



## Commission on the Limits of the Continental Shelf

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### **RECOMMENDATIONS OF THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF IN REGARD TO THE SUBMISSION MADE BY THE ISLAMIC REPUBLIC OF PAKISTAN ON 30 APRIL 2009**

Recommendations prepared by the Subcommittee established for the consideration  
of the Submission made by the Islamic Republic of Pakistan

Approved by the Subcommittee on 21 November 2014  
Approved by the Commission, with amendments, on 13 March 2015

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## GLOSSARY OF TERMS

<b>DOALOS</b>	Division for Ocean Affairs and Law of the Sea, Office of Legal Affairs
<b>Article 76</b>	Article 76 of the Convention
<b>M</b>	Nautical mile
<b>200 M Limit</b>	The line at 200 M from the baselines from which the breadth of the territorial sea is measured
<b>FOS</b>	Foot of the continental slope
<b>FOS Points</b>	Foot of the continental slope points
<b>Critical FOS Points</b>	Foot of the continental slope points that generate fixed formula points delineating the line that establishes the outer limits of the continental shelf
<b>2500 metre isobath</b>	A contour line connecting points at which the water depth is 2500 metres
<b>60 M Formula Arcs</b>	Arcs determined from the application of article 76, paragraph 4(a)(ii), of the Convention (also informally referred to as the Hedberg formula)
<b>Sediment Thickness Formula Points</b>	Points determined from the application of article 76, paragraph 4(a)(i), of the Convention (also informally referred to as Gardiner points)
<b>Depth Constraint</b>	The constraint line constructed at 100 M from the 2500 metre isobaths in accordance with article 76, paragraph 5, of the Convention
<b>Distance Constraint</b>	The constraint line constructed at 350 M from the baselines from which the breadth of the territorial sea is measured in accordance with article 76, paragraphs 5 and 6, of the Convention
<b>Guidelines</b>	Scientific and Technical Guidelines of the Commission (CLCS/11 and CLCS/11/Add.1)
<b>Commission</b>	Commission on the Limits of the Continental Shelf
<b>Convention</b>	United Nations Convention on the Law of the Sea of 10 December 1982
<b>Rules of Procedure</b>	Rules of Procedure of the Commission (CLCS/40/Rev.1)
<b>Secretary-General</b>	Secretary-General of the United Nations

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## I. INTRODUCTION

- 1 On 30 April 2009, the Islamic Republic of Pakistan (hereafter 'Pakistan') submitted to the Commission on the Limits of the Continental Shelf, through the Secretary-General of the United Nations,<sup>1</sup> information on the limits of the continental shelf beyond 200 M from the baselines from which the breadth of the territorial sea is measured, in accordance with article 76, paragraph 8, of the Convention.
- 2 The Convention entered into force for Pakistan on 28 March 1997.
- 3 The Submission was for the area to the south and east of the Murray Ridge in the Arabian Sea.<sup>2</sup>
- 4 On 4 May 2009, the Secretary-General issued Continental Shelf Notification CLCS.29.2009.LOS giving due publicity to the Executive Summary of the Submission in accordance with rule 50 of the Rules of Procedure. Pursuant to rule 51 of the Rules of Procedure, the consideration of the Submission was included in the provisional agenda of the twenty-fourth session of the Commission.
- 5 In a communication dated 7 August 2009, the Sultanate of Oman informed the Secretary-General that it was actively involved in the preparation of a continental shelf claim and that the area of its submission included, but was not limited to the same area over which Pakistan had submitted its claim. It was, therefore, essential to Oman that Pakistan's submission was not considered until Oman had completed and submitted its continental shelf claim. Further, that Pakistan's claim abutted Oman's exclusive economic zone and that it reserved its right to claim this maritime zone based on its approved national baselines. In a subsequent communication, dated 10 November 2014, Oman withdrew its request and confirmed that it had no objection to the Commission considering and making recommendations on Pakistan's submission.
- 6 The presentation on the Submission was made to the plenary of the thirty-second session of the Commission on 16 August 2013, by the Head of Delegation, Mr. Akhlaq Ahmad Tarar, Secretary, Ministry of Science and Technology, together with Mr. Ali Rashid Tabrez, Director General, National Institute of Oceanography; Mr. Asif Inam, Project Director, National Institute of Oceanography; and Mr. Muzaffar Mahmood, Deputy Chief, Maritime Affairs (who provided a technical presentation). The Delegation of Pakistan (the "Delegation") also included H.E. Sahebzada Ahmed Khan, Acting Permanent Representative of Pakistan to the United Nations, New York, as well as a number of advisers. In addition to elaborating on substantive points of the Submission, Mr. Tarar indicated that Messrs. Arshad, Haworth and Roest, members of the Commission, had assisted Pakistan by providing scientific and technical advice with respect to the Submission.
- 7 The Commission addressed the modalities for the consideration of the Submission, taking into account the communication from Oman, dated 7 August 2009, and the presentation made by the Delegation. It decided that, as provided for in article 5 of annex II to the Convention and in rule 42 of the Rules of Procedure, the

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<sup>1</sup> Division for Ocean Affairs and the Law of the Sea ("DOALOS"), Office of Legal Affairs, United Nations.

<sup>2</sup> The list of the material included in the original Submission is contained in Annex II to the Recommendations.

Submission would be addressed through the establishment of a Subcommission, which was established on 26 August 2013.

- 8 The following members of the Commission were elected as members of the Subcommission for consideration of the Submission made by Pakistan: Messrs. Martin Vang Heinesen, Wenzheng Lyu, Estevao Stefane Mahanjane, Simon Njuguna, Carlos Marcelo Paterlini and Tetsuro Urabe. The Commission agreed that, owing to the absence of members, the seventh member of the Subcommission would be appointed at a subsequent stage. The Subcommission met during the thirty-second session and elected Mr. Urabe as Chairperson and Messrs. Heinesen and Lyu as Vice-Chairpersons. The Subcommission met during the thirty-third session, from 11 to 22 November 2013, and carried out the initial examination of the submission, in conformity with annex III to the Rules of Procedure. The Subcommission undertook the preliminary analysis of the Submission, and concluded that, inter alia, given the volume and nature of the data contained in the Submission, the Subcommission would require additional time for the consideration of the Submission.
- 9 The Subcommission conducted its examination of the Submission during the following sessions: thirty-third, thirty-fourth, thirty-fifth and thirty-sixth. During these sessions the Subcommission held eleven meetings with the Delegation in which it posed nine questions in writing, gave two presentations on technical aspects and one comprehensive presentation of its views and general conclusions arising from its examination of the Submission pursuant to paragraph 10.3 of annex III to the Rules of Procedures.<sup>3</sup>
- 10 During the course of the main examination of the Submission by the Subcommission and the Commission, the Delegation provided responses to the questions posed in both writing and as presentations, and provided additional material.<sup>4</sup> During the examination of the Submission, the Subcommission requested and received support from the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, including geographic information analysis and preparation of related illustrative maps and other related illustrations.
- 11 The Subcommission approved its Recommendations on 21 November 2014, and submitted them to the Commission on 26 November 2014, for consideration and approval. The Subcommission presented its draft Recommendations to the Commission on 10 March 2015.
- 12 As indicated, the Delegation made one presentation to the Commission on 16 August 2013, in accordance with rule 52 and paragraph 15.1(a) of annex III to the Rules of Procedure. The Delegation made an additional presentation to the Commission on 10 March 2015, in accordance with paragraph 15.1 bis of annex III to the Rules of Procedure.
- 13 The Commission prepared these Recommendations, which were approved on 13 March 2015, taking into consideration the internal procedures and the methodology outlined in article 76 and Annex II to the Convention and the following documents of the Commission: the Rules of Procedure and the Scientific and Technical Guidelines.

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<sup>3</sup> Material supplied to the Delegation by the Subcommission – questions, and list of documents and presentations – is contained in Annex 4 to the Recommendations.

<sup>4</sup> A list of additional material submitted to the Commission by the Delegation is contained in Annex 3 to the Recommendations.

- 14 The Commission makes these Recommendations to Pakistan in fulfillment of its mandate as contained in article 76, paragraph 8, and articles 3 and 5 of annex II to the Convention.
- 15 A Summary of the Recommendations is included as Annex 6 of this document in conformity with paragraph 11.3 of annex III to the Rules of Procedure.
- 16 The Commission makes these Recommendations to the coastal State on matters related to the establishment of the outer limits of their continental shelf in accordance with article 76, paragraph 8, of the Convention. The limits of the continental shelf established by a coastal State on the basis of these Recommendations shall be final and binding.

## **II. CONTENTS OF THE SUBMISSION**

### **A. Original Submission**

- 17 The Submission received on 30 April 2009 contained: an Executive Summary; a Main Body which is the analytical and descriptive part; and Scientific and Technical Data.<sup>5</sup>

### **B. Communications and additional material**

- 18 In the course of the examination of the Submission by the Subcommission, the Delegation submitted additional material, including responses to questions, requests for clarification and written preliminary considerations of the Subcommission.<sup>6</sup>

## **III. EXAMINATION OF THE SUBMISSION BY THE SUBCOMMISSION**

### **A. Examination of the format and completeness of the Submission**

- 19 Pursuant to paragraph 3 of annex III to the Rules of Procedure, the Subcommission examined and verified the format and completeness of the Submission.

### **B. Preliminary analysis of the Submission**

- 20 Pursuant to paragraph 5 of annex III to the Rules of Procedure, the Subcommission undertook a preliminary analysis of the Submission, in accordance with article 76 of the Convention and the Guidelines and determined that:

(i) The test of appurtenance was satisfied by Pakistan, in that the outer edge of the continental margin, established from the FOS by applying the provisions of article 76, paragraph 4, of the Convention, extends beyond the 200 M limits of Pakistan;

(ii) The proposed outer limits of Pakistan's continental shelf beyond 200 M consists of fixed points on the 350 M constraint line;

(iii) The outer limits of the continental shelf contain straight line segments not exceeding 60 M in length;

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<sup>5</sup> A list of the material included in the Submission received on 30 April 2009 is contained in Annex 2 to these Recommendations.

<sup>6</sup> Lists of both the additional material submitted by Pakistan and the communications of the Subcommission are included as, respectively, Annexes 3 and 4 to these Recommendations.

(iv) The advice of a specialist, in accordance with rule 57 of the Rules of Procedure, or the cooperation of relevant international organizations, in accordance with rule 56 of the Rules of Procedure, would not be sought; and

(v) Additional time would be required to review all the data and prepare its recommendations for the Commission.

### **C. Main scientific and technical examination of the Submission**

21 The Subcommission examined the Submission through the following processes:

(i) Detailed examination of the data and information supporting the FOS point selected for the establishment of the outer edge of the continental margin and for the delineation of the proposed outer limits of the continental shelf, following consideration of the applicable constraint;

(ii) Seeking clarifications, where necessary, through exchanges between the Delegation and the Subcommission;

(iii) Presenting preliminary views and conclusions to the Delegation;

(iv) Making a comprehensive presentation of the views and general conclusions of the Subcommission to the Delegation, at an advanced stage of the examination of the Submission; and

(v) Preparing Recommendations to be submitted to the Commission in accordance with annex III of the Rules of Procedure.

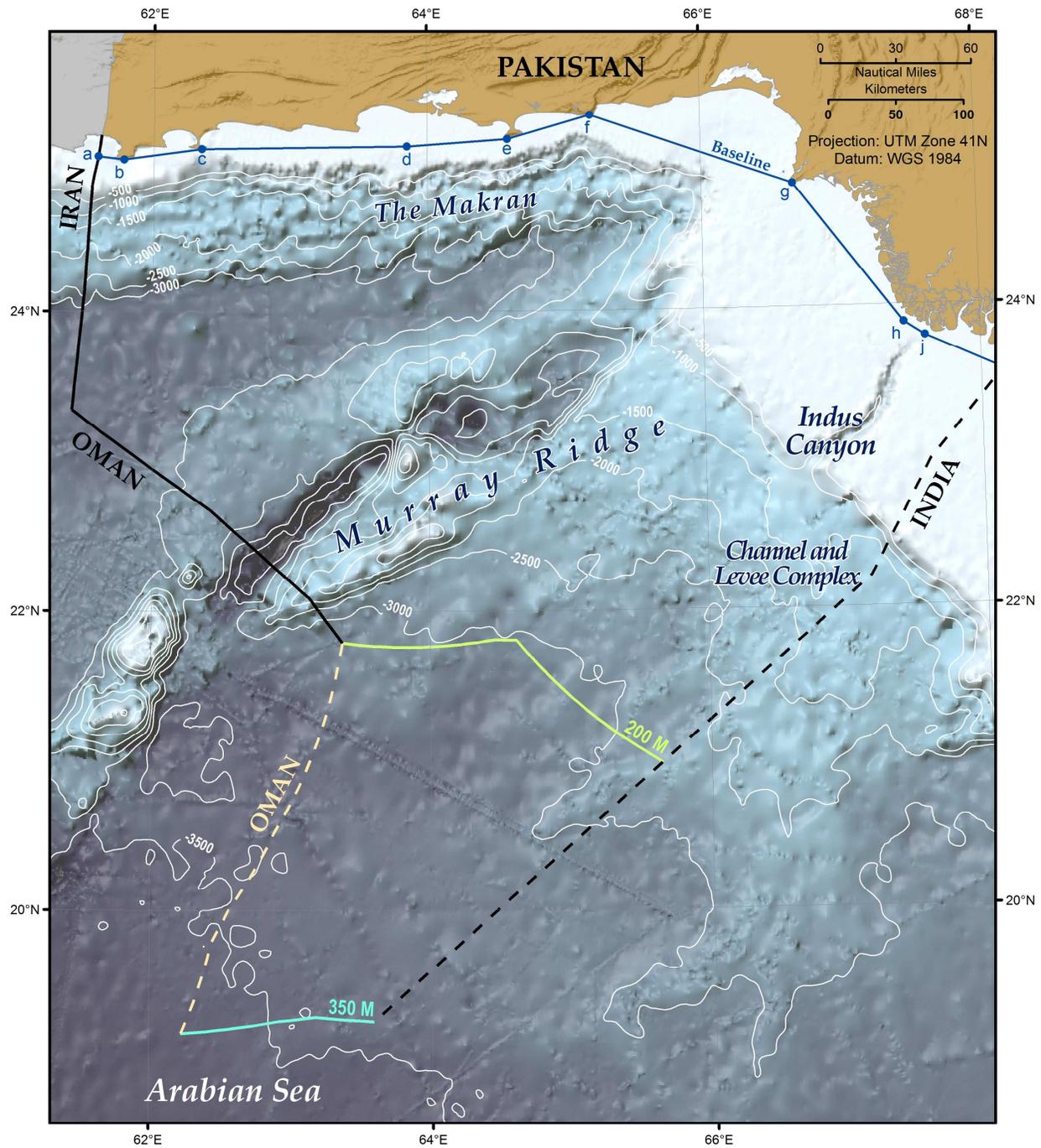
## **IV. PROVISIONS OF THE CONVENTION ON WHICH THESE RECOMMENDATIONS ARE BASED**

22 The Recommendations of the Commission are based on the scientific and technical data and other material provided by Pakistan in relation to the implementation of article 76. The Recommendations of the Commission only deal with issues related to article 76 and annex II to the Convention and shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts, or application of other parts of the Convention, or any other treaties.

