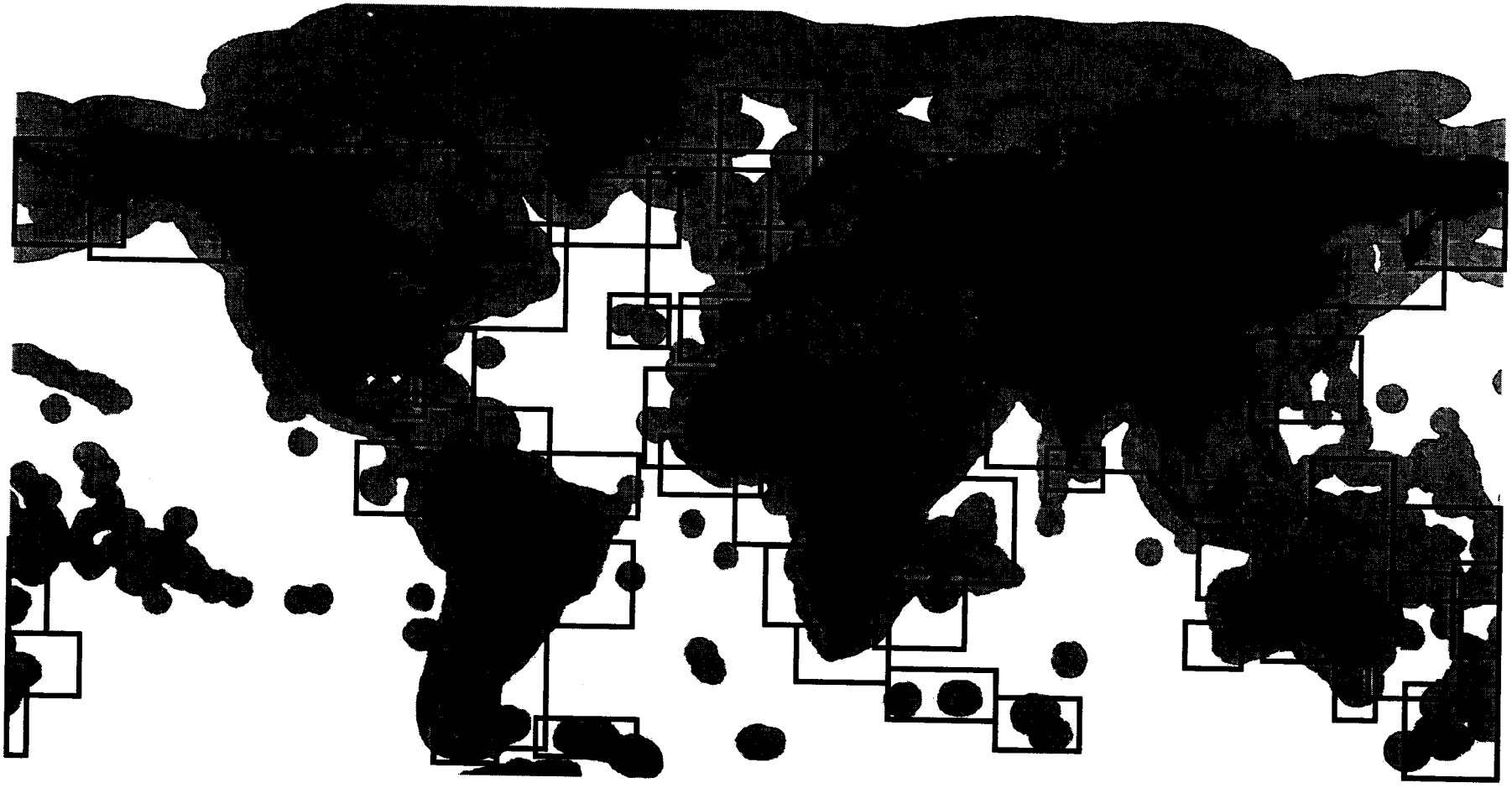
Ongoing work of the CLCS

- Ready to give scientific and technical advice if requested
- Ready to receive submissions
- Currently considering training issues
- Ensuring that all technical facilities and logistics for handling submissions from coastal States are in place in the Secretariat at UN Headquarters

Prescott Map



Regions investigated by Carrera subject to further research and data compilation



4. *Modus Operandi* of the CLCS (Samuel Betah, speaker, in collaboration with André Chan Chim Yuk

Slide 2

Overview
[see page 38]

Slide 3

Purpose of the *Modus Operandi*

The *Modus Operandi* deals with the internal functioning of the Commission.

Its purpose is to specify clearly the procedure followed by the Commission during the consideration of a submission, taking into account:

- the provisions of the United Nations Convention on the Law of the Sea and its own official documents, and
- the rights and responsibilities assumed by a coastal State from the date of submission to the date when the recommendations of the Commission are issued.

Slide 4

Initial Procedures
[see page 39]

Slide 5

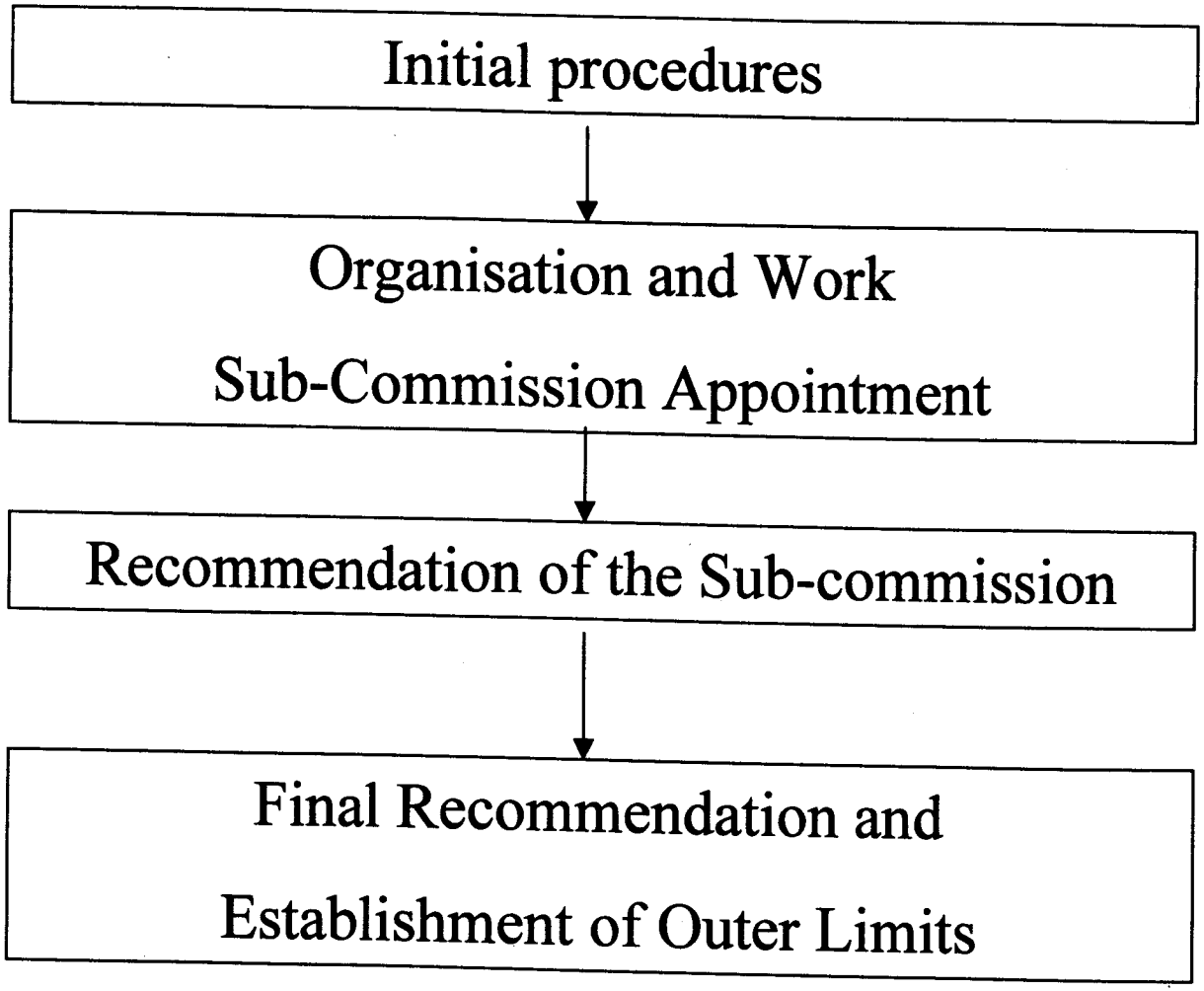
Coastal State

Shall submit particulars of the limits beyond 200 nautical miles along with supporting scientific and technical data.

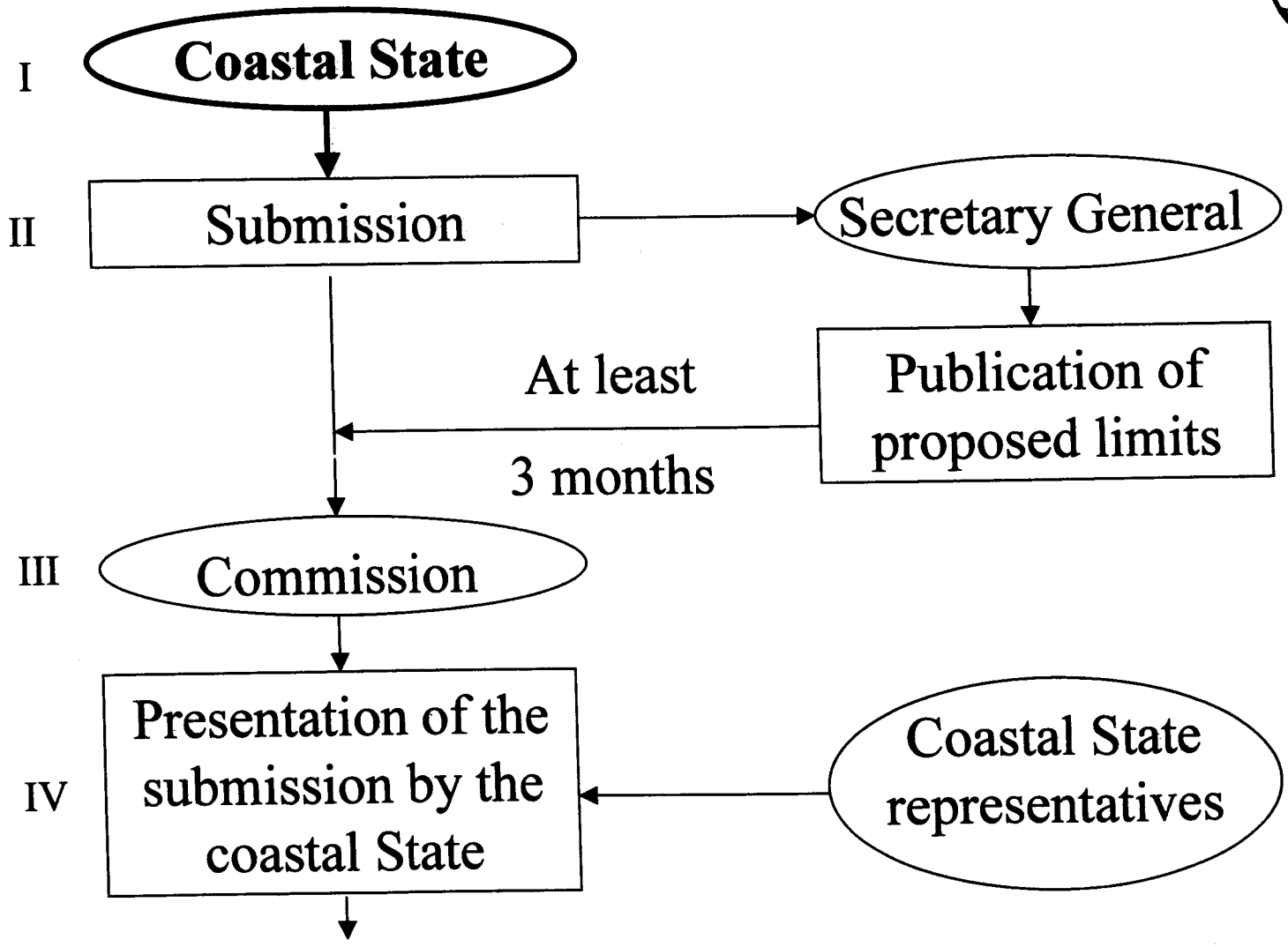
Shall make such a submission as soon as possible but in any case within 10 years of the entry into force of the Convention for that State.

May recall SPLOS/5, paragraph 20, if it was a Party to the Convention by 16 May 1996, and it is affected adversely in respect of its obligations under article 4 of its Annex II (10 year rule) as a consequence of the change in the date of the CLCS election.

Overview


Initial procedures
Organisation and Work
Sub-Commission Appointment
Recommendation of the Sub-commission
Final Recommendation and
Establishment of Outer Limits

Initial Procedures



Slide 6

Initial Procedures
[see page 41]

Slide 7

Submission

The coastal State has to:

- demonstrate to the Commission that the natural prolongation of its submerged land territory to the outer edge of its continental margin extends beyond 200 M (Test of Appurtenance)

- present a submission in accordance with the Scientific and Technical Guidelines of the Commission, the provisions contained in article 76 of the UN Convention on the Law of the Sea, its Annex II, and Annex II to the Final Act

Slide 8

Submission

Requested format:

1. Executive Summary (22 copies)
2. Main Body (8 copies)
3. Supporting Data (2 copies)

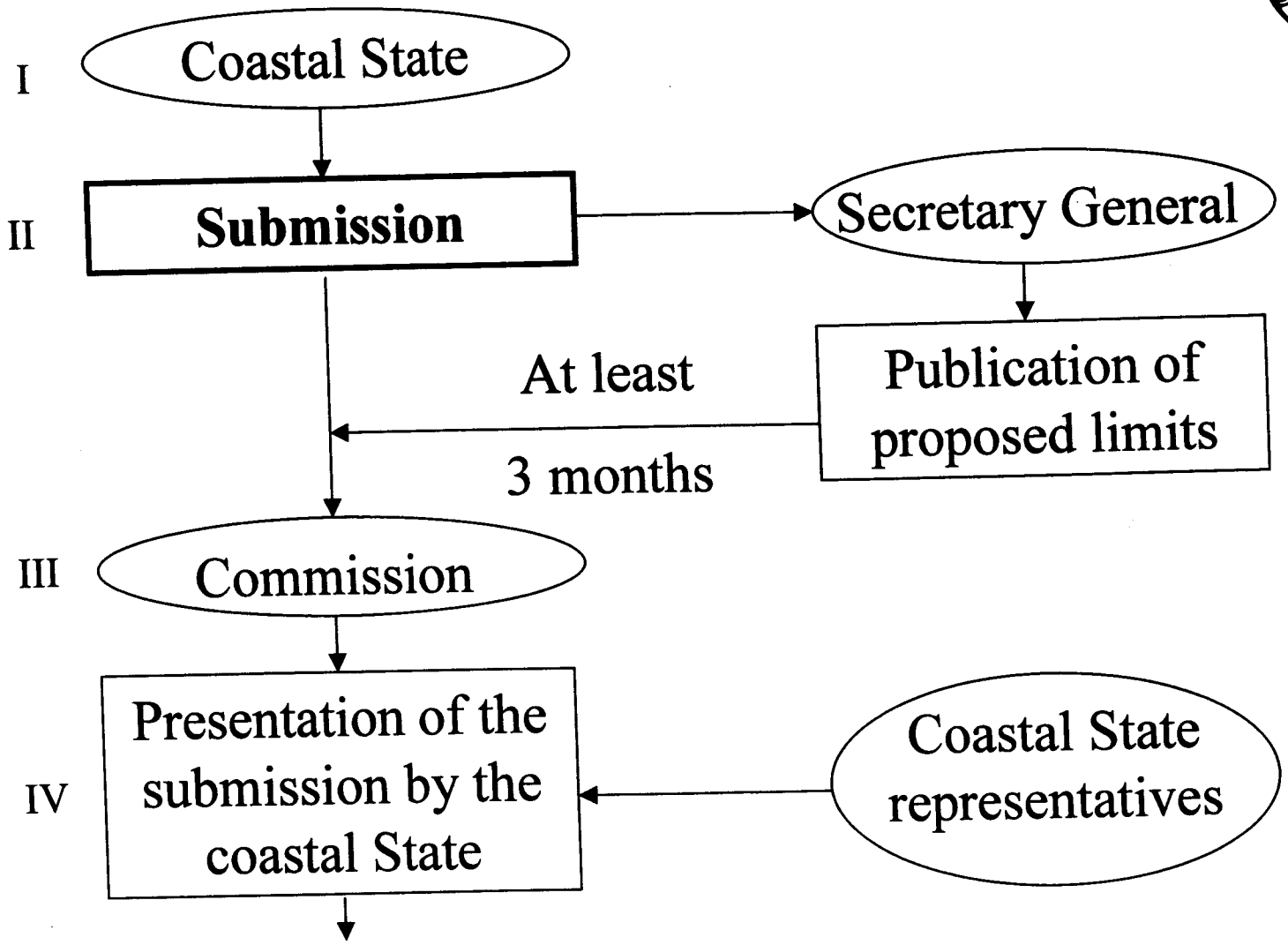
(CLCS/11, Chapter 9)

Slide 9

1. Executive Summary

- charts at appropriate scale and co-ordinates of proposed outer limits of the continental shelf
- provisions of article 76 that are invoked to support the submission
- names of any Commission members who gave scientific and technical advice regarding the preparation of the submission
- any disputes between States which opposite or adjacent coasts or in other cases unresolved land or maritime disputes

Initial Procedures



Slide 10

2. Main Body

- A detailed description of:
  - data sets
  - maps
  - technical procedures
  - scientific methodologies applied

- References made to the basic data at each relevant step

Slide 11

3. Supporting Data

- A copy of all data referred to in the Main Body, arranged in separate annexes
- All data submitted in support of the submission will be considered by the Commission

Slide 12

Initial Procedures
[see page 43]

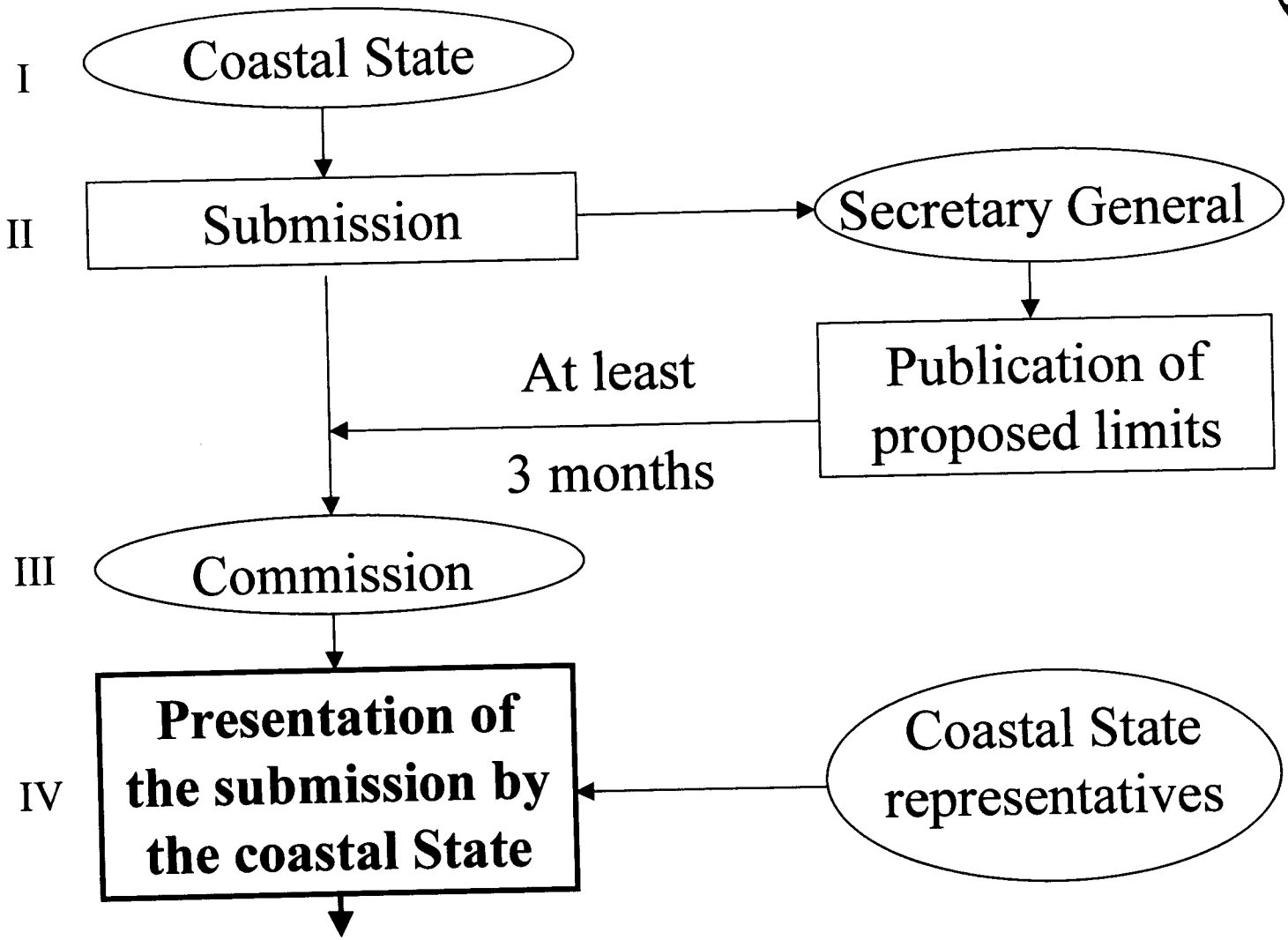
Slide 13

Presentation of the Submission by the Coastal State

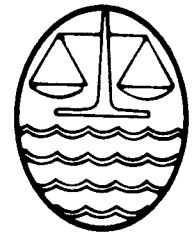
- The Commission has the duty to hold an initial meeting not less than three months after the proposed outer limits have been given due publicity by the Secretary-General.
- At that meeting, representatives of the coastal State will make a presentation of the submission to the whole Commission.

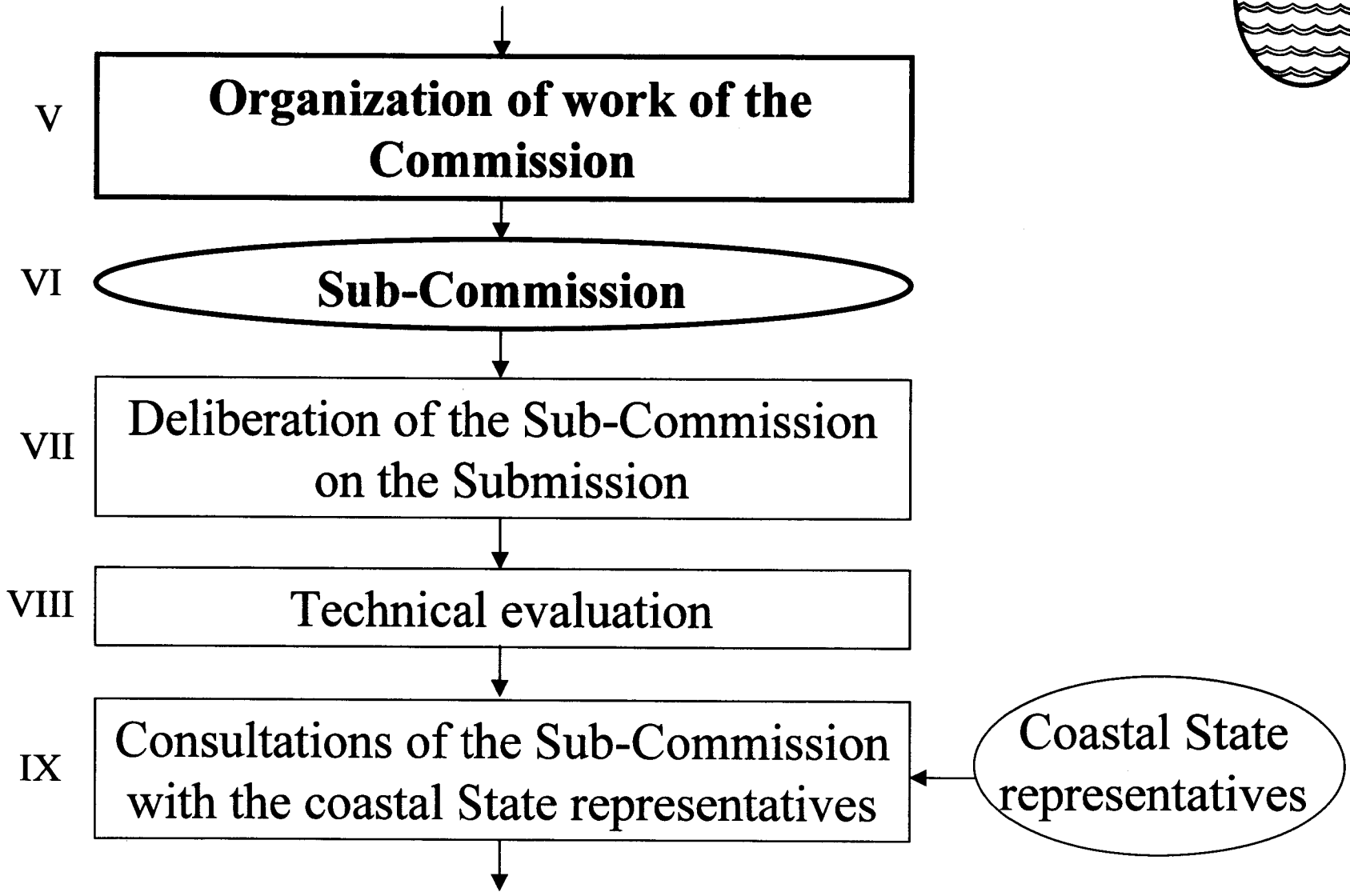
Slide 14
The Sub-Commission and its work
[see page 44]

Initial Procedures



The Sub-Commission and its work





Slide 15

Selection of Sub-Commission Members

- Seven members of the Commission will be selected.
- The Commission will ensure that the composition is a balanced one.
- A Commission member having provided scientific and technical advice to the coastal State in respect of the submission is not eligible to be a member of the sub-commission.

Slide 16

Selection of Sub-Commission Members

Members of the sub-commission will be nominated and selected in accordance with the provisions contained in

- Article 5 of Annex II to the Convention;
- Rule 40 of the CLCS Rules of Procedure; and
- Section II, sub-section 6.2 of the CLCS *Modus Operandi*

Slide 17

Deliberation of the Sub-Commission on the submission

- Introductory examination of
  - Format and completeness of the submission
  - Whether clarification is required
  - Information on any dispute
  - Whether specialist advice or consultation with an international organisation may be needed

Slide 18

Consideration of disputes

The sub-commission will examine the information on disputes presented by the coastal State, or on any dispute relevant to the submission.

If necessary, the sub-commission may take action based on the provisions contained in Annex I to the Rules of Procedure:

"Submissions in case of a dispute between States with opposite or adjacent coasts or in other cases or unresolved land or maritime disputes"

Slide 19

The Sub-Commission and its work
[see page 47]

Slide 20

Technical evaluation

- A detailed analysis of the Main Body and Supporting Data of the submission in order to:
  - Verify which rules specified in Article 76 are applied in the submission
  - Verify the relevance, quality and quantity of the data submitted to be sufficient to justify the proposed limits in accordance with the published Scientific and Technical Guidelines (CLCS/11)

Slide 21

Findings

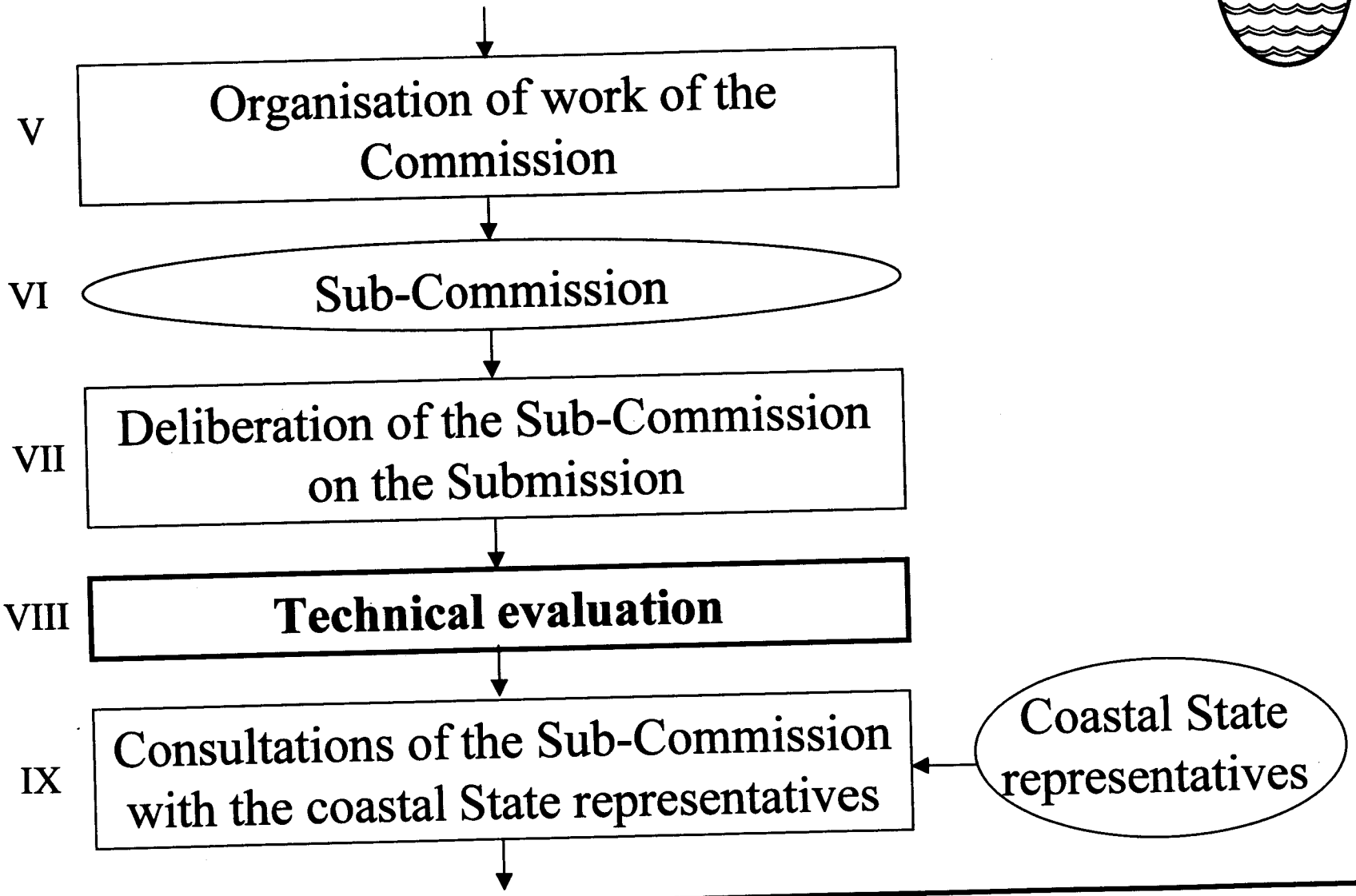
The Technical Evaluation will identify whether more data or information is needed

If needed, a request for additional specific data or information will be made to the coastal State

