



## **Commission on the Limits of the Continental Shelf**

---

---

### **RECOMMENDATIONS OF THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF IN REGARD TO THE SUBMISSION MADE BY SURINAME ON 5 DECEMBER 2008**

Recommendations prepared by the Subcommittee established for the consideration  
of the Submission made by Suriname

Adopted by the Subcommittee on 23 March 2011, and submitted to the Commission  
on the Limits of the Continental Shelf for consideration and approval by the  
Commission

Adopted by the Commission, with amendments, on 30 March 2011

---

---

(page left intentionally blank)

## TABLE OF CONTENTS

<b>I. INTRODUCTION .....</b>	<b>1</b>
<b>II. CONTENTS OF THE SUBMISSION .....</b>	<b>3</b>
A. Original Submission .....	3
B. Communications and additional material .....	3
<b>III. EXAMINATION OF THE SUBMISSION BY THE SUBCOMMISSION .....</b>	<b>3</b>
A. Examination of the format and completeness of the Submission .....	3
B. Preliminary analysis of the Submission .....	3
C. Main scientific and technical examination of the Submission .....	4
<b>IV. GENERAL PRINCIPLES ON WHICH THESE RECOMMENDATIONS ARE BASED .....</b>	<b>4</b>
<b>V. RECOMMENDATIONS .....</b>	<b>4</b>
1. Geographical and geological description of the region .....	4
2. Notes verbales submitted by other States .....	5
3. Submerged prolongation of the landmass and entitlement to the continental shelf beyond 200 M.....	7
4. The determination of the foot of the continental slope .....	7
4.1 Considerations.....	7
4.2 Recommendations .....	9
5. The establishment of the outer edge of the continental margin.....	9
5.1 The application of the sediment thickness formula.....	9
5.2 Configuration of the Outer Edge of the Continental Margin .....	11
5.3 Recommendations .....	11
6. The delineation of the outer limits of the continental shelf .....	11
6.1 The application of constraint criteria .....	11
6.1.1 The construction of the distance constraint line .....	12
6.2 The outer limits of the continental shelf.....	12
6.3 Recommendations .....	14
<b>ANNEX I TABLES .....</b>	<b>15</b>
<b>ANNEX II LIST OF THE MATERIAL CONTAINED IN THE ORIGINAL SUBMISSION OF SURINAME MADE TO THE COMMISSION ON 5 DECEMBER 2008 .....</b>	<b>16</b>
<b>ANNEX III LIST OF ADDITIONAL MATERIAL SUBMITTED TO THE COMMISSION BY SURINAME</b>	<b>17</b>
<b>ANNEX IV MATERIAL SUPPLIED TO THE DELEGATION BY THE SUBCOMMISSION – QUESTIONS, AND LIST OF DOCUMENTS AND PRESENTATIONS .....</b>	<b>20</b>
<b>ANNEX V LIST OF NOTES VERBALES RELATED TO THE SUBMISSION OF SURINAME .....</b>	<b>23</b>
<b>ANNEX VI SUMMARY OF RECOMMENDATIONS OF THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF IN REGARD TO THE SUBMISSION MADE BY SURINAME ON 5 DECEMBER 2008 .....</b>	<b>24</b>

## LIST OF TERMS AND ABBREVIATIONS

<b>Acronyms</b>	
<b>DOALOS</b>	Division for Ocean Affairs and Law of the Sea, Office of Legal Affairs
<b>FOS</b>	Foot of the continental slope
<b>Abbreviated Terms</b>	
<b>Critical FOS Points</b>	Foot of the continental slope points that generate formula fixed points on the line of the outer limits of the continental shelf
<b>FOS Points</b>	Foot of the continental slope points
<b>Depth Constraint</b>	The constraint line constructed at 100 M from the 2500 metre isobaths in accordance with article 76, paragraphs 5 and 6, of the Convention
<b>Distance Constraint</b>	The constraint line constructed at 350 M from the territorial sea baseline in accordance with article 76, paragraphs 5 and 6, of the Convention
<b>M</b>	Nautical mile
<b>Relevant FOS point</b>	Foot of the continental slope points that generate formula fixed points on the outer edge of the continental margin that are necessary for the construction of the outer limits of the continental shelf
<b>Secretary-General</b>	The Secretary-General of the United Nations
<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>Territorial Sea Baselines</b>	The baselines from which the breadth of the territorial sea is measured
<b>The Guidelines</b>	The Scientific and Technical Guidelines of the Commission (CLCS/11 and CLCS/11/Add.1)
<b>The Commission</b>	The Commission on the Limits of the Continental Shelf
<b>The Convention</b>	The United Nations Convention on the Law of the Sea of 10 December 1982
<b>The Rules of Procedure</b>	The Rules of Procedure of the Commission (CLCS/40/Rev.1)
<b>60 M Formula Points</b>	Points determined from the application of article 76, paragraph 4(a)(ii), of the Convention (also informally referred to as Hedberg points)
<b>200 M Limit</b>	The line at 200 M from the territorial sea baselines
<b>Use of Terms</b>	
<b>Determine</b>	the foot of the continental slope
<b>Delineate</b>	the outer edge of the continental margin (in terms of construction of the outer edge of the continental margin by establishing and connecting fixed points)
<b>Delineate</b>	the outer limits of the continental shelf (in terms of construction of the outer limits of the continental shelf by establishing and connecting fixed points)
<b>Establish</b>	the outer edge of the continental margin (in terms of following procedure in the Convention for submitting the outer edge of the continental margin as basis for the outer limits of the continental shelf)
<b>Establish</b>	the outer limits of the continental shelf (in terms of following procedure in the Convention including the submission of the outer limits of the continental shelf)