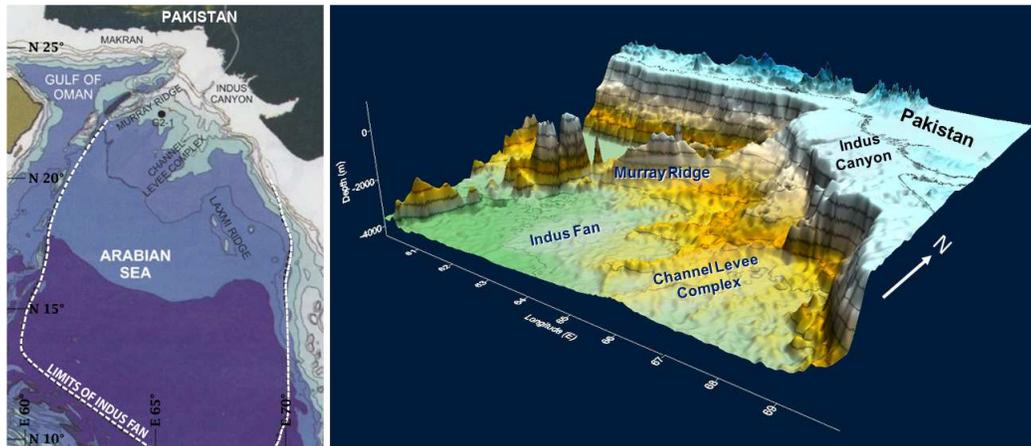
## **V. RECOMMENDATIONS OF THE COMMISSION**

### **1. Geographical and geological description of the continental margin of Pakistan**

23 The offshore part of Pakistan is located in the Arabian Sea and is separated by the Murray Ridge into two areas: i) to the northwest is a triangular shaped area dominated by the offshore extension of the Makran thrust belt; and ii) to the south and east of the Murray Ridge lies the larger portion of Pakistan's offshore area where the dominant surface geology is that of the Indus Fan. The Submission of Pakistan relates to this latter area (Figures 1 and 2).



**Figure 1\*.** Regional bathymetry and geographical features of the continental margin of Pakistan.



**Figure 2.** Extent of the Indus Fan in the Arabian Sea (left) and three-dimensional image, looking north-west toward the Murray Ridge (right). Figure 2 has been modified from Figures 2.1 and 2.2 of the Main Body.

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Paragraph not made public at the request of the coastal State by virtue of paragraph 11.3 of annex III to the Rules of Procedure.

25 The continental margin of Pakistan in the submission area is largely comprised of the Indus Fan, which is one of the largest deep-sea fan in the world. Since Mid-Eocene time, the Murray Ridge has been uplifted and has prevented westward sediment flow from the center of the basin and caused significant accumulation of Indus Fan sediments.

26 The upper part of the Indus Fan is characterized by a number of complex sedimentary features, such as the Channel and Levee Complex, developed on the surface of the sequences of the fan.

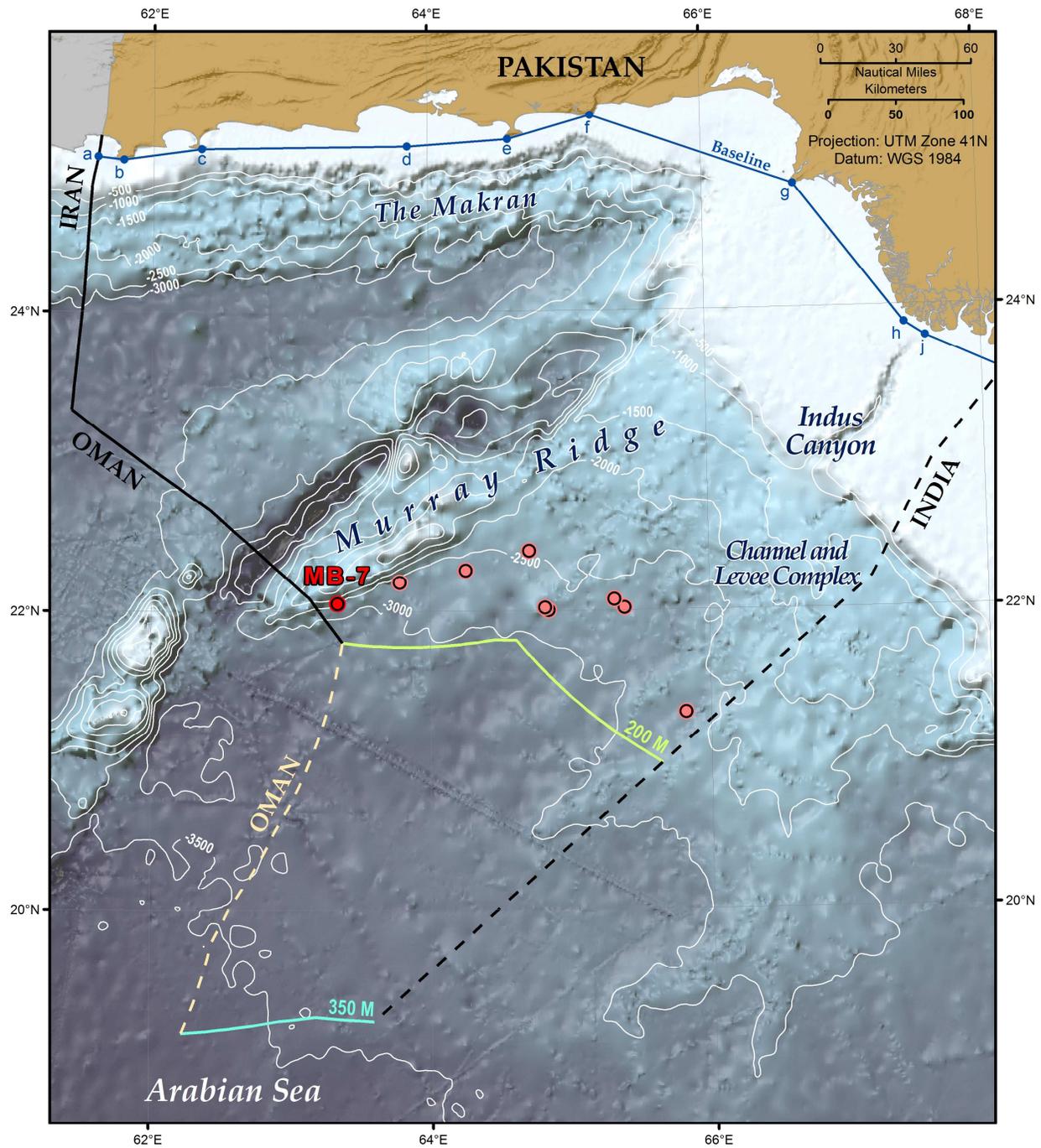
27 The morphology of the southeastern flank of the Murray Ridge has a distinct break of slope towards the well-developed Channel and Levee Complex on the surface of the Indus Fan to the east.

## 2. The determination of the foot of the continental slope (article 76, paragraph 4(b))

28 The FOS should be established in accordance with article 76, paragraph 4(b), of the Convention.

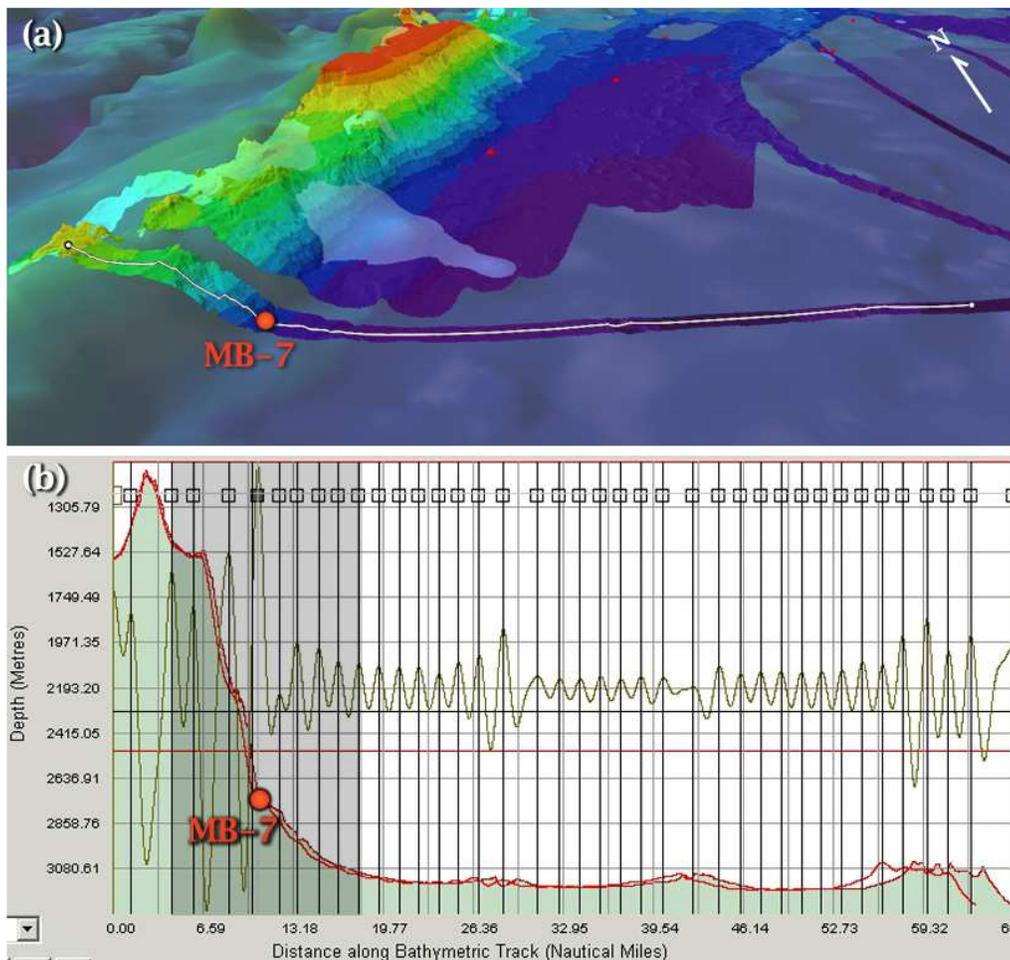
### 2.1 Considerations

29 Nine FOS points were initially submitted by Pakistan around the Channel and Levee Complex and at the southeastern slope of the Murray Ridge (Figure 3). These FOS points were determined at the location of maximum change in the gradient either on multibeam survey lines or on the basis of other criteria, including mathematical gradient analyses on multibeam bathymetric data without prior identification of the base of the continental slope.



**Figure 3\*.** Location of the nine FOS points, as submitted by Pakistan. Only FOS point MB-7 was used to generate formula points of the outer edge of the continental margin beyond the 200 M distance line.

- 30 Only FOS point MB-7, which is associated with the continental margin of the Murray Ridge, was used to generate formula points beyond the 200 M limits of Pakistan. It was determined along a profile from multibeam bathymetry using the general rule. The FOS is, therefore, the point of maximum change in the gradient at the base of the continental slope, in accordance with paragraph 4(b) of article 76 of the Convention.
- 31 The Subcommittee was of the view that the applicability of FOS point MB-7 would be contingent upon the morphological continuity of the Murray Ridge with the landmass of Pakistan. In this regard, and consequent to a request by the Subcommittee, Pakistan provided two profiles, one along and the other across the axis of the Murray Ridge. The Subcommittee considered these profiles in combination with other provided evidence, including measured multibeam bathymetry data, and agreed with Pakistan that the Murray Ridge is continuous with its landmass at least up to point MB-7.



**Figure 4. (a)\*\*** Three-dimensional image of the southeastern flank of the Murray Ridge and adjacent basin constructed by the Subcommittee using the multibeam bathymetric data provided by Pakistan and SRTM grid. The location of FOS point MB-7 is indicated. **(b)** Determination of FOS point MB-7 at the base of the slope (shaded) of the Murray Ridge as submitted by Pakistan. Figure 4 has been modified from Figure A14 of the Main Body.

- 32 As was mentioned in paragraph 29 above, Pakistan determined FOS point MB-7 on the basis of the maximum change in gradient, without prior identification of the base of the continental slope region. The Subcommission was of the view that this approach did not fulfil the requirements of sections 5.1.3 and 5.4.5 of the Guidelines.
- 33 In response, Pakistan identified a wide BOS region without documenting the criteria for identification of the landward and seaward edges of the BOS. However, the Subcommission is of the view that the BOS along the southeastern flank of the Murray Ridge can be clearly determined on the basis of morphological and bathymetric evidence (Figure 4). In that regard, the Subcommission agreed with the location of the determined FOS point MB-7 (communicated by Pakistan on 18 June 2014), which was at the same location as initially submitted.

## **2.2 Recommendations**

- 34 Based on its consideration of the technical and scientific documentation contained in the Submission of Pakistan and the additional information provided in the documents referred to in paragraph 33 above, the Commission concludes that FOS point MB-7, as listed in Table 1 of Annex 1, fulfils the requirements of article 76 of the Convention and chapter 5 of the Guidelines. The Commission recommends that this FOS point should form the basis for the establishment of the outer edge of the continental margin of Pakistan.