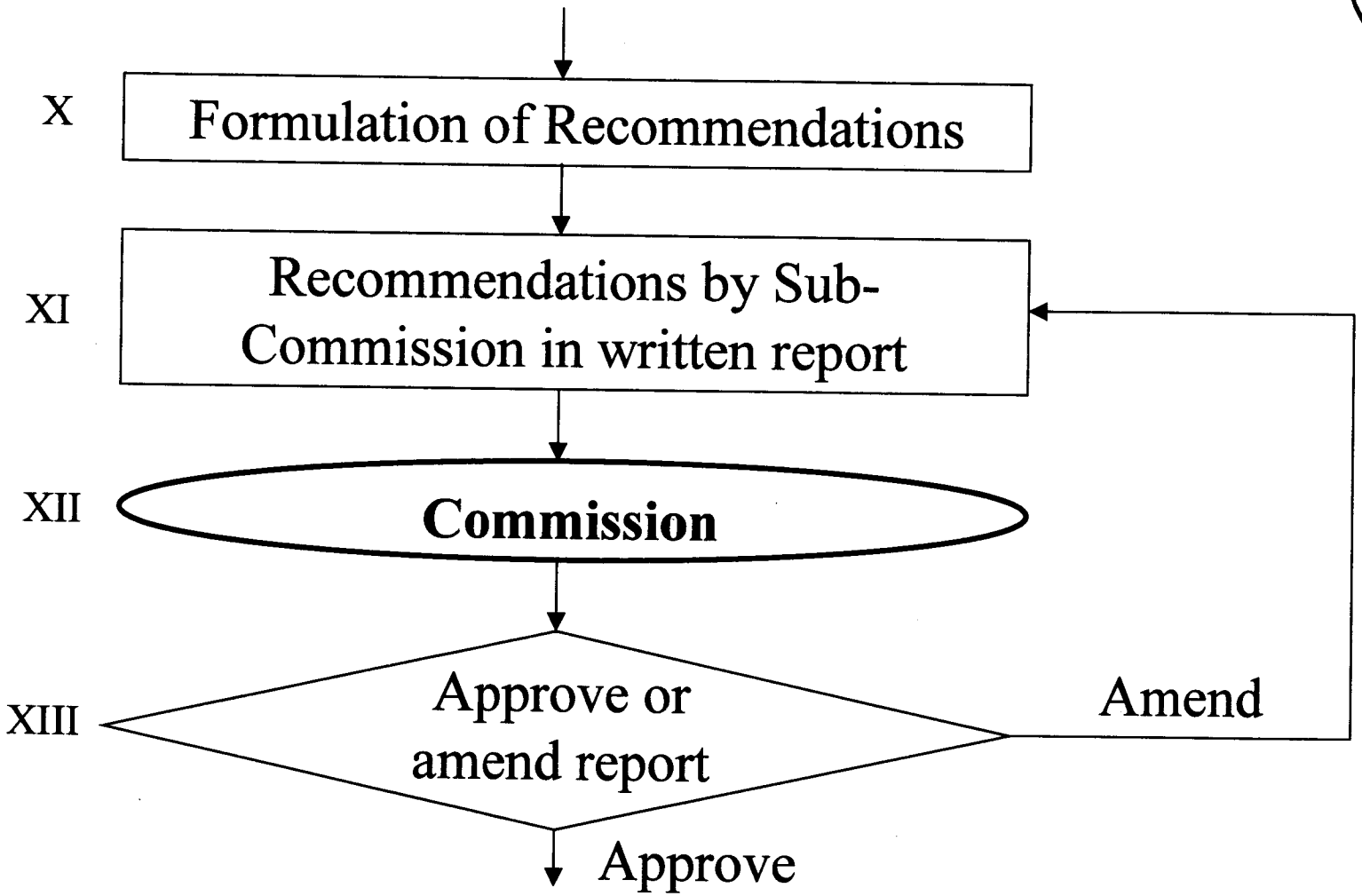
Slide 22

Recommendations by the Sub-Commission
[see page 48]

The Sub-Commission and its work



Recommendations by the Sub-Commission



Slide 23

Recommendations by the Commission

- The recommendations based on the Sub-Commission's report will be approved or amended, preferably by consensus, or by two thirds majority vote (rules 34 and 36, Rules of Procedure)

- Coastal State representatives may participate, without the right to vote, in the proceedings deemed relevant by the CLCS

- The recommendations will be primarily the definition of the outer limit of the continental shelf. In case the outer limit is different from that proposed in the submission, the recommendations will include the position of the revised outer limit and the reasons for its revision

Slide 24

Recommendations and final limits
[see page 50]

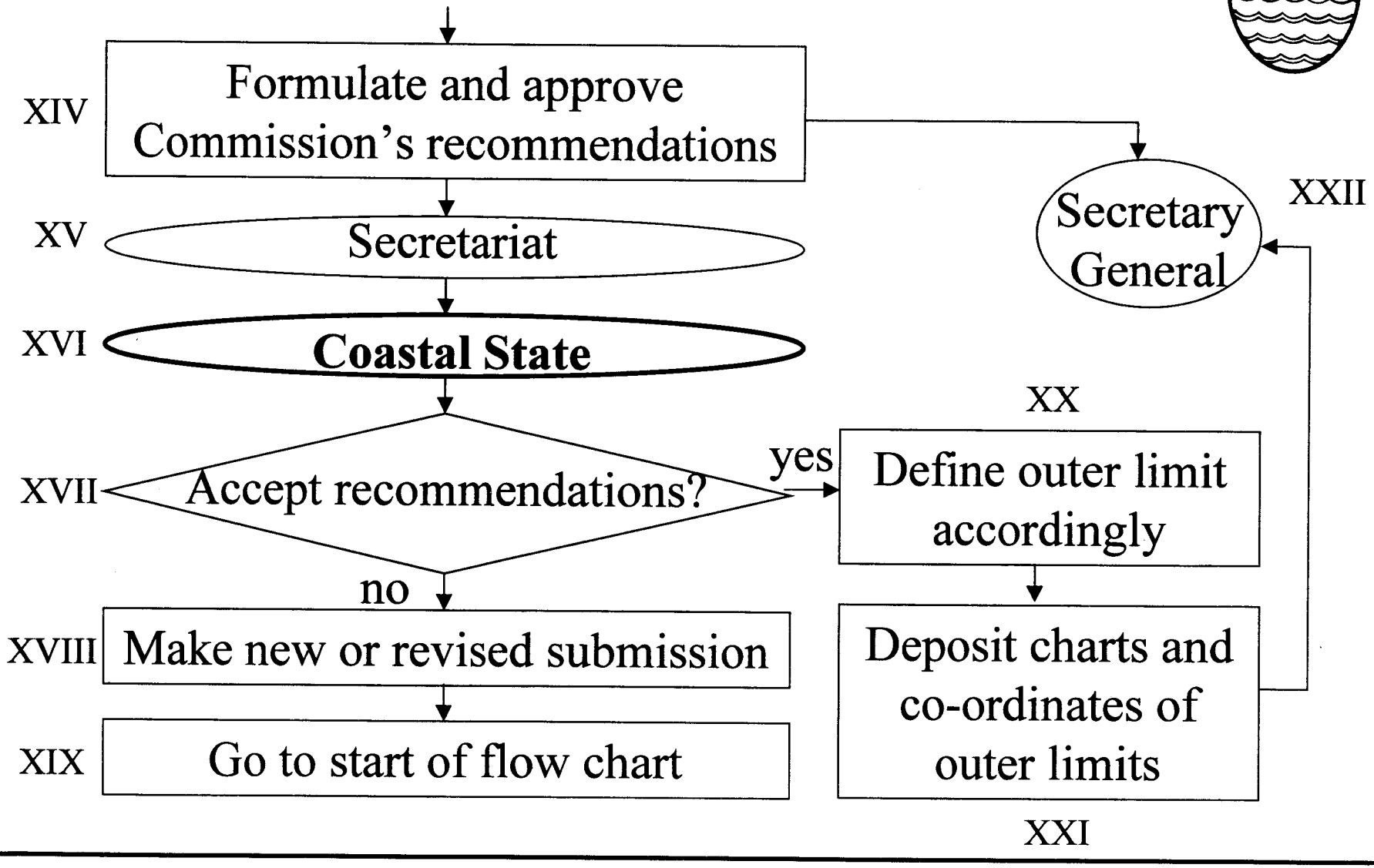
Slide 25

Review of Commission's Recommendations by Coastal State

- In the case of disagreement with the recommendations of the Commission, the coastal State will, within a reasonable time, make a revised or new submission.

- In the case of acceptance of recommendations, the coastal State will establish the limits of the continental shelf according to these recommendations. These limits will be final and binding.

Recommendations and final limits



Slide 26

Conclusions

- The *Modus Operandi* sets out the step by step procedure in the consideration of a submission by the Commission.
- Technical evaluation of the submission is undertaken by a seven-member Sub-Commission which makes the relevant recommendations to the Commission.
- The recommendations of the Commission, when accepted by the coastal State, will be final and binding.

5. Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf (Osvaldo P. Astiz, K.R. Srinivasan and Mladen Juračić, speakers, in collaboration with Galo Carrera

Part I Chapters 1 to 3 (Astiz and Carrera)

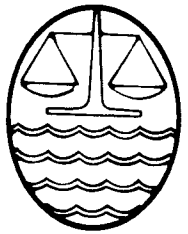
Slide 2
Overview

- Organization and work schedule
- Preface: Rationale
- Chapter 1 Introduction
- Chapter 2 Entitlement to an extended continental shelf and the delineation of its outer limits
- Chapter 3 Geodetic methodologies and the outer limits of the continental shelf

Slide 3

Organization of the CLCS Editorial Committee
[see page 52]

Organization of the CLCS Editorial Committee



Editorial Committee		
Introduction Working Group	Evidence to the contrary Working Group	International Organizations Working Group
Entitlement Working Group	Ridges Working Group	Flowcharts and Illustrations Working Group
Geodetic methodologies Working Group	Sediment thickness Working Group	Oversight Committee
2,500 m isobath Working Group	Information on limits Working Group	
Change in the gradient Working Group	Bibliography Working Group	

Slide 4

Guidelines Work Schedule

Research	2nd to 3rd Sessions	September 1997-May 1998
Drafting and Editing	3rd to 4th Sessions	May-July 1998
Oversight Report		
Provisional adoption	4th Session	September 1998
Revision	4th to 5th Sessions	September 1998-May 1999
Adoption by consensus	5th Session	May 1999
Annexes II-IV	6th Session	September 1999

Slide 5

Preface: Objectives

- Assist coastal States in preparing their submissions
- Provide a scientific and technical reference to the CLCS for the consideration of submissions and the preparation of its own recommendations
- Form the basis on which the CLCS shall provide advice, if requested by States during the preparation of their data
- Help fulfill the CLCS mandate honourably, faithfully, impartially and conscientiously

Slide 6

Chapter 1
Introduction

- Recognizes the unified and integral character of UNCLOS
- Provides CLCS interpretations of terms contained in UNCLOS
- Encourages a uniform and extended State practice in the preparation of submissions
- Aims to clarify the scope and depth of admissible evidence in submissions
- Emphasizes the use of methodologies which minimise costs and optimise existing resources

Slide 7

Chapter 2
Entitlement to an extended continental shelf and the delineation of its outer limits

- Formulation of the problem: article 76
- Test of Appurtenance: entitlement
- Delineation of the outer limits of the continental shelf

Slide 8

Formulation of the problem

- Article 76: defines the continental shelf and its breadth up to 200 M or to the outer edge of the continental margin
- Entitlement to and delineation of its outer limits are identified as two distinct but complementary questions
- Entitlement to delineate the outer limits of the continental shelf beyond 200 M is investigated through the application of the Test of Appurtenance
- Delineation of the outer limits of the continental shelf is defined by a complex application of four rules

Slide 9

Test of Appurtenance

If either the line delineated at a distance of 60 M from the foot of the continental slope, or the line delineated at a distance where the thickness of sedimentary rocks is at least 1% of the shortest distance from such point to the foot of the continental slope, or both, extend beyond 200 M from the baselines from which the breadth of the territorial sea is measured, then a coastal State is entitled to delineate the outer limits of the continental shelf as described by the provisions contained in article 76, paragraphs 4 to 10

Slide 10

Delineation of the outer limits of the continental shelf beyond 200 M

Outer limits of the extended shelf are defined by means of four rules: two formulae and two constraints:

Formulae:

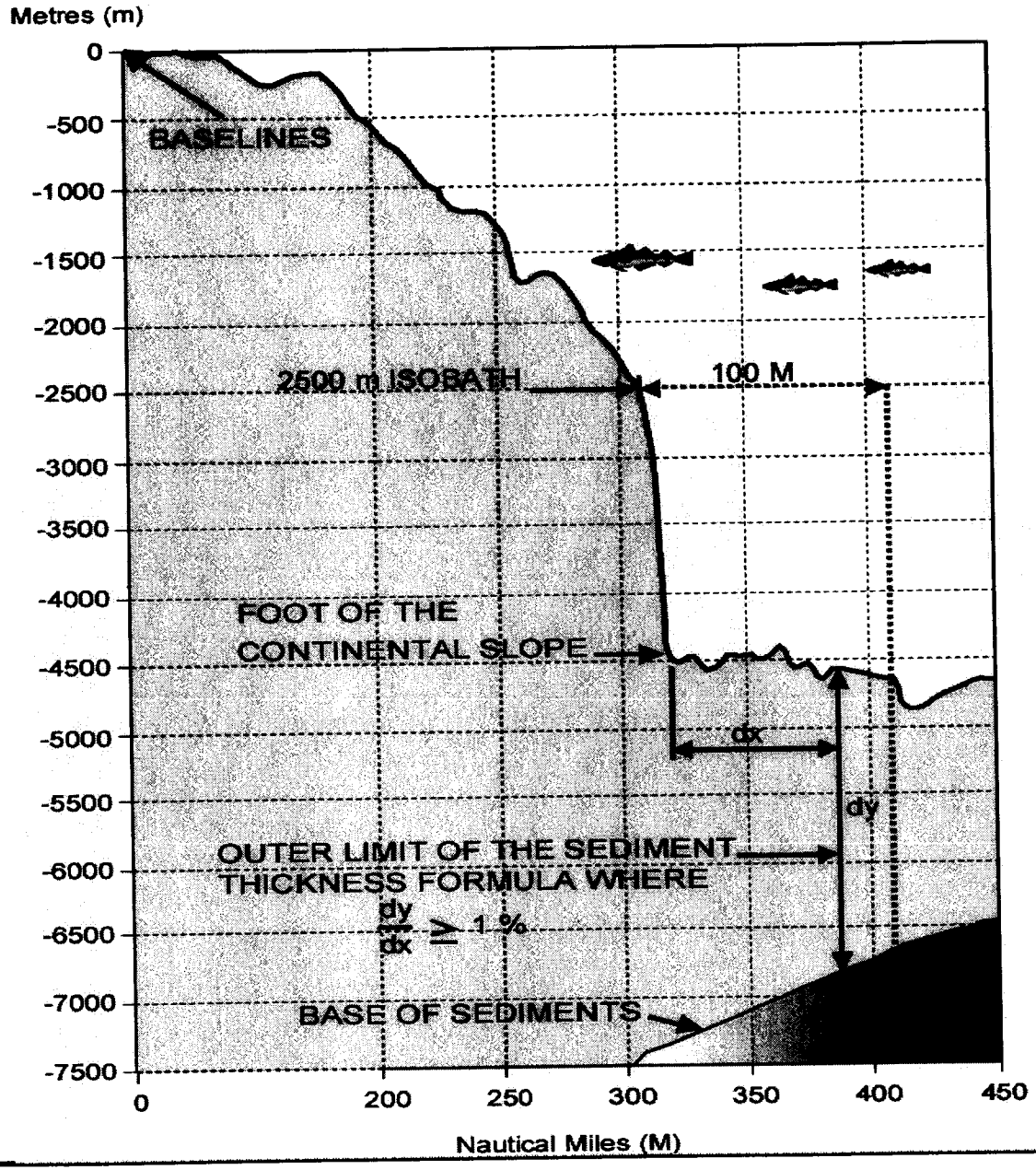
- foot of the continental slope to 1% sediment thickness
- foot of the continental slope + 60 M

Constraints

- 350 M from baselines
- 2,500 m isobath + 100 M

Slide 11

Foot of the continental slope plus 1% sediment thickness formula
[see page 55]



Foot of the continental slope plus 1% sediment thickness formula

Slide 12

Foot of the continental slope plus 60 M formula
[see page 57]

Slide 13

350 M distance constraint
[see page 58]

Slide 14

2,500 m isobath plus 100 M constraint
[see page 59]

Slide 15

Delineation of the formulae line
[see page 60]

Slide 16

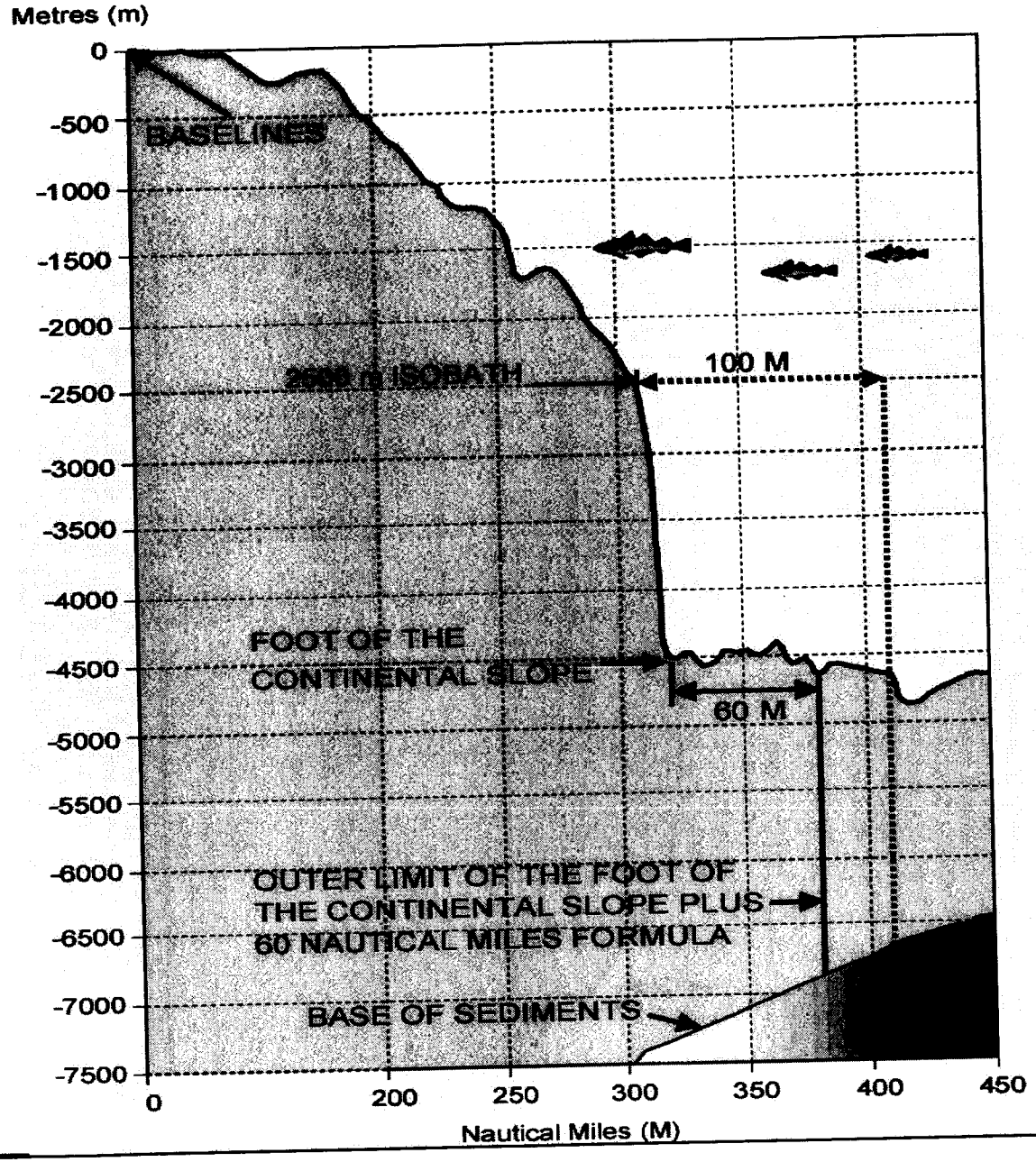
Delineation of the constraints line
[see page 61]

Slide 17

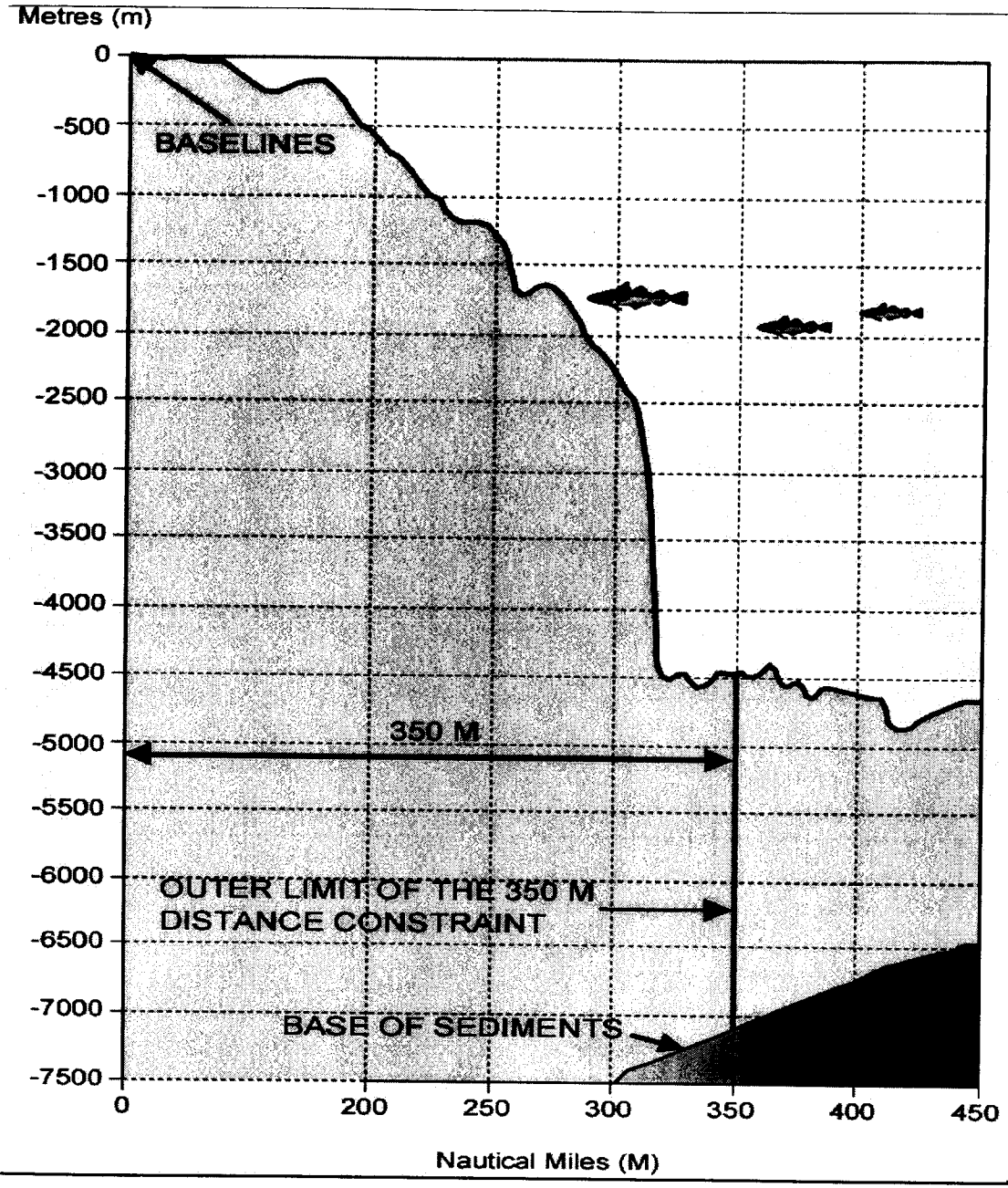
Delineation of the outer limit of the extended continental shelf
[see page 62]

Slide 18

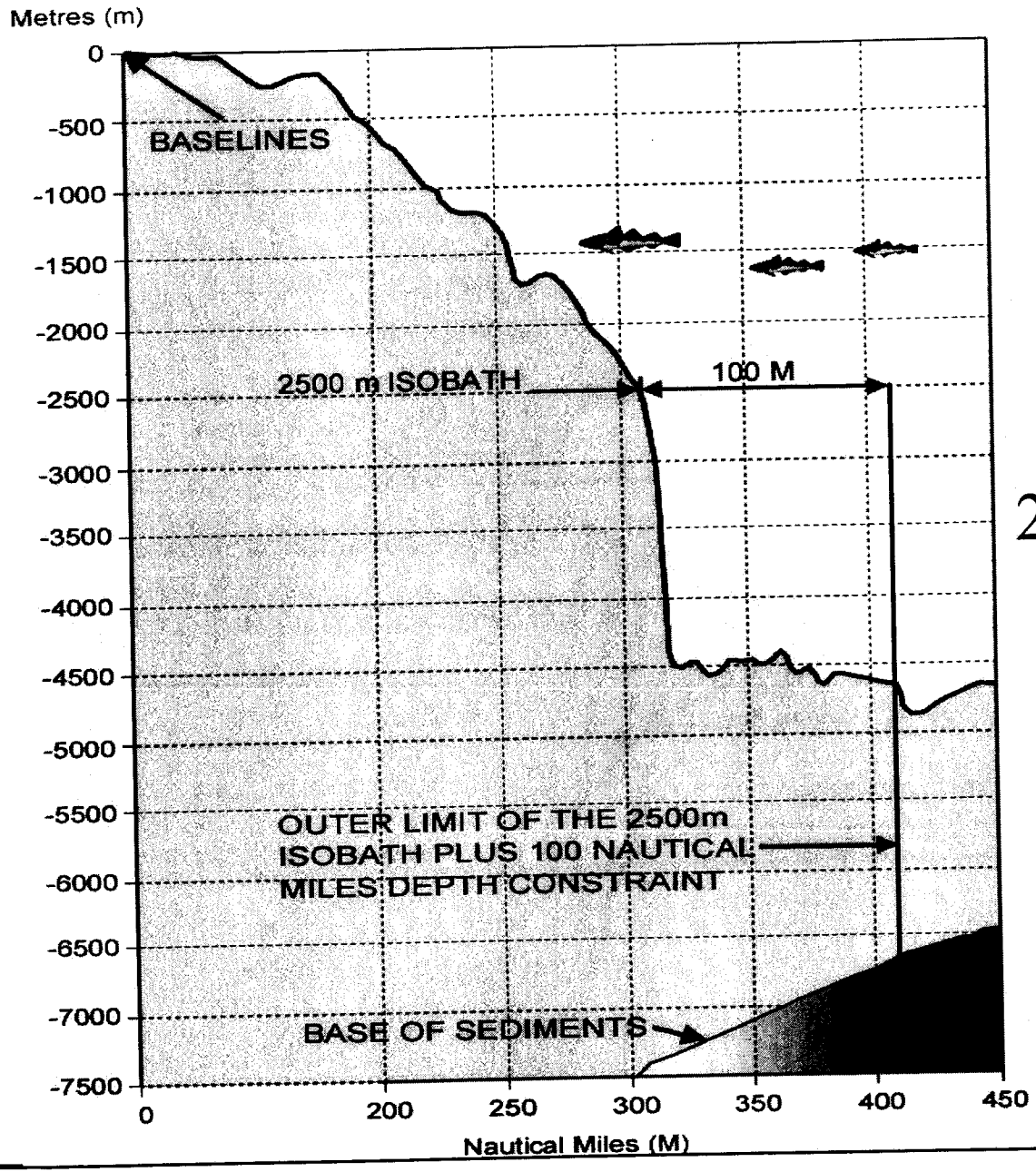
Delineation of the outer limit of separate extended continental shelves
[see page 63]



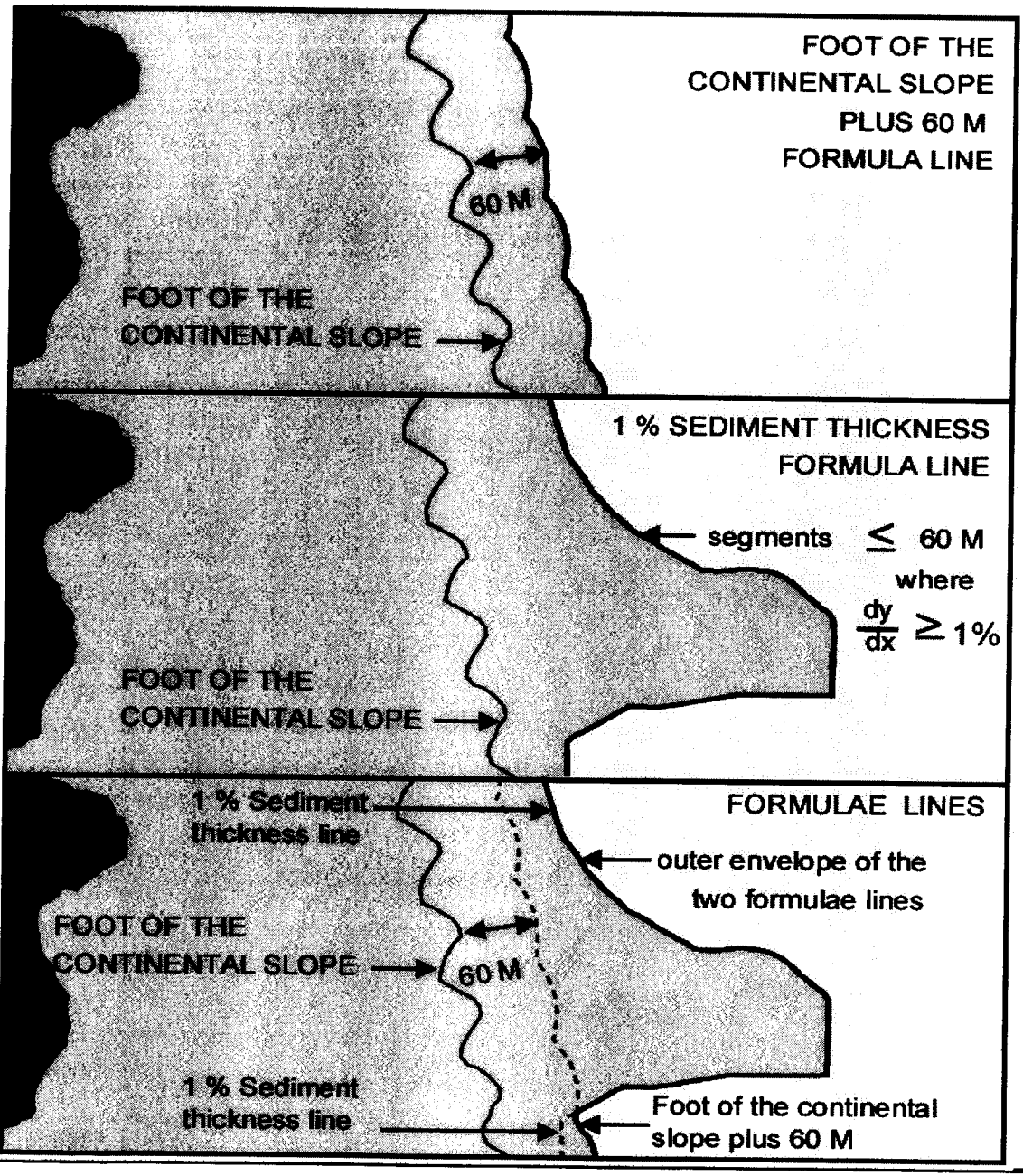
Foot of the continental slope plus 60 M formula