## I. INTRODUCTION

- 1 On 5 December 2008, Suriname submitted through the Secretary-General of the United Nations to the Commission on the Limits of the Continental Shelf, in accordance with article 76, paragraph 8 of the United Nations Convention on the Law of the Sea of 10 December 1982, 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.<sup>1</sup> The Convention entered into force for Suriname on 8 August 1998.
- 2 On 23 December 2008 the Secretary-General issued Continental Shelf Notification CLCS.15.2008.LOS giving due publicity to the Executive Summary of the Submission in accordance with rule 50 of the Rules of Procedure of the Commission.<sup>2</sup> In conformity with rule 51 of the Rules of Procedure, the consideration of the Submission was included in the agenda of the twenty-fourth session of the Commission.
- 3 The Commission received and took note of the contents of the following notes verbales transmitted to the Commission in relation to the Submission: note verbale HR/fh No. 800, dated 22 December 2008, from the Permanent Mission of France to the United Nations; note verbale No. 076, dated 29 April 2009, from the Permanent Mission of Trinidad and Tobago to the United Nations; and note verbale UN 6/6/3 Vol. IV, dated 31 July 2009, from the Permanent Mission of Barbados to the United Nations.<sup>3</sup> The Commission decided to refer matters raised in these communications to the Subcommission established for the consideration of the Submission made by Suriname.
- 4 The presentation on the Submission was made to the plenary of the twenty-fourth session of the Commission on 24 August 2009, by Henry Leonard MacDonald, Permanent Representative of Suriname to the United Nations, Head of Delegation; Franklyn MacDonald, Extended Shelf Coordinator at the F.H.R. Lim A Po Institute for Social Studies; and Nohar Poeketie, Exploration Geologist, State Oil Company. The Delegation of Suriname (the "Delegation") also included a number of scientific, technical and legal advisers. In addition to elaborating on substantive points of the Submission, Mr. Henry Leonard MacDonald indicated that Suriname had not received scientific and technical advice with respect to the Submission from any member of the Commission.
- 5 The Commission addressed the modalities for the consideration of the Submission. 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 during the twenty-fifth session.
- 6 The following members of the Commission were elected as members of the Subcommission for consideration of the Submission made by Suriname: Messrs. Astiz, Croker, Kazmin, Park, Pimentel, Rajan and Rosette. The

---

<sup>1</sup> The list of the material included in the original Submission is contained in Annex II to the Recommendations.

<sup>2</sup> See Continental Shelf Notification CLCS.15.2008.LOS at [http://www.un.org/depts/los/clcs\\_new/submissions\\_files/submission\\_sur.htm](http://www.un.org/depts/los/clcs_new/submissions_files/submission_sur.htm)

<sup>3</sup> The notes verbales from France, Trinidad and Tobago and Barbados are available on the DOALOS web site for the Commission at [http://www.un.org/Depts/los/clcs\\_new/submissions\\_files/submission\\_sur.htm](http://www.un.org/Depts/los/clcs_new/submissions_files/submission_sur.htm)

Subcommission elected Mr. Rajan as its Chairperson, and Messrs. Park and Rosette as its Vice-Chairpersons.

- 7 Following its establishment, the Subcommission decided that it would commence consideration of the Submission during the twenty-sixth session from 30 August to 3 September 2010 to conduct a preliminary examination of the Submission and the data accompanying it. It was determined that given the volume and nature of the data contained in the Submission, the Subcommission would require additional time for the consideration of the Submission.
- 8 During its preliminary examination of the Submission the Subcommission carried out the analysis of the data and other material. During that session, the Subcommission met with the Delegation on two occasions, requested clarifications on several points, posed 10 questions in writing and presented one set of preliminary considerations and general conclusions covering the whole Submission.<sup>4</sup> The Delegation made two presentations, provided written responses to some of the questions and agreed to provide responses to the remaining ones during the intersessional period.<sup>5</sup>
- 9 During the intersessional period, the Delegation provided additional material clarifying several points raised by the Subcommission.
- 10 The Subcommission continued its examination of the Submission during the twenty-seventh session, from 14 to 25 March 2011. During that period, the Subcommission held one meeting with the Delegation and received additional material clarifying several points raised by the Subcommission. The Subcommission also provided a comprehensive presentation of its views and general conclusions of the Subcommission to the Delegation. 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, in particular in the form of technical support by DOALOS Geographical Information Systems staff.
- 11 The Subcommission adopted its Recommendations on 23 March 2011, and submitted them to the Commission on 25 March 2011 for consideration and approval by the Commission.
- 12 The Commission prepared these Recommendations, which were adopted on 30 March 2011, taking into consideration the internal procedures and the methodology outlined in the following official documents of the Commission: the Rules of Procedure; the Scientific and Technical Guidelines and paragraph 6 of Annex II to the Convention.
- 13 The Commission makes these Recommendations to Suriname in fulfilment of its mandate as contained in article 76, paragraph 8 of, and articles 3 and 5 of Annex II to the Convention.
- 14 A Summary of the Recommendations is included as Annex VI of this document, in conformity with Annex III, V. 11(3) of the Rules of Procedure.
- 15 The Commission makes its Recommendations recognizing that the outer limits of the continental shelf as established by a coastal State on the basis of its

---

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

<sup>5</sup> A list of additional material submitted to the Commission by the Delegation of Suriname is contained in Annex III to the Recommendations

Recommendations shall be final and binding according to article 76, paragraph 8 of the Convention.