### **3. The establishment of the outer edge of the continental margin (article 76, paragraph 4(a))**

- 35 The outer edge of the continental margin of Pakistan extends beyond 200 M from the baselines in the area to the south and east of the Murray Ridge in the Arabian Sea.
- 36 The outer edge of the continental margin of Pakistan should, for the purposes of the Convention, be established in accordance with article 76, paragraphs 4 and 7, of the Convention.
- 37 In establishing the outer edge of the continental margin, Pakistan did not implement the 60 M formula line contained in article 76, paragraph 4(a)(ii) of the Convention.

#### **3.1 The application of the 1% sediment thickness formula (article 76, paragraph 4(a)(i))**

- 38 Using FOS point MB-7, as described previously (see paragraph 33 above), Pakistan established five sediment thickness formula points (5E, 1D, 2A, 2B, and 2C) on the outer edge of the continental margin, as provided for in article 76, paragraph 4 (a)(i) of the Convention (see Figure 5). Pakistan established these sediment thickness formula points based on three seismic lines (NIOP-01, NIOP-02, and NIOP-05).

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Paragraph not made public at the request of the coastal State by virtue of paragraph 11.3 of annex III to the Rules of Procedure.

- 40 Paragraph not made public at the request of the coastal State by virtue of paragraph 11.3 of annex III to the Rules of Procedure.

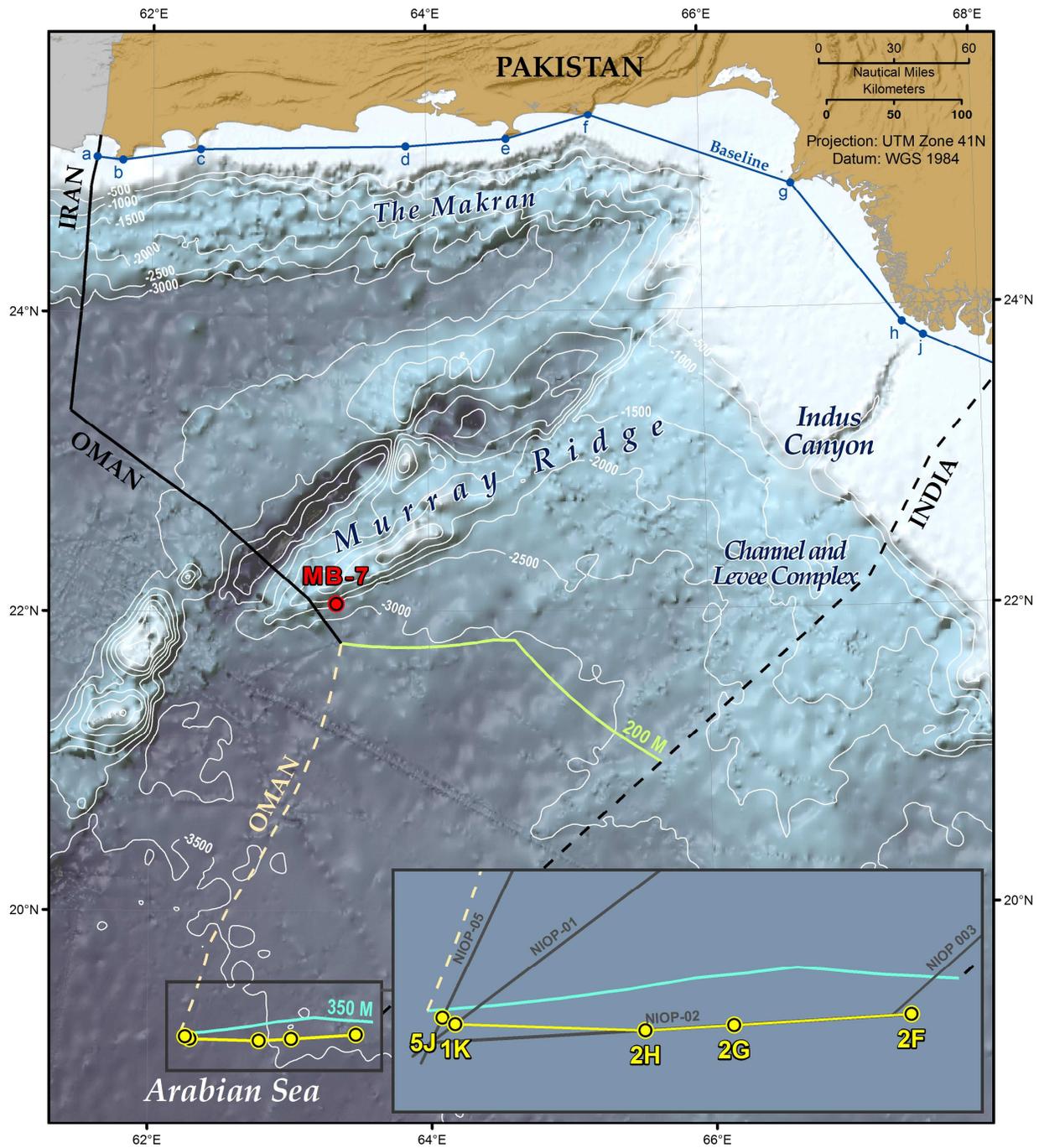
Figure not made public at the request of the coastal State by virtue of paragraph 11.3 of annex III to the Rules of Procedure.

**Figure 5.** Map of sediment thickness and seismic track lines within “The Box” showing the location of the five sediment thickness formula points (‘2C’ through ‘5E’) as submitted by Pakistan. The 350 M constraint line is also shown. An enlargement of that portion of the map in the vicinity of the southwest corner of “The Box” is shown in the inset. Figure 5 is Figure 6.5 of the Main Body.

- 41 The Subcommittee requested documentation for each of the specific sediment thickness formula point locations. The documentation needed to include velocity analyses used for the depth conversion along parts of the applied seismic lines where they cross each of the respective sediment thickness formula points, defining the outer edge of the continental margin. Pursuant to requests for further clarification, Pakistan submitted a revised outer edge of the continental margin, based on sediment thickness formula points 5J, 1K, 2H, 2G and 2F (Figure 6 and Table 2 Annex 1) (communicated by Pakistan on 18 June 2014).
- 42 The Commission agrees with the procedure applied by Pakistan to establish the sediment thickness formula points, as contained in Table 2, Annex 1. The Commission bases its conclusions on the data provided, the seismic interpretation, the methods of depth conversion and the distance calculations.

### **3.2 Configuration of the outer edge of the continental margin**

- 43 The outer edge of the continental margin of Pakistan extends in a roughly east-west direction semi-parallel to, and at a distance up to approximately 15 km beyond the 350 M distance line of Pakistan (Figure 6).



**Figure 6\*.** The outer edge of the continental margin of Pakistan is defined by straight lines, shown in yellow, connecting sediment thickness formula points 5J, 1K, 2H, 2G, and 2F, determined on three seismic lines (see inset).

### **3.3 Recommendations**

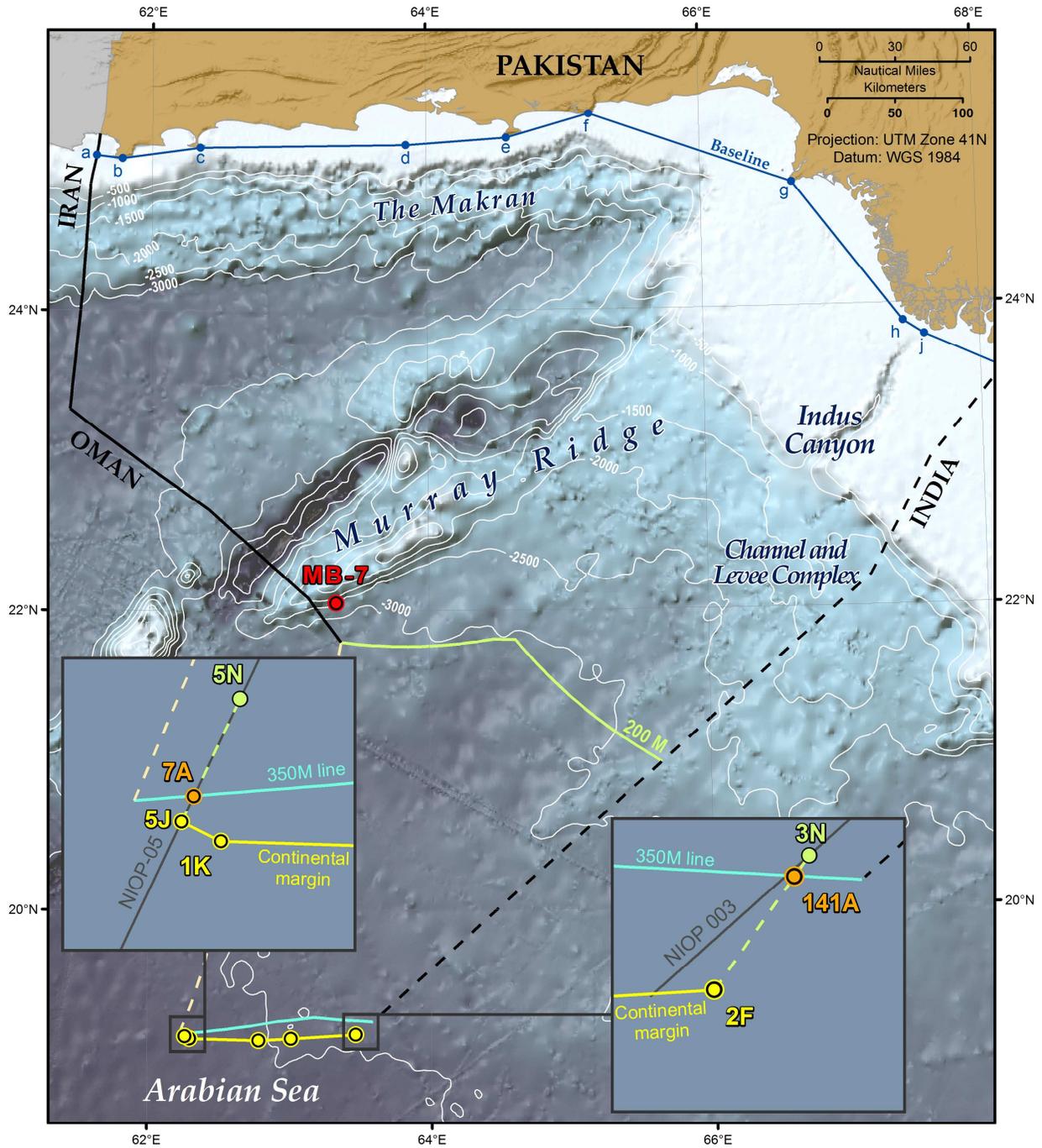
- 44 The outer edge of the continental margin of Pakistan beyond 200 M is based on the sediment thickness formula points as described in section 3.1 (see Figure 6). The Commission recommends that these points be used as the basis for delineating the outer limits of the continental shelf in accordance with article 76, paragraph 7, of the Convention.

#### **4. The application of the constraint criteria (article 76, paragraphs 5 and 6)**

- 45 The outer limits of the continental shelf should be based on the established outer edge of the continental margin, taking into consideration the constraints contained in article 76, paragraphs 5 and 6, of the Convention.
- 46 The outer limits of the continental shelf cannot extend beyond the constraints, as set out in article 76, paragraph 5, of the Convention. Accordingly, the provision that the fixed points comprising the line of the outer limits of the continental shelf may not exceed 350 M from the baselines from which the breadth of the territorial sea is measured (the “distance constraint”) may be applied in all cases. Alternatively, the provision that the fixed points comprising the outer limits of the continental shelf may not exceed 100 M from the 2500 m isobath (“depth constraint”) may be applied to those parts of the continental margin that are classified as natural components of that margin.
- 47 For the outer limits of the continental shelf, Pakistan has invoked the distance constraint only.
- 48 The distance constraint line submitted by Pakistan is constructed by arcs at 350 M distance from the baselines from which the breadth of the territorial sea of Pakistan is measured. The three base points (b, c and d depicted in Figure 6) contribute to the determination of this constraint line. The Commission agrees with the methodology applied by Pakistan in the construction of this constraint line.

#### **5. The outer limits of the continental shelf (article 76, paragraph 7)**

- 49 The outer limits of the continental shelf result from the application of the constraint line determined according to paragraph 47, above. As contained in the Submission of Pakistan dated 30 April 2009, and amended by the Delegation on 10 November 2014, the outer limits consist of fixed points connected by straight lines not exceeding 60 M in length. The fixed points are listed in Table 3, Annex 1. The fixed points are established in accordance with article 76 of the Convention. They do not include points on any 200 M limit lines, or on any boundary lines with other coastal States.
- 50 In its Submission, Pakistan concluded that, “The 350 M constraint line [...] becomes the outer limit of Pakistan’s extended Continental Shelf and is, therefore, the line that has to be defined by straight lines not exceeding 60 M in length”.
- 51 The Commission agrees with Pakistan that the 350 M distance constraint applies, and that the outer edge of the continental margin extends beyond this constraint.



**Figure 7\*.** Two “supporting” sediment thickness points, 5N and 3N, are used for the purpose of defining the outer limit points 7A and 141A, respectively, on the 350 M constraint line of Pakistan.

- 52 The Commission also agrees with the determination by Pakistan, as contained in the response of the Delegation to the information requested by the Subcommission during the thirty-fifth session in August 2014, of the “supporting” sediment thickness points 3N and 5N, listed in Table A. These points represent locations at each of which the sediment thickness is at least 1% of the shortest distance from those points to the foot of the continental slope.
- 53 These points are used by Pakistan only to verify that the continental margin in this region extends at least up to the straight lines not exceeding 60 M in length connecting these points with the sediment thickness formula points 2F and 5J, respectively (see Figure 7). The intersection points of these two straight lines with the 350 M distance line define the two outer limit fixed points 141A and 7A, respectively. Any outermost fixed points west of point 7A and east of point 141A on the 350 M constraint line have not been recommended upon.

Table A. List of coordinates for the “supporting” sediment thickness points.