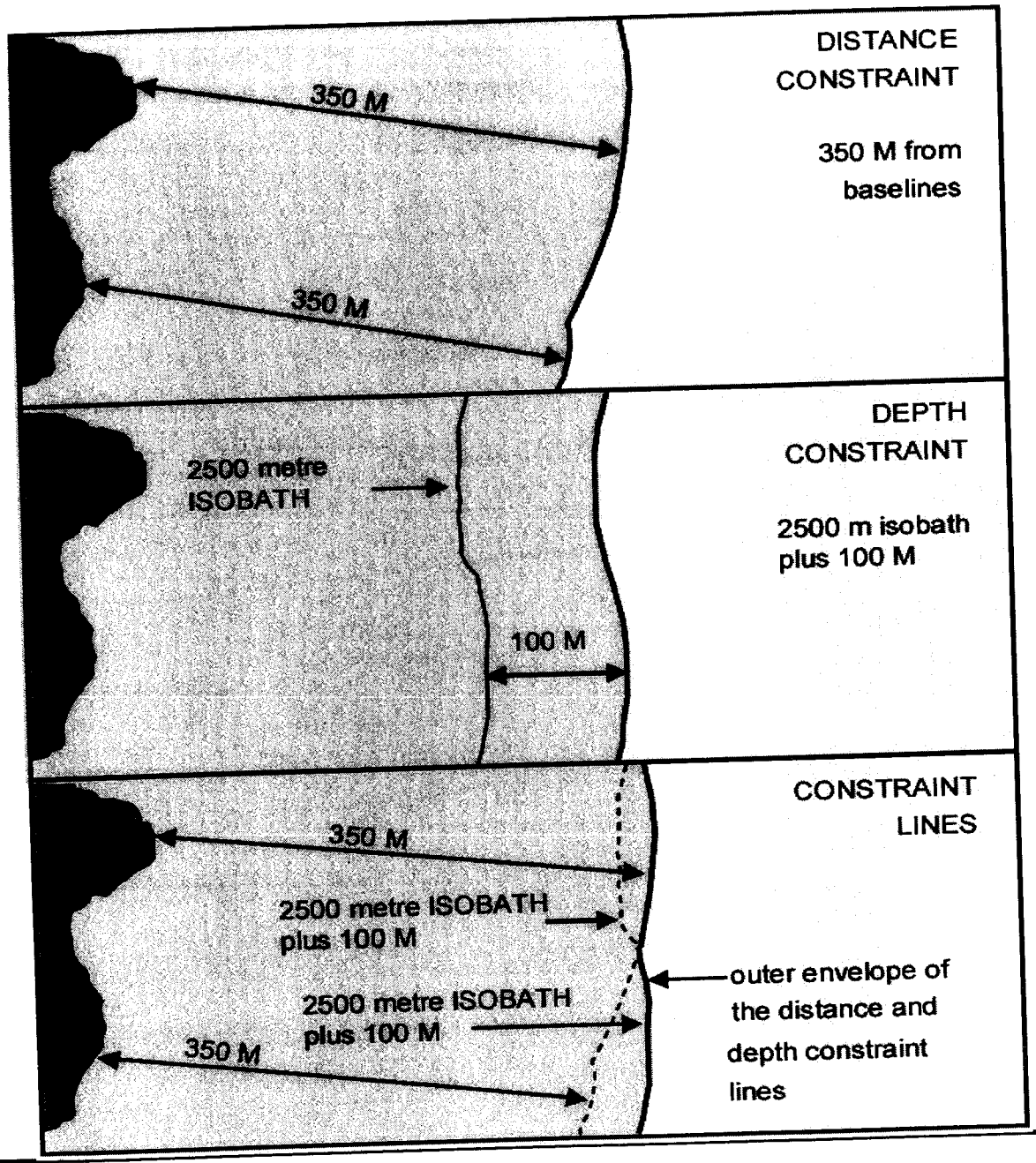
350 M distance constraint



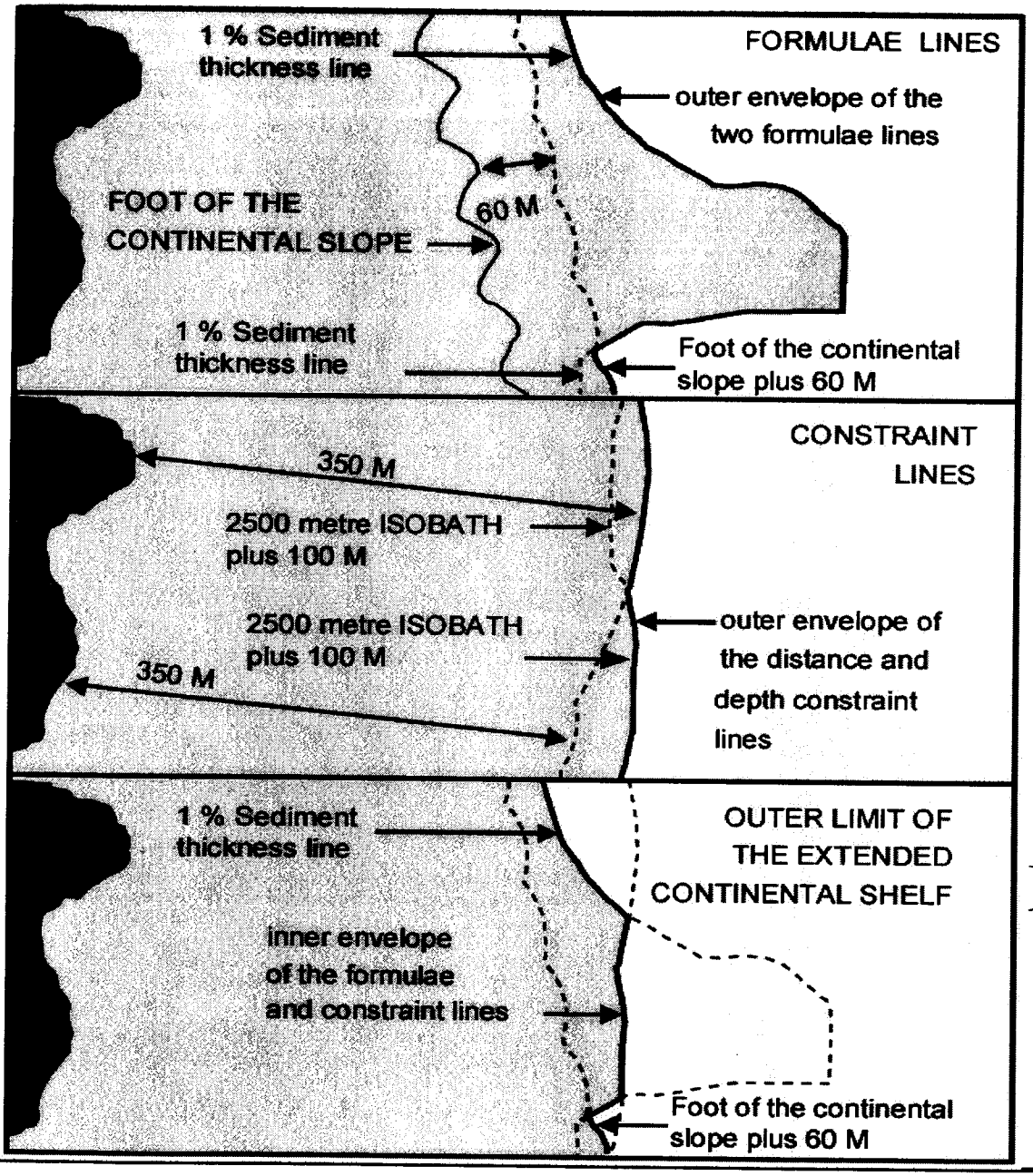
2,500 m isobath plus 100 M constraint



Delineation of the formulae lines

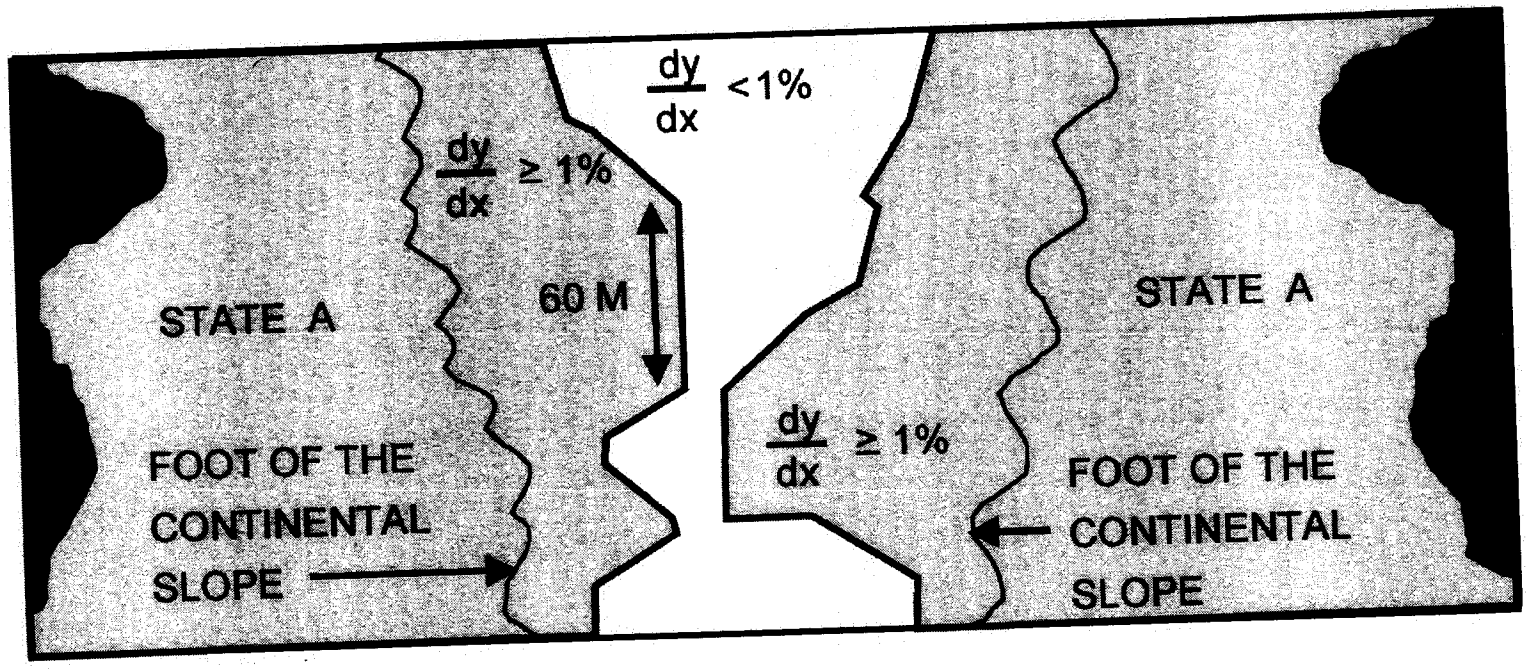


Delineation of the constraint lines



Delineation of the outer limit of the extended continental shelf

Delineation of the outer limit of separate extended continental shelves



Slide 19

Chapter 3
Geodetic methodologies and the outer limits of the continental shelf

- Formulation of the problem: article 76, paragraphs 1, 4, 5 and 7
- Units, geodetic reference systems and co-ordinate transformations
- Geodetic definition of baselines
- Outer limits and their confidence zones

Slide 20

Units, geodetic reference systems and co-ordinate transformations

- Units: metre (m) and international nautical mile (m)
  1M = 1,852 m
- All distances refer to the surface of a clearly specified geodetic reference ellipsoid used in a submission
- Geodetic coordinates of the outer limit should be in ITRF94 or WGS84 (G873); or
- When another system is used, its transformation parameters with respect to one of the ITRS adopted by the CLCS and the methodology used in their determination should be provided

Slide 21

Geodetic definition of baselines from which the breadth of the territorial sea is measured

- If the 350 M distance constraint is used in a submission, the CLCS may request technical information relating to baselines:
  - Source of the data, positioning survey technique, time and date of survey, corrections applied to the data, *a priori* or *a posteriori* estimates of random and sytematic errors, geodetic reference system used, and geometric definition of straight, closing or archipelagic baselines
- Multiple definitions of the low water line in current use are acknowledged
- Straight, closing or archipelagic baselines may be defined either as geodesics or loxodromes in a consistent manner

Slide 22

Outer limits and their confidence zones

- Methodologies on the surface of a geodetic reference ellipsoid : envelopes of arcs or tracés parallèles
- Errors and confidence zones of the outer limits must be identified
- Manual graphical procedures are discouraged
- Only a few baseline points may contribute to the delineation of the 350 M limit

Part II Chapters 4 to 6 (Srinivasan and Carrera)

Slide 2

Overview

- Chapter 4 — The 2,500 metre isobath
- Chapter 5 — Foot of the continental slope determined as the point of maximum change in the gradient at its base
- Chapter 6 — Foot of the continental slope determined by means of evidence to the contrary to the general rule

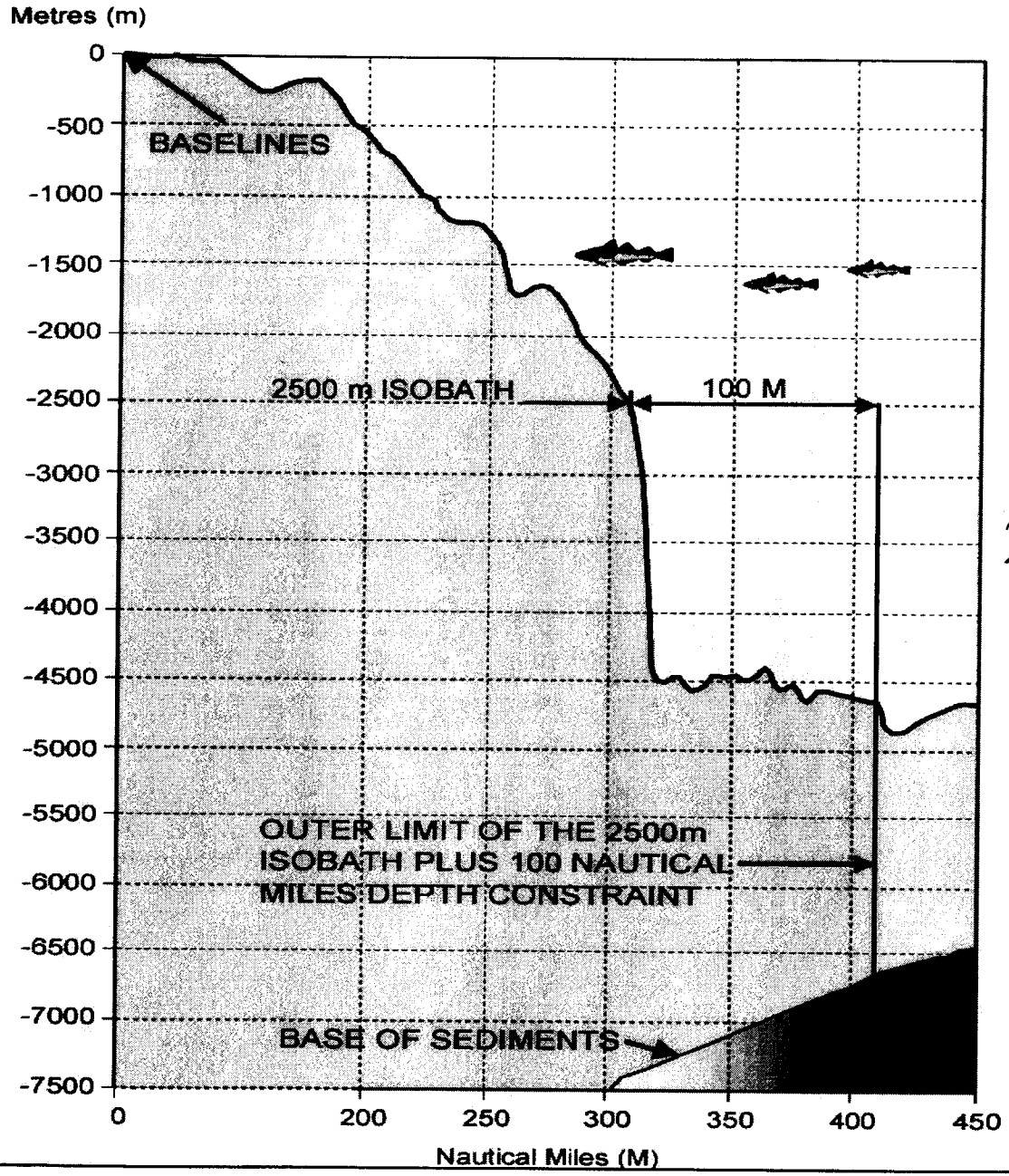
Slide 3

Chapter 4
The 2,500 metre isobath

- Formulation of the problem: Article 76, paragraph 5
- Source of data and bathymetric measurements
- Bathymetric model
- Selection of points for the delineation of the 100 M limit

Slide 4

2,500 m isobath plus 100 M constraint
[see page 66]



2,500 m isobath plus 100 M constraint

Slide 5

Sources of data and bathymetric measurements

- Single-beam echo sounding sonar measurements
- Multi-beam echo sounding sonar measurements
- Bathymetric side-scan sonar measurements
- Interferometric side-scan sonar measurements
- Seismic reflection-derived bathymetric measurements

Slide 6

Technical description of the bathymetric data base

- Source of the data
- Sounding survey technique and classification
- Geodetic reference system, navigational positioning methods and their errors
- Time and date of survey
- Corrections applied to the data, such as ray path sound velocity calibration, tides and other
- *A priori* or *a posteriori* estimates of random and systematic errors

Slide 7

Bathymetric model

- Two-dimensional bathymetric profiles
- Three-dimensional bathymetric profiles
- Nautical charts and maps with contours

Plus associated information:

- interpolation or approximation method
- density of measured bathymetric data
- perceptual elements: map projections, horizontal and vertical scales, contour intervals, units, colours, etc.

Slide 8

Selection of points for the delineation of the 100 M limit

- The 2,500 m isobath plus 100 M outer limit becomes an effective constraint wherever the isobath is found at a distance greater than 250 M from baselines
- The 2,500 m isobath plus 100 M constraint is not an option available in the case of submarine ridges
- The CLCS recommends the use of the first 2,500 m isobath from baselines that best conforms to the general configuration of the continental margin

Slide 9

Chapter 5
Foot of the continental slope determined as the point of maximum change in the gradient at its base

- Formulation of the problem: article 76, paragraph 4
- Sources of data
- Filtering and smoothing
- Determination of the foot of the continental slope

Slide 10

Foot of the continental slope plus 60 M formula
[see page 69]

Slide 11

The foot of the continental slope plus 60 M formula

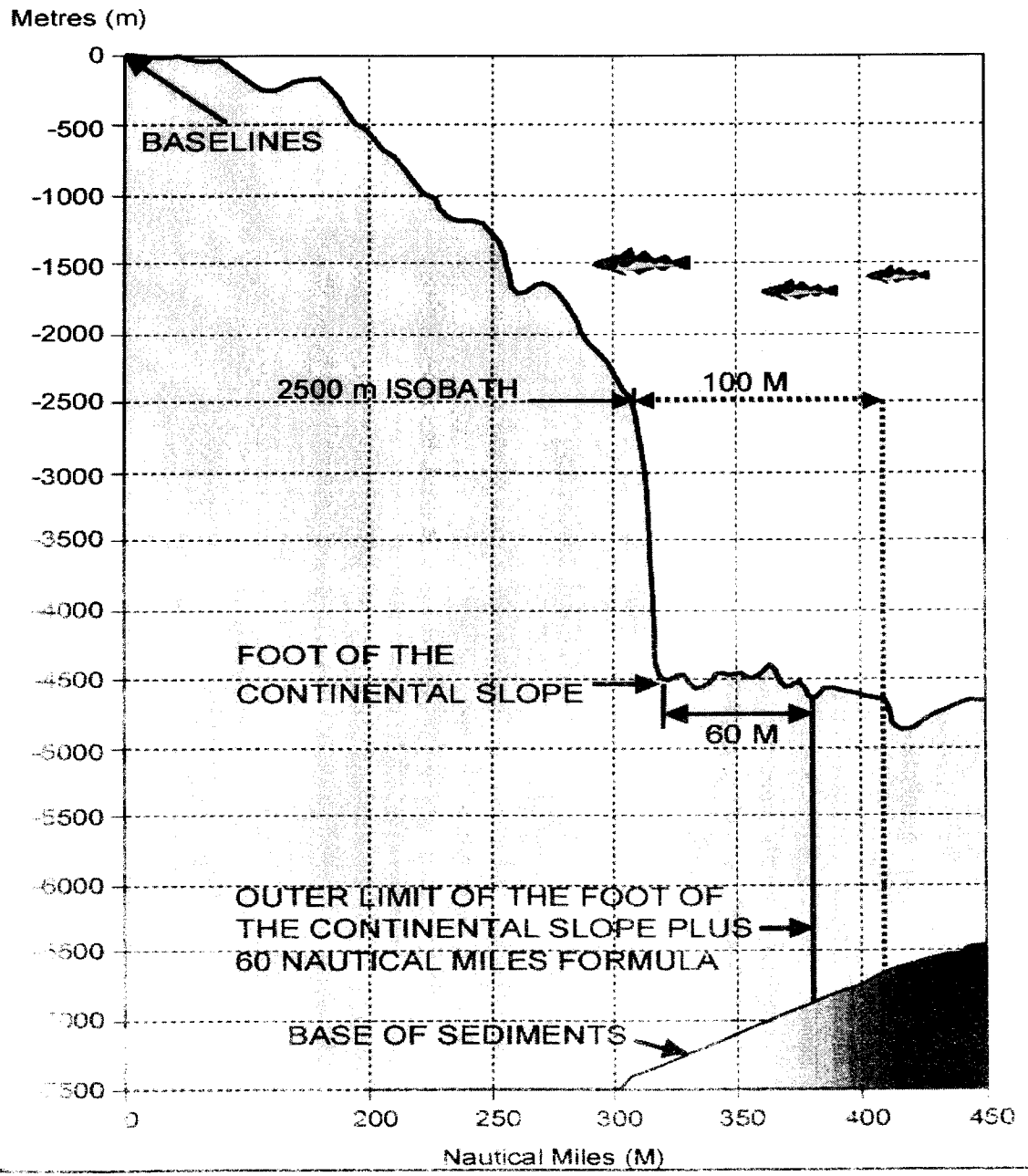
The determination of the foot of the continental slope by means of the point of maximum change in the gradient at its base is a provision with the character of a general rule. It involves:

- the identification of the region defined as the base of the continental slope; and
- the determination of the location of the point of maximum change in the gradient at the base of the continental slope within this region

Slide 12

Sources of data

- Bathymetric; and
- geological and geophysical:
  - *in situ* samples and measurements
  - Geochemical and radiometric data
  - geophysical measurements, e.g., seismic, gravity, magnetic, palaeomagnetic
  - side-scan imagery



Foot of the continental slope plus 60 M formula

Slide 13

Sources of bathymetric data

Primary:

- single-beam echo sounding measurements
- multi-beam echo sounding measurements

Complementary:

- bathymetric side-scan sonar measurements
- interferometric side-scan measurements
- seismic reflection-derived bathymetric measurements

Slide 14

Information about grids and profiles used to determine the foot of the continental slope

- Interpolation or approximation methods
- Spatial density and position of measured bathymetric data
- Perceptual elements: map projections, horizontal and vertical scales, contour intervals, units, colours and symbols

Slide 15

Filtering and smoothing

- Might be required to remove features which may obscure the exact location of the foot of the continental slope
- If regularly spaced data in a profile or a grid is sued, the methodology employed to derive it must be documented
- Description of filtering and smoothing procedures must be documented
- The artificial amplification or enhancement of data will not be accepted

Slide 16

Determination of the foot of the continental slope by means of the maximum change in the gradient

- Two- or three-dimensional problem to be solved by a number of mathematical methodologies: other approaches based on a purely visual perception of data are discouraged
- Regarded as a general rule, where the base of the slope can be identified on the basis of bathymetric and morphological information
- Description of the mathematical methodology must be documented
- Applied where multiple changes in the gradient are located at the base of the continental slope: an exception to this general rule would require evidence to the contrary

Slide 17

Chapter 6
Foot of the continental slope determined by means of evidence to the contrary to the general rule

- Formulation of the problem: article 76, paragraph 4(b)
- Geological and geophysical evidence
- Determination of the foot of the continental slope
- Considerations to be given to the evidence to the contrary

Slide 18

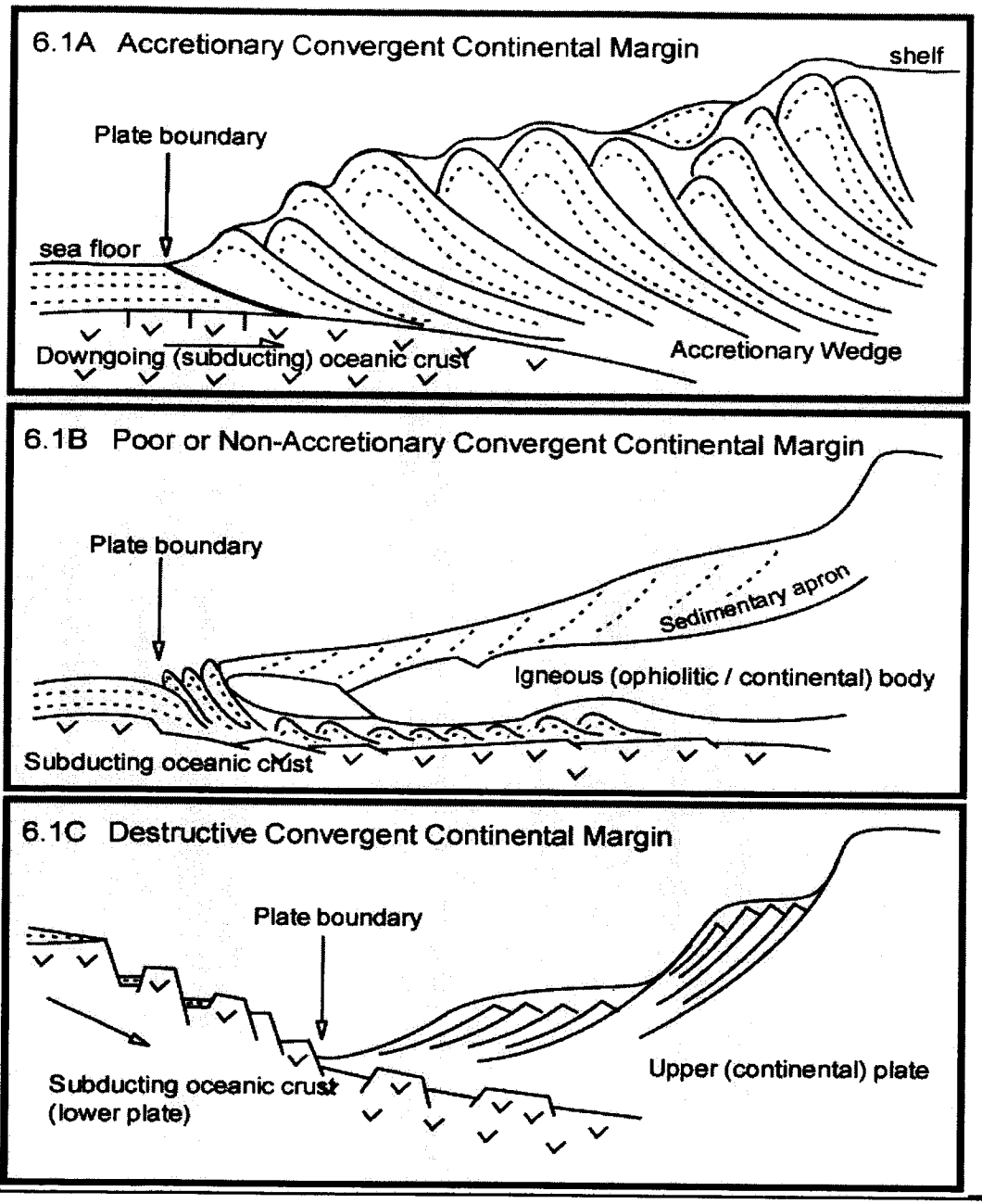
Foot of the continental slope determined by means of evidence to the contrary to the general rule

The determination of the foot of the continental slope by means of evidence to the contrary is a provision with the character of an exception rule, to be applied when the maximum gradient rule does not or can not locate it reliably, It involves:

- the identification of the region defined as the base of the continental slope within the continental margin; and
- the determination of the foot of the continental slop within this region based on geological and geophysical evidence

Slide 19

Different types of continental margin
[see page 72]



Different types of continental margin

Slide 20

Different types of continental margin
[see page 74]

Slide 21

Consideration to be given to the evidence to the contrary to the general rule

- Is that evidence acceptable to the Commission
- Does the evidence pertain to the identification of the foot of the continental slope? Is that evidence purely bathymetric and/or morphological?
- If evidence to the contrary is invoked, the results of applying the maximum change in the gradient formula must also be included
- Does the evidence indicate a different limit than that obtained by maximum change in the gradient formula?

Part III Chapters 7 to 9 (Juračić and Carrera)

Slide 2

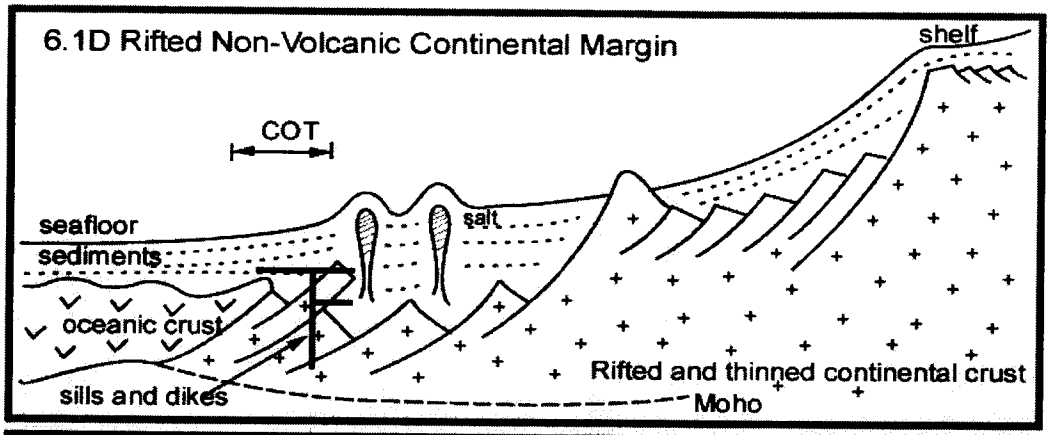
Overview

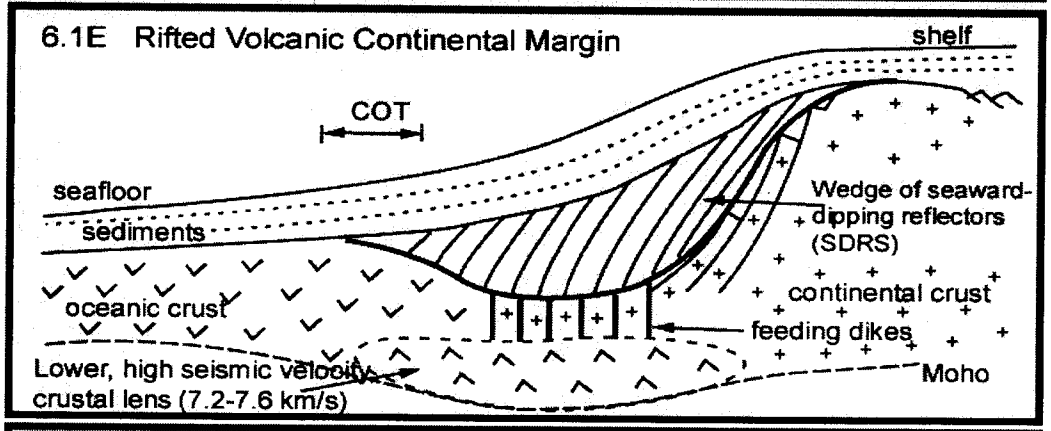
- Chapter 7 Ridges
- Chapter 8 Delineation of the outer limits of the continental shelf based on sediment thickness
- Chapter 9 Information on the limits of the continental shelf
- Annexes I-IV

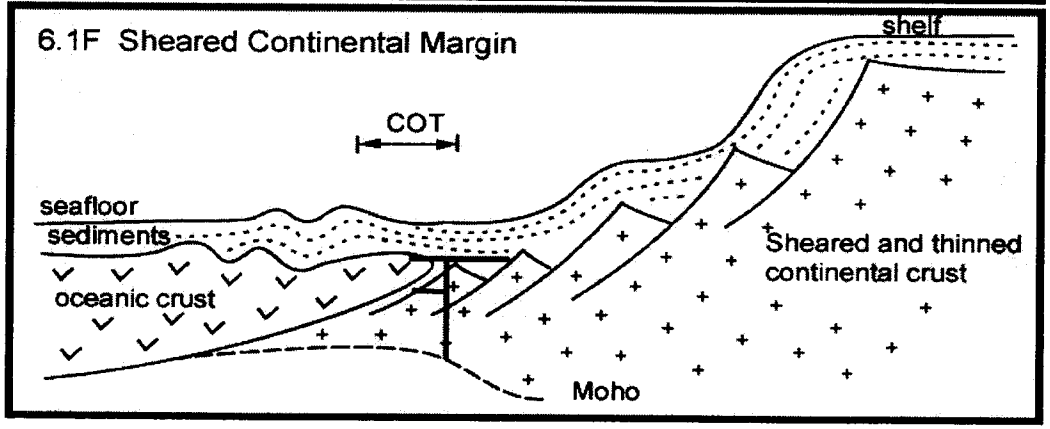
Slide 3

Ridges

- Formulation of the problem: article 76, paragraphs 3 and 6
- Oceanic ridges and submarine ridges
- Submarine elevations







Different types of continental margin

Slide 4

Formulation of the problem: paragraphs 3 and 6

Types of floor highs contained in article 76:

- Oceanic ridges of the deep ocean floor
- Submarine ridges
- Submarine elevations

These juridical terms are not precisely defined in the Convention from a scientific perspective. Their distinction will be made based on the scientific evidence provided in a submission, taking into account the appropriate provisions of the Guidelines, rather than on geographic nomenclature.