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

### **A. Original Submission**

- 16 The original Submission received on 5 December 2008 contained: an Executive Summary; a Main Body which is the analytical and descriptive part; and Scientific and Technical Data. A list of the material included in the Submission received on 5 December 2008 is included as Annex II to these Recommendations.

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

- 17 In the course of the examination of the Submission by the Subcommittee, the Delegation submitted additional material, including in response to questions, requests for clarification and written preliminary considerations of the Subcommittee. Lists of both the additional material submitted by Suriname and the communications of the Subcommittee are included as Annexes III and IV, respectively, to these Recommendations.

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

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

- 18 Pursuant to paragraph 3 of Annex III, section III of the Rules of Procedure, the Subcommittee examined and verified the format and completeness of the Submission.

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

- 19 Pursuant to paragraph 5 of Annex III, section III to the Rules of Procedure, the Subcommittee undertook a preliminary analysis of the Submission, in accordance with article 76 and the Guidelines, and concluded as follows:
- (i) The outer edge of the continental margin as established by both formulae (the 1 per cent sediment thickness from the foot of the continental slope and the foot of the continental slope plus 60 M) lies beyond 200 M, and therefore the test of appurtenance was satisfied by Suriname;
  - (ii) The proposed outer limits of Suriname's extended continental shelf beyond 200 M consist of a combination of 1 per cent sediment thickness formula points and the 350 M distance constraint;
  - (iii) The construction of the outer limits contains no straight line segments exceeding 60 M in length; and
  - (iv) Additional time would be required to review all data and to prepare the recommendations during future sessions of the Commission.

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

- 20 The Subcommittee examined the Submission through the following processes:
- (i) Detailed examination of the data and information supporting every 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 from the Delegation;
  - (iii) Presenting preliminary conclusions to the Delegation; and
  - (iv) Providing 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.

### **IV. GENERAL PRINCIPLES ON WHICH THESE RECOMMENDATIONS ARE BASED**

- 21 The Recommendations of the Commission are based on the scientific and technical data and other material provided by Suriname 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 are without prejudice to matters relating to delimitation between States, or application of other parts of the Convention or any other treaties.

### **V. RECOMMENDATIONS**

#### **1. Geographical and geological description of the region**

- 22 The continental margin of Suriname consists of (i) an approximately 150 km wide shelf, (ii) a seaward bathymetric depression ("Suriname-Guyana Margin Basin") deepening to the north, (iii) the prominent Demerara Rise (Plateau), with its steep seaward flank, and (iv) the Suriname-Guyana deep water basin with water depths of over 4000 m (Figure 1). Most of the Demerara Rise (Plateau), stretching about 380 km along the shelf of Suriname and adjacent French Guiana to the east, lies in relatively shallow water (~700 m), but the north-western margin is a gentle ramp reaching water depths of 3000-4000 m. The Demerara Rise (Plateau) marks the eastern termination of the Suriname-Guyana Margin Basin, while the northern portion is open to the Suriname-Guyana deep-water basin.
- 23 The Suriname-Guyana Margin Basin is bounded to the south by the Precambrian Guiana Craton. The Margin Basin is a passive margin basin whose formation began presumably in the mid-Late Jurassic and was related to the Central Atlantic rift phase which resulted in the formation of rift grabens along the coast of Suriname and Guyana. The Demerara Rise (Plateau) is an uplifted portion of the Margin Basin. The formation of the Demerara Rise and its conjugate West African Guinea Plateau has been attributed to the compression due to the counter-clockwise rotation of Africa relative to South America during the South Atlantic rift and drift phase. There is a general agreement that the Demerara Rise is built on rifted continental crust of Precambrian and Early Mesozoic age covered by 2-3 km of sediments that thin out near the northeastern escarpment. The steeply seaward dipping Demerara escarpment bounds the Demerara Rise against the Suriname-Guyana deep-water basin.