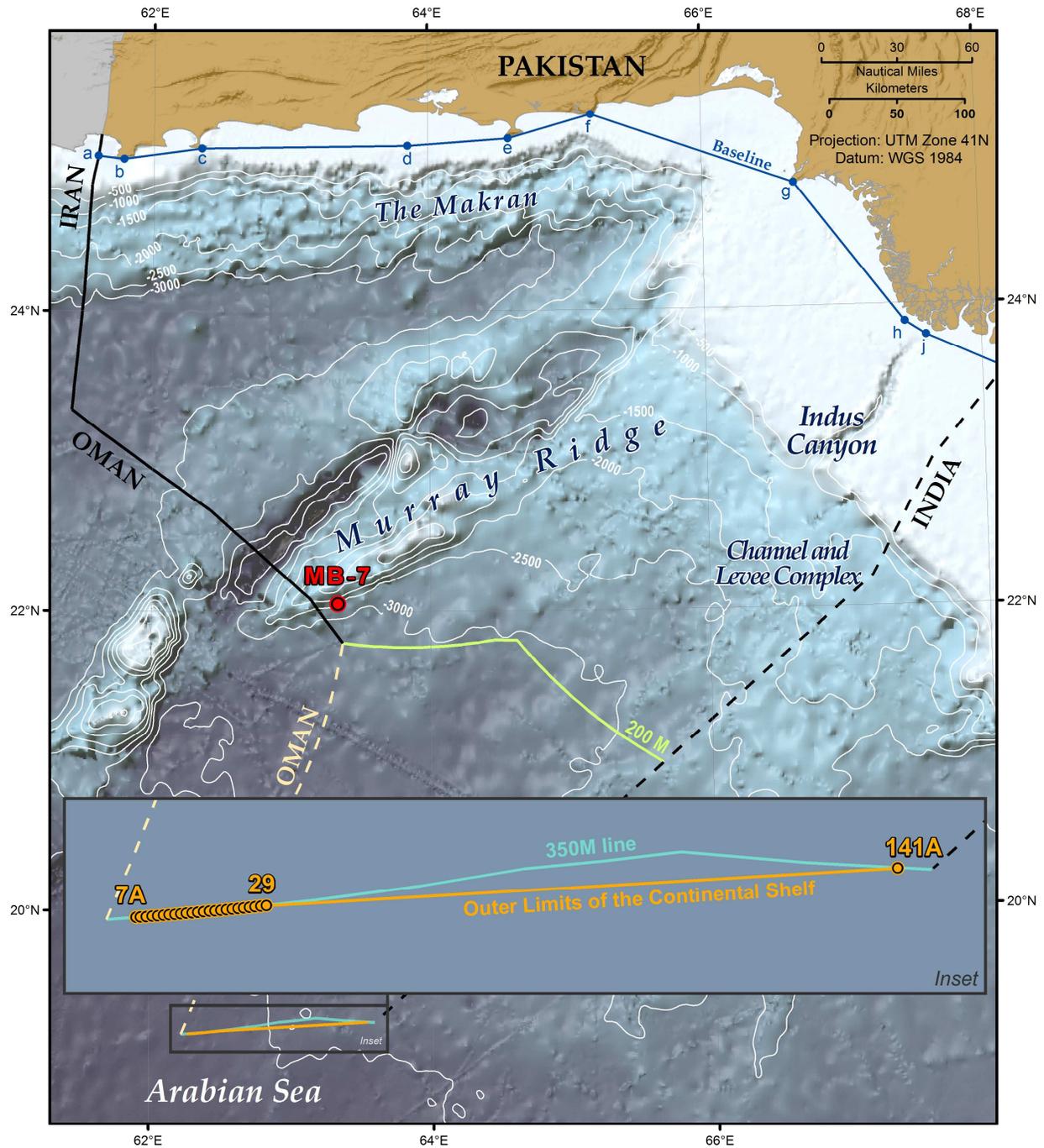
	<b>Shot Point</b>	<b>Latitude (degrees N)</b>	<b>Longitude (degrees E)</b>	<b>Sediment Thickness (m)</b>	<b>1% Distance from MB-7 FOS (m)</b>
<b>3N</b>	1479	19.275260°N	63.545747°E	3512	3079
<b>5N</b>	13213	19.256829°N	62.311108°E	3643	3269

**5.1 Recommendations for the outer limits of the continental shelf of Pakistan (article 76, paragraph 8)**

- 54 The Commission agrees with the determination of the fixed points listed in Table 2, Annex I, establishing the outer edge of the continental margin. The Commission recommends that the delineation of the outer limits of the continental shelf of Pakistan be conducted in accordance with article 76, paragraph 7, of the Convention, by straight lines not exceeding 60 M in length, connecting fixed points, defined by coordinates of latitude and longitude. Further, the Commission agrees with the methodology applied in delineating the outer limits of the continental shelf of Pakistan, including the determination of the fixed points listed in Table 3, Annex 1, and the construction of the straight lines connecting those points (Figure 8).
- 55 The Commission recommends that Pakistan proceeds to delineate the outer limits of the continental shelf on the basis of these Recommendations.

\* The illustrative map was prepared by the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, upon request by the Subcommission established to consider the submission by Pakistan, on the basis of the submitted information. The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

\*\*The illustration was prepared by the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, upon request by the Subcommission established to consider the submission by Pakistan, on the basis of the submitted information.



**Figure 8\*.** The outer limits of the continental shelf of Pakistan are delineated by straight lines not exceeding 60 M in length connecting fixed points listed in Table 3, Annex I.

## ANNEX 1

### TABLES OF GEOGRAPHIC COORDINATES OF: THE FOOT OF CONTINENTAL SLOPE POINTS, THE OUTER EDGE OF THE CONTINENTAL MARGIN BEYOND 200 M AND THE OUTER LIMITS OF THE CONTINENTAL SHELF BEYOND 200 M

**Table 1. Coordinates of the foot of the slope point**

FOS point	Water depth [m]	Longitude	Latitude
MB-7	2684	63.3363097E	22.0499482N

**Table 2. Coordinates for the outer edge of the continental margin and corresponding foot of the slope points**

Continental Margin Point	Longitude	Latitude	CM-related shot point / line	Sediment thickness	Distance to next CM Point	Article 76 criterion	Relevant FOS Point / line	Distance to FOS
5J	62.2630167E	19.1598167N	13533/ NIOP-05	3701m	2.06M	4 (a) (i)	MB-7/ PR88	338963.337m
1K	62.2956834E	19.1446833N	17388/ NIOP-01	3415m	27.73M	4 (a) (i)	MB-7/ PR88	339443.598m
2H	62.7837333E	19.1310167N	2546/ NIOP-02	3411m	12.95M	4 (a) (i)	MB-7/ PR88	328253.345m
2G	63.0114333E	19.1439167N	3186/ NIOP-02	3443m	25.91M	4 (a) (i)	MB-7/ PR88	323509.676m
2F	63.4669667E	19.1697167N	4446/ NIOP-02	3587m		4 (a) (i)	MB-7/ PR88	319167.316m

**Table 3. Coordinates for the outer limits of the continental shelf fixed points beyond 200M**

<b>Final Outer Limit Point</b>	<b>Final OL Point Longitude</b>	<b>Final OL Point Latitude</b>	<b>Distance to next OL Point (M)</b>	<b>Article 76 criterion</b>
7A	62.2730773E	19.1801216 N	0.434	76 (4) (a) (i) & 76 (5)
7	62.2806818E	19.1806823 N	0.540	76 (4) (a) (i) & 76 (5)
8	62.2901631 E	19.1813949 N	0.540	76 (4) (a) (i) & 76 (5)
9	62.2996433 E	19.1821208 N	0.540	76 (4) (a) (i) & 76 (5)
10	62.3091224 E	19.1828601 N	0.540	76 (4) (a) (i) & 76 (5)
11	62.3186004 E	19.1836128 N	0.540	76 (4) (a) (i) & 76 (5)
12	62.3280772 E	19.1843788 N	0.540	76 (4) (a) (i) & 76 (5)
13	62.3375530 E	19.1851582 N	0.540	76 (4) (a) (i) & 76 (5)
14	62.3470275 E	19.1859510 N	0.540	76 (4) (a) (i) & 76 (5)
15	62.3565009 E	19.1867571 N	0.540	76 (4) (a) (i) & 76 (5)
16	62.3659731 E	19.1875766 N	0.540	76 (4) (a) (i) & 76 (5)
17	62.3754440 E	19.1884094 N	0.540	76 (4) (a) (i) & 76 (5)
18	62.3849137 E	19.1892556 N	0.540	76 (4) (a) (i) & 76 (5)
19	62.3943821 E	19.1901151 N	0.540	76 (4) (a) (i) & 76 (5)
20	62.4038493 E	19.1909879 N	0.540	76 (4) (a) (i) & 76 (5)
21	62.4133151 E	19.1918742 N	0.540	76 (4) (a) (i) & 76 (5)
22	62.4227796 E	19.1927737 N	0.540	76 (4) (a) (i) & 76 (5)
23	62.4322427 E	19.1936866 N	0.540	76 (4) (a) (i) & 76 (5)
24	62.4417045 E	19.1946129 N	0.540	76 (4) (a) (i) & 76 (5)
25	62.4511649 E	19.1955524 N	0.540	76 (4) (a) (i) & 76 (5)
26	62.4606239 E	19.1965054 N	0.540	76 (4) (a) (i) & 76 (5)
27	62.4700814 E	19.1974716 N	0.540	76 (4) (a) (i) & 76 (5)
28	62.4795375 E	19.1984512 N	0.540	76 (4) (a) (i) & 76 (5)
29	62.4889921 E	19.1994441 N	59.400	76 (4) (a) (i) & 76 (5)
141A	63.5334024 E	19.2587332 N	-----	76 (4) (a) (i) & 76 (5)

**Tables 1, 2 and 3 of Annex I are only available in electronic form.**

**ANNEX 2**  
**LIST OF THE MATERIAL CONTAINED IN THE ORIGINAL SUBMISSION OF THE**  
**GOVERNMENT OF THE ISLAMIC REPUBLIC OF PAKISTAN MADE TO THE COMMISSION ON**  
**30 APRIL 2009**

1. *Submission by the Government of the Islamic Republic of Pakistan for Establishment of the Outer Limits of the Continental Shelf of Pakistan in accordance with Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf (CLCS/11) and Provisions of Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS).*  
Executive Summary (12 pages, 22 copies provided in hardcopy, 2 digital copies in Open File format and 2 digital copies in Protected File format)
2. *Submission by the Government of the Islamic Republic of Pakistan for Establishment of the Outer Limits of the Continental Shelf of Pakistan in accordance with Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf (CLCS/11) and Provisions of Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS).*  
Main Body of the Submission (227 pages, 8 hard copies, 2 digital copies) – Volume 1 of 3
  - Chapter 01 – Background and Database
  - Chapter 02 – Geological and Geophysical Attributes
  - Chapter 03 – Foot of the Slope
  - Chapter 04 – Baseline, Maritime Boundaries and Constraint Lines
  - Chapter 05 – Sediment Thickness
  - Chapter 06 – Limits of the Continental Shelf
  - Chapter 07 – Coordinates of the Extended Continental Shelf of Pakistan
  - Appendix A to J
3. *Submission by the Government of the Islamic Republic of Pakistan for Establishment of the Outer Limits of the Continental Shelf of Pakistan in accordance with Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf (CLCS/11) and Provisions of Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS).*  
Accompanying Charts (2 hard copies, 1 digital copy) – Volume 2 of 3
  - Chart 01 – Bathymetry and Maritime Boundaries
  - Chart 02 – Free Air Gravity Anomaly
  - Chart 03 – Seismic Reflection Lines
  - Chart 03A – Seismic Reflection Lines NIOP, SO122 and CAM Seismic Lines
  - Chart 03B – Seismic Reflection Lines 99PAK and TEPP00 Seismic Lines North/South Lines
  - Chart 03C – Seismic Reflection Lines 99PAK and TEPP00 Seismic Lines East/West Lines
  - Chart 04 – Depth to Basement from NIOP Lines
  - Chart 05 – Ifremer Multi-Beam Tracklines
  - Chart 06 – Sediment Thickness inside “The Box”
  - Chart 06A – Sediment Thickness inside “The Box”
  - Chart 07 – Foot of the Slope Determinations
  - Chart 08 – Multi-Beam Image
  - Chart 09 – Second Derivative of the Multi-Beam Bathymetry
4. *Submission by the Government of the Islamic Republic of Pakistan for Establishment of the Outer Limits of the Continental Shelf of Pakistan in accordance with Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf (CLCS/11) and Provisions of Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS).*  
Additional Documents (2 hard copies, 1 digital copy) – Volume 3 of 3  
Includes Seismic Profiles and Velocity Thickness – NIOP Line 01 to 12
5. Digital Data Sets of the Complete Submission including coordinates, bathymetric profiles, multibeam data, sediment data, references files, gravity data, SGY data, velocity analysis, depth profile listings and velocity thickness files.

**ANNEX 3**  
**LIST OF ADDITIONAL MATERIAL SUBMITTED TO THE COMMISSION**  
**BY THE GOVERNMENT OF THE ISLAMIC REPUBLIC OF PAKISTAN**

**I. 16 AUGUST 2013**

*2013\_08\_16\_PAK\_PRE\_COM\_001*, Presentation to the Commission on the Limits of the Continental Shelf by the Delegation of Pakistan.

**II. 20 NOVEMBER 2013**

*2013\_11\_20\_PAK\_PRE\_SC\_001*, Presentation to the Subcommittee by the Delegation of Pakistan.

**III. 19 FEBRUARY 2014**

*2014\_02\_19\_PAK\_LET\_SC\_003*, Letter from Pakistan to the Subcommittee enclosing a document entitled "Response of Pakistan Delegation to Queries raised during the 33<sup>rd</sup> Session by the Subcommittee established to consider the Submission of the Islamic Republic of Pakistan".

**IV. 03 MARCH 2014**

*2014\_03\_03\_PAK\_PRE\_SC\_002*, Presentation to the Subcommittee on Queries raised during the 33<sup>rd</sup> Session by the Delegation of Pakistan.

**V. 04 MARCH 2014**

*Delivery of Seismic lines, Chirp data and additional velocities data complementing the response by Pakistan in respect to Question 7.*

**VI. 18 JUNE 2014**

*2014\_06\_18\_PAK\_LET\_SC\_007*, Letter from Pakistan to the Subcommittee enclosing a document entitled "Response of Pakistan Delegation to Queries raised during the 34<sup>th</sup> Session by the Subcommittee established to consider the Submission of the Islamic Republic of Pakistan".