Slide 5

Oceanic ridges, submarine ridges and submarine elevations

- Oceanic ridges of the deep ocean floor are excluded from the continental margin
- Submarine ridges are part of the continental margin but always subject solely to the 350 M distance constraint
- Submarine elevations are regarded as part of the continental margin and subject to both the 350 M and 2,500 m isobath + 100 M constraints

Slide 6

Submarine elevations

Submarine elevations such as plateaux, rises, caps, banks and spurs, will be regarded as natural components of the continental margin mainly where

- They are crustal fragments or sedimentary wedges accreted to active continental margins, or
- They are seafloor highs which constitute an integral part of the prolongation of the landmass on passive continental margins

Slide 7

Chapter 8
Sediment thickness

- Formulation of the problem: paragraph 4(a)(i)
- Relevant geophysical techniques and data
- Depth conversion and thickness determination
- Sources and magnitudes of error
- Selection of outermost fixed points on one per cent sediment thickness

Slide 8

Foot of the continental slope plus 1% sediment thickness formula
[see page 77]

Slide 9

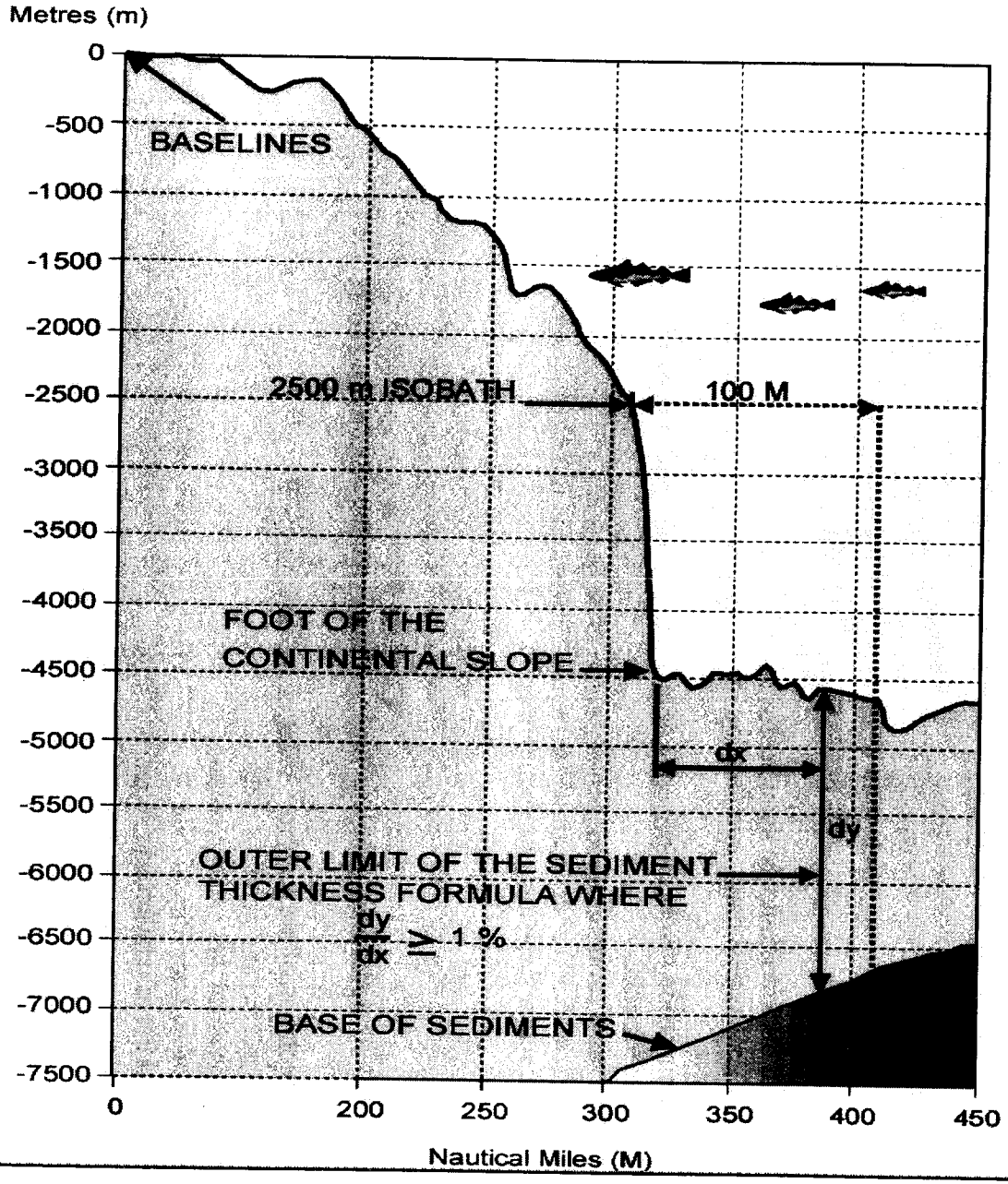
Relevant geophysical techniques and data

- Seismic reflection and refraction data, gravity and magnetics
- Mapping the top of the sediments and the top of the basement
- Minimum data coverage:
  - sediment thickness at least one per cent of the shortest distance to the foot of the continental slope
  - straight lines not exceeding 60 M in length
  - the continuity of the sedimentary apron from the foot of the continental slope to the fixed points must be documented

Slide 10

Depth conversion and thickness determination

- Seismic velocities
  - *in situ* surveys
  - velocity measurements in cores of the sedimentary section
  - analysis of multi-channel seismic reflection data
  - seismic refraction and wide-angle reflection data analysis
- Depth conversion from seismic data must be documented
- Depth conversion from gravity and magnetic data may be a complementary approach subject to full documentation of modelling methods and data used



Foot of the continental slope plus 1% sediment thickness formula

Slide 11

Sources and magnitudes of error

- Depth estimate uncertainty of the top of the basement
  - low in areas of high impedance contrast
  - large in areas where reflection is masked

- Errors in depth conversion of seismic data
  - directly proportional to errors in the velocity model
  - 5% - 15% depending on the depth and dip of reflectors
  - depth conversion and error estimates must be documented

- Propagation of thickness errors to position errors
  - the error is a function of the dips of the basement and the seabed
  - typically, ± 100 m thickness errors may become 3 to 7 Km errors in position

Slide 12

Selection of outermost fixed points of one per cent sediment thickness

Sediment thickness must be documented at each fixed point by either borehole, seismic or other geophysical data: interpolation on isopach maps is not acceptable.

The Commission invokes a principle of continuity in the implementation of the sediment thickness formula:

- The same continuous sedimentary apron must be used
- The continuity of the sedimentary apron between the fixed points and the foot of the continental slope must be documented

Slide 13

Chapter 9
Information on the limits of the extended continental shelf

- Formulation of the problem: paragraph 8 and Annex II
- Bathymetric and geodetic data
- Geophysical and geological data
- Digital and non-digital data
- Checklist of relevant and supporting data

Slide 14

The submission will be divided into three parts

- Executive summary (22 copies)
  - charts and co-ordinates indicating the outer limit of the continental shelf and the relevant territorial sea baselines
  - which provisions of article 76 invoked
  - names of any CLCS members who gave scientific and technical advice
  - any dispute as referred to in rule 44 of and annex I to the CLCS Rules of Procedure

- Main body (8 copies) with detailed descriptions of methodologies and references to data

- All supporting scientific and technical data (2 copies) arranged in separate annexes

Slide 15

Data sets described in the Guidelines: type, format and checklist

- bathymetric and geodetic data
- geophysical and geological data
- digital and non-digital data
- checklist of relevant and supporting data

Slide 16

Annexes I – IV

• Annex I	List of international organizations
• Annex II	Flowcharts and illustrations summarizing the procedure for establishing the outer limits of the continental shelf
• Annex III	Excerpts from the United Nations Convention on the Law of the Sea and Final Act of the Third United Nations Conference on the Law of the Sea of direct relevance to the issue of the continental shelf
• Annex IV	Members of the Commission on the Limits of the Continental Shelf (1997 - 2002)

6. Geographic scope and scientific challenges posed by article 76 of the United Nations Convention on the Law of the Sea (Galo Carrera)

Slide 2

Overview

- Impact of UNCLOS on the breadth of maritime spaces
- Implementation of article 76
- Geographic scope of its implementation
- Scientific challenges posed by its implementation
- Plan of action: key elements
- What can the Commission do?

Slide 3

States Parties
UN Convention on the Law of the Sea

- Have increased steadily to a current 132 since Guyana deposited the 60th instrument of ratification 16 November 1993
- Represent majority of States in all UN regional groups:

Group of African States	37 / 53	70%
Group of Asian States	32 / 48	67%
Group of Eastern European States	13 / 21	62%
Group of Latin American and Caribbean States	26 / 33	79%
Group of Western European and Other States	19 / 27	70%
Non-UN plus Non-regional States	5 / 12	42%
Total of all States	132/194	68%

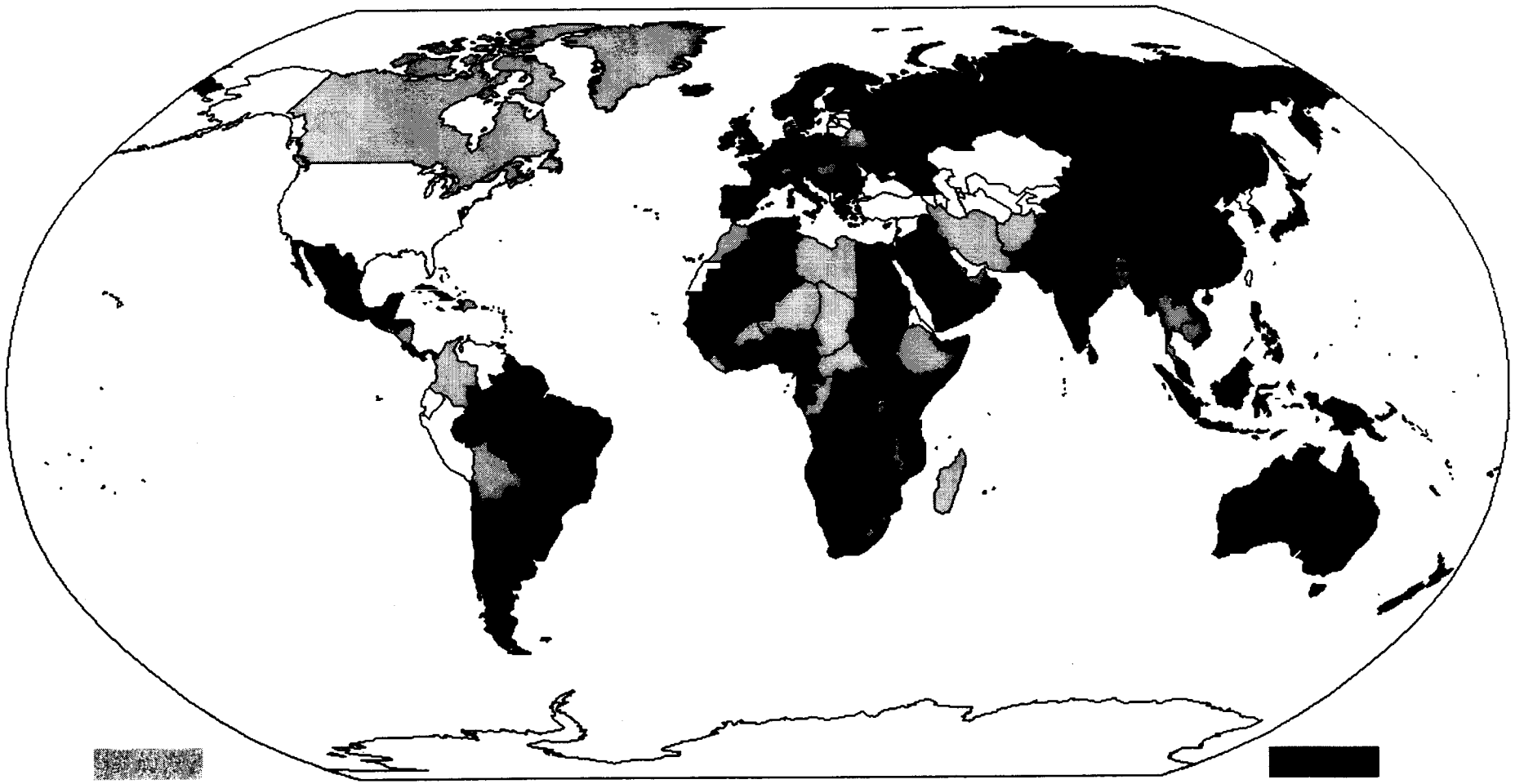
Slide 4

Spatial distribution of States Parties to the UN Convention on the Law of the Sea
[see page 81]

Slide 5

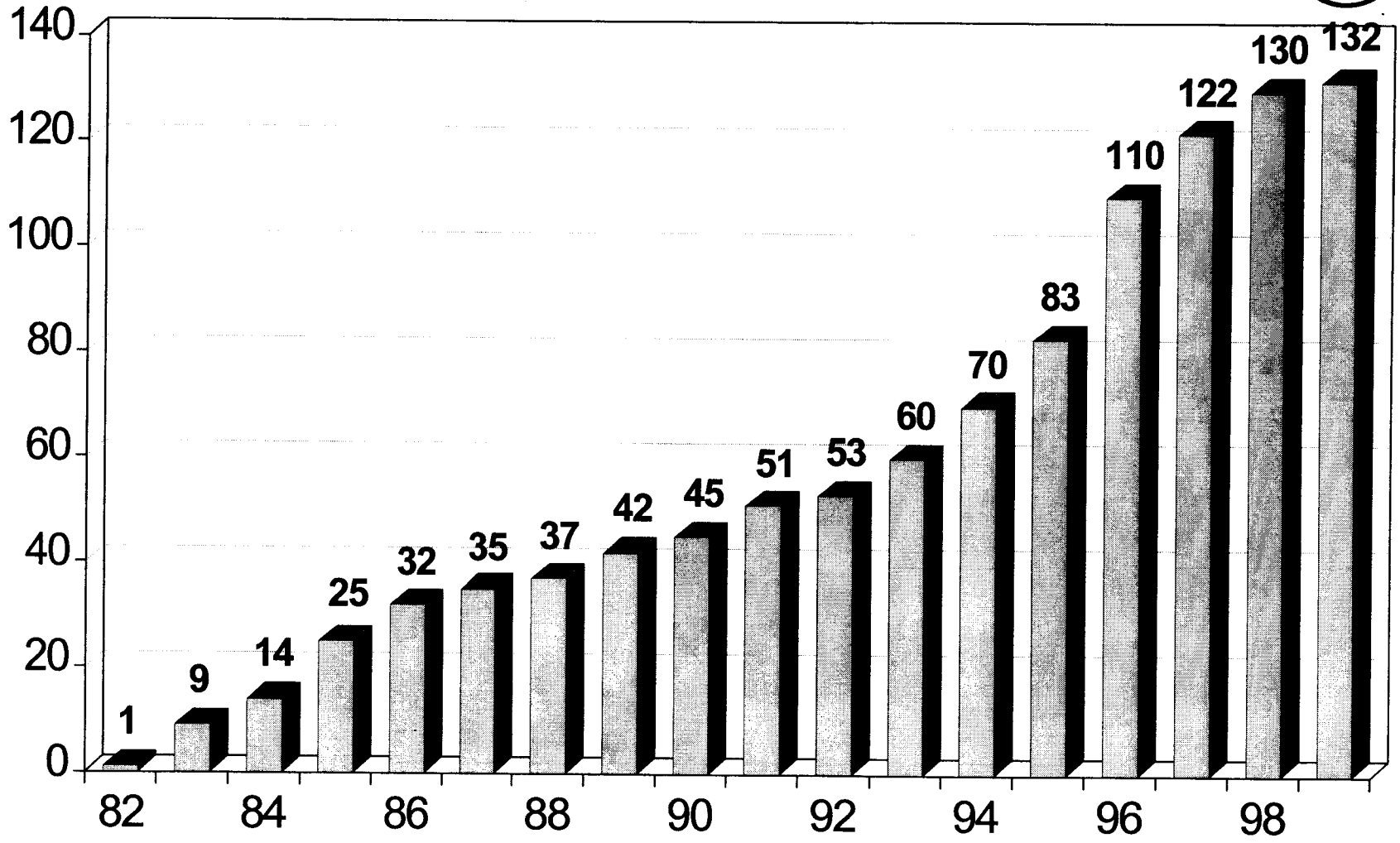
States Parties
UN Convention on the Law of the Sea
[see page 82]

Status of the UN Convention on the Law of the Sea



158 States Signatories | 31 March 2000 | 132 States Parties

States Parties
UN Convention on the Law of the Sea



Slide 6

Regional Participation of States in the UN Convention on the Law of the Sea
[see page 84]

Slide 7

Impact of UNCLOS on the breadth of maritime spaces under national jurisdiction

A unifying factor providing certainty and consistency in State practice:

Territorial sea of 12 M or less	135 / 144	94%
Contiguous zone of 24 M or less	70 / 71	99%
Exclusive economic zone of 200 M or less	111 / 111	100%
Continental shelf of 200 M / CM	45 / 91	**49%**

Slide 8

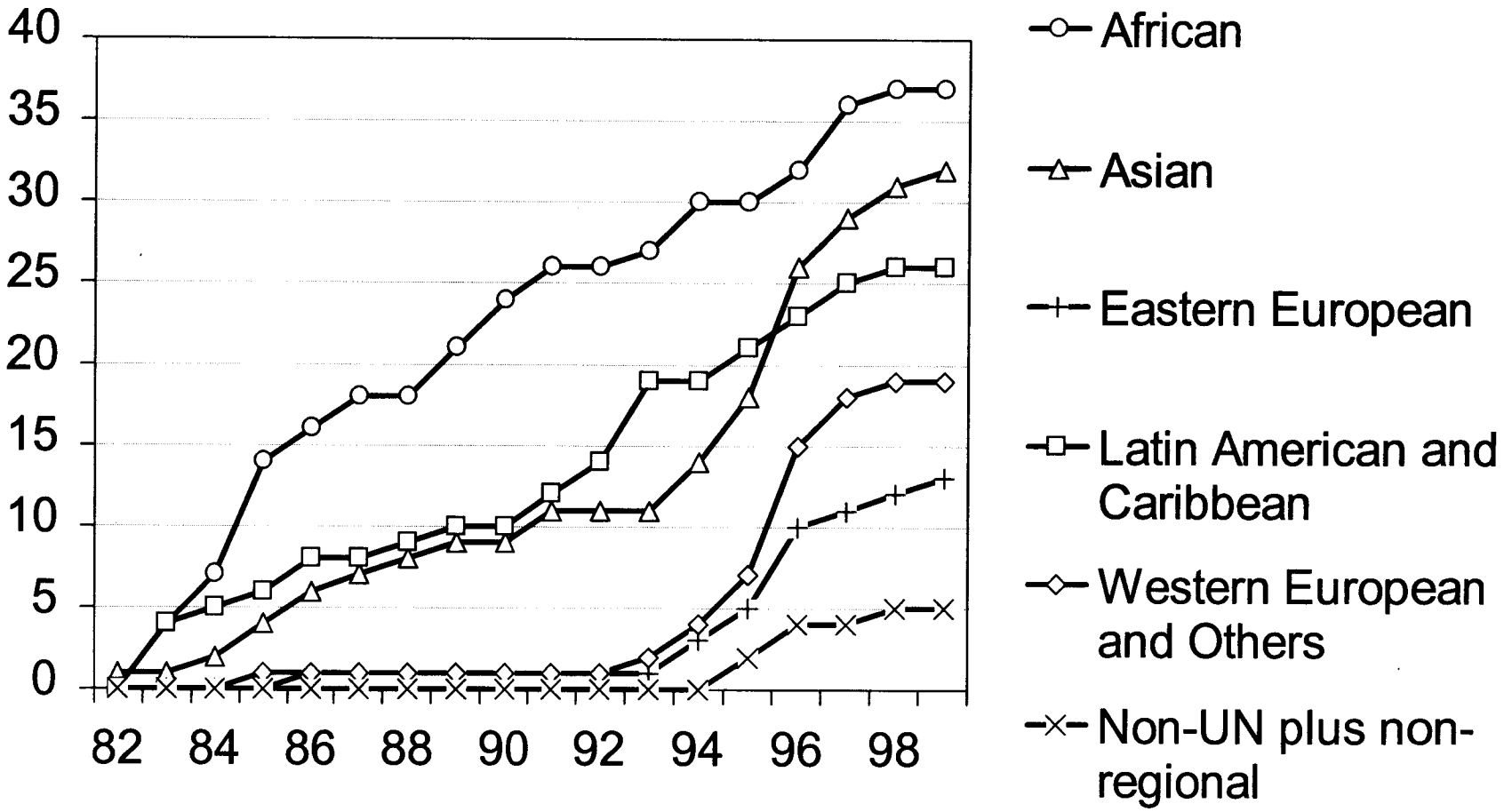
Summary of current breadths used by States to determine the outer limits of the continental shelf
[see page 85]

Slide 9

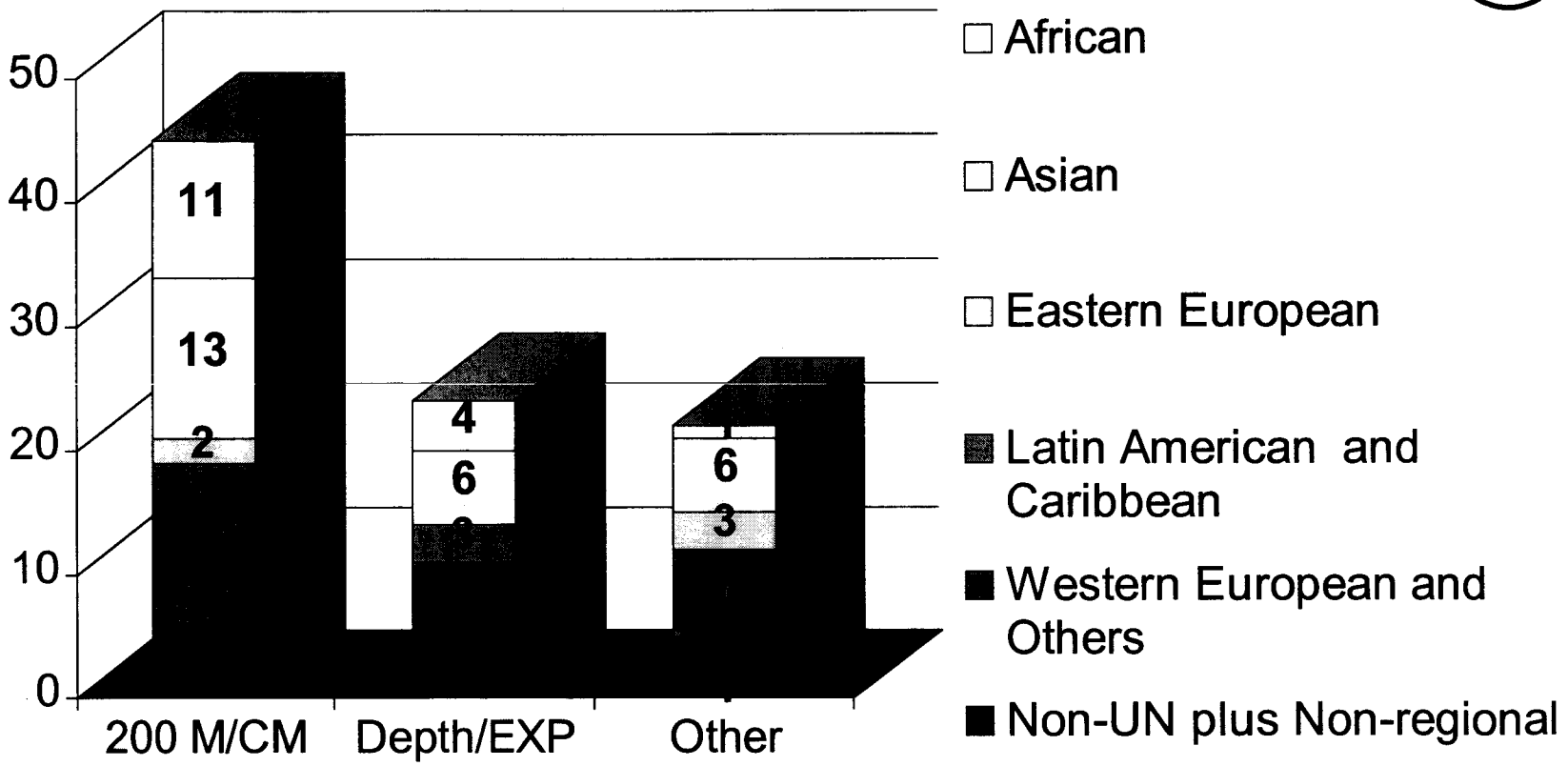
Scientific challenges posed by the implementation of article 76

- Geodesy — distance limits and delineation of the outer limit of the continental shelf
- Geology — edge of continental margin and sea-floor highs
- Geomorphology — foot of the continental slope
- Geophysics — sediment thickness and other evidence
- Hydrography — 2,500 m isobath and the low water line

Regional Participation of States in the UN Convention on the Law of the Sea



Summary of current breadths used by States to determine the outer limits of the continental shelf



45 limits up to 200 M and/or the edge of the continental margin (200M/CM)
24 limits up to a 200 m isobath and/or exploitability (Depth/EXP)
22 limits of other nature (Other)

Slide 10

Geographic scope of the implementation of article 76

- Submissions to the Commission relate only to information on the outer limits of the continental shelf, where the shelf extends beyond 200 M
  - where the Test of Appurtenance has been satisfied, and
  - where the outer limits have been delineated beyond 200 M according to all the provisions contained in article 76 and Annex II of the Final Act

- Coastal States do not have an obligation to submit information on the outer limits of the continental shelf up to 200 M, nor is the Commission entitled by the Convention to make recommendations on these limits

Slide 11
Purpose of this study

- Identify wide margin regions where the Test of Appurtenance might be applied by States

- Determine the worldwide distribution of these regions with a view to promote international and regional cooperation in the implementation of article 76

- Highlight the importance of the full implementation of the Convention and in particular the provisions on marine scientific research contained in Part XIII

Slide 12

Necessary clarifications and caveats

- This study is a preliminary, ongoing, non-exhaustive inventory of wide continental margin regions, which might or might not satisfy the Test of Appurtenance

- It is not intended to focus on individual States or their entitlement to delineate the outer limits of their continental shelves at any given breadth

- Its results are purely based on scientific and technical considerations of wide continental margins

Slide 13

A tour of continental margin regions of the World

- Atlantic Ocean:
  West, North and East Margins
- Indian Ocean:
  West and East Margins
- Pacific Ocean:
  South, West, North and East
- Arctic Ocean:
  Greenland Sea, Barents Sea and Central Arctic

Slide 14

Wide continental margin regions of the World
[see page 88]

Slide 15

Wide continental margin regions of the World
[see page 89]

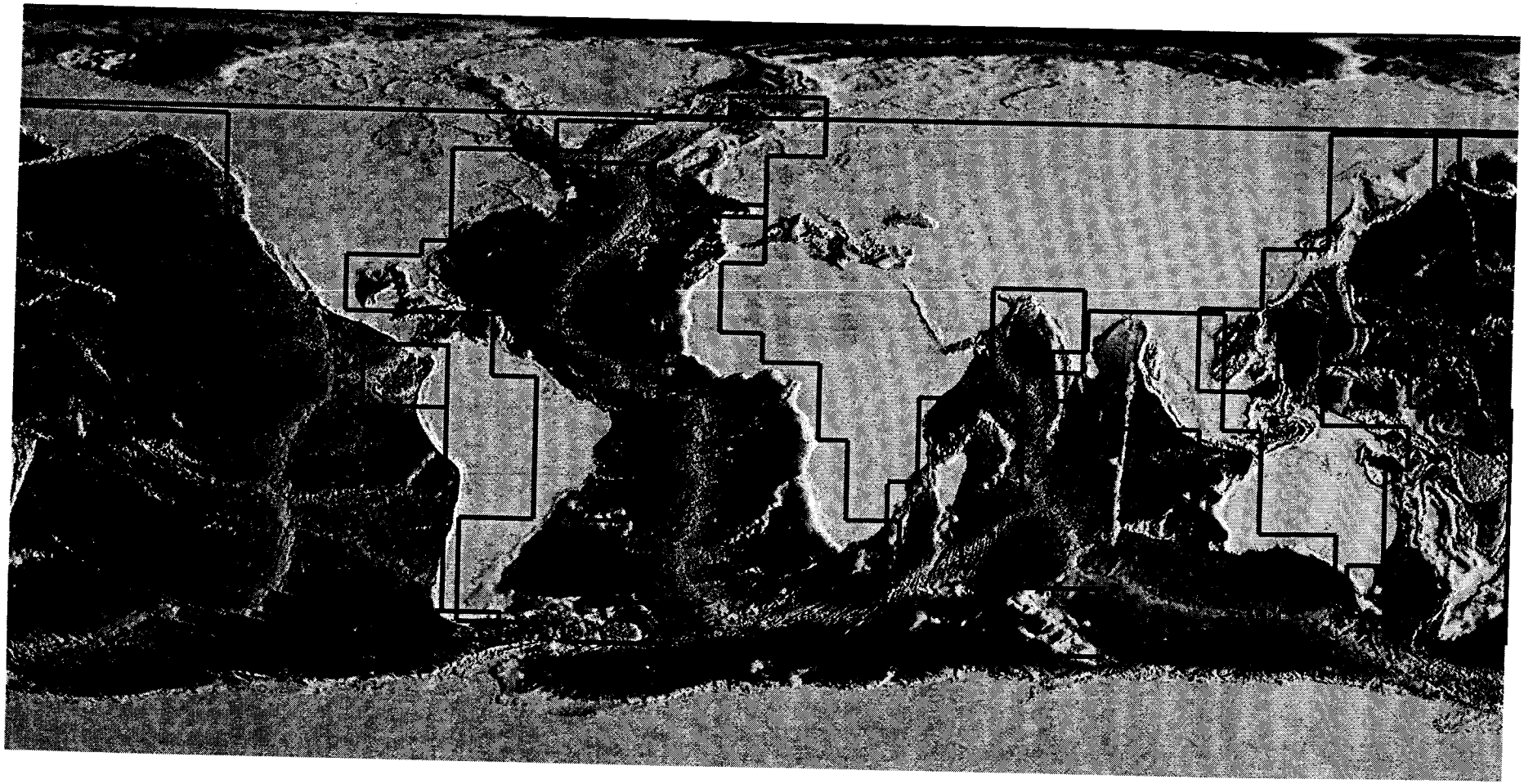
Slide 16

Western continental margins of the Atlantic Ocean: from the Argentine Abyssal Plain to the Labrador Basin
[see page 90]

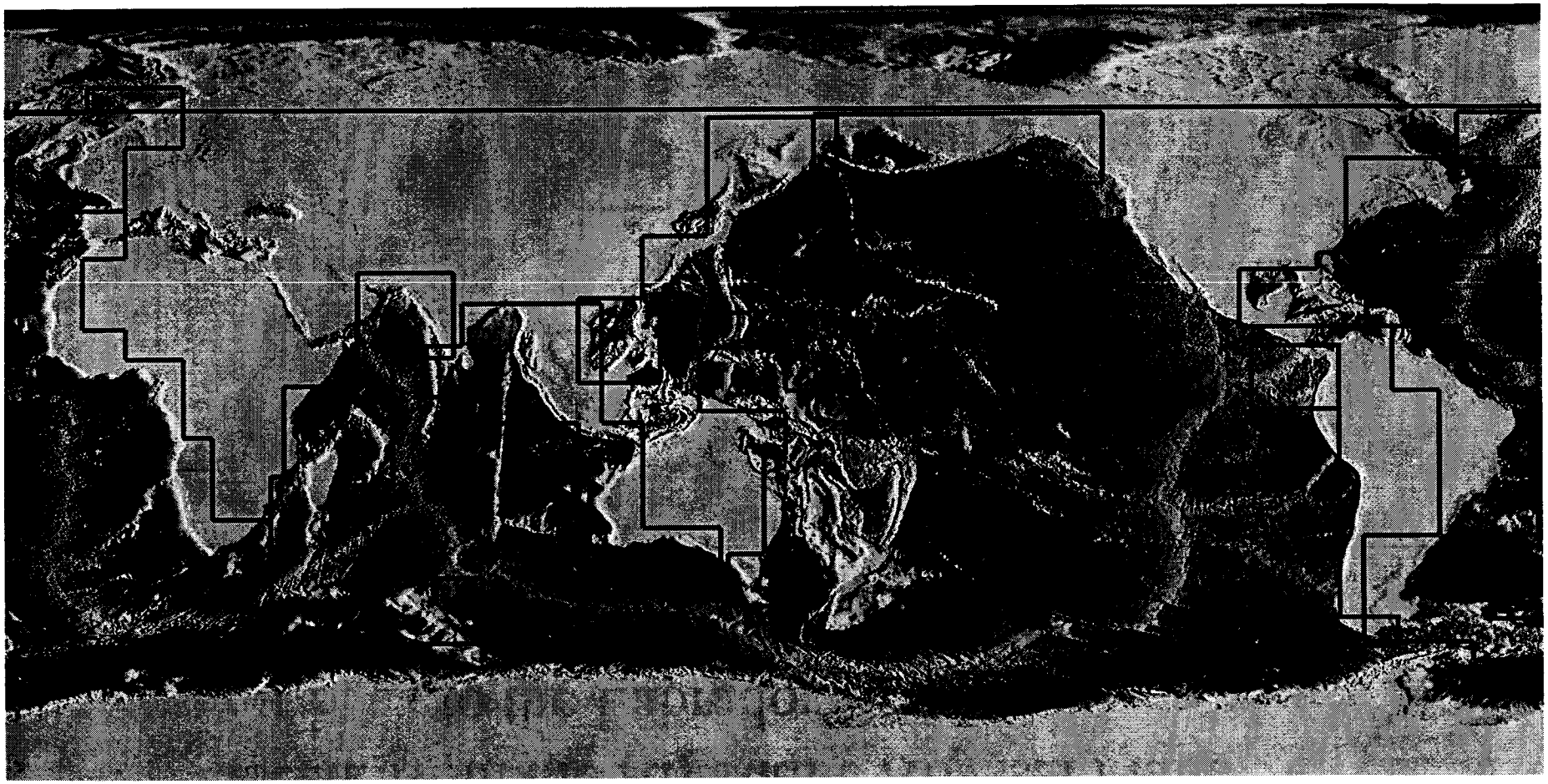
Slide 17

Gulf of Mexico
[see page 91]