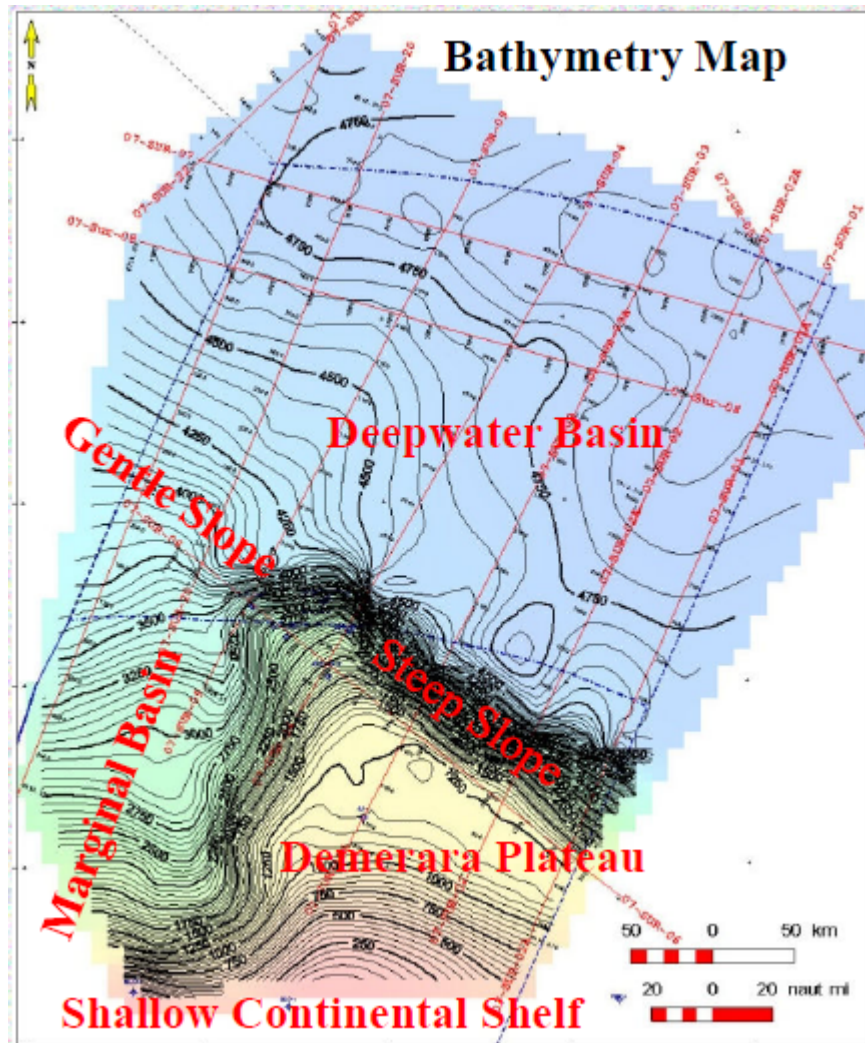


Figure 1. Locality map of the Submission of Suriname showing the main physiographic and geological features (Source: presentation by Suriname to the Commission 24 August 2009)

## 2. Notes verbales submitted by other States

- 24 In its note verbale HR/fh No. 800, dated 22 December 2008, the Permanent Mission of France to the United Nations informed that it “takes note of the Declaration of the Government of the Republic of Suriname, pursuant to article 76, paragraph 10, of the Convention, according to which the submission of Suriname does not prejudice the delimitation of the maritime boundary between France and Suriname. On this basis, it confirms that France has no objection to the Commission on the Limits of the Continental Shelf addressing its recommendations to Suriname with regard to the delineation of the outer limits of the continental shelf as long as those recommendations do not prejudice the definitive delimitation of the continental shelf between France and Suriname, for which negotiations are presently ongoing between the two States.”

- 25 It is reiterated, in relation to the above note verbale from France, that the recommendations of the Commission relating to Suriname only deal with the outer limits of the continental shelf of Suriname in this region and shall not prejudice any bilateral delimitation issues between States.
- 26 In its note verbale No. 076, dated 29 April 2009, the Permanent Mission of Trinidad and Tobago to the United Nations informed the Secretary-General that “[h]aving regard to the areas of potential overlap between areas of continental shelf appertaining to Trinidad and Tobago and to Suriname, the Permanent Mission takes due note of the declaration of the Government of the Republic of Suriname, made pursuant to article 76, paragraph 10, of the Convention, and according to which the submission of Suriname does not prejudice the delimitation of maritime boundaries with neighbouring States. On this basis, the Permanent Mission confirms the reciprocal undertaking entered into between Trinidad and Tobago and Suriname not to object to the submission of the other State to the Commission”.
- 27 It is reiterated, in relation to the above note verbale from the Republic of Trinidad and Tobago, that the recommendations of the Commission relating to Suriname only deal with the outer limits of the continental shelf of Suriname and shall not prejudice any bilateral delimitation issues between States.
- 28 In its note verbale UN 6/6/3 Vol. IV, dated 31 July 2009, the Permanent Mission of Barbados to the United Nations informed the Secretary-General that:
- “... the Government of Barbados notes that there is potential overlap in respect of areas of its submission to the Commission relating to its continental shelf beyond 200 M and that of the Republic of Suriname.
- The Government of Barbados further notes that article 76 of the United Nations Convention on the Law of the Sea (“UNCLOS”) as well as Annex II of UNCLOS and the Rules of Procedure of the Commission on the Limits of the Continental Shelf (including Annex I thereto) provide that the actions of the Commission shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts. It is therefore the position of the Government of Barbados that the submission made by Suriname and any recommendations by the Commission are without prejudice to Barbados’ submission and the delimitation of boundaries between Barbados and Suriname.”
- 29 It is reiterated, in relation to the above note verbale from Barbados, that the recommendations of the Commission relating to Suriname only deal with the outer limits of the continental shelf of Suriname and shall not prejudice any bilateral delimitation issues between States.
- 30 The Commission took note of the contents of the three notes verbales referred to above from France, the Republic of Trinidad and Tobago and Barbados, and in accordance with its Rules of Procedure, proceeded to consider the Submission made by Suriname and make recommendations.

### **3. Submerged prolongation of the landmass and entitlement to the continental shelf beyond 200 M**

- 31 From a morphological point of view, the Demerara Rise (Plateau) is a submerged prolongation of the Suriname landmass.
- 32 The outer edge of the continental margin, established from the foot of the continental slope of Suriname by applying the provisions of article 76, paragraph 4, of the Convention extends beyond the 200 M limit. On this basis, the Commission recognises the legal entitlement of Suriname to delineate its continental shelf beyond the 200 M limit in this region.