**VII. 28 JULY 2014**

*2014\_07\_28\_PAK\_PRE\_SC\_003*, Presentation to the Subcommittee on the response of Pakistan Delegation to Queries raised during the 34<sup>th</sup> Session by the Subcommittee established to consider the Submission of the Islamic Republic of Pakistan.

**VIII. 30 JULY 2014**

*2014\_07\_30\_PAK\_PRE\_SC\_004*, Presentation to the Subcommittee on Queries 7 and 8 by the Delegation of Pakistan.

**IX. 01 AUGUST 2014**

*2014\_08\_01\_PAK\_PRE\_SC\_005*, Presentation to the Subcommittee on Queries 9 and 10 by the Delegation of Pakistan.

**X. 22 AUGUST 2014**

*2014\_08\_22\_PAK\_LET\_SC\_009*, Letter from Pakistan to the Subcommittee enclosing a document entitled "Response of Pakistan Delegation to Queries raised during the 35<sup>th</sup> Session by the Subcommittee established to consider the Submission of the Islamic Republic of Pakistan".

**XI. 04 NOVEMBER 2014**

2014\_11\_04\_PAK\_PRE\_SC\_006, Presentation to the Subcommittee by the Delegation of Pakistan.

**XII. 06 NOVEMBER 2014**

2014\_11\_06\_PAK\_PRE\_SC\_007, Presentation to the Subcommittee by the Delegation of Pakistan.

**XIII. 10 NOVEMBER 2014**

*Delivery of Tables of geographic coordinates of: the foot of continental slope points, the outer edge of the continental margin beyond 200 M and the outer limits of the continental shelf beyond 200 M.*

**XIV. 12 NOVEMBER 2014**

2014\_11\_12\_PAK\_PRE\_SC\_008, Presentation to the Subcommittee by the Delegation of Pakistan.

**XV. 10 MARCH 2015**

2015\_03\_10\_PAK\_PRE\_COM\_002, Presentation to the Commission by the Delegation of Pakistan.

**ANNEX 4**  
**MATERIAL SUPPLIED TO THE DELEGATION BY THE SUBCOMMISSION**  
**QUESTIONS, DOCUMENTS AND PRESENTATIONS**

**I. 12 NOVEMBER 2013**

*2013\_11\_12\_SC\_LET\_PAK\_002*, Letter from the Chairperson of the Subcommission to the Delegation inviting them to a meeting on 20 November 2013 and attached information on Procedures and Common Practice between the Subcommission and Coastal State Delegations.

**II. 22 NOVEMBER 2013**

*2013\_11\_22\_SC\_LET\_PAK\_003*, Letter to Pakistan from the Subcommission with a list of questions and clarifications presented to the Delegation.

**III. 05 MARCH 2014**

*2014\_03\_05\_SC\_PRE\_PAK\_001*, Presentation by the Subcommission on Preliminary observations and views on the response of Pakistan.

**IV. 14 MARCH 2014**

*2014\_03\_14\_SC\_LET\_PAK\_006*, Letter to Pakistan with a list of additional questions and clarifications from the Subcommission.

**V. 30 JULY 2014**

*2014\_07\_30\_SC\_PRE\_PAK\_002*, Presentation by the Subcommission on observations on the response of the Delegation of Pakistan to the additional questions and clarifications of the Subcommission of 14 March 2014.

**VI. 8 AUGUST 2014**

*2014\_08\_04\_UN\_EMAIL\_PAK\_002*, Email to Pakistan with follow up to meeting on Friday 1 August 2014 with the Delegation of Pakistan regarding Clarifications and Technical questions.

**VII. 6 NOVEMBER 2014**

*2014\_11\_06\_UN\_EMAIL\_PAK\_003*, Email to Pakistan with the response of the Subcommission on formulations, template for the preparation of tables on the outer limits and request to provide a final illustrative map(s).

**VIII. 11 NOVEMBER 2014**

*2014\_11\_11\_SC\_PRE\_PAK\_003*, Presentation to the Delegation of Pakistan in accordance with paragraph 10.3 of Annex III to the Rules of Procedure of the Commission.

**ANNEX 5**  
**LIST OF NOTES VERBALES RELATED TO THE SUBMISSION OF THE GOVERNMENT OF**  
**THE ISLAMIC REPUBLIC OF PAKISTAN**

1. Permanent Mission of the Sultanate of Oman to the United Nations dated 7 August 2009, note verbale ref. 5223/25220/2211/686.
2. Permanent Mission of Pakistan to the Secretary-General dated 9 October 2014, note verbale ref. No. Sixth/LS/7/2014 on the Preliminary information regarding the outer limits of the Continental Shelf of the Sultanate of Oman submitted to the Commission on the Limits of the Continental Shelf by Oman on April 15, 2009.
3. Permanent Mission of the Sultanate of Oman to the United Nations dated 10 November 2014, note verbale ref. 5223/25220/2212/290 on the submission made by Pakistan regarding the outer limits of its continental shelf submitted to the Commission on the Limits of the Continental Shelf by Pakistan on April 30, 2009.

**ANNEX 6**  
**SUMMARY OF RECOMMENDATIONS OF THE COMMISSION**



## Commission on the Limits of the Continental Shelf

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### **SUMMARY OF RECOMMENDATIONS OF THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF IN REGARD TO THE SUBMISSION MADE BY THE ISLAMIC REPUBLIC OF PAKISTAN ON 30 APRIL 2009<sup>1</sup>**

Recommendations prepared by the Subcommittee established for the consideration  
of the Submission made by the Islamic Republic of Pakistan

Approved by the Subcommittee on 21 November 2014  
Approved by the Commission, with amendments, on 13 March 2015

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<sup>1</sup> The aim of this Summary is to provide information which is not of confidential or proprietary nature in order to facilitate the function of the Secretary-General in accordance with Rule 11.3 of Annex III to the Rules of Procedure. This Summary is based on excerpts of the Recommendations and may refer to material not necessarily included either in the full Recommendations or this Summary.

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## GLOSSARY OF TERMS

<b>DOALOS</b>	Division for Ocean Affairs and Law of the Sea, Office of Legal Affairs
<b>Article 76</b>	Article 76 of the Convention
<b>M</b>	Nautical mile
<b>200 M Limit</b>	The line at 200 M from the baselines from which the breadth of the territorial sea is measured
<b>FOS</b>	Foot of the continental slope
<b>FOS Points</b>	Foot of the continental slope points
<b>Critical FOS Points</b>	Foot of the continental slope points that generate fixed formula points delineating the line that establishes the outer limits of the continental shelf
<b>2500 metre isobath</b>	A contour line connecting points at which the water depth is 2500 metres
<b>60 M Formula Arcs</b>	Arcs determined from the application of article 76, paragraph 4(a)(ii), of the Convention (also informally referred to as the Hedberg formula)
<b>Sediment Thickness Formula Points</b>	Points determined from the application of article 76, paragraph 4(a)(i), of the Convention (also informally referred to as Gardiner points)
<b>Depth Constraint</b>	The constraint line constructed at 100 M from the 2500 metre isobaths in accordance with article 76, paragraph 5, of the Convention
<b>Distance Constraint</b>	The constraint line constructed at 350 M from the baselines from which the breadth of the territorial sea is measured in accordance with article 76, paragraphs 5 and 6, of the Convention
<b>Guidelines</b>	Scientific and Technical Guidelines of the Commission (CLCS/11 and CLCS/11/Add.1)
<b>Commission</b>	Commission on the Limits of the Continental Shelf
<b>Convention</b>	United Nations Convention on the Law of the Sea of 10 December 1982
<b>Rules of Procedure</b>	Rules of Procedure of the Commission (CLCS/40/Rev.1)
<b>Secretary-General</b>	Secretary-General of the United Nations

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## I. INTRODUCTION

- 1 On 30 April 2009, the Islamic Republic of Pakistan (hereafter 'Pakistan') submitted to the Commission on the Limits of the Continental Shelf, through the Secretary-General of the United Nations, information on the limits of the continental shelf beyond 200 M from the baselines from which the breadth of the territorial sea is measured, in accordance with article 76, paragraph 8, of the Convention.
- 2 The Convention entered into force for Pakistan on 28 March 1997.
- 3 The Submission was for the area to the south and east of the Murray Ridge in the Arabian Sea.
- 4 On 4 May 2009, the Secretary-General issued Continental Shelf Notification CLCS.29.2009.LOS giving due publicity to the Executive Summary of the Submission in accordance with rule 50 of the Rules of Procedure. Pursuant to rule 51 of the Rules of Procedure, the consideration of the Submission was included in the provisional agenda of the twenty-fourth session of the Commission.
- 5 In a communication dated 7 August 2009, the Sultanate of Oman informed the Secretary-General that it was actively involved in the preparation of a continental shelf claim and that the area of its submission included, but was not limited to the same area over which Pakistan had submitted its claim. It was, therefore, essential to Oman that Pakistan's submission was not considered until Oman had completed and submitted its continental shelf claim. Further, that Pakistan's claim abutted Oman's exclusive economic zone and that it reserved its right to claim this maritime zone based on its approved national baselines. In a subsequent communication, dated 10 November 2014, Oman withdrew its request and confirmed that it had no objection to the Commission considering and making recommendations on Pakistan's submission.
- 6 The presentation on the Submission was made to the plenary of the thirty-second session of the Commission on 16 August 2013, by the Head of Delegation, Mr. Akhlaq Ahmad Tarar, Secretary, Ministry of Science and Technology, together with Mr. Ali Rashid Tabrez, Director General, National Institute of Oceanography; Mr. Asif Inam, Project Director, National Institute of Oceanography; and Mr. Muzaffar Mahmood, Deputy Chief, Maritime Affairs (who provided a technical presentation). The Delegation of Pakistan (the "Delegation") also included H.E. Sahebzada Ahmed Khan, Acting Permanent Representative of Pakistan to the United Nations, New York, as well as a number of advisers. In addition to elaborating on substantive points of the Submission, Mr. Tarar indicated that Messrs. Arshad, Haworth and Roest, members of the Commission, had assisted Pakistan by providing scientific and technical advice with respect to the Submission.
- 7 The Commission addressed the modalities for the consideration of the Submission, taking into account the communication from Oman, dated 7 August 2009, and the presentation made by the Delegation. It decided that, as provided for in article 5 of annex II to the Convention and in rule 42 of the Rules of Procedure, the Submission would be addressed through the establishment of a Subcommission, which was established on 26 August 2013.

- 8 The following members of the Commission were elected as members of the Subcommission for consideration of the Submission made by Pakistan: Messrs. Martin Vang Heinesen, Wenzheng Lyu, Estevao Stefane Mahanjane, Simon Njuguna, Carlos Marcelo Paterlini and Tetsuro Urabe. The Commission agreed that, owing to the absence of members, the seventh member of the Subcommission would be appointed at a subsequent stage. The Subcommission met during the thirty-second session and elected Mr. Urabe as Chairperson and Messrs. Heinesen and Lyu as Vice-Chairpersons. The Subcommission met during the thirty-third session, from 11 to 22 November 2013, and carried out the initial examination of the submission, in conformity with annex III to the Rules of Procedure. The Subcommission undertook the preliminary analysis of the Submission, and concluded that, inter alia, given the volume and nature of the data contained in the Submission, the Subcommission would require additional time for the consideration of the Submission.
- 9 The Subcommission conducted its examination of the Submission during the following sessions: thirty-third, thirty-fourth, thirty-fifth and thirty-sixth. During these sessions the Subcommission held eleven meetings with the Delegation in which it posed nine questions in writing, gave two presentations on technical aspects and one comprehensive presentation of its views and general conclusions arising from its examination of the Submission pursuant to paragraph 10.3 of annex III to the Rules of Procedures.
- 10 During the course of the main examination of the Submission by the Subcommission and the Commission, the Delegation provided responses to the questions posed in both writing and as presentations, and provided additional material. During the examination of the Submission, the Subcommission requested and received support from the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, including geographic information analysis and preparation of related illustrative maps and other related illustrations.
- 11 The Subcommission approved its Recommendations on 21 November 2014, and submitted them to the Commission on 26 November 2014, for consideration and approval. The Subcommission presented its draft Recommendations to the Commission on 10 March 2015.
- 12 As indicated, the Delegation made one presentation to the Commission on 16 August 2013, in accordance with rule 52 and paragraph 15.1(a) of annex III to the Rules of Procedure. The Delegation made an additional presentation to the Commission on 10 March 2015, in accordance with paragraph 15.1 bis of annex III to the Rules of Procedure.
- 13 The Commission prepared these Recommendations, which were approved on 13 March 2015, taking into consideration the internal procedures and the methodology outlined in article 76 and Annex II to the Convention and the following documents of the Commission: the Rules of Procedure and the Scientific and Technical Guidelines.
- 14 The Commission makes these Recommendations to Pakistan in fulfillment of its mandate as contained in article 76, paragraph 8, and articles 3 and 5 of annex II to the Convention.

- 15 A Summary of the Recommendations is included as Annex 6 of this document in conformity with paragraph 11.3 of annex III to the Rules of Procedure.
- 16 The Commission makes these Recommendations to the coastal State on matters related to the establishment of the outer limits of their continental shelf in accordance with article 76, paragraph 8, of the Convention. The limits of the continental shelf established by a coastal State on the basis of these Recommendations shall be final and binding.

## **II. CONTENTS OF THE SUBMISSION**

### **D. Original Submission**

- 17 The Submission received on 30 April 2009 contained: an Executive Summary; a Main Body which is the analytical and descriptive part; and Scientific and Technical Data.

### **E. Communications and additional material**

- 18 In the course of the examination of the Submission by the Subcommission, the Delegation submitted additional material, including responses to questions, requests for clarification and written preliminary considerations of the Subcommission.

## **III. EXAMINATION OF THE SUBMISSION BY THE SUBCOMMISSION**

### **F. Examination of the format and completeness of the Submission**

- 19 Pursuant to paragraph 3 of annex III to the Rules of Procedure, the Subcommission examined and verified the format and completeness of the Submission.