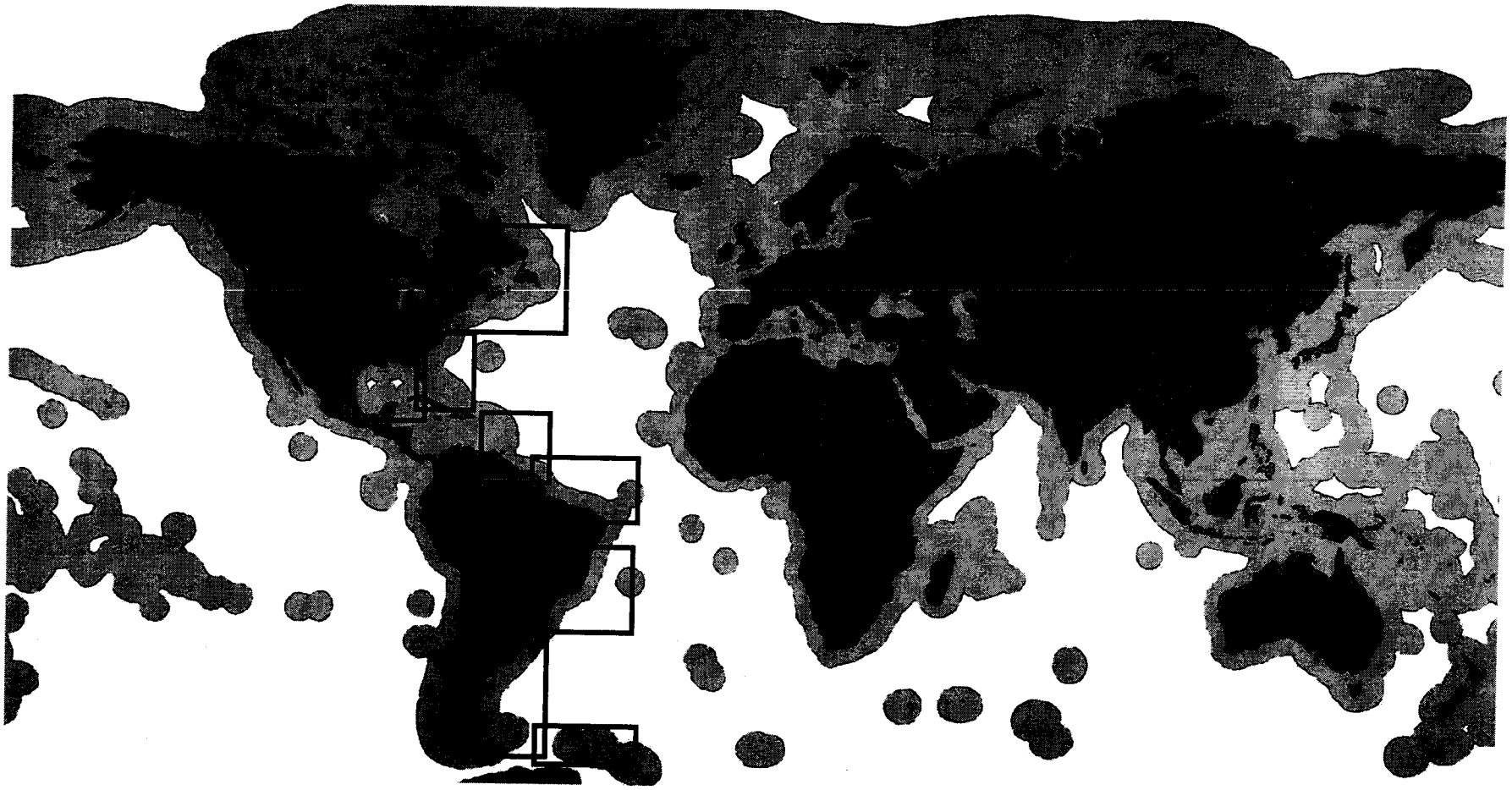
Wide continental margin regions of the World



Wide continental margin regions of the World



Western continental margins of the Atlantic Ocean: from the Argentine Abyssal Plain to the Labrador Basin




Gulf of Mexico
MEXICO BASIN

Slide 18

Northern continental margins of the Atlantic Ocean: from the Irminger Basin to the Porcupine Abyssal Plain
[see page 93]

Slide 19

Norwegian Sea
[see page 94]

Slide 20

Eastern continental margins of the Atlantic Ocean: from the Iberian Abyssal Plain to the Agulhas Basin
[see page 95]

Slide 21

Cape Abyssal Plain
[see page 96]

Slide 22

Cape Abyssal Plain
2500 m isobath
[see page 97

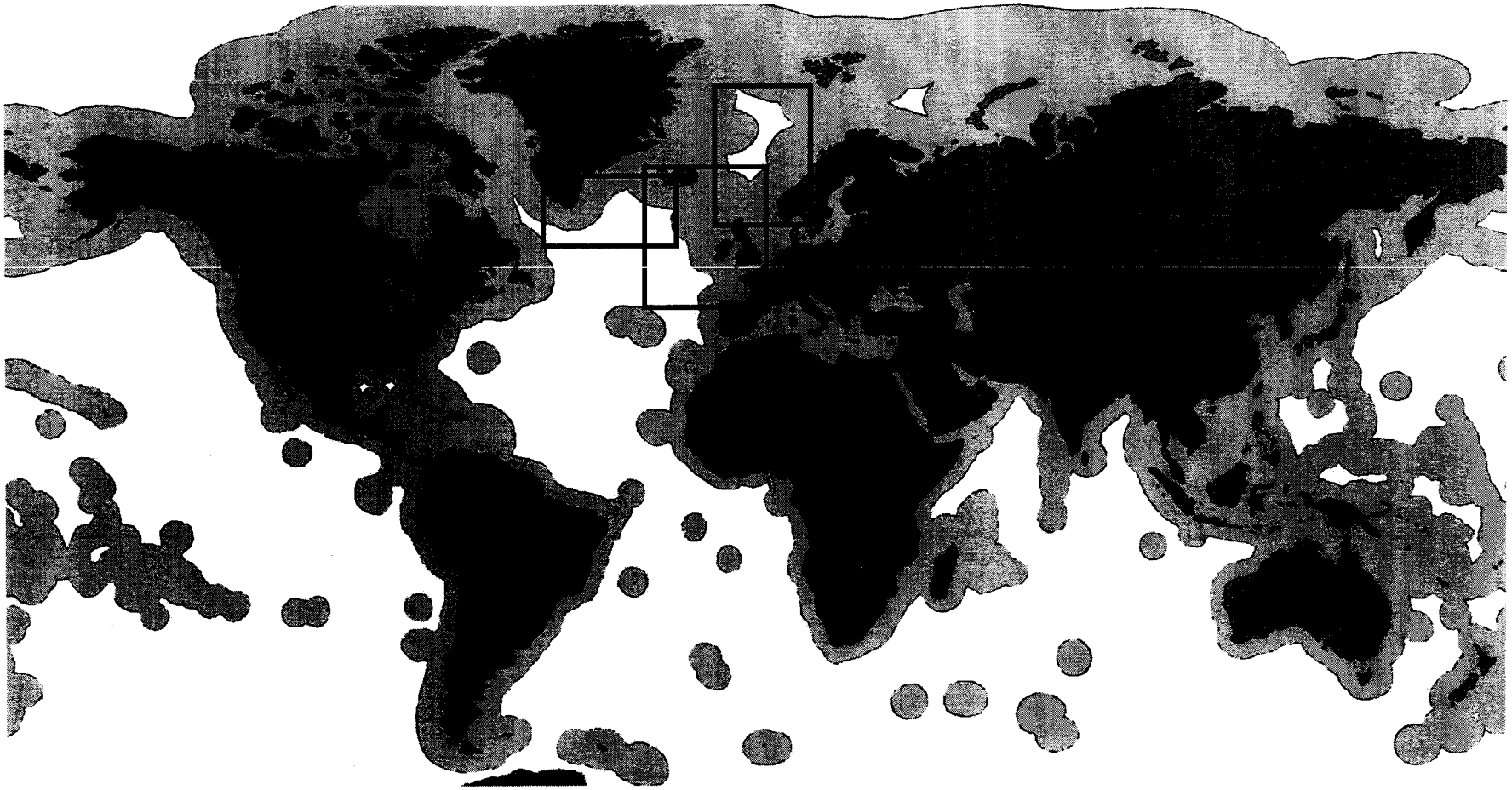
Slide 23

Cape Agulhas, Cape Province, South Africa
[see page 98]

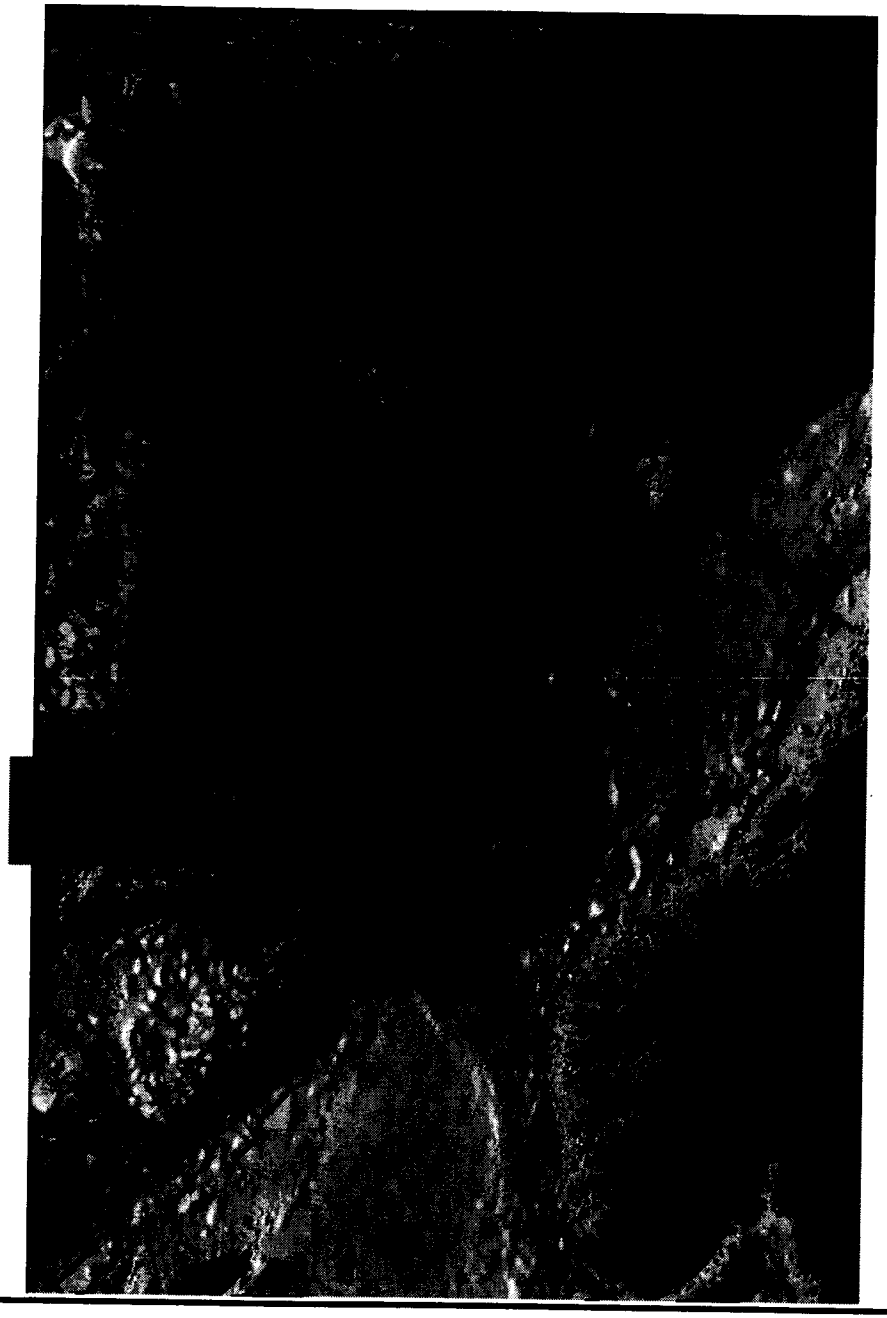
Slide 24

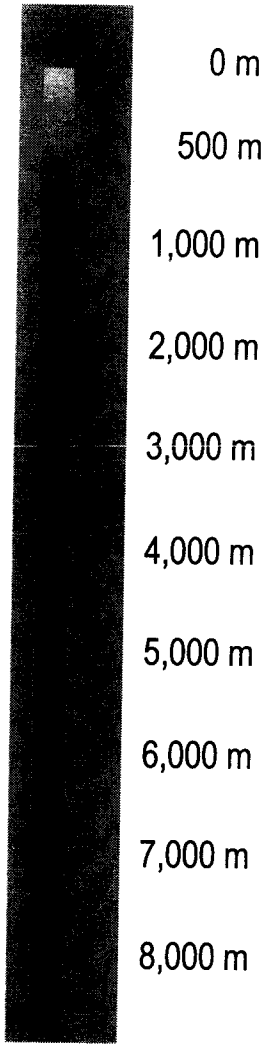
Western continental margins of the Indian Ocean: from the Mozambique Basin to the Arabian Basin
[see page 99]

Northern continental margins of the Atlantic Ocean: from the Irminger Basin to the Porcupine Abyssal Plain

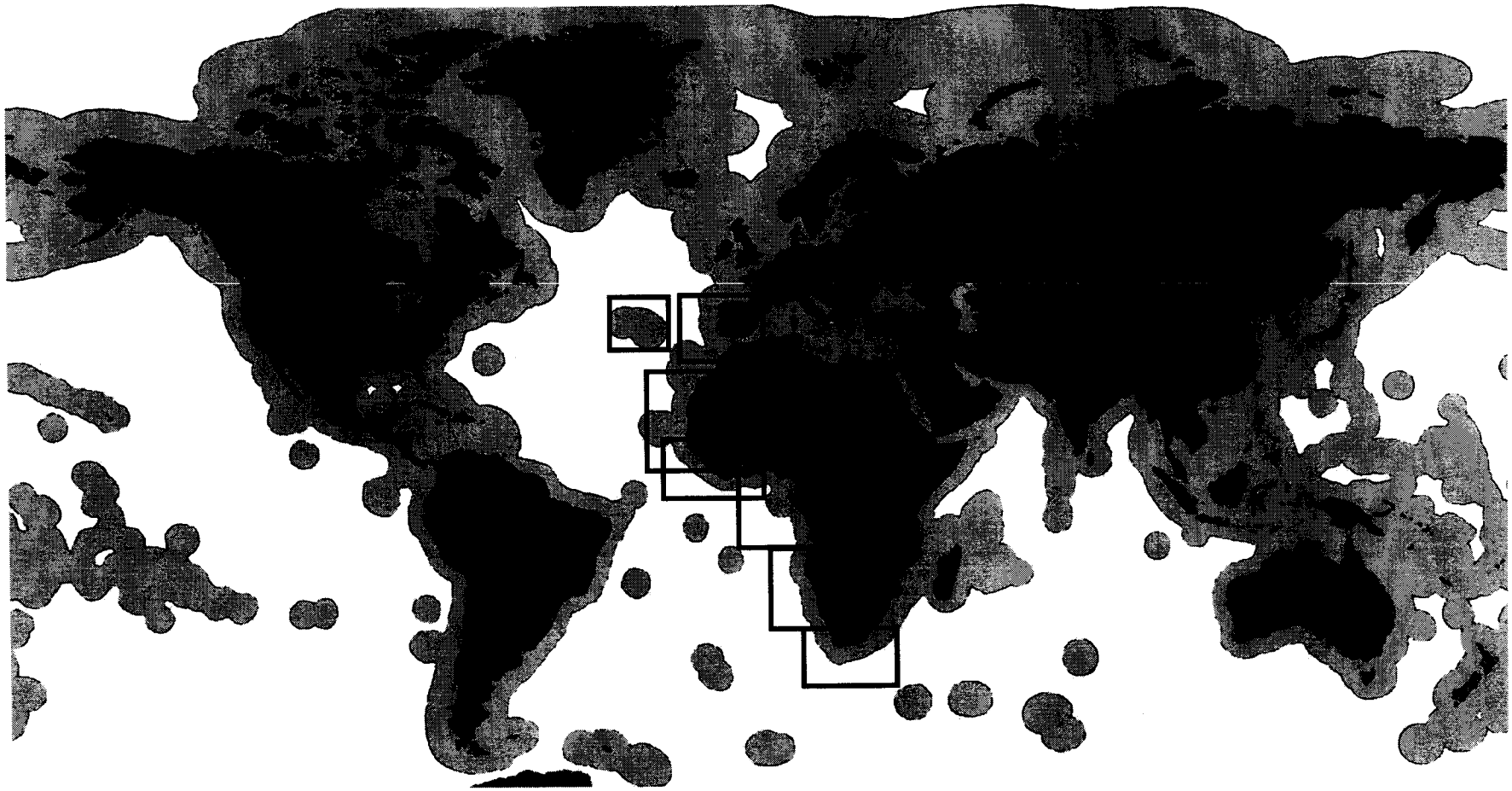


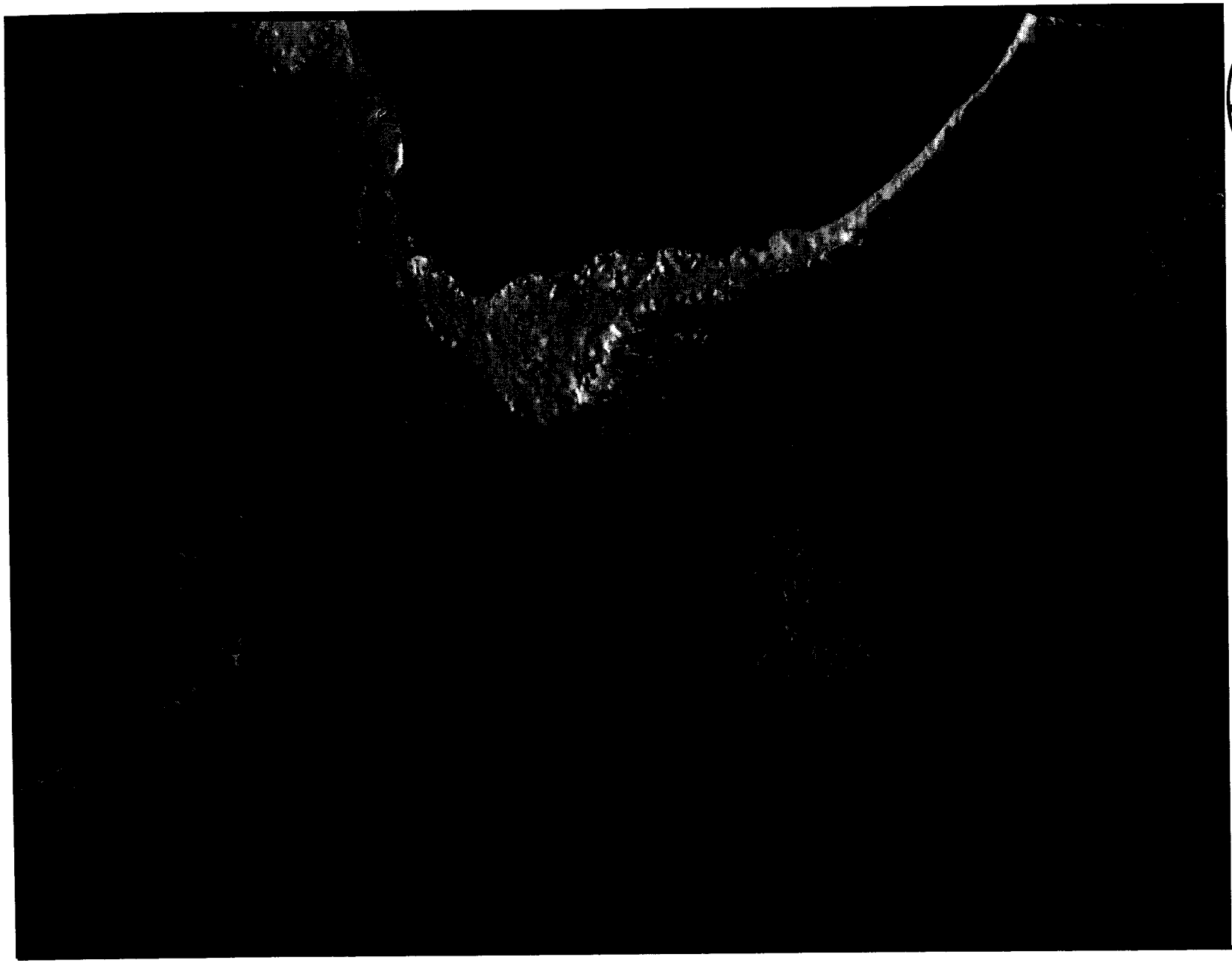
Norwegian Sea

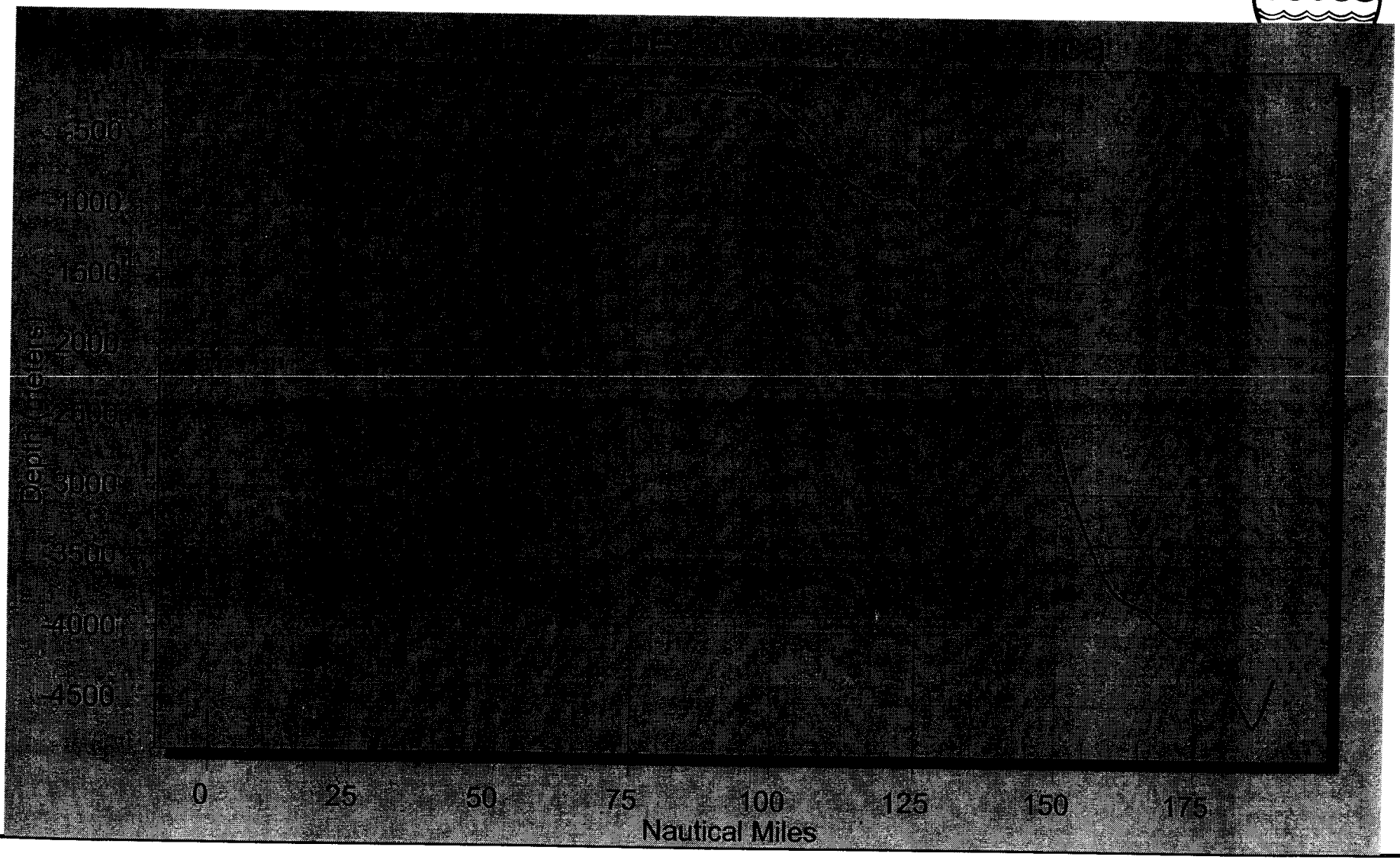




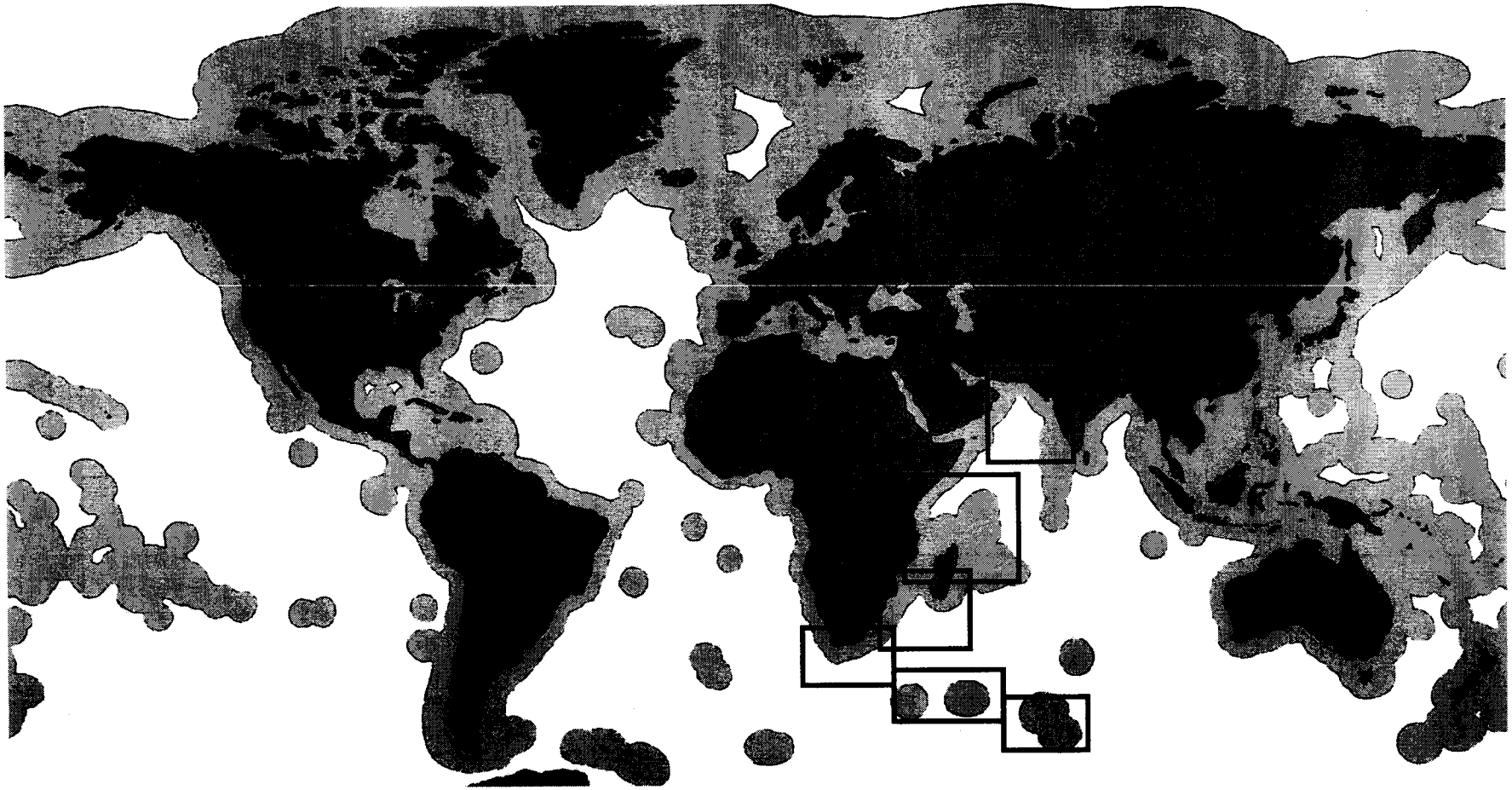
Eastern continental margins of the Atlantic Ocean: from the Iberian Abyssal Plain to the Agulhas Basin






-500
-1000
-1500
-2000
-3000
-3500
-4000
-4500
Depth in Meters
0
25
50
75
100
125
150
175
Nautical Miles

Western continental margins of the Indian Ocean: from the Mozambique Basin to the Arabian Basin



Slide 25

Arabian Sea
[see page 101]

Slide 26

Eastern continental margins of the Indian Ocean: from the Ceylon Plain to the Great Australian Bight
[see page 102]

Slide 27

Bay of Bengal
2500 m isobath
[see page 103]

Slide 28

Southern continental margins of the Pacific Ocean: from the South Tasman Rise to the Bismarck Sea
[see page 104]

Slide 29

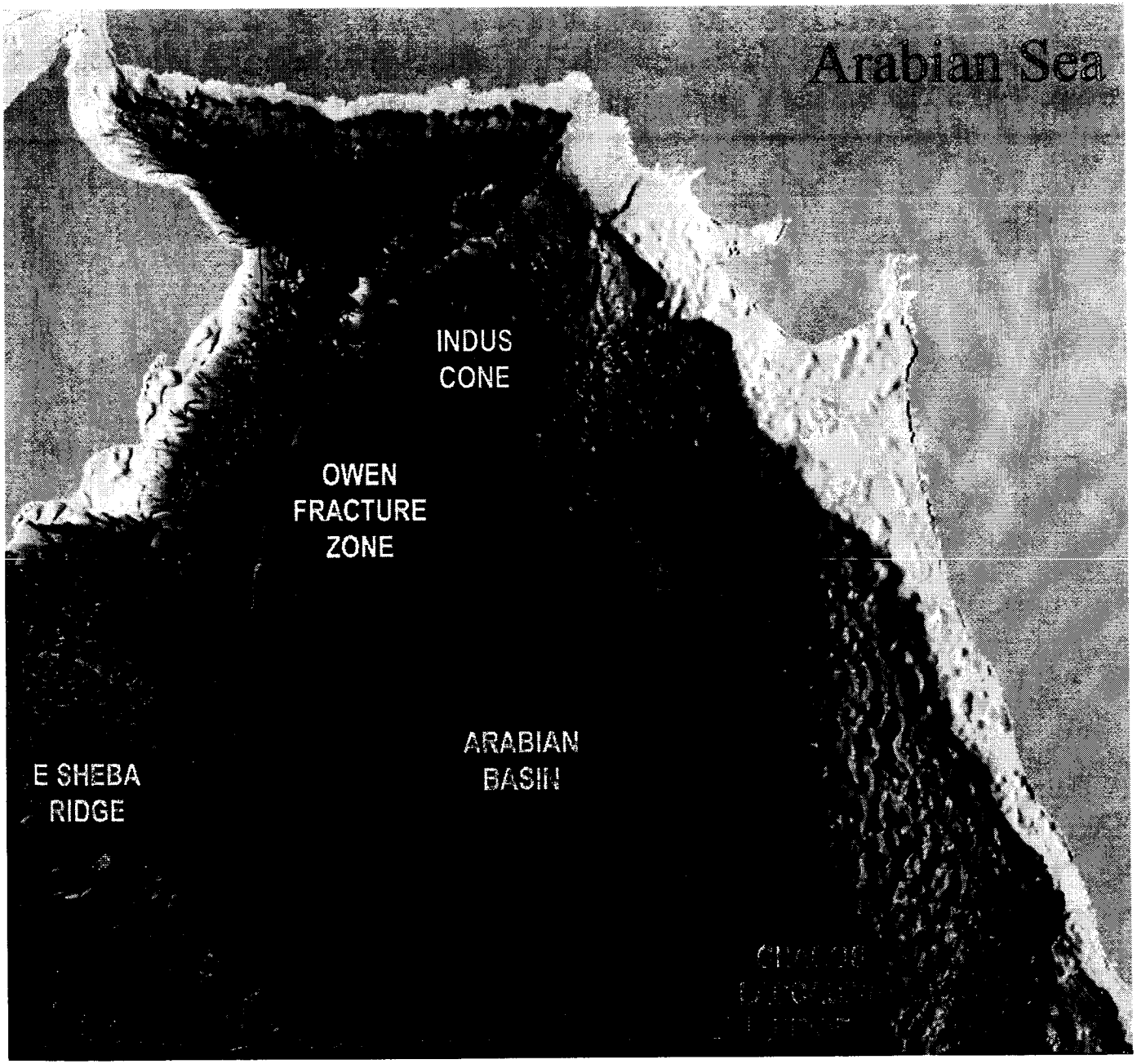
Campbell Plateau
2500 m isobath
[see page 105]