### **4. The determination of the foot of the continental slope**

- 33 The foot of the continental slope should be established in accordance with article 76, paragraph 4(b), of the Convention.

#### **4.1 Considerations**

- 34 The Demerara Rise (Plateau) and the Suriname-Guyana Margin Basin are the morphological features where Suriname conducted its analyses in search of the base and the foot of the continental slope (Figure 1).
- 35 The original Submission included seven critical FOS points (FOS-SUR-1 to 7). Five of them (FOS-SUR-1 to 5), which were determined based on the general rule (maximum change in the gradient at the base), are located at the base of the Demerara Rise (Plateau) while the other two (FOS-SUR-6 and 7), which were determined based on evidence to the contrary, are located in the Margin Basin. The location of these FOS points can be seen in Figure 2. All of these FOS points were used by Suriname to establish the outer limits of the continental shelf.
- 36 For identification of FOS points FOS-SUR-1 to 5, Suriname had used three methods, namely, Douglas-Peucker and the Fast Fourier transformation (second derivative) filters in CarisLots and the Savitzky-Golay filter, for the selection of the points of maximum change in the gradient at the base of the slope. The Subcommittee observed that although the application of different methodologies produces different locations of the FOS, Suriname has chosen the most conservative points for the locations of the FOS. The Subcommittee, however, noted discrepancies in the geographic coordinates, shot point numbers and water depths provided as corresponding to the selected locations of some of the FOS points. The discrepancies were pointed out to the Delegation in two communications dated 27 August 2010 and 2 September 2010. In response, the Delegation in an "Addendum to the submission of the Republic of Suriname for the establishment of the outer limits of the continental shelf of Suriname" dated 31 August 2010, provided a revised Table 3.7 of the original Submission with corrected coordinates, shot points and water depths using the Douglas-Peucker filter.

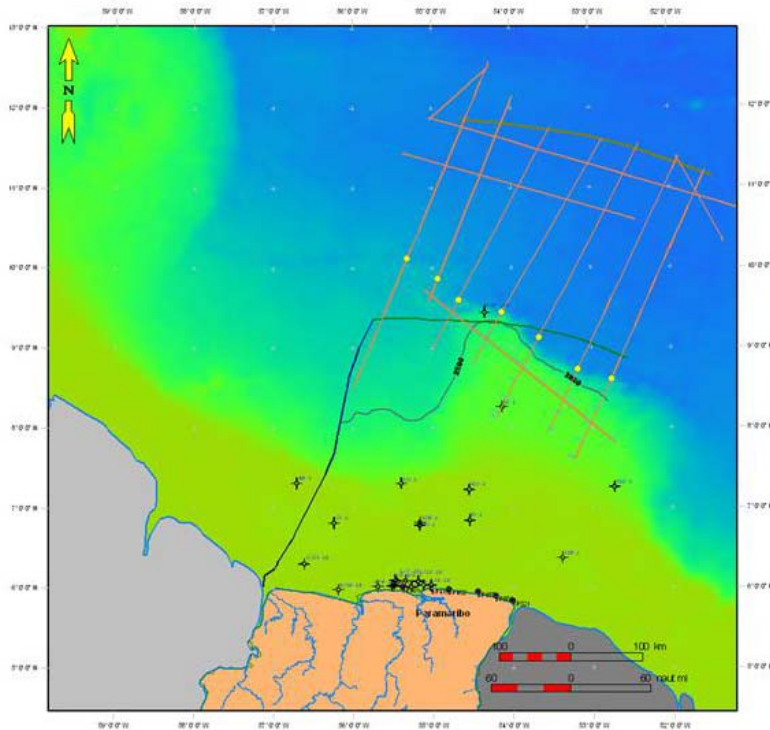


Figure 2. Map showing the locations of the foot of the slope points (Source Figure 3.9 of the Main Body)

- 37 The Subcommittee agreed with the final locations of the five FOS points FOS-SUR-1 to 5 in the revised Table 3.7 of the Submission provided in the “Addendum to the submission of the Republic of Suriname for the establishment of the outer limits of the continental shelf of Suriname” dated 31 August 2010.
- 38 Suriname had determined the locations of the FOS points FOS-SUR-6 and 7 by means of evidence to the contrary, as corresponding to the location where the buried Demerara escarpment meets the surface of the oceanic basement of the Suriname-Guyana deep-water basin. The Subcommittee was, however, of the opinion that the geological/geophysical evidence provided in support of this argument was equivocal and therefore requested the Delegation to provide additional evidence from this region in support of the locations of the FOS.
- 39 In response, the Delegation in a presentation made to the Subcommittee on 31 August 2010 as well as in the “Addendum to the submission of the Republic of Suriname for the establishment of the outer limits of the continental shelf of Suriname”, provided additional geophysical information in the form of free-air gravity maps of the region in support of invoking evidence to the contrary for locating the two FOS points. The Subcommittee examined the additional information and came to the conclusion that it was still not in agreement with the proposed locations of the two FOS points. This was conveyed to the Delegation by the document of 2 September 2010 on the “Preliminary consideration regarding certain issues on the submission made by Suriname”.
- 40 In two communications dated 16 December 2010 and 4 February 2011, Suriname provided additional information in the form of gravity data as well as the results of

gravity modeling carried out along the profiles SUR-20 and SUR-21 on which the FOS points FOS-SUR-6 and 7 were located. The Subcommittee examined the additional information as well as the seismic data along these lines but found no evidence to support a boundary between transitional crust and oceanic crust in the area of FOS-SUR-6 and 7.