### **G. Preliminary analysis of the Submission**

- 20 Pursuant to paragraph 5 of annex III to the Rules of Procedure, the Subcommission undertook a preliminary analysis of the Submission, in accordance with article 76 of the Convention and the Guidelines and determined that:
  - (i) The test of appurtenance was satisfied by Pakistan, in that the outer edge of the continental margin, established from the FOS by applying the provisions of article 76, paragraph 4, of the Convention, extends beyond the 200 M limits of Pakistan;
  - (ii) The proposed outer limits of Pakistan's continental shelf beyond 200 M consists of fixed points on the 350 M constraint line;
  - (iii) The outer limits of the continental shelf contain straight line segments not exceeding 60 M in length;
  - (iv) The advice of a specialist, in accordance with rule 57 of the Rules of Procedure, or the cooperation of relevant international organizations, in accordance with rule 56 of the Rules of Procedure, would not be sought; and
  - (v) Additional time would be required to review all the data and prepare its recommendations for the Commission.

## **H. Main scientific and technical examination of the Submission**

- 21 The Subcommittee examined the Submission through the following processes:
- (i) Detailed examination of the data and information supporting the FOS point selected for the establishment of the outer edge of the continental margin and for the delineation of the proposed outer limits of the continental shelf, following consideration of the applicable constraint;
  - (ii) Seeking clarifications, where necessary, through exchanges between the Delegation and the Subcommittee;
  - (iii) Presenting preliminary views and conclusions to the Delegation;
  - (iv) Making a comprehensive presentation of the views and general conclusions of the Subcommittee to the Delegation, at an advanced stage of the examination of the Submission; and
  - (v) Preparing Recommendations to be submitted to the Commission in accordance with annex III of the Rules of Procedure.

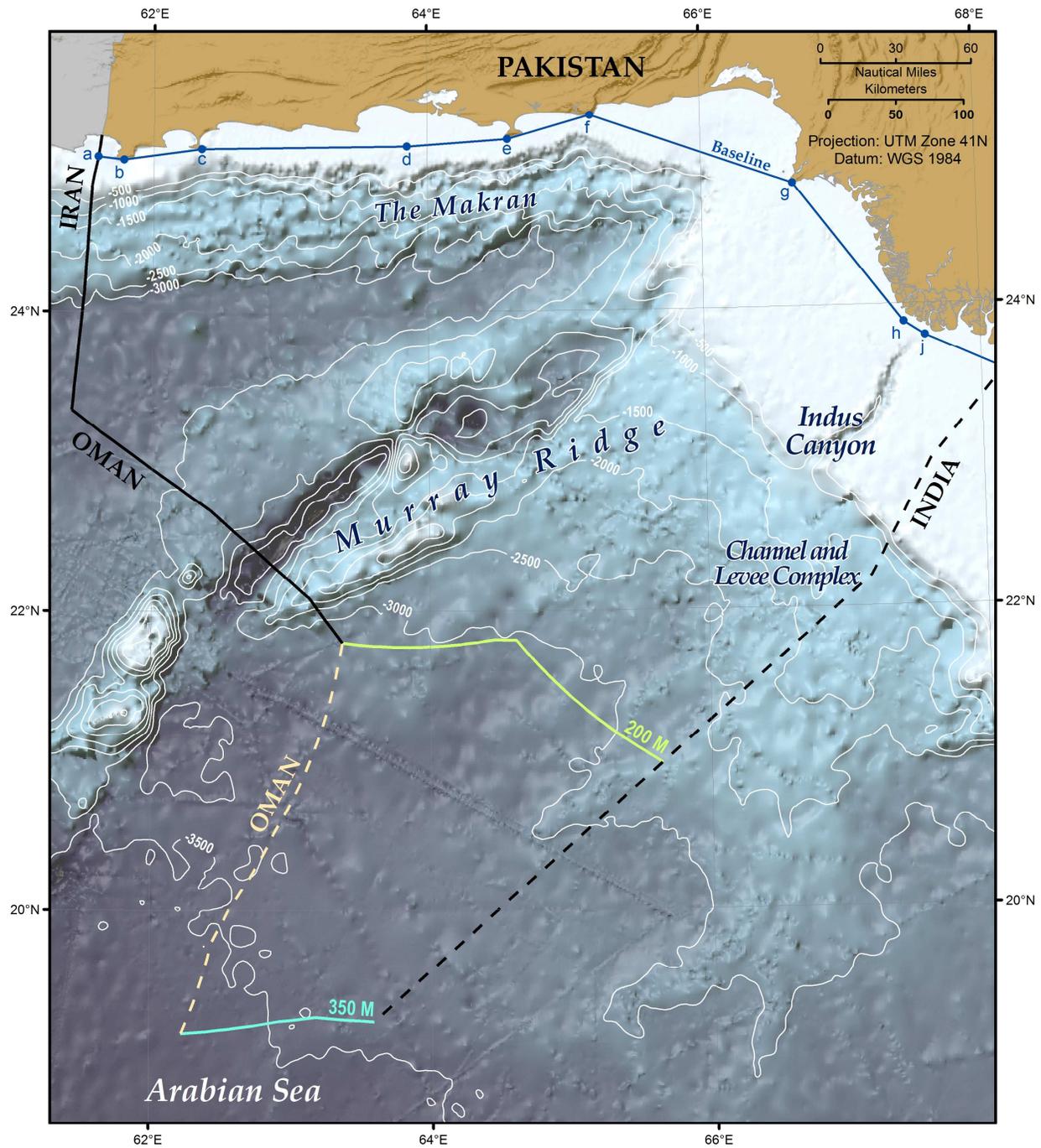
## **IV. PROVISIONS OF THE CONVENTION ON WHICH THESE RECOMMENDATIONS ARE BASED**

- 22 The Recommendations of the Commission are based on the scientific and technical data and other material provided by Pakistan in relation to the implementation of article 76. The Recommendations of the Commission only deal with issues related to article 76 and annex II to the Convention and shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts, or application of other parts of the Convention, or any other treaties.

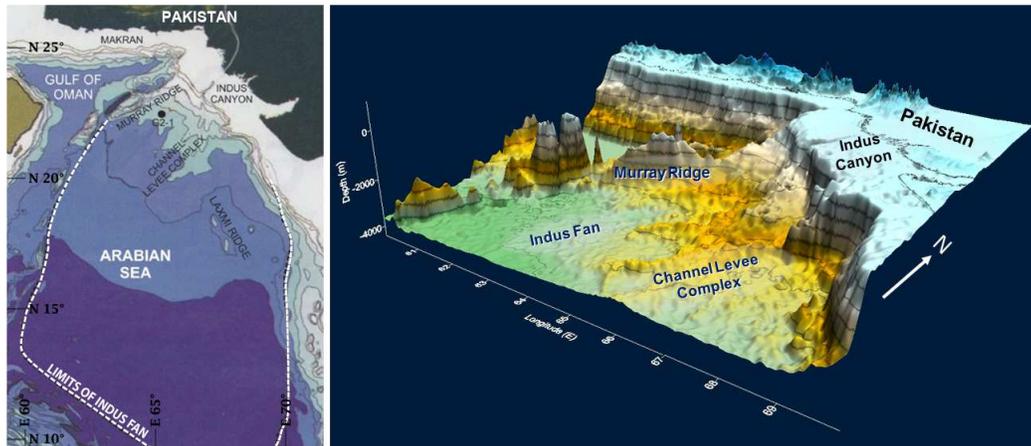
## **V. RECOMMENDATIONS OF THE COMMISSION**

### **1. Geographical and geological description of the continental margin of Pakistan**

- 23 The offshore part of Pakistan is located in the Arabian Sea and is separated by the Murray Ridge into two areas: i) to the northwest is a triangular shaped area dominated by the offshore extension of the Makran thrust belt; and ii) to the south and east of the Murray Ridge lies the larger portion of Pakistan's offshore area where the dominant surface geology is that of the Indus Fan. The Submission of Pakistan relates to this latter area (Figures 1 and 2).



**Figure 1\*.** Regional bathymetry and geographical features of the continental margin of Pakistan.



**Figure 2.** Extent of the Indus Fan in the Arabian Sea (left) and three-dimensional image, looking north-west toward the Murray Ridge (right). Figure 2 has been modified from Figures 2.1 and 2.2 of the Main Body.

24

Paragraph not made public at the request of the coastal State by virtue of paragraph 11.3 of annex III to the Rules of Procedure.

25 The continental margin of Pakistan in the submission area is largely comprised of the Indus Fan, which is one of the largest deep-sea fan in the world. Since Mid-Eocene time, the Murray Ridge has been uplifted and has prevented westward sediment flow from the center of the basin and caused significant accumulation of Indus Fan sediments.

26 The upper part of the Indus Fan is characterized by a number of complex sedimentary features, such as the Channel and Levee Complex, developed on the surface of the sequences of the fan.

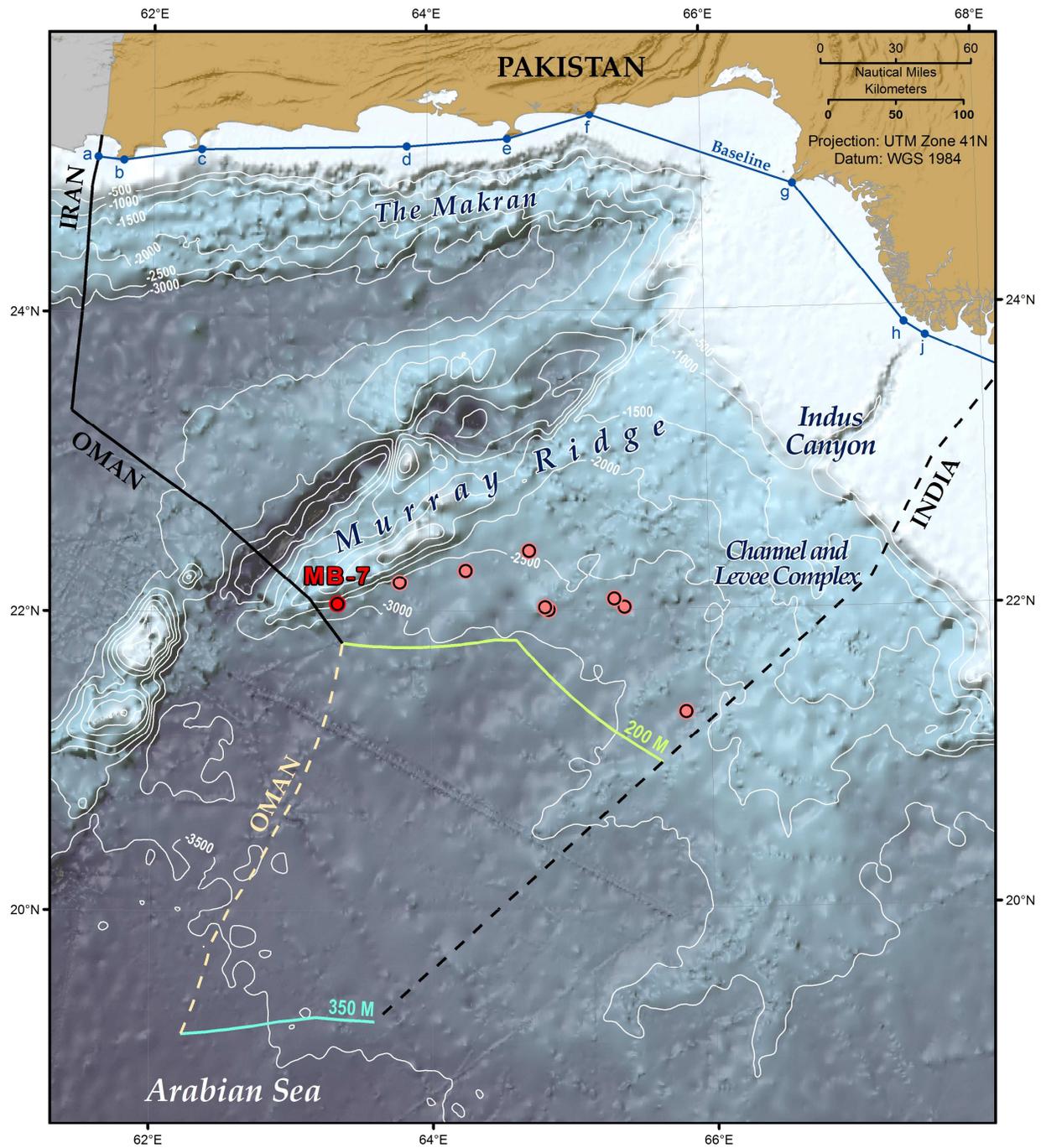
27 The morphology of the southeastern flank of the Murray Ridge has a distinct break of slope towards the well-developed Channel and Levee Complex on the surface of the Indus Fan to the east.