Slide 30

Western continental margins of the Pacific Ocean: from the South China Sea to the Sea of Okhotsk
[see page 106]

Slide 31

Sea of Okhotsk
[see page 107]


Arabian Sea
INDUS
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FRACTURE
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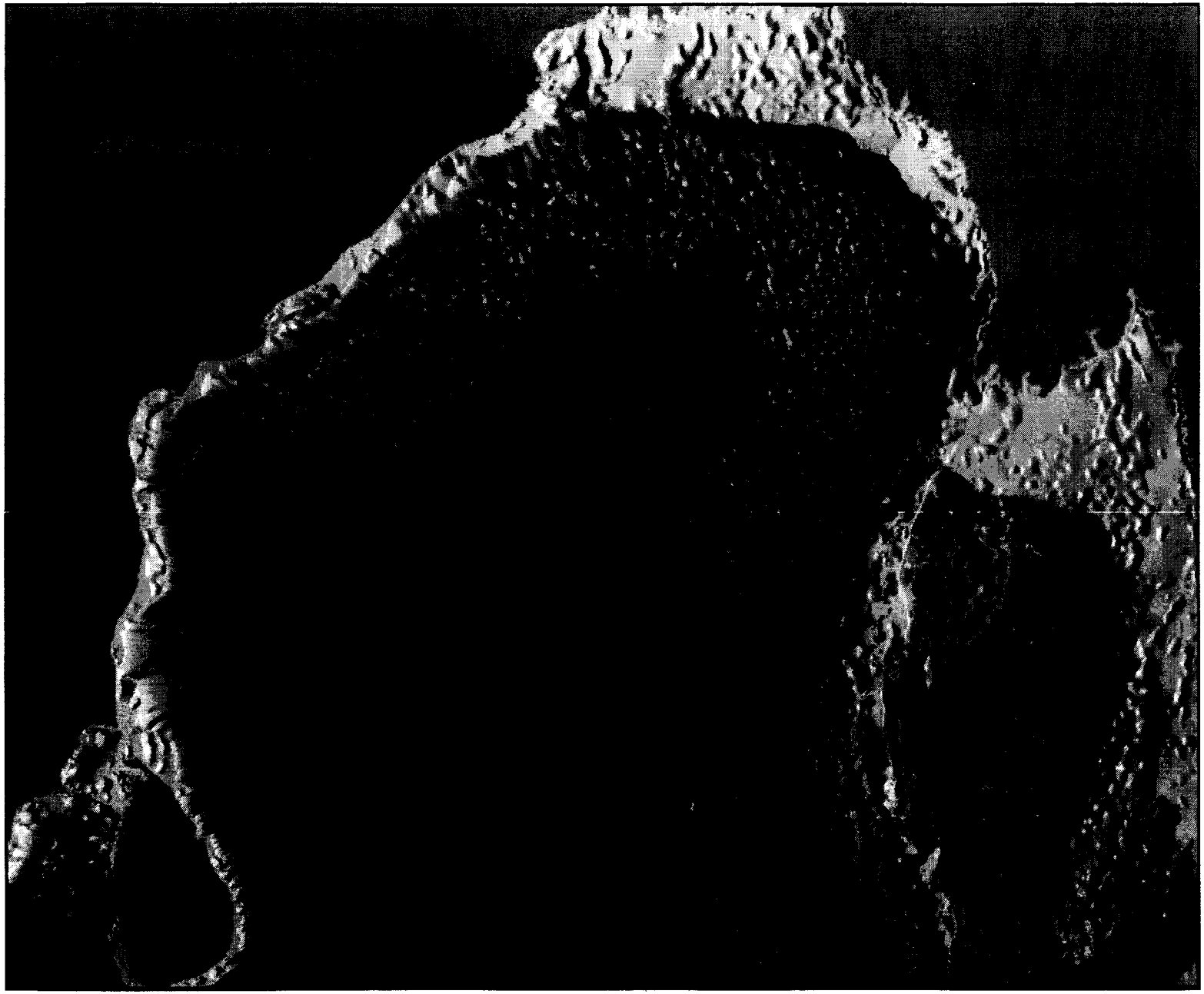
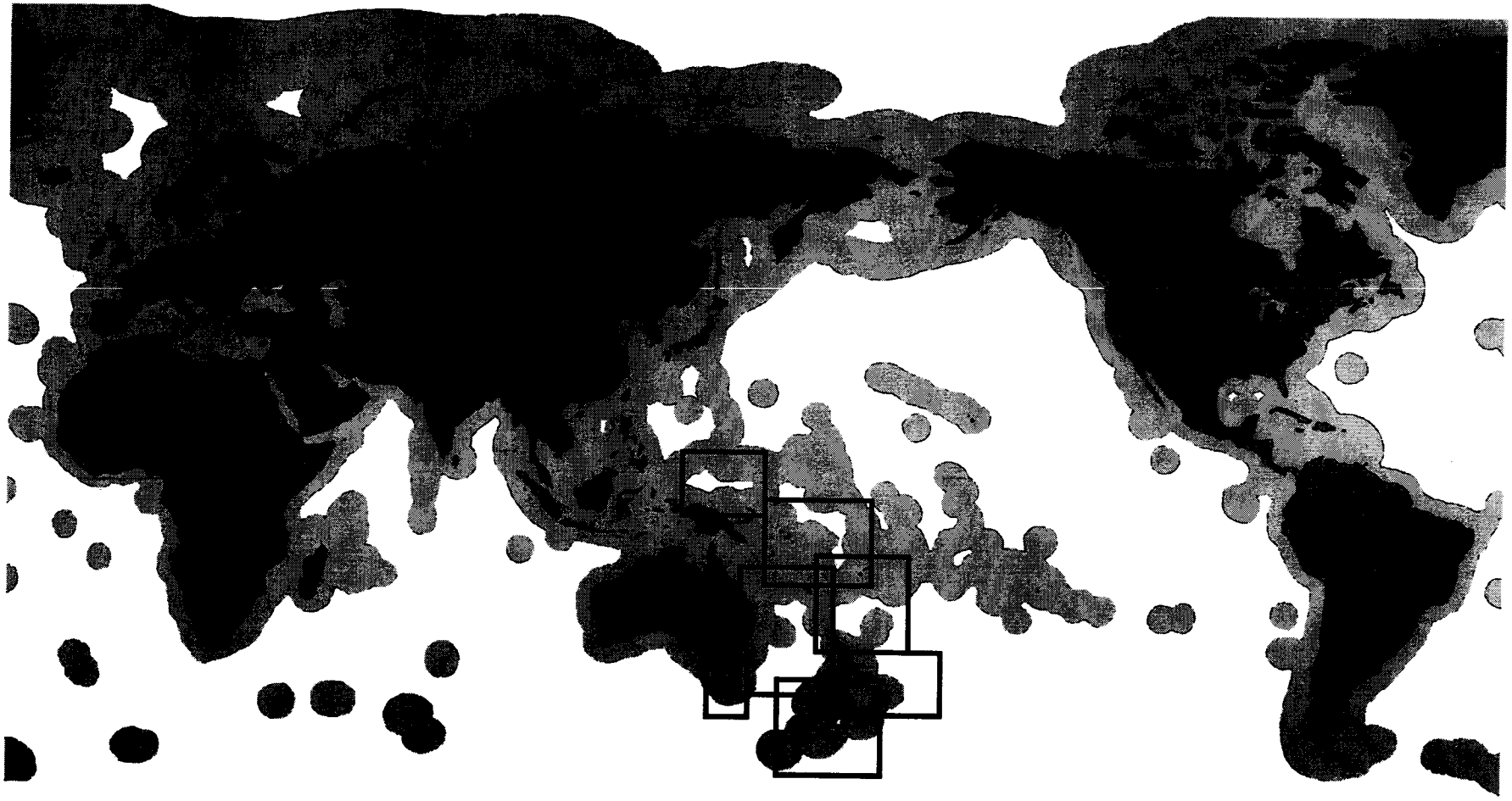
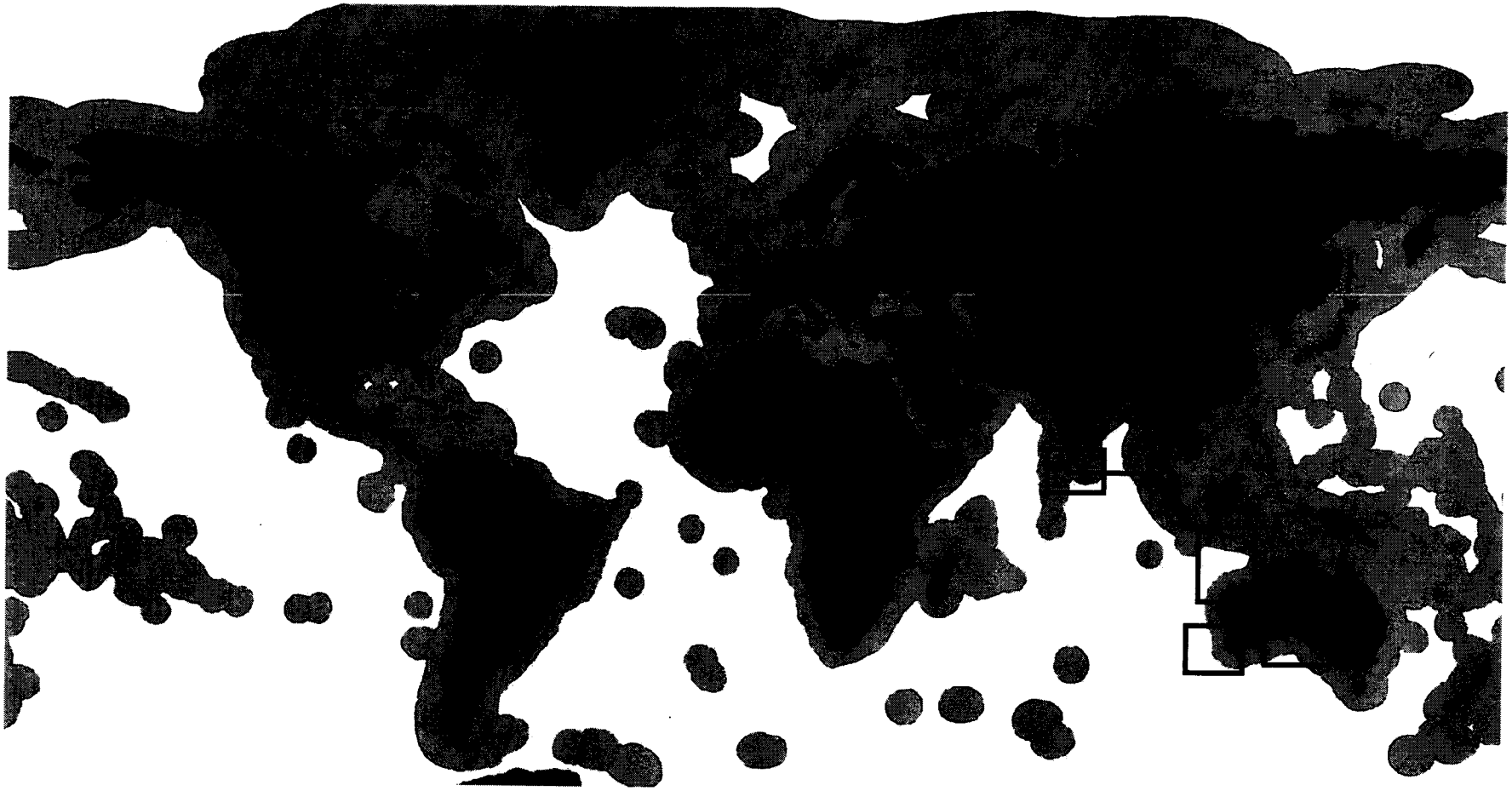
ARABIAN
BASIN
E SHEBA
RIDGE



Southern continental margins of the Pacific Ocean: from the South Tasman Rise to the Bismarck Sea

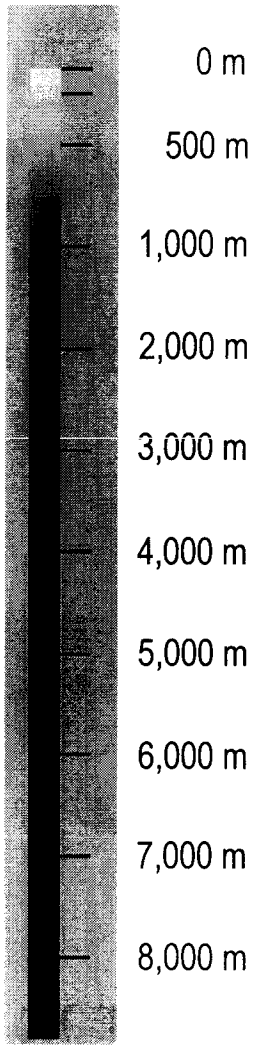


Eastern continental margins of the Indian Ocean: from the Ceylon Plain to the Great Australian Bight

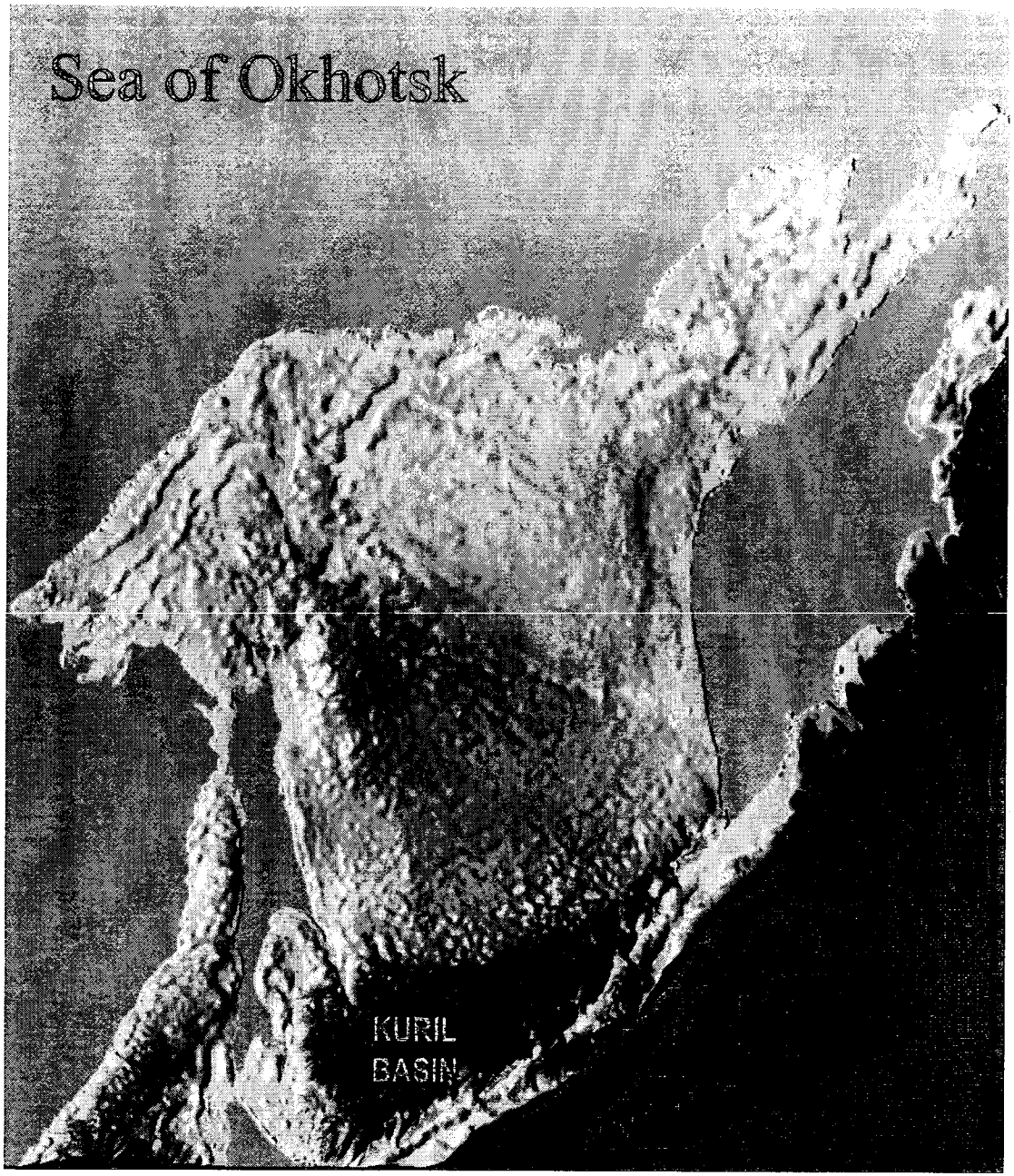


Campbell Plateau

__ 2500 m ISOBATH



Western continental margins of the Pacific Ocean: from the South China Sea to the Sea of Okhotsk


Sea of Okhotsk
KURIL
BASIN

Slide 32

**Northern continental margins of the Pacific Ocean:
from the Bering Sea to the Gulf of Alaska**
[see page 109]

Slide 33

Bering Sea
[see page 110]

Slide 34

**Eastern continental margins of the Pacific Ocean:
from the Panama Basin to the Yaghan Basin**
[see page 111]

Slide 35

Panama Basin
[see page 112]

Slide 36

**Continental margins of the Arctic Ocean:
the Greenland Sea, the Barents Sea and the Central Arctic**
[see page 113]

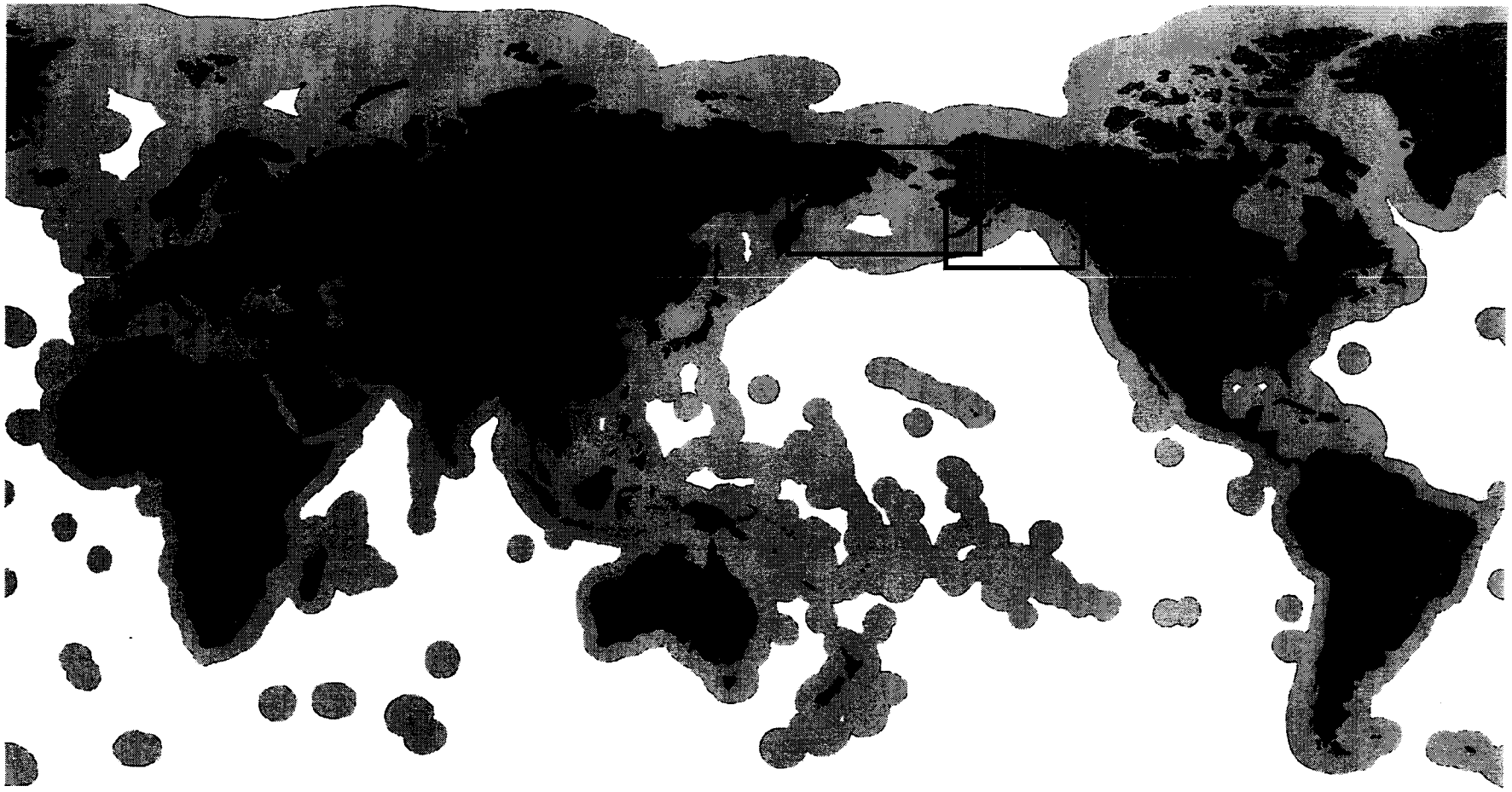
Slide 37

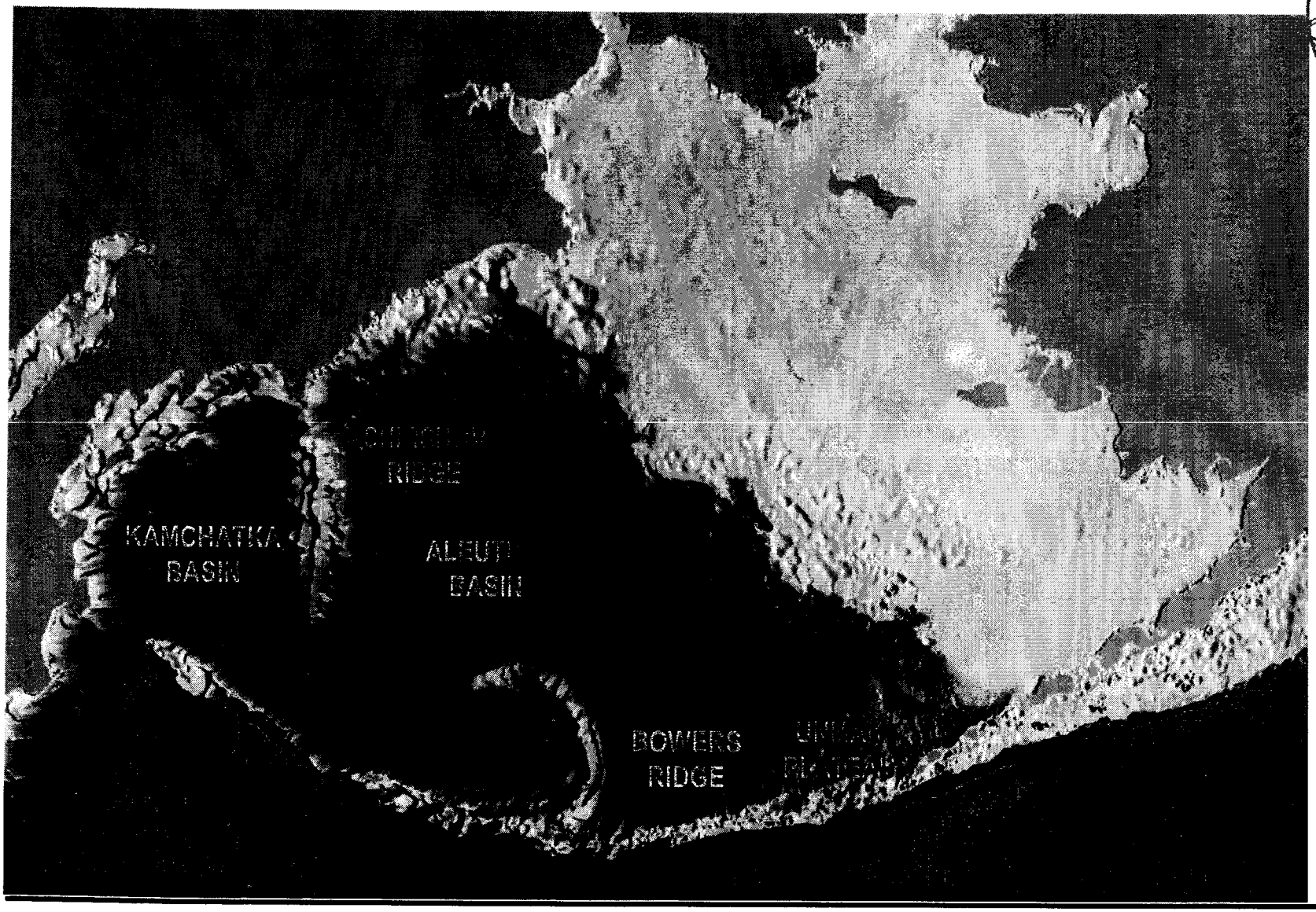
Wide continental margins of the Arctic Ocean
[see page 114]

Slide 38

Wide continental margins of the World
[see page 115]

Northern continental margins of the Pacific Ocean: from the Bering Sea to the Gulf of Alaska

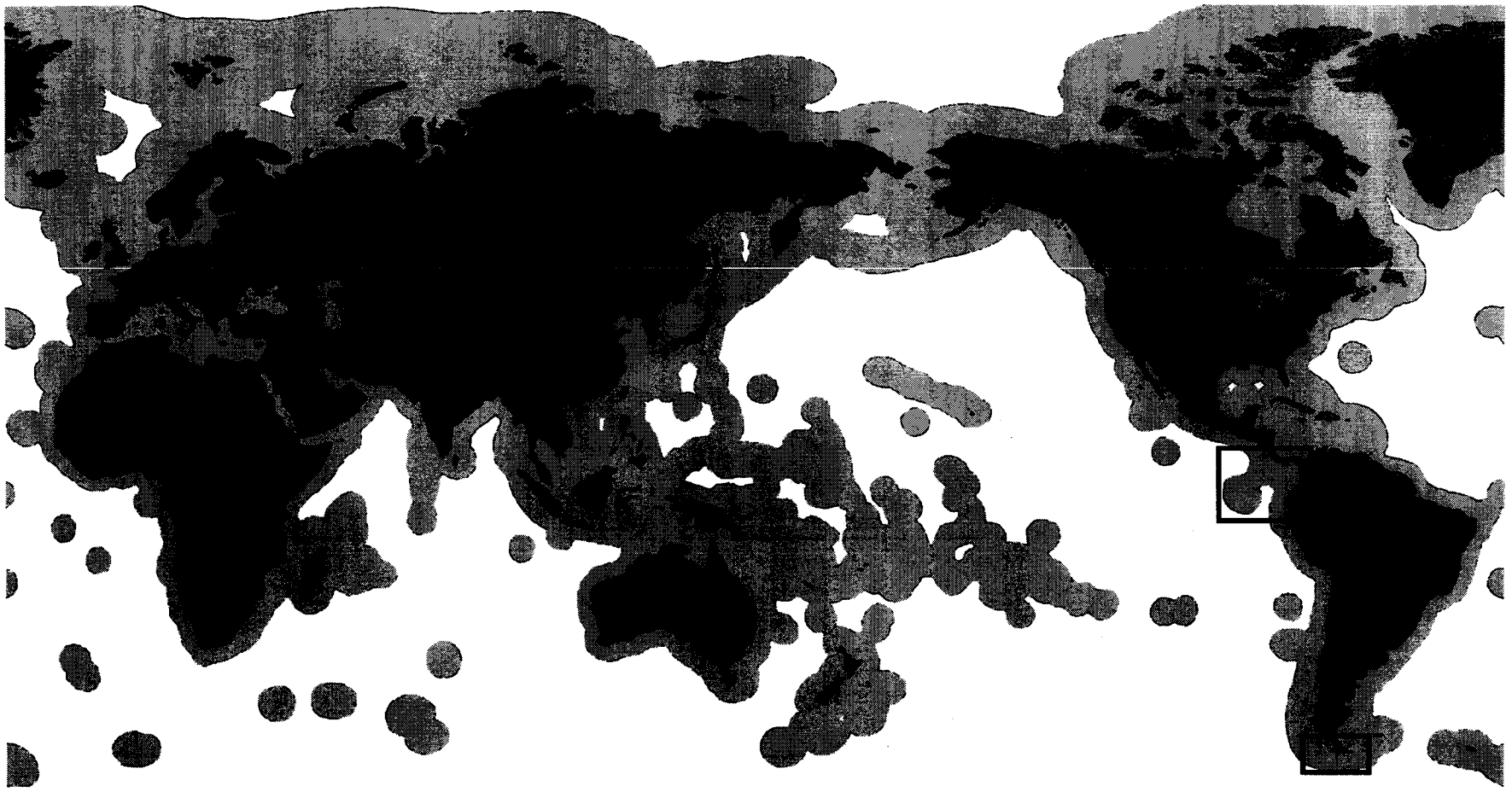


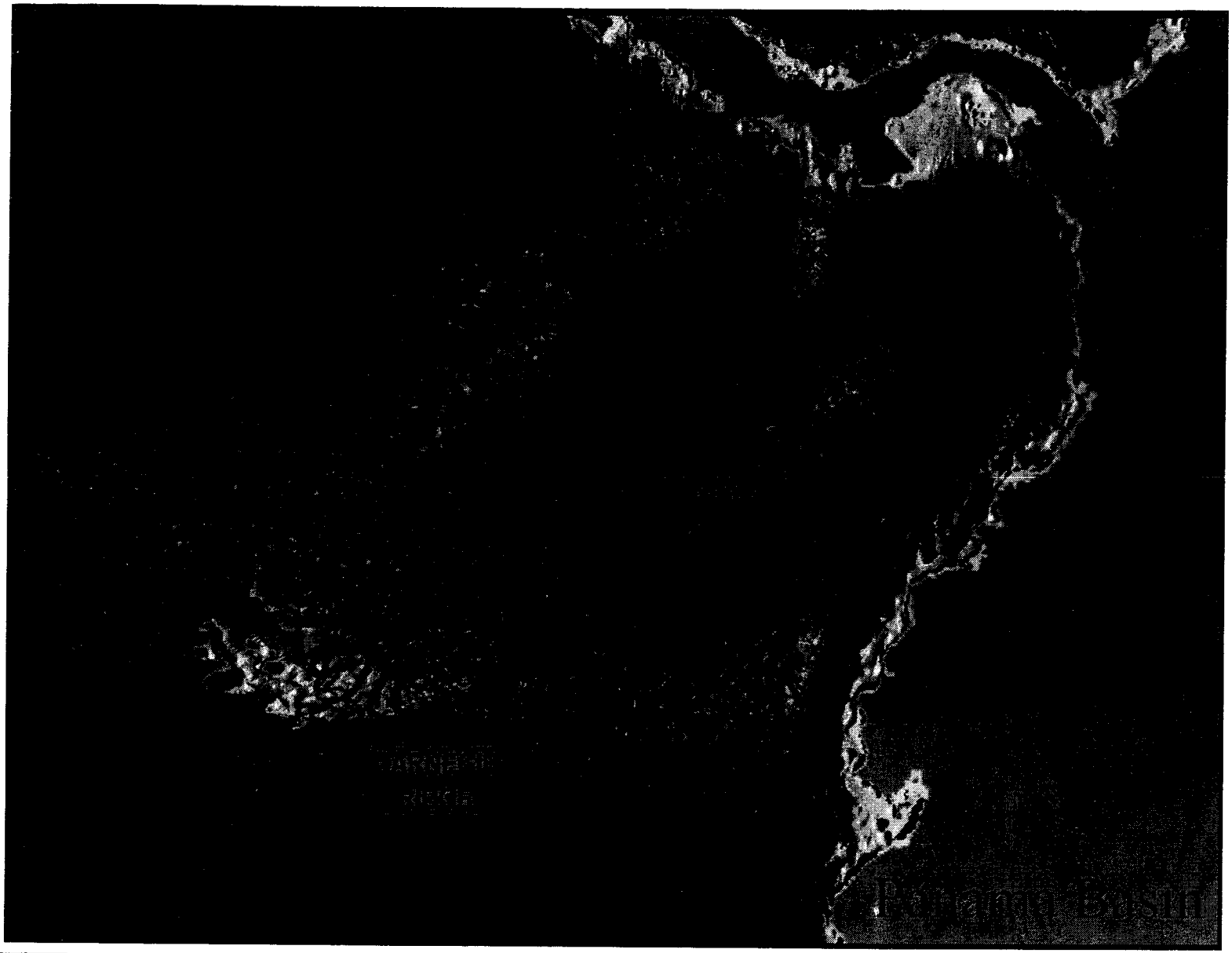


Geographic Scope and Scientific Challenges posed by Article 76 of UNCLOS by G. Carrera