- 41 The Subcommittee observed that the geophysical data provided by Suriname in support of invoking evidence to the contrary to locate the FOS points FOS-SUR-6 and 7 were inadequate. This was conveyed to the Delegation by a letter dated 3 March 2011 as well as during a meeting with the Delegation on 15 March 2011.

#### **4.2 Recommendations**

- 42 Based on its consideration of the technical and scientific documentation contained in the Submission of Suriname and the additional information provided in documents referred to in paragraphs 36-40 above, the Commission concluded that the FOS points FOS-SUR-1, 2, 3, 4 and 5 fulfil the requirements of article 76 of the Convention and Chapter 5 of the Guidelines. The Commission recommends that these FOS points form the basis for the establishment of the outer edge of the continental margin in the region (Table 1 of Annex I).

#### **5. The establishment of the outer edge of the continental margin**

- 43 The outer edge of the continental margin of Suriname should be established in accordance with article 76, paragraphs 4 and 7, of the Convention.

#### **5.1 The application of the sediment thickness formula**

- 44 Suriname submitted seven fixed points (FP) located on the seismic lines 07-SUR-01A, 07-SUR-02A, 07-SUR-03, 07-SUR-04, 07-SUR-09, 07-SUR-20 and 07-SUR-21 based on the sediment thickness provision of article 76, paragraph 4 (a)(i), of the Convention that are derived from seven critical FOS points on the continental margin of Suriname (Figure 3).



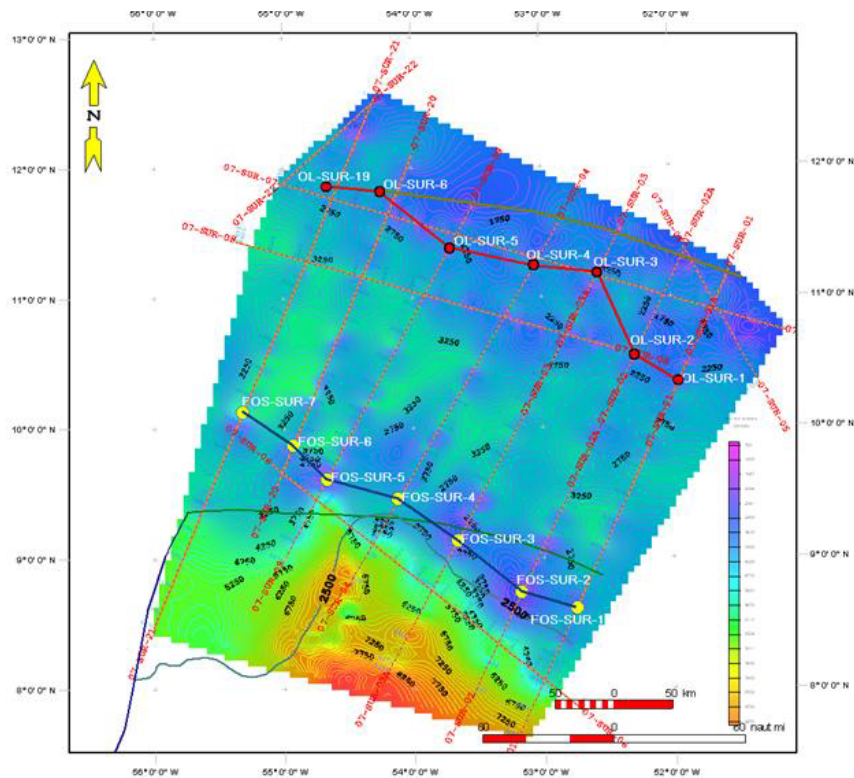


Figure 3. Total sediment thickness map with the 1 per cent sediment thickness points (Source: Figure 6.8 of the Main Body)

- 45 The Subcommittee agreed with the procedure applied by Suriname to establish the sediment thickness points located on the seismic lines 07-SUR-01A, 07-SUR-02A, 07-SUR-03, 07-SUR-04 and 07-SUR-09 based on FOS points as contained in Table 6.1 of the Main Body, including the data provided, the seismic interpretation, the methods of depth conversion, and the distance calculations.
- 46 The Subcommittee was, however, not in agreement with the locations of the two Gardiner points on seismic lines 07-SUR-20 and 07-SUR-21, since their locations had been determined from the FOS points FOS-SUR-6 and 7 respectively, which, as noted in paragraph 41 above, were not acceptable to the Subcommittee. The Subcommittee, however, confirmed to its satisfaction the existence of valid 1 per cent sediment thickness points in the vicinity of Shot point 4990 on line 07-SUR-20 and in the vicinity of shot point 980 on line 07-SUR-21, both relative to the agreed FOS-SUR-5. It was therefore conveyed to the Delegation by a communication of 3 March 2011 that the possible use of FOS-SUR-5 instead of FOS-SUR-6 and 7 to establish these sediment thickness points might thus obviate the need for further discussion on FOS-SUR-6 and 7 and consequently expedite the completion of the examination of the Submission by the Subcommittee.
- 47 In response to the above, the Delegation, in a letter and document dated 14 March 2011 and during a presentation made to the Subcommittee on 15 March 2011 outlined what it felt were apparent differences in the perception of the Delegation and the Subcommittee in invoking the principle of evidence to the contrary. The Delegation also opined that the Subcommittee “has a strong

preference for relying on morphological over geological/geophysical criteria” for identifying the locations of the foot of the slope. Addressing the impact of the perceived two different approaches by the Delegation and the Subcommittee on the outer limits of the extended continental shelf of Suriname, the Delegation pointed out that, “[g]iven the legal complexity and considering that the portion of the extended continental shelf area currently at issue is relative small (ca 400 km<sup>2</sup>), and that further negotiations with the Subcommittee may take several years and will be cost-intensive, Suriname may accept the recommendation of the Subcommittee contained in its letter SCSUR\_LET\_SUR\_004\_03\_03\_2011 of 3 March 2011 ...”.