## **2. The determination of the foot of the continental slope (article 76, paragraph 4(b))**

28 The FOS should be established in accordance with article 76, paragraph 4(b), of the Convention.

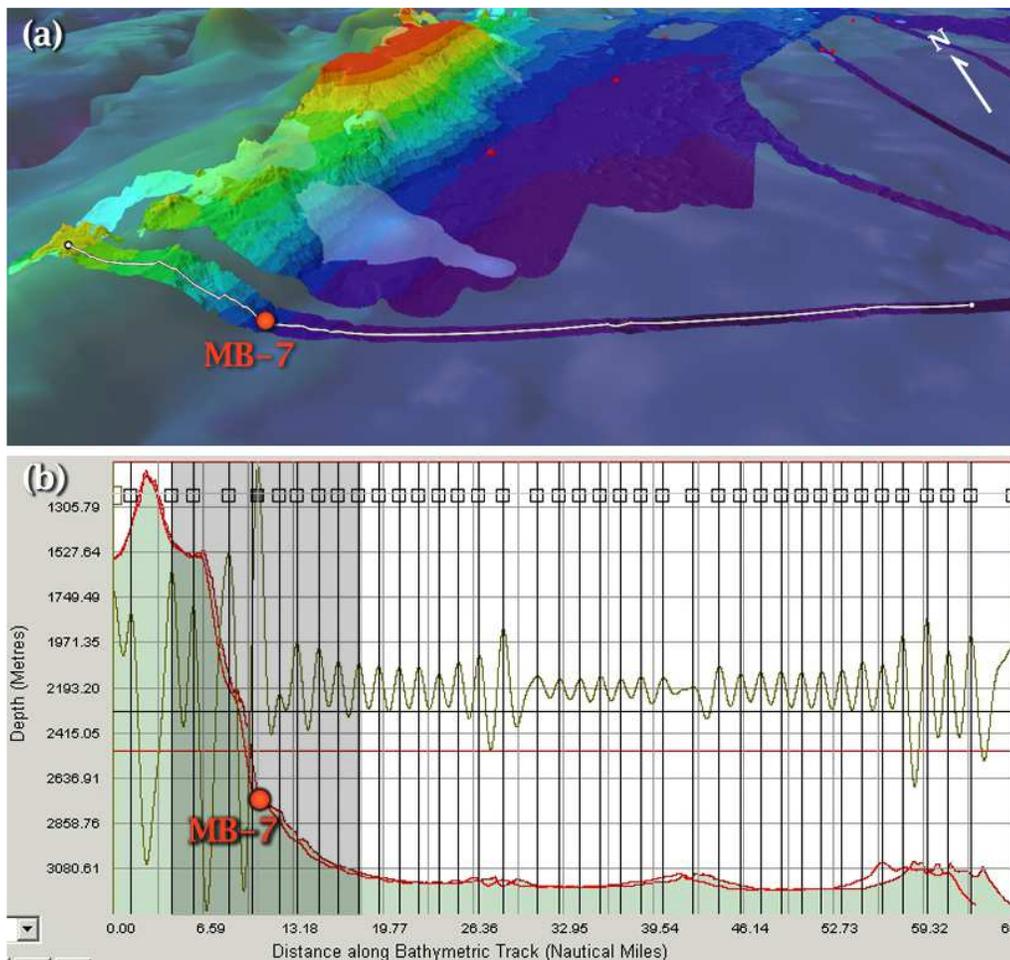
### **2.1 Considerations**

29 Nine FOS points were initially submitted by Pakistan around the Channel and Levee Complex and at the southeastern slope of the Murray Ridge (Figure 3). These FOS points were determined at the location of maximum change in the gradient either on multibeam survey lines or on the basis of other criteria, including mathematical gradient analyses on multibeam bathymetric data without prior identification of the base of the continental slope.



**Figure 3\*.** Location of the nine FOS points, as submitted by Pakistan. Only FOS point MB-7 was used to generate formula points of the outer edge of the continental margin beyond the 200 M distance line.

- 30 Only FOS point MB-7, which is associated with the continental margin of the Murray Ridge, was used to generate formula points beyond the 200 M limits of Pakistan. It was determined along a profile from multibeam bathymetry using the general rule. The FOS is, therefore, the point of maximum change in the gradient at the base of the continental slope, in accordance with paragraph 4(b) of article 76 of the Convention.
- 31 The Subcommittee was of the view that the applicability of FOS point MB-7 would be contingent upon the morphological continuity of the Murray Ridge with the landmass of Pakistan. In this regard, and consequent to a request by the Subcommittee, Pakistan provided two profiles, one along and the other across the axis of the Murray Ridge. The Subcommittee considered these profiles in combination with other provided evidence, including measured multibeam bathymetry data, and agreed with Pakistan that the Murray Ridge is continuous with its landmass at least up to point MB-7.



**Figure 4. (a)\*\*** Three-dimensional image of the southeastern flank of the Murray Ridge and adjacent basin constructed by the Subcommittee using the multibeam bathymetric data provided by Pakistan and SRTM grid. The location of FOS point MB-7 is indicated. **(b)** Determination of FOS point MB-7 at the base of the slope (shaded) of the Murray Ridge as submitted by Pakistan. Figure 4 has been modified from Figure A14 of the Main Body.

- 32 As was mentioned in paragraph 29 above, Pakistan determined FOS point MB-7 on the basis of the maximum change in gradient, without prior identification of the base of the continental slope region. The Subcommission was of the view that this approach did not fulfil the requirements of sections 5.1.3 and 5.4.5 of the Guidelines.
- 33 In response, Pakistan identified a wide BOS region without documenting the criteria for identification of the landward and seaward edges of the BOS. However, the Subcommission is of the view that the BOS along the southeastern flank of the Murray Ridge can be clearly determined on the basis of morphological and bathymetric evidence (Figure 4). In that regard, the Subcommission agreed with the location of the determined FOS point MB-7 (communicated by Pakistan on 18 June 2014), which was at the same location as initially submitted.

## **2.2 Recommendations**

- 34 Based on its consideration of the technical and scientific documentation contained in the Submission of Pakistan and the additional information provided in the documents referred to in paragraph 33 above, the Commission concludes that FOS point MB-7, as listed in Table 1 of Annex 1, fulfils the requirements of article 76 of the Convention and chapter 5 of the Guidelines. The Commission recommends that this FOS point should form the basis for the establishment of the outer edge of the continental margin of Pakistan.

### **3. The establishment of the outer edge of the continental margin (article 76, paragraph 4(a))**

- 35 The outer edge of the continental margin of Pakistan extends beyond 200 M from the baselines in the area to the south and east of the Murray Ridge in the Arabian Sea.
- 36 The outer edge of the continental margin of Pakistan should, for the purposes of the Convention, be established in accordance with article 76, paragraphs 4 and 7, of the Convention.
- 37 In establishing the outer edge of the continental margin, Pakistan did not implement the 60 M formula line contained in article 76, paragraph 4(a)(ii) of the Convention.

#### **3.1 The application of the 1% sediment thickness formula (article 76, paragraph 4(a)(i))**

- 38 Using FOS point MB-7, as described previously (see paragraph 33 above), Pakistan established five sediment thickness formula points (5E, 1D, 2A, 2B, and 2C) on the outer edge of the continental margin, as provided for in article 76, paragraph 4 (a)(i) of the Convention (see Figure 5). Pakistan established these sediment thickness formula points based on three seismic lines (NIOP-01, NIOP-02, and NIOP-05).

39

Paragraph not made public at the request of the coastal State by virtue of paragraph 11.3 of annex III to the Rules of Procedure.

- 40 Paragraph not made public at the request of the coastal State by virtue of paragraph 11.3 of annex III to the Rules of Procedure.

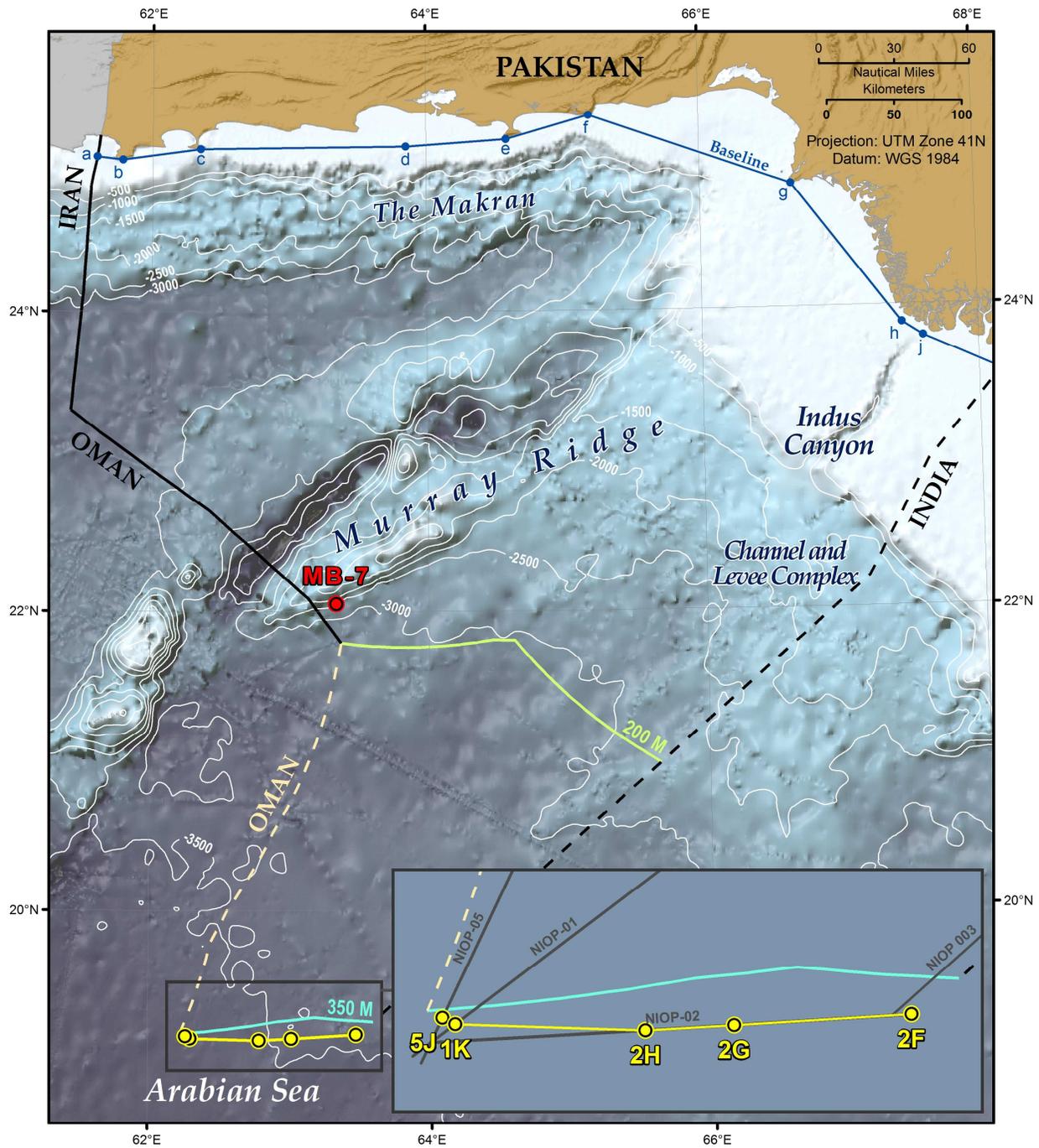
Figure not made public at the request of the coastal State by virtue of paragraph 11.3 of annex III to the Rules of Procedure.

**Figure 5.** Map of sediment thickness and seismic track lines within “The Box” showing the location of the five sediment thickness formula points (‘2C’ through ‘5E’) as submitted by Pakistan. The 350 M constraint line is also shown. An enlargement of that portion of the map in the vicinity of the southwest corner of “The Box” is shown in the inset. Figure 5 is Figure 6.5 of the Main Body.

- 41 The Subcommittee requested documentation for each of the specific sediment thickness formula point locations. The documentation needed to include velocity analyses used for the depth conversion along parts of the applied seismic lines where they cross each of the respective sediment thickness formula points, defining the outer edge of the continental margin. Pursuant to requests for further clarification, Pakistan submitted a revised outer edge of the continental margin, based on sediment thickness formula points 5J, 1K, 2H, 2G and 2F (Figure 6 and Table 2 Annex 1) (communicated by Pakistan on 18 June 2014).
- 42 The Commission agrees with the procedure applied by Pakistan to establish the sediment thickness formula points, as contained in Table 2, Annex 1. The Commission bases its conclusions on the data provided, the seismic interpretation, the methods of depth conversion and the distance calculations.

### **3.2 Configuration of the outer edge of the continental margin**

- 43 The outer edge of the continental margin of Pakistan extends in a roughly east-west direction semi-parallel to, and at a distance up to approximately 15 km beyond the 350 M distance line of Pakistan (Figure 6).



**Figure 6\*.** The outer edge of the continental margin of Pakistan is defined by straight lines, shown in yellow, connecting sediment thickness formula points 5J, 1K, 2H, 2G, and 2F, determined on three seismic lines (see inset).

### **3.3 Recommendations**

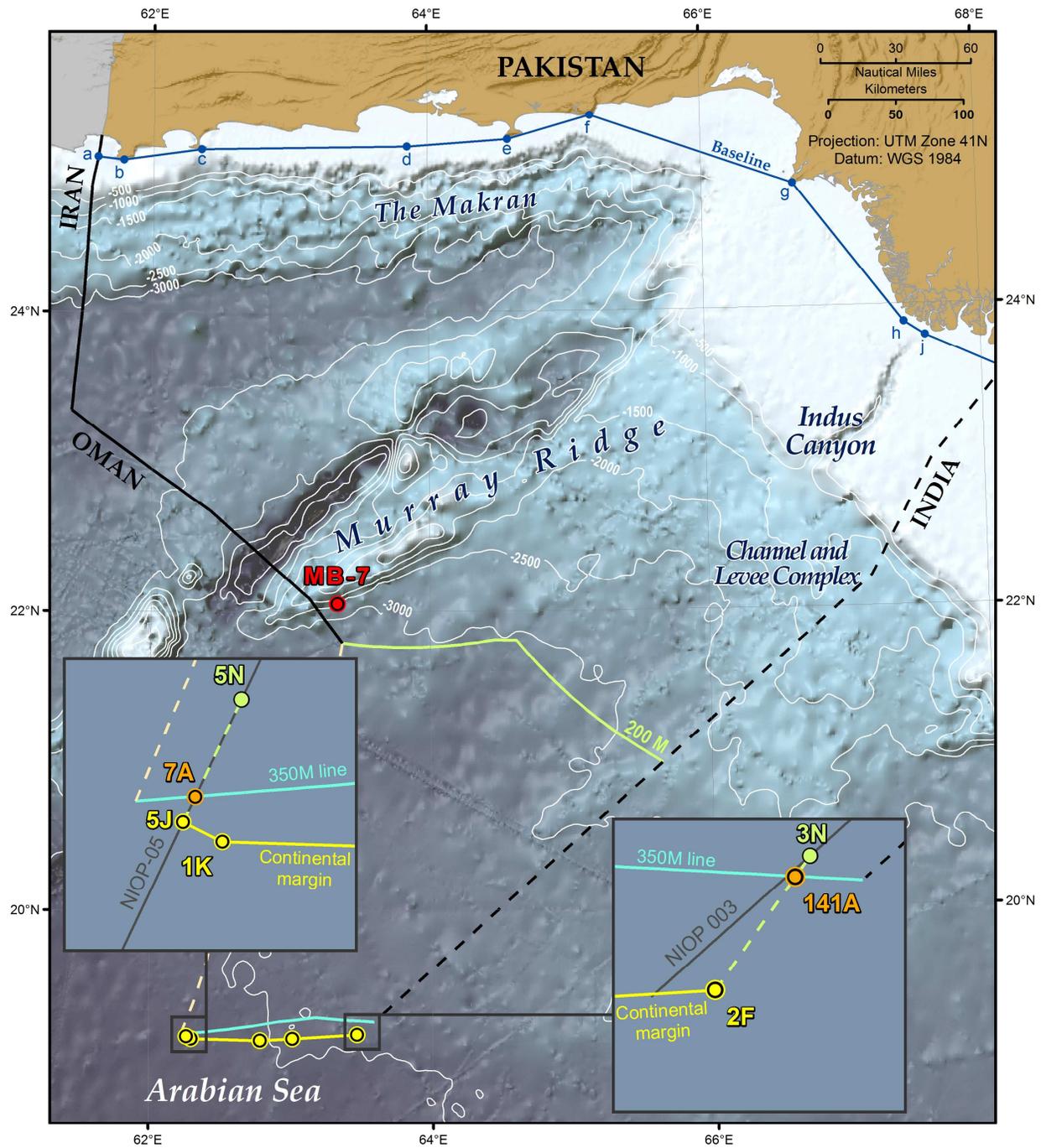
- 44 The outer edge of the continental margin of Pakistan beyond 200 M is based on the sediment thickness formula points as described in section 3.1 (see Figure 6). The Commission recommends that these points be used as the basis for delineating the outer limits of the continental shelf in accordance with article 76, paragraph 7, of the Convention.