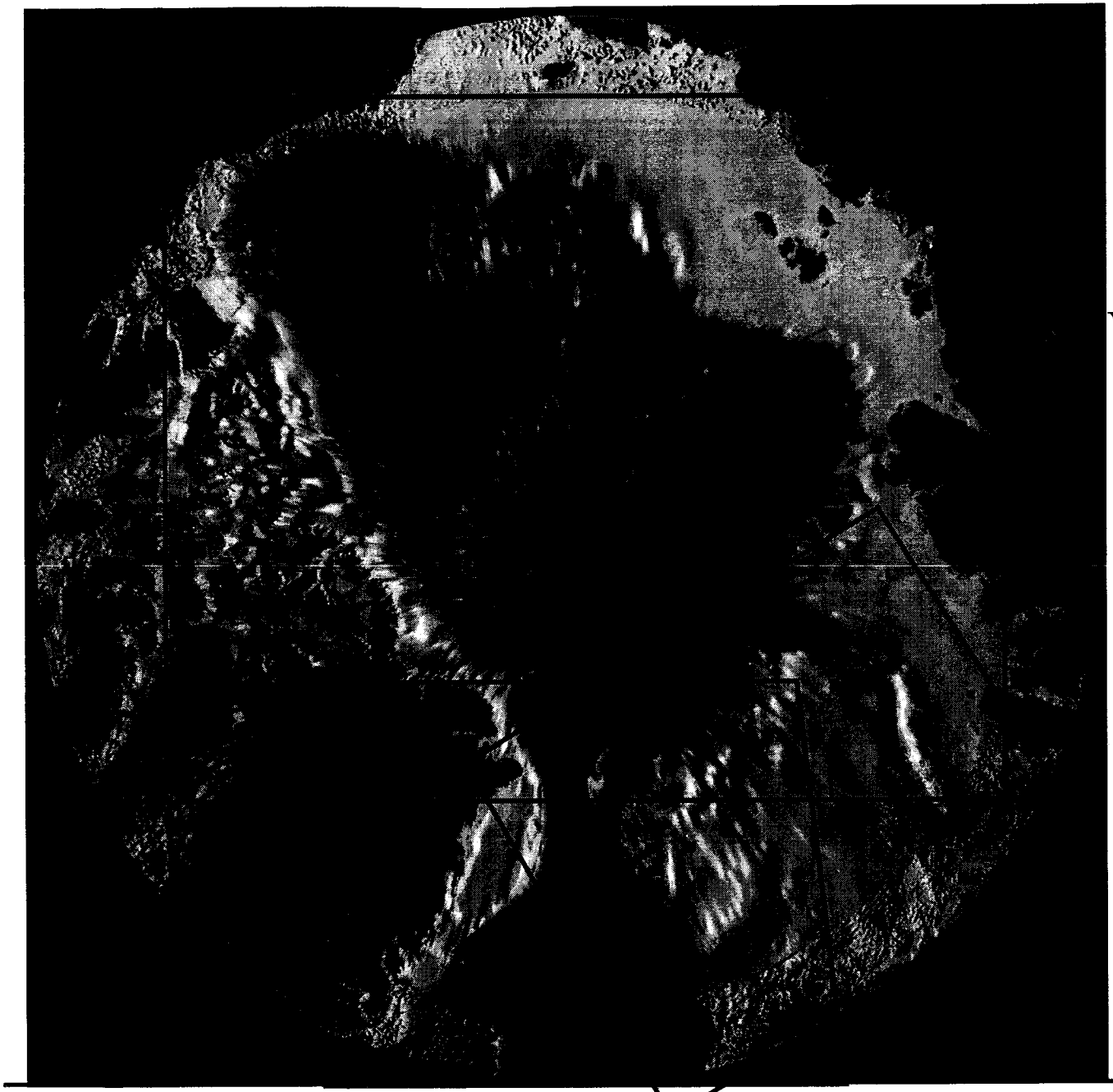
CLCS Open Meeting, UN Headquarters, NY
1 May 2000

Eastern continental margins of the Pacific Ocean: from the Panama Basin to the Yaghan Basin



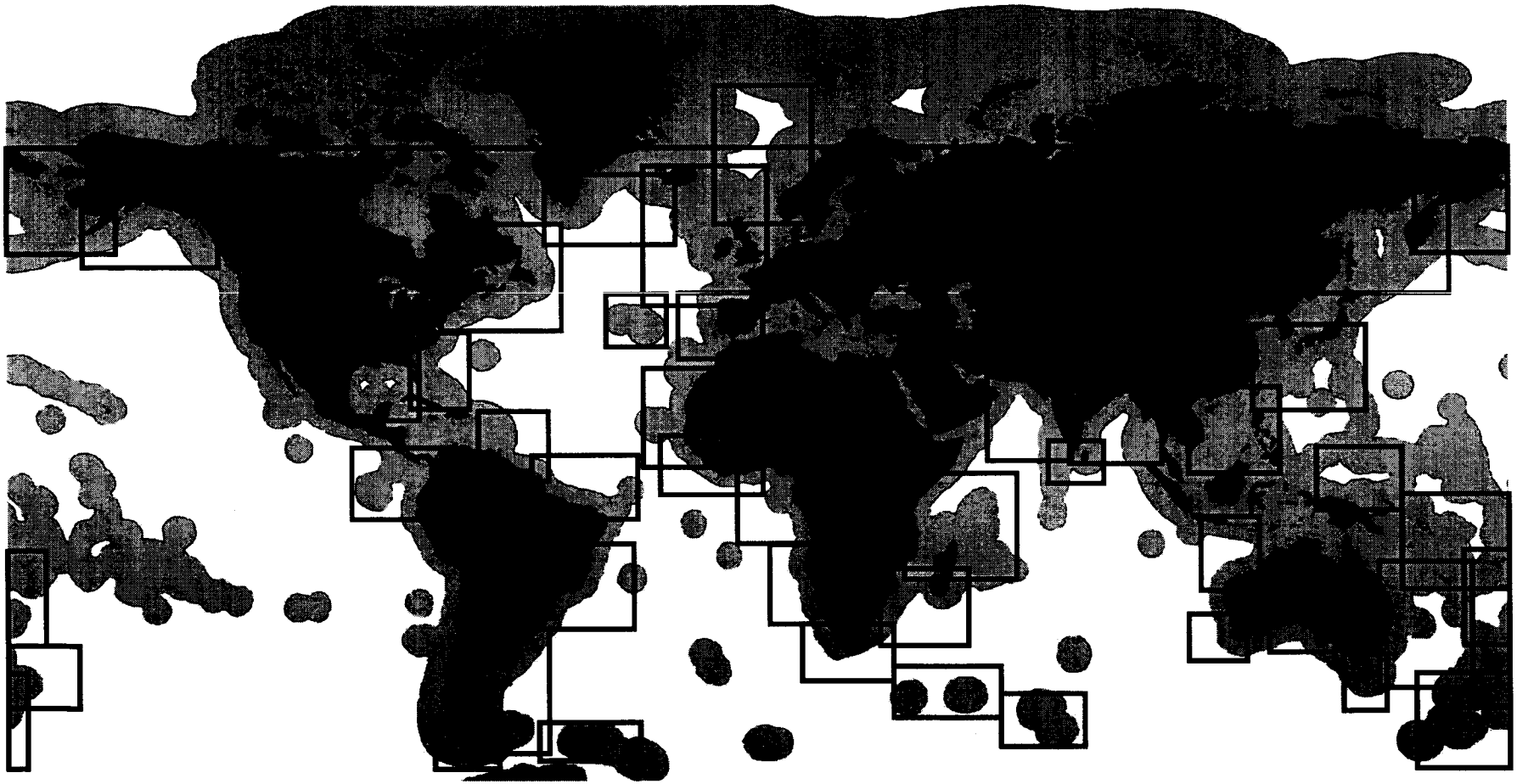


Continental margins of the Arctic Ocean: the Greenland Sea, the Barents Sea and the Central Arctic



Wide continental margins of the Arctic Ocean

Wide continental margins of the World



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Wide continental margins of the World
[see page 117]

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Wide continental margins of the World
[see page 118]

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Wide continental margins of the World
[see page 119]

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Implications of the potential geographic scope of work posed by the implementation of article 76

The Test of Appurtenance may yet indicate the need to prepare submissions to the CLCS within the 10-year rule by

- A greater number of developed, developing and least developed coastal States in all continents and oceans than anticipated in 1982
- States with marine scientific research capabilities ranging from the most modern to practically non-existent
- Groups of neighbouring and regional States

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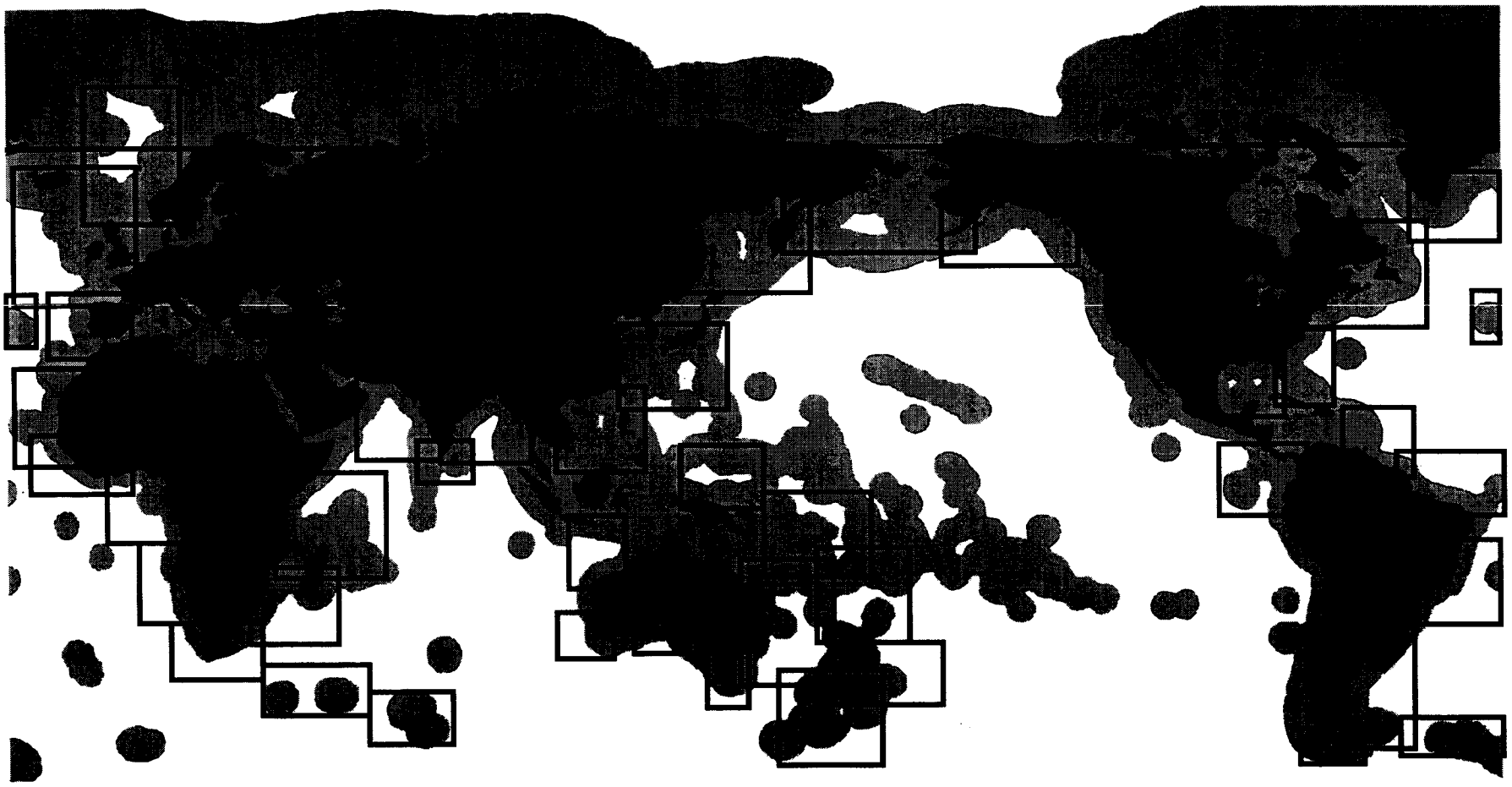
Scientific challenges posed by the implementation of article 76

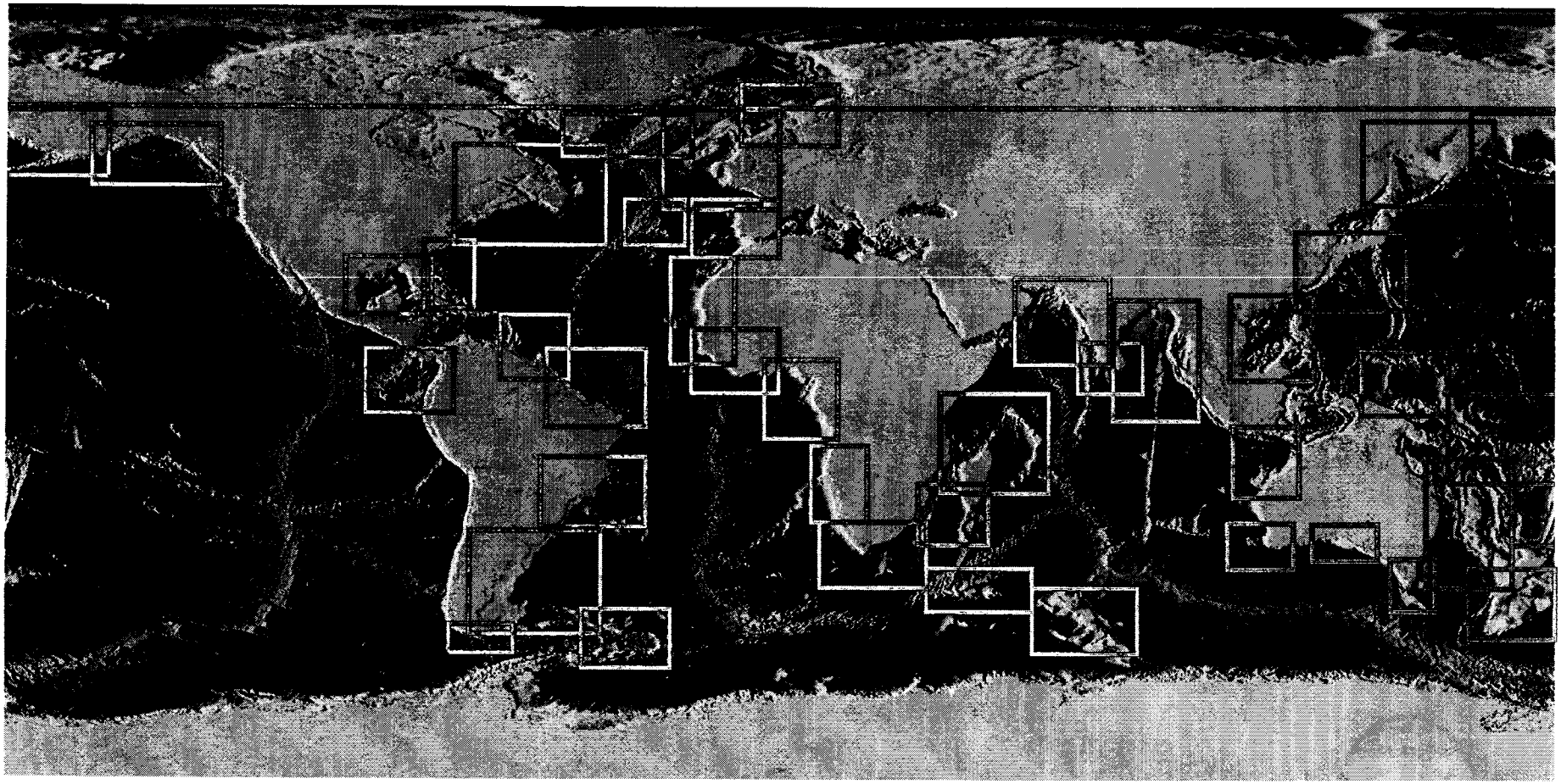
The full implementation of the provisions contained in article 76 of the United Nations Convention on the Law of the Sea poses one of the most ambitious marine scientific challenges faced by the international community within the next decade in terms of

- Data gathering and mathematical modeling of the ocean floor
- Technology transfer and human resources development
- International cooperation in marine scientific research

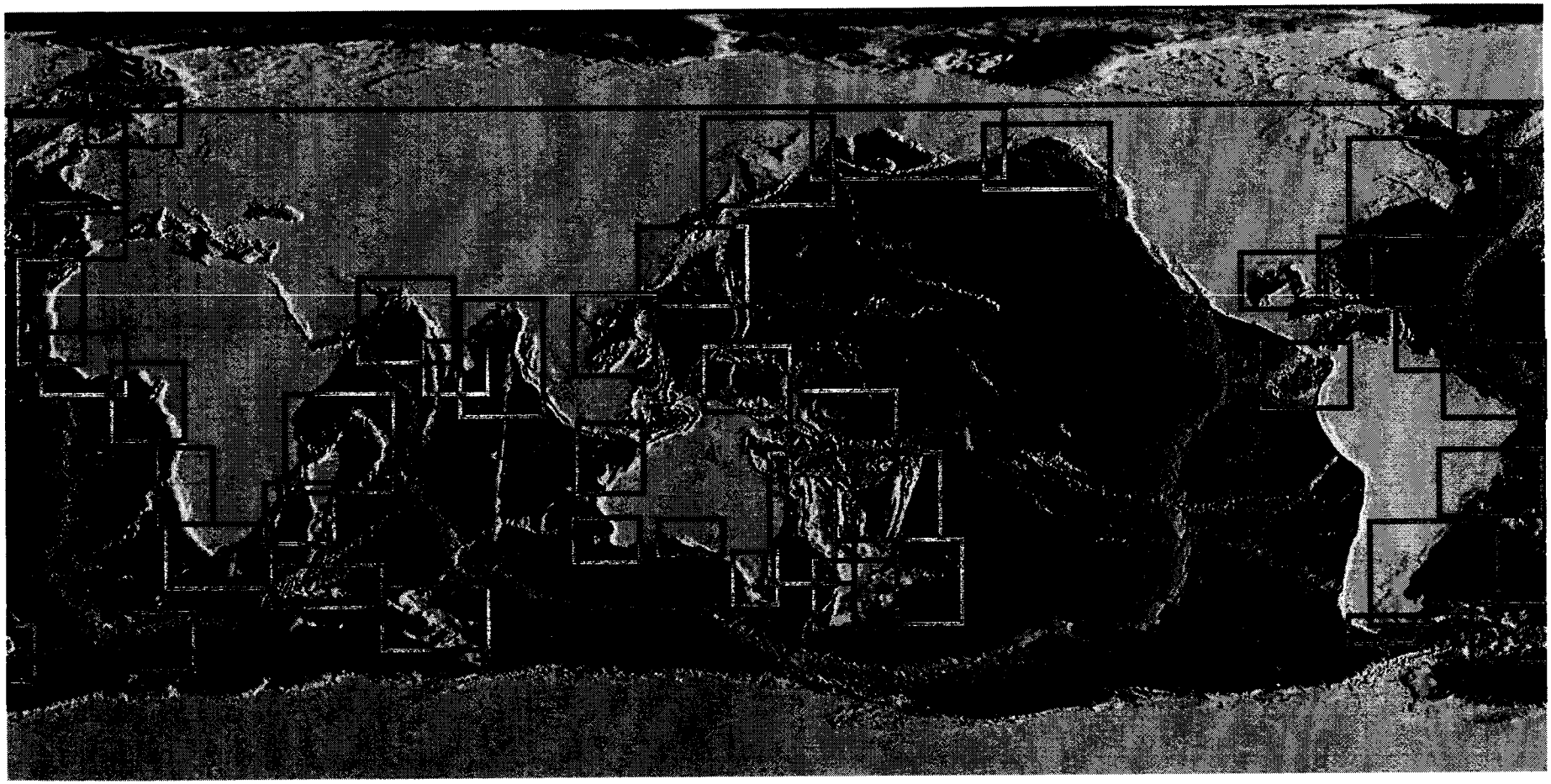
Wide continental margins of the World



Wide continental margins of the World



Wide continental margins of the World



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Plan of action: key elements

The full implementation of the provisions on marine scientific research contained in Part XIII of the Convention play a key role, in turn, in the implementation of article 76. In particular, relating to the flow of scientific data:

- Article 244 Publication and dissemination of information and knowledge
- Article 249 Duty to comply with certain conditions

The Commission may cooperate, to the extent considered necessary and useful, with the IOC of UNESCO, the IHO and other competent organizations with a view to exchanging scientific and technical information

Slide 45

What can the CLCS do to help?

- According to its mandate, the Commission shall provide scientific and technical advice, if requested by a coastal State during the preparation of data
- The Commission has indicated, in Annex I of its Rules of Procedure, its readiness to accept joint submissions by States with a view to promote regional cooperation
- The Commission is currently investigating the potential development of training courses and didactic materials to foster the development of human resources and help strengthen the capacity of national institutions

7. An outline for the preparation of a submission to the Commission on the Limits of the Continental Shelf (Galo Carrera and Alexandre Albuquerque)

Slide 2

Overview

- Initial questions and strategic response
- Data and information compilation
- Delineation:
  An iterative procedure converging to a solution
- Cost / benefit analysis
- From a desktop study to a submission to the CLCS

Slide 3

Initial Questions

- Can the outer limits of the continental shelf be extended beyond 200 M based on currently available information and data?
- What is the best current estimate and uncertainty of the position of these preliminary outer limits?
- Are additional information and data needed?
- What is the full cost of the preparation of a submission?
- What are the economic and strategic benefits to the State?

Slide 4

A National Desktop Study as a strategic plan of action

A national desktop study can become a strategic plan of action designed to:

- Compile a data base of all existing scientific and technical information
- Describe the maximum/minimum potential breadth of all outer limit options
- Identify any potential requirement for additional data and information
- Provide a cost/benefit analysis of all breadth options
- Outline to government an efficient procedure to prepare a submission to the CLCS

Slide 5

Scientific and technical data compilation

- Existing data within the submitting State
  - Government, academic and private institutions
- Existing data outside the submitting State
  - International Centers and Organizations (Guidelines, Annex I)
  - Government and academic institutions of other States

Slide 6

Guidelines – Annex I
List of International Organizations

- Specialized agencies of the United Nations system
- Other United Nations bodies
- International Council of Scientific Unions (ICSU)
  - members; scientific associates; interdisciplinary bodies; permanent services and panels; and inter-union commissions
- International scientific programmes
- Regional organizations and programmes

Slide 7

Existing data outside the submitting State in government and academic institutions of other States

Part XIII of UNCLOS emphasizes the duties of States and international competent organizations vis-à-vis the flow of information. In particular:

Article 244
Publication and dissemination of information and knowledge

Article 249
Duty to comply with certain conditions

Slide 8

Article 244
Publication and dissemination of information and knowledge

1 States and competent international organizations shall … made available … information on proposed major programmes and their objectives as well as knowledge resulting from marine scientific research.

2 For this purpose, States, both individually and in cooperation with other States and with competent international organizations, shall actively promote the flow of scientific data and information and the transfer of knowledge resulting from marine scientific research, especially to developing States …

Slide 9

Article 249
Duty to comply with certain conditions

1(b): provide the coastal State, at its request, with preliminary reports, as soon as practicable, and final results and conclusions after the completion of the research

1(c): undertake to provide access, at its request, to all data and samples derived from the marine scientific research project and likewise to furnish it with data which may be copied and samples which may be divided without detriment to their scientific value

1(d): if requested, provide the coastal State with an assessment of such data, samples and research results or provide assistance in their assessment or interpretation

Slide 10

The Role of the CLCS in data preparation

- According to its mandate, the Commission shall provide scientific and technical advice, if requested by a coastal State during the preparation of data
- Advice in support of the preparation of data may include, among others, advice on compilation and analysis of data
- Potential regional compilations, servicing the needs of more than one State, would avoid unnecessary duplication of effort, time and expense

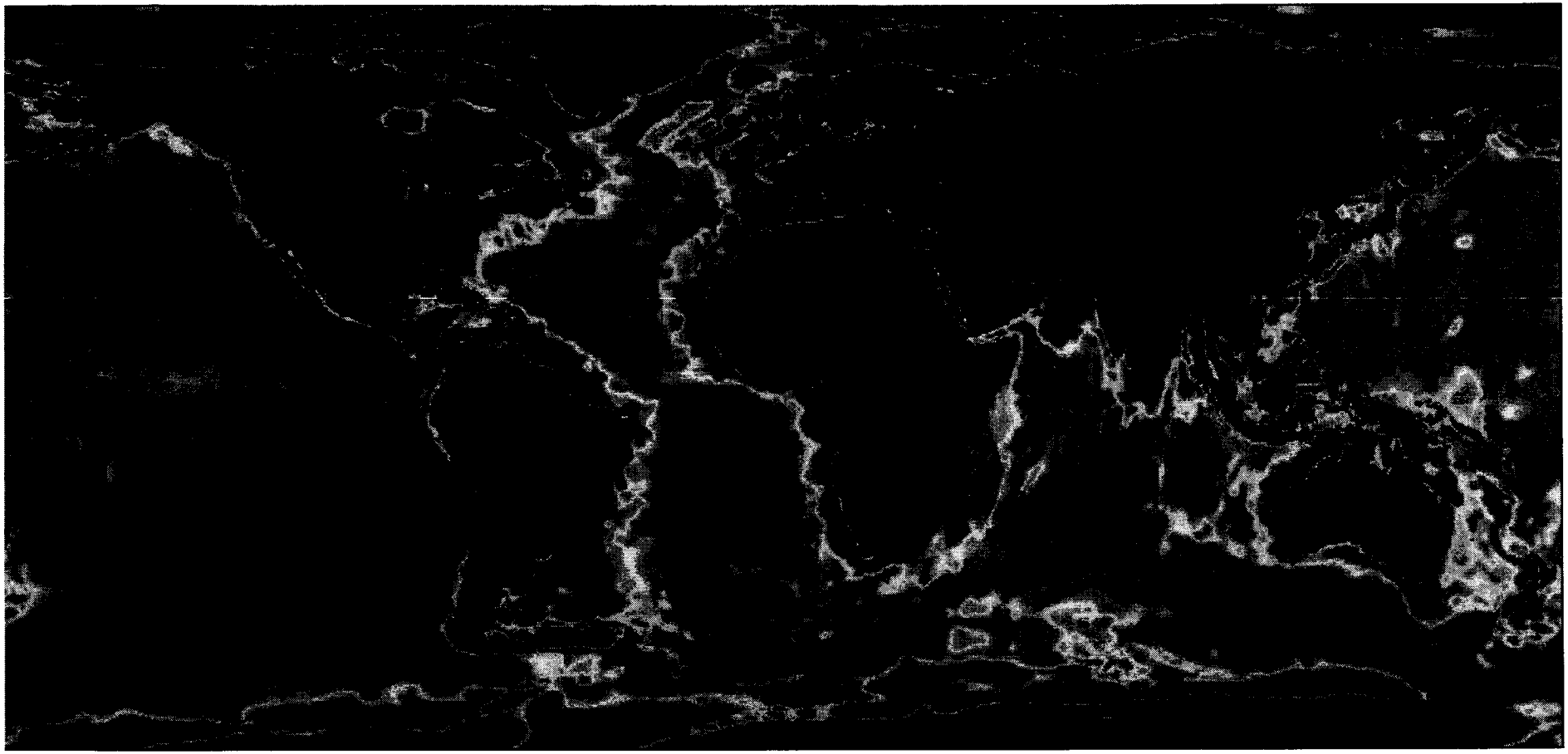
Slide 11

A preliminary global compilation of sediment thickness
[see page 124]

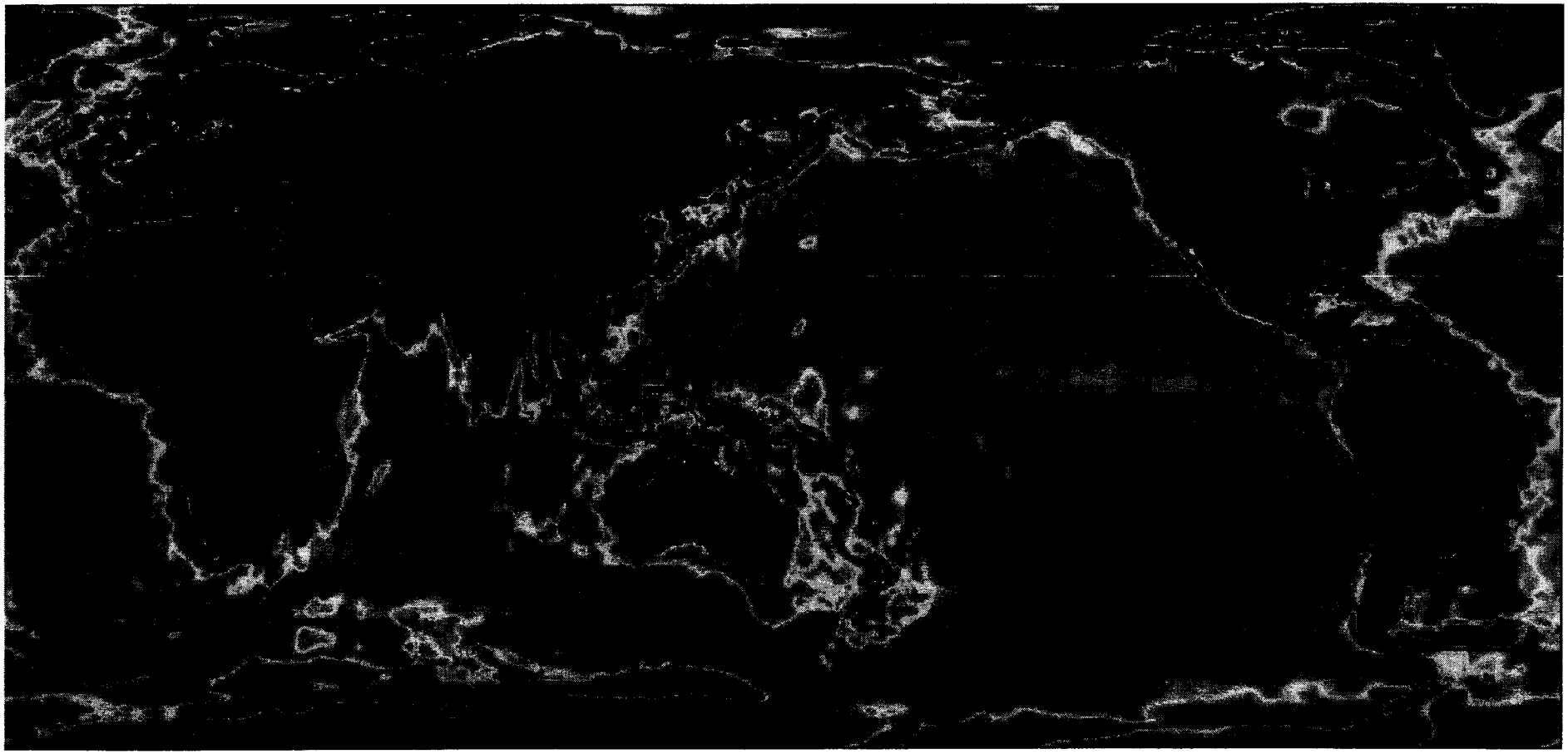
Slide 12

A preliminary global compilation of sediment thickness
[see page 125]

A preliminary global compilation of sediment thickness



A preliminary global compilation of sediment thickness



Slide 13

Potential breadth of outer limits

- The preparation of data for a submission is essentially an iterative procedure:
  - data and information must support each of the rules contained in article 76 which are employed in the delineation
  - remaining uncertainties must be removed
  - the outer limit is tested against all the relevant provisions contained in article 76, Annex II to the Convention, and, if necessary, Annex II to the Final Act
- Do the proposed outer limit and its supporting information and data meet the requirements outlined by the Convention and the CLCS in its Scientific and Technical Guidelines?