- 48 Responding to the observations of the Delegation in its document of 14 March 2011 as well as at the meeting with the Delegation on 15 March 2011, the Subcommittee stressed that it had no preference for morphology over geological/geophysical criteria for identifying the location of the foot of the slope. It was pointed out that the sole reason for non-acceptance of the locations of the two FOS points FOS-SUR-6 and 7 was that the geophysical evidence provided by Suriname was inadequate to substantiate its contention of a continent-ocean transition (and thereby the location of the region of the base of the slope) at the locations specified by it.
- 49 Subsequent to the above, the Subcommittee examined and confirmed the locations of the two new 1 per cent sediment thickness points SED-SUR-06 and SED-SUR-07C, both established relative to FOS-SUR-5, provided by Suriname in its response of 14 March 2011 pursuant to the suggestion made by the Subcommittee in its letter of 3 March 2011. This was conveyed to the Delegation by a letter of 15 March 2011.

## **5.2 Configuration of the Outer Edge of the Continental Margin**

- 50 The outer edge of the continental margin extends northwards beyond the 200 M limit of Suriname.

## **5.3 Recommendations**

- 51 The outer edge of the continental margin beyond 200 M is based on sediment thickness points as described in sections 5.1 and 5.2, in accordance with article 76, paragraph 7, of the Convention. The Commission recommends that points OL-SUR-01, OL-SUR-02, OL-SUR-03, OL-SUR-04, OL-SUR-05, SED-SUR-06 and SED-SUR-07C be used as the basis for delineating the outer edge of the continental margin in this region.

## **6. The delineation of the outer limits of the continental shelf**

- 52 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.

### **6.1 The application of constraint criteria**

- 53 The outer limits of the continental shelf cannot extend beyond the constraints as per the provisions contained in article 76, paragraph 5, of the Convention. Accordingly, the provision that the outer limits of the continental shelf may not exceed 350 M from the territorial sea baselines may be applied in all cases.

Alternatively, the provision that the outer limits of the continental shelf may not exceed 100 M from the 2500 m isobath may be applied to those parts of the continental margin that are classified as natural components of that margin.

- 54 For the outer limits of the continental shelf, Suriname has invoked only the 350 M distance constraint.

#### **6.1.1 The construction of the distance constraint line**

- 55 The distance constraint line submitted by Suriname is constructed by arcs at 350 M distance from the territorial sea baselines of Suriname. The Commission agrees with the procedure and methods applied by Suriname in the construction of this constraint line.

#### **6.2 The outer limits of the continental shelf**

- 56 The outer limits of the continental shelf as contained in the Submission of Suriname of 5 December 2008 and revised by letter of 17 March 2011, consists of 19 fixed points connected by straight lines not exceeding 60 M in length (Figure 4). The fixed points are listed in Table 2, Annex I to these Recommendations, as submitted by Suriname under letter of 17 March 2011 and agreed by the Commission. The fixed points are established by the provisions contained in article 76, paragraph 4(a) and 5, of the Convention.