### **4. The application of the constraint criteria (article 76, paragraphs 5 and 6)**

- 45 The outer limits of the continental shelf should be based on the established outer edge of the continental margin, taking into consideration the constraints contained in article 76, paragraphs 5 and 6, of the Convention.
- 46 The outer limits of the continental shelf cannot extend beyond the constraints, as set out in article 76, paragraph 5, of the Convention. Accordingly, the provision that the fixed points comprising the line of the outer limits of the continental shelf may not exceed 350 M from the baselines from which the breadth of the territorial sea is measured (the “distance constraint”) may be applied in all cases. Alternatively, the provision that the fixed points comprising the outer limits of the continental shelf may not exceed 100 M from the 2500 m isobath (“depth constraint”) may be applied to those parts of the continental margin that are classified as natural components of that margin.
- 47 For the outer limits of the continental shelf, Pakistan has invoked the distance constraint only.
- 48 The distance constraint line submitted by Pakistan is constructed by arcs at 350 M distance from the baselines from which the breadth of the territorial sea of Pakistan is measured. The three base points (b, c and d depicted in Figure 6) contribute to the determination of this constraint line. The Commission agrees with the methodology applied by Pakistan in the construction of this constraint line.

### **5. The outer limits of the continental shelf (article 76, paragraph 7)**

- 49 The outer limits of the continental shelf result from the application of the constraint line determined according to paragraph 47, above. As contained in the Submission of Pakistan dated 30 April 2009, and amended by the Delegation on 10 November 2014, the outer limits consist of fixed points connected by straight lines not exceeding 60 M in length. The fixed points are listed in Table 3, Annex 1. The fixed points are established in accordance with article 76 of the Convention. They do not include points on any 200 M limit lines, or on any boundary lines with other coastal States.
- 50 In its Submission, Pakistan concluded that, “The 350 M constraint line [...] becomes the outer limit of Pakistan’s extended Continental Shelf and is, therefore, the line that has to be defined by straight lines not exceeding 60 M in length”.
- 51 The Commission agrees with Pakistan that the 350 M distance constraint applies, and that the outer edge of the continental margin extends beyond this constraint.



**Figure 7\*.** Two “supporting” sediment thickness points, 5N and 3N, are used for the purpose of defining the outer limit points 7A and 141A, respectively, on the 350 M constraint line of Pakistan.

- 52 The Commission also agrees with the determination by Pakistan, as contained in the response of the Delegation to the information requested by the Subcommission during the thirty-fifth session in August 2014, of the “supporting” sediment thickness points 3N and 5N, listed in Table A. These points represent locations at each of which the sediment thickness is at least 1% of the shortest distance from those points to the foot of the continental slope.
- 53 These points are used by Pakistan only to verify that the continental margin in this region extends at least up to the straight lines not exceeding 60 M in length connecting these points with the sediment thickness formula points 2F and 5J, respectively (see Figure 7). The intersection points of these two straight lines with the 350 M distance line define the two outer limit fixed points 141A and 7A, respectively. Any outermost fixed points west of point 7A and east of point 141A on the 350 M constraint line have not been recommended upon.

Table A. List of coordinates for the “supporting” sediment thickness points.

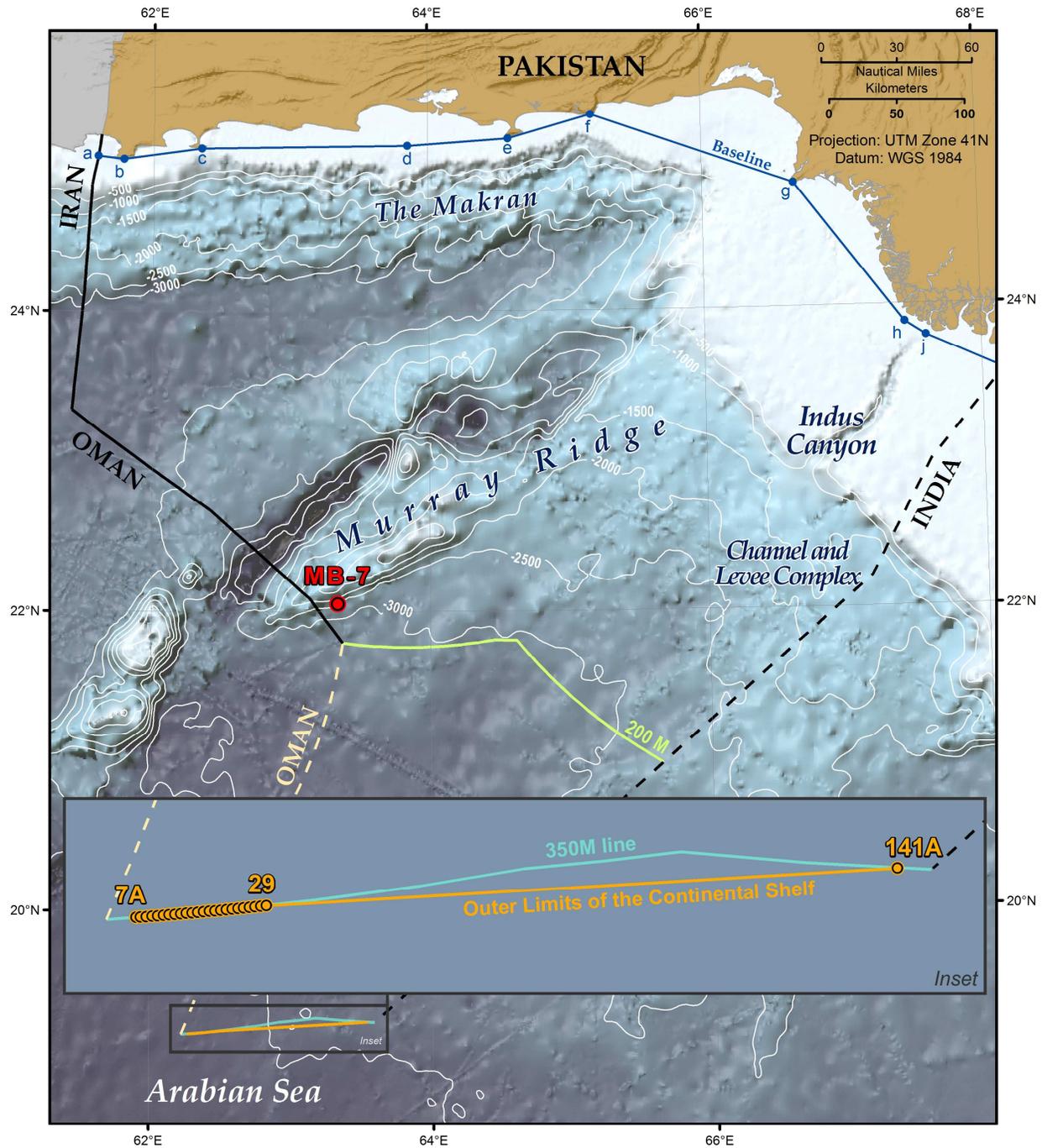
	<b>Shot Point</b>	<b>Latitude (degrees N)</b>	<b>Longitude (degrees E)</b>	<b>Sediment Thickness (m)</b>	<b>1% Distance from MB-7 FOS (m)</b>
<b>3N</b>	1479	19.275260°N	63.545747°E	3512	3079
<b>5N</b>	13213	19.256829°N	62.311108°E	3643	3269

#### **5.1 Recommendations for the outer limits of the continental shelf of Pakistan (article 76 paragraph 8)**

- 54 The Commission agrees with the determination of the fixed points listed in Table 2, Annex I, establishing the outer edge of the continental margin. The Commission recommends that the delineation of the outer limits of the continental shelf of Pakistan be conducted in accordance with article 76, paragraph 7, of the Convention, by straight lines not exceeding 60 M in length, connecting fixed points, defined by coordinates of latitude and longitude. Further, the Commission agrees with the methodology applied in delineating the outer limits of the continental shelf of Pakistan, including the determination of the fixed points listed in Table 3, Annex 1, and the construction of the straight lines connecting those points (Figure 8).
- 55 The Commission recommends that Pakistan proceeds to delineate the outer limits of the continental shelf on the basis of these Recommendations.

\* The illustrative map was prepared by the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, upon request by the Subcommission established to consider the submission by Pakistan, on the basis of the submitted information. The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

\*\*The illustration was prepared by the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, upon request by the Subcommission established to consider the submission by Pakistan, on the basis of the submitted information.



**Figure 8\*.** The outer limits of the continental shelf of Pakistan are delineated by straight lines not exceeding 60 M in length connecting fixed points listed in Table 3, Annex I.

## ANNEX 1

### TABLES OF GEOGRAPHIC COORDINATES OF: THE FOOT OF CONTINENTAL SLOPE POINTS, THE OUTER EDGE OF THE CONTINENTAL MARGIN BEYOND 200 M AND THE OUTER LIMITS OF THE CONTINENTAL SHELF BEYOND 200 M

**Table 1. Coordinates of the foot of the slope point**

FOS point	Water depth [m]	Longitude	Latitude
MB-7	2684	63.3363097E	22.0499482N

**Table 2. Coordinates for the outer edge of the continental margin and corresponding foot of the slope points**

Continental Margin Point	Longitude	Latitude	CM-related shot point / line	Sediment thickness	Distance to next CM Point	Article 76 criterion	Relevant FOS Point / line	Distance to FOS
5J	62.2630167E	19.1598167N	13533/ NIOP-05	3701m	2.06M	4 (a) (i)	MB-7/ PR88	338963.337m
1K	62.2956834E	19.1446833N	17388/ NIOP-01	3415m	27.73M	4 (a) (i)	MB-7/ PR88	339443.598m
2H	62.7837333E	19.1310167N	2546/ NIOP-02	3411m	12.95M	4 (a) (i)	MB-7/ PR88	328253.345m
2G	63.0114333E	19.1439167N	3186/ NIOP-02	3443m	25.91M	4 (a) (i)	MB-7/ PR88	323509.676m
2F	63.4669667E	19.1697167N	4446/ NIOP-02	3587m		4 (a) (i)	MB-7/ PR88	319167.316m

**Table 3. Coordinates for the outer limits of the continental shelf fixed points beyond 200M**

<b>Final Outer Limit Point</b>	<b>Final OL Point Longitude</b>	<b>Final OL Point Latitude</b>	<b>Distance to next OL Point (M)</b>	<b>Article 76 criterion</b>
7A	62.2730773E	19.1801216 N	0.434	76 (4) (a) (i) & 76 (5)
7	62.2806818E	19.1806823 N	0.540	76 (4) (a) (i) & 76 (5)
8	62.2901631 E	19.1813949 N	0.540	76 (4) (a) (i) & 76 (5)
9	62.2996433 E	19.1821208 N	0.540	76 (4) (a) (i) & 76 (5)
10	62.3091224 E	19.1828601 N	0.540	76 (4) (a) (i) & 76 (5)
11	62.3186004 E	19.1836128 N	0.540	76 (4) (a) (i) & 76 (5)
12	62.3280772 E	19.1843788 N	0.540	76 (4) (a) (i) & 76 (5)
13	62.3375530 E	19.1851582 N	0.540	76 (4) (a) (i) & 76 (5)
14	62.3470275 E	19.1859510 N	0.540	76 (4) (a) (i) & 76 (5)
15	62.3565009 E	19.1867571 N	0.540	76 (4) (a) (i) & 76 (5)
16	62.3659731 E	19.1875766 N	0.540	76 (4) (a) (i) & 76 (5)
17	62.3754440 E	19.1884094 N	0.540	76 (4) (a) (i) & 76 (5)
18	62.3849137 E	19.1892556 N	0.540	76 (4) (a) (i) & 76 (5)
19	62.3943821 E	19.1901151 N	0.540	76 (4) (a) (i) & 76 (5)
20	62.4038493 E	19.1909879 N	0.540	76 (4) (a) (i) & 76 (5)
21	62.4133151 E	19.1918742 N	0.540	76 (4) (a) (i) & 76 (5)
22	62.4227796 E	19.1927737 N	0.540	76 (4) (a) (i) & 76 (5)
23	62.4322427 E	19.1936866 N	0.540	76 (4) (a) (i) & 76 (5)
24	62.4417045 E	19.1946129 N	0.540	76 (4) (a) (i) & 76 (5)
25	62.4511649 E	19.1955524 N	0.540	76 (4) (a) (i) & 76 (5)
26	62.4606239 E	19.1965054 N	0.540	76 (4) (a) (i) & 76 (5)
27	62.4700814 E	19.1974716 N	0.540	76 (4) (a) (i) & 76 (5)
28	62.4795375 E	19.1984512 N	0.540	76 (4) (a) (i) & 76 (5)
29	62.4889921 E	19.1994441 N	59.400	76 (4) (a) (i) & 76 (5)
141A	63.5334024 E	19.2587332 N	-----	76 (4) (a) (i) & 76 (5)

**Tables 1, 2 and 3 of Annex I are only available in electronic form.**