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ETOPO5 Model of Hudson Canyon: 5' x 5'
[see page 127]

Slide 15

Predicted Model of Hudson Canyon: 2' x 2'
[see page 128]

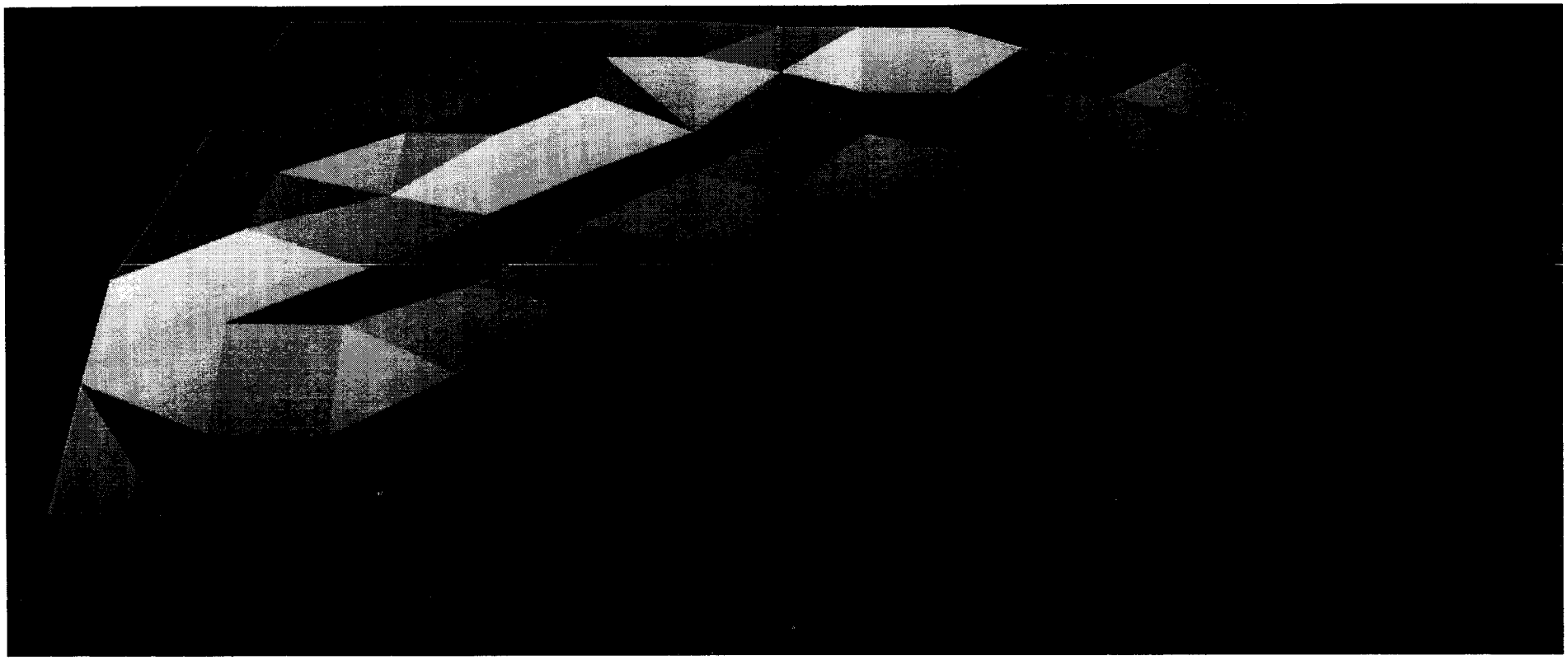
Slide 16

Digital Model of Hudson Canyon: 1' x 1'
[see page 129]

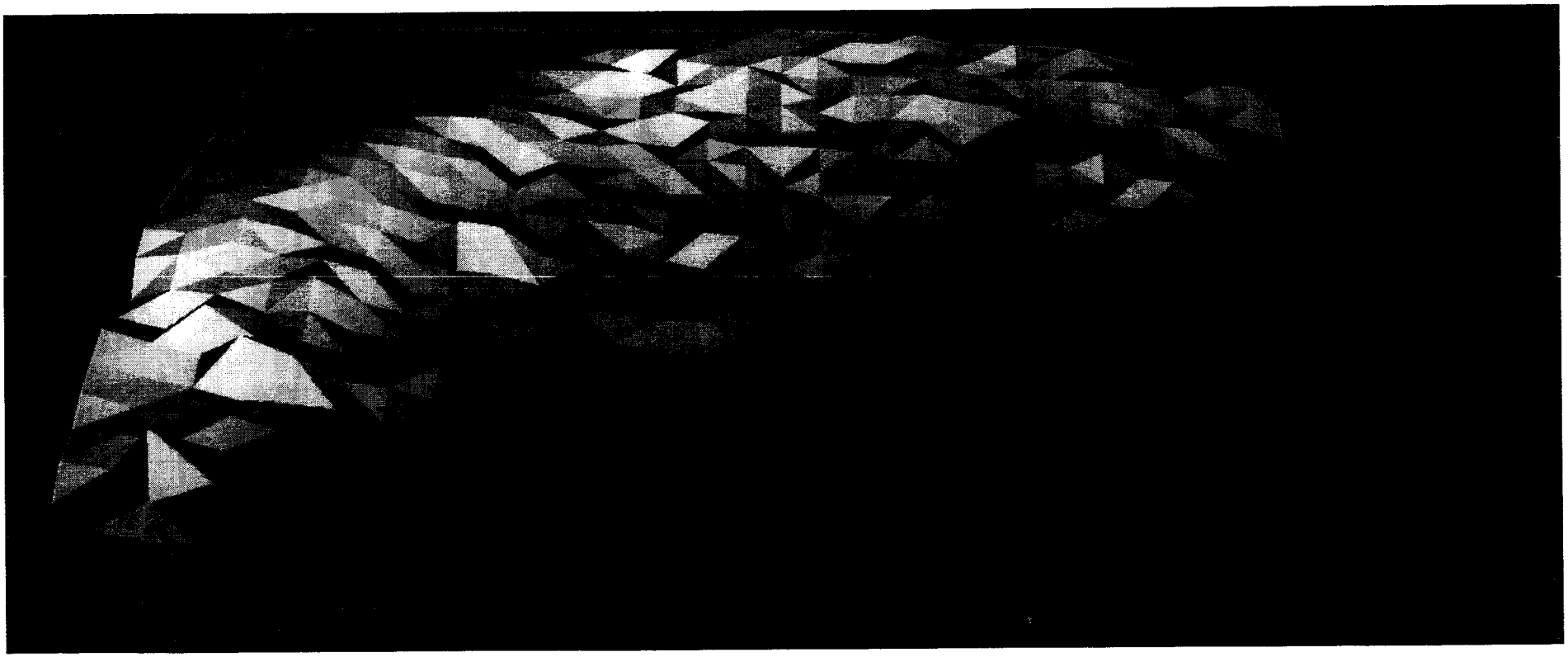
Slide 17

Digital Model of Hudson Canyon: 3" x 3"
[see page 130]

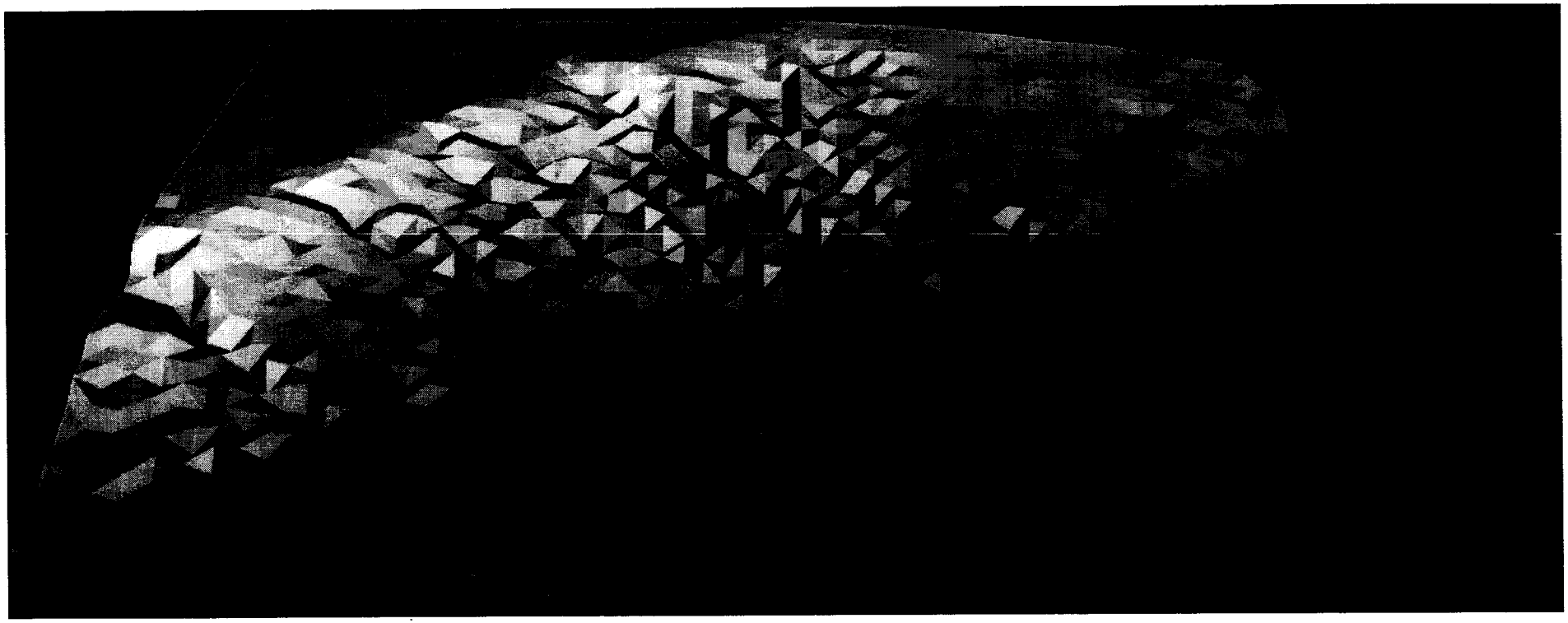
ETOPO5 Model of Hudson Canyon: 5' x 5'



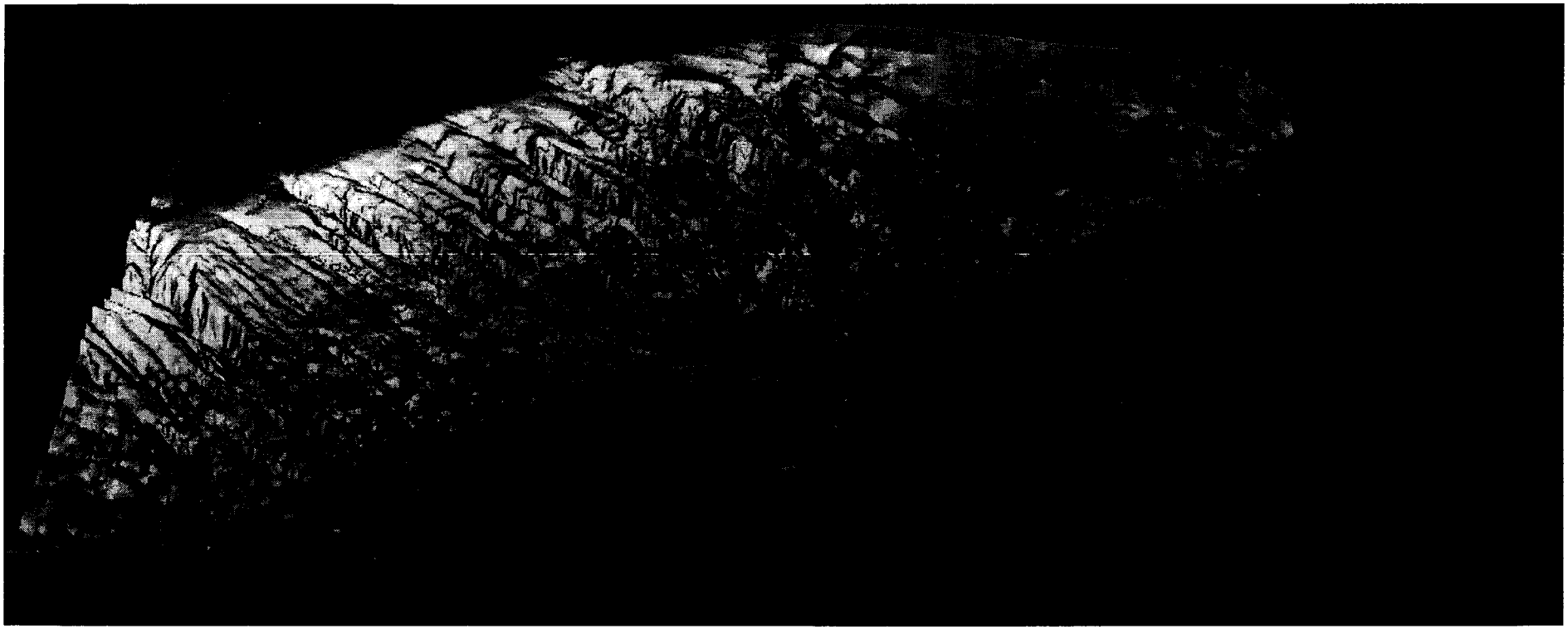
Predicted Model of Hudson Canyon: 2' x 2'



Digital Model of Hudson Canyon: 1' x 1'



Digital Model of Hudson Canyon: 3" x 3"



Slide 18

Cost / benefit analysis

- Minimization of costs
  - optimizing existing information and resources
  - data used in a submission is key to the exploration of natural resources, nautical cartography and marine scientific research, and vice versa
  - international and regional cooperation as per Part XIII

- Benefits
  - Economic: access to potential or proven reserves
  - Strategic: jurisdiction and control

- Risk assessment: best and worst case scenarios

Slide 19

From a National Desktop Study to a Submission to the CLCS

- If sufficient data and information have been compiled, they can serve as the basis for the preparation of a full submission, or a partial submission (Rules of Procedure, Annex I, para.3)

- If new geodetic, geologic, geophysical or hydrographic data need to be collected:
  - they can be obtained by a single State or in cooperation with other States and organizations
  - they can be compiled as part of a joint submission made by two or more States by agreement (Rules of Procedure, Annex I, para. 4)

Slide 20

The assessment of uncertainties in the preparation of a submission

The Scientific and Technical Guidelines pay attention in particular to the assessment and documentation of uncertainties underlying the data used to support a submission:

- Assessments of *a priori* or *a posteriori* estimates of measurement errors
- Confidence zones associated with measurements and limits

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2,000 & 2,500 m isobaths: 3" x 3" and Etopo5
[see page 133]

Slide 22

2,000 & 2,500 m isobaths: 3" x 3" & GEBCO97
[see page 134]

Slide 23

2,000 & 2,500 m isobaths: 3" x 3" & 2' x 2'
[see page 135]

Slide 24

2,000 & 2,500 m isobaths: 3" x 3" & 1' x 1'
[see page 136]

Slide 25

Executive Summary

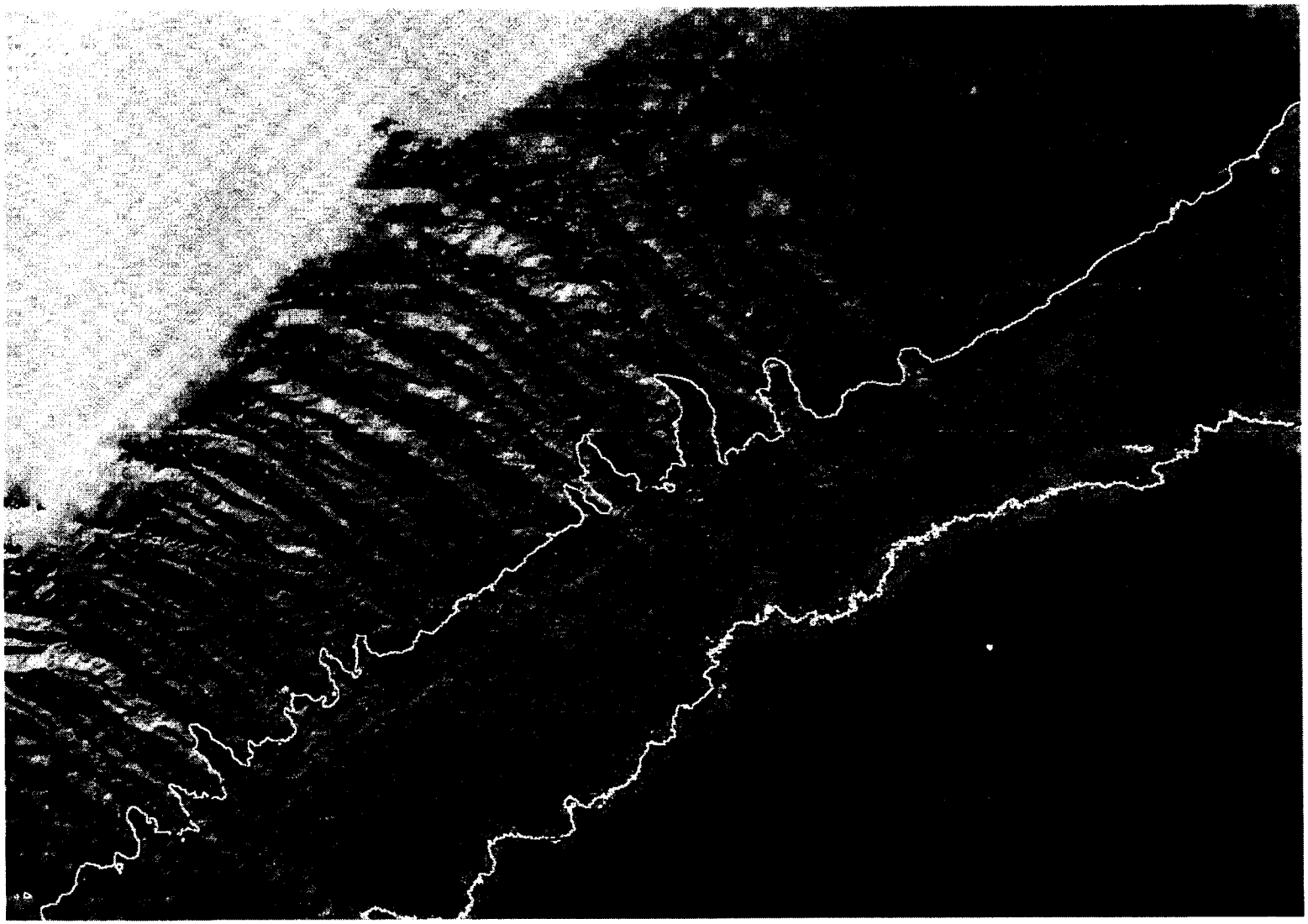
a) Charts at an appropriate scale and coordinates indicating the proposed outer limits of the continental shelf and the relevant territorial sea baselines;

b) Which provisions of article 76 are invoked to support the submission;

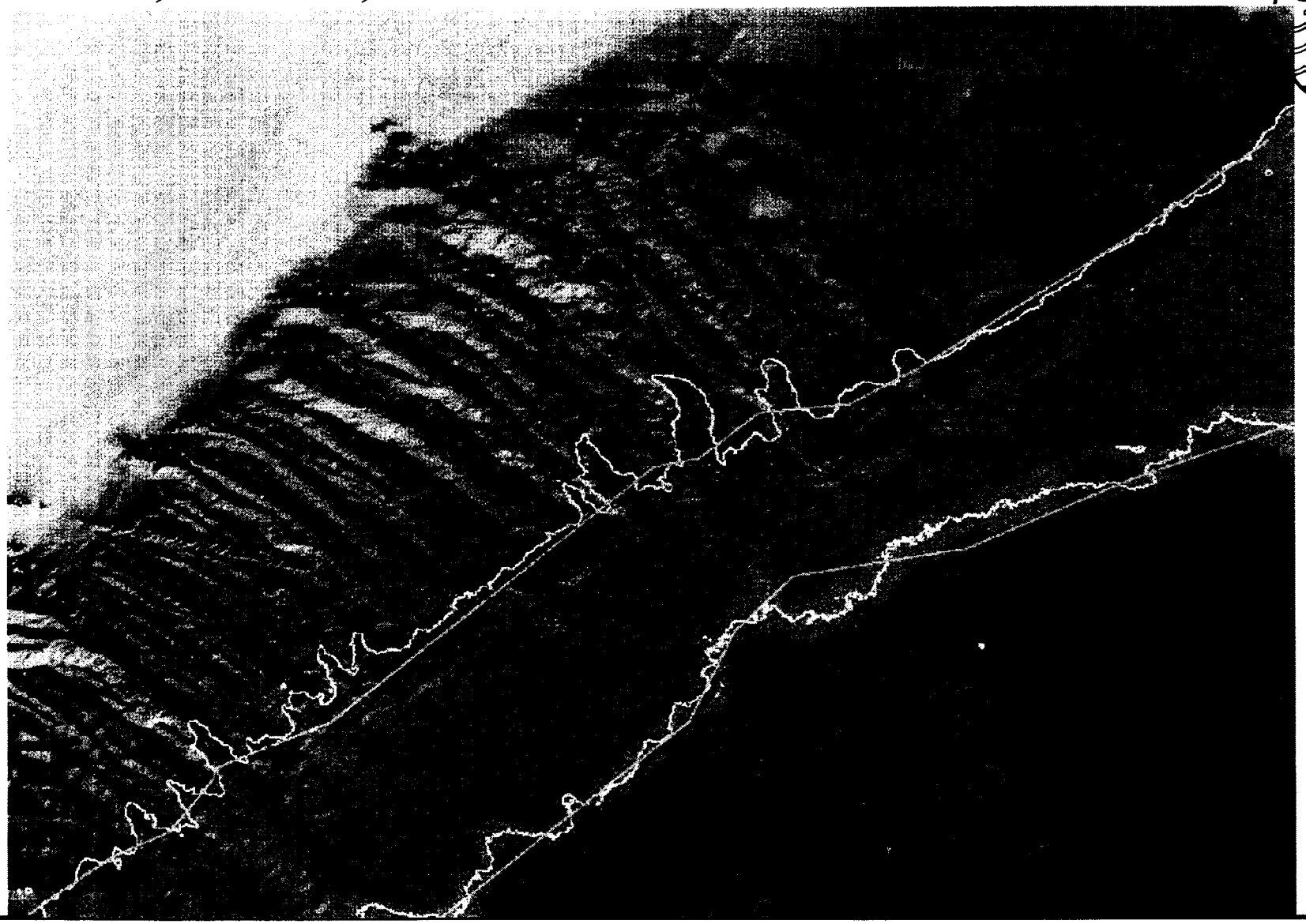
c) The names of any Commission members who gave advice in the preparation of the submission; and

d) Any disputes as referred to in rule 44 and Annex I to the Rules of Procedure of the Commission.

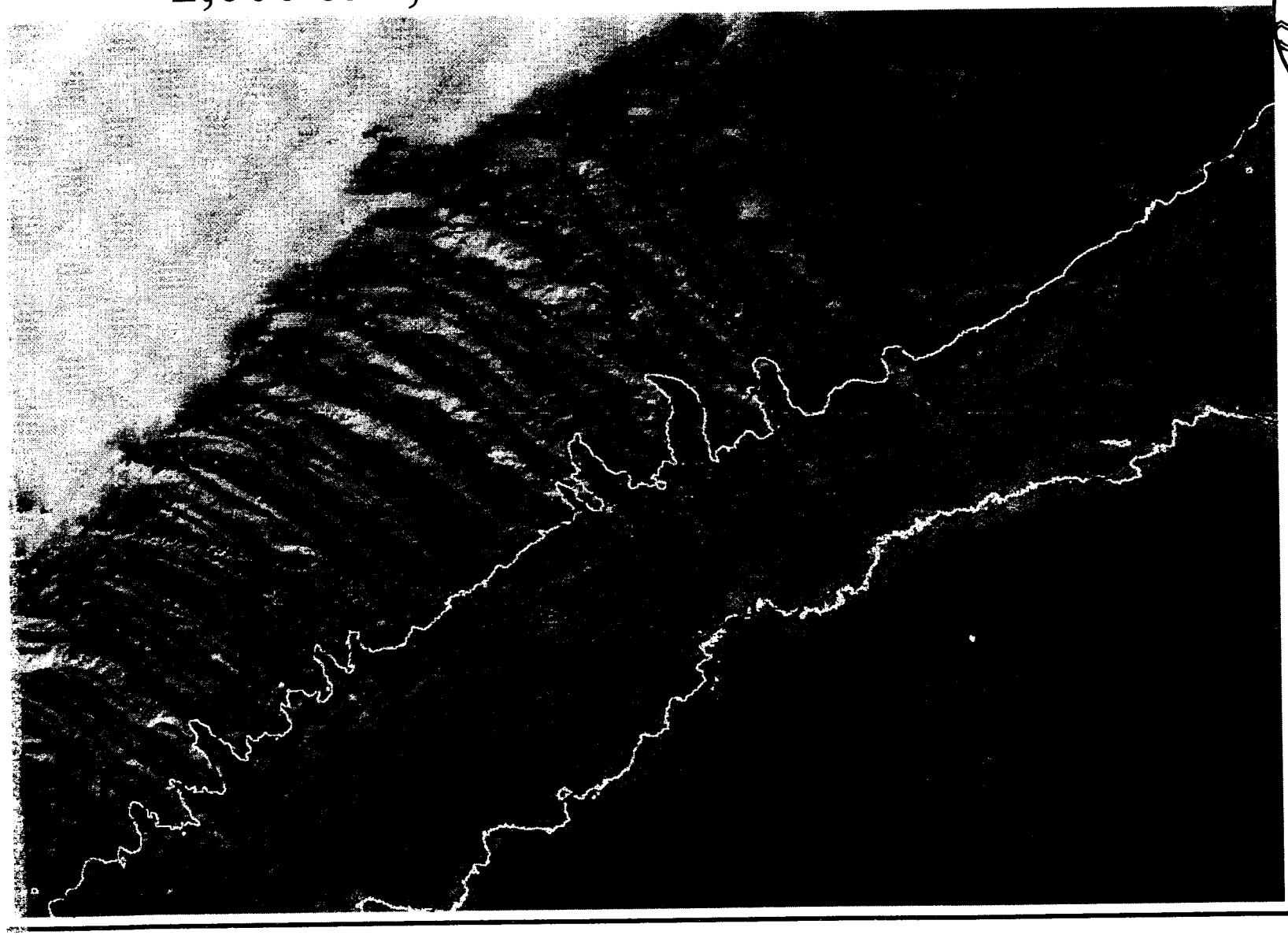
2,000 & 2,500 m isobaths: 3" x 3" and Etopo5



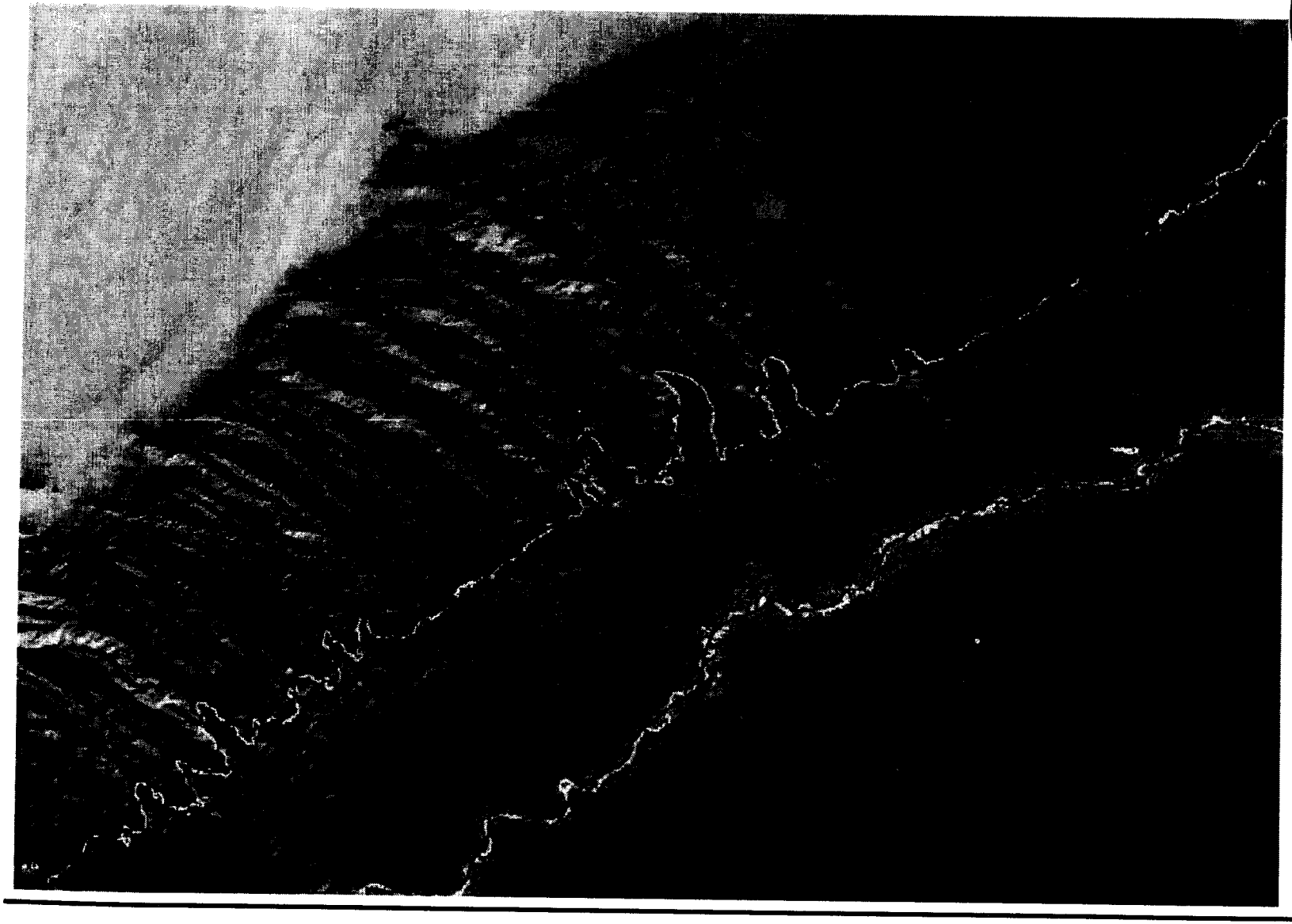
2,000 & 2,500 m isobaths: 3" x 3" & GEBCO97



2,000 & 2,500 m isobaths: 3" x 3" & 2' x 2'



2,000 & 2,500 m isobaths: 3" x 3" & 1' x 1'



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Main body and supporting data

The main body will contain a detailed description of the data set, maps, technical procedures and scientific methodologies applied in the implementation of article 76.

The supporting scientific and technical data will contain a copy of all data referred to in the main body, which will be arranged in separate annexes. All data submitted by the coastal State in support of its submission will be considered by the Commission.

Slide 27

Scientific and technical data

- Bathymetric data and derived products
  - measurement systems, corrections and processing information
- Geodetic data
  - reference system, positioning and geometric information
- Geophysical data and derived products
  - seismic, gravity, magnetic, radiometric and paleomagnetic data
- Geological data
  - *In situ* samples and geochemical data

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Conclusions

- Initial question

- National Desktop Study
  - Data and information compilation
  - Delineation: an iterative procedure converging to a solution
  - Cost/benefit analysis

- From a desktop study to a submission to the CLCS
  - new data: cooperation and the flow of information
  - assessment of uncertainties
  - Executive Summary, Main Body, and Supporting Data

Slide 29

The Continental Shelf

What's in a name? That which we call a rose,
By any other name would smell as sweet;
So Romeo would, were he not Romeo call'd
Retain the dear perfection which he owes
Without that title: - Romeo, doff thy name;
And for that name, which is no part of thee,
Take all myself.

William Shakespeare, *Romeo and Juliet*