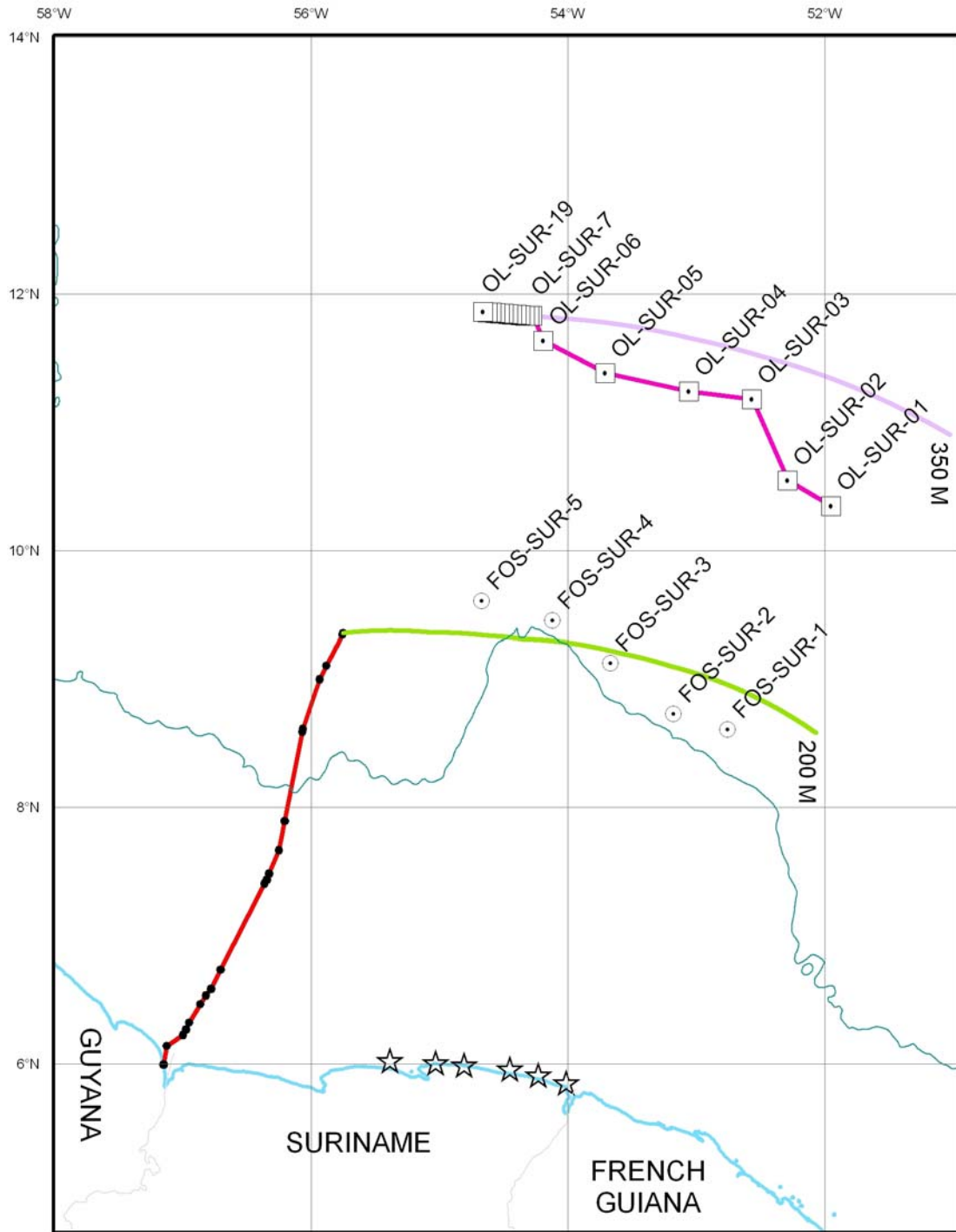


Figure 4. Extended Continental Shelf of Suriname as proposed by Suriname in its letter of 17 March 2011 and agreed by the Commission (map prepared by the Commission)

### **6.3 Recommendations**

- 57 The Commission recommends the determination of the fixed points listed in Annex I, establishing the outer limits of the continental shelf from OL-SUR-01 to OL-SUR-19.
- 58 The Commission recommends that the delineation of the outer limits of the continental shelf of Suriname 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. The establishment of the final outer limits of the continental shelf of Suriname may depend on delimitation between States. The Commission recommends, taking into consideration article 9 of Annex II, of the Convention, that Suriname proceed to delineate the outer limits of the continental shelf on the basis of:
- (i) the outer edge of the continental margin referred to in paragraph 51 above;
  - (ii) the Commission's views on the outer limits of the continental shelf of Suriname as referred to in paragraph 56 above; and
  - (iii) the provisions of article 76, paragraphs 7, 8, 9 and 10, of the Convention.

## ANNEX I

**TABLE 1. GEOGRAPHIC COORDINATES AND OTHER INFORMATION RELATED TO THE AGREED FOS POINTS**

<b>FOS ID</b>	<b>Latitude (N)</b>	<b>Longitude (W)</b>	<b>Water Depth (m)</b>
FOS-SUR-1	08° 36.5640'	52° 45.2639'	4283
FOS-SUR-2	08° 43.8928'	53° 10.5079'	4352
FOS-SUR-3	09° 07.6796'	53° 40.1163'	4473
FOS-SUR-4	09° 27.4172'	54° 07.1447'	4558
FOS-SUR-5	09° 36.4831'	54° 40.3303'	4275

**TABLE 2. GEOGRAPHIC COORDINATES AND OTHER INFORMATION RELATED TO THE ESTABLISHMENT OF THE OUTER LIMITS OF THE CONTINENTAL SHELF BEYOND 200 M**

<b>OL Points</b>	<b>Latitude (N)</b>	<b>Longitude (W)</b>	<b>Article 76 provision invoked</b>	<b>Contributing FOS point</b>	<b>Distance to next Point (M)</b>
<b>OL-SUR-01</b>	10° 20' 41.0255"	51° 56' 53.4917"	76(4)(a)(i)	FOS-SUR-1	23.34
<b>OL-SUR-02</b>	10° 32' 42.5394"	52° 17' 13.6281"	76(4)(a)(i)	FOS-SUR-2	41.33
<b>OL-SUR-03</b>	11° 10' 47.8018"	52° 33' 57.1475"	76(4)(a)(i)	FOS-SUR-3	29.23
<b>OL-SUR-04</b>	11° 14' 25.3949"	53° 03' 27.7128"	76(4)(a)(i)	FOS-SUR-4	39.25
<b>OL-SUR-05</b>	11° 22' 52.7738"	53° 42' 28.7868"	76(4)(a)(i)	FOS-SUR-5	32.22
<b>OL-SUR-06*</b>	11° 38' 10.7106"	54° 11' 23.7185"	76(4)(a)(i)	FOS-SUR-5	12.57
<b>OL-SUR-07*</b>	11° 49' 44.3694"	54° 16' 32.6045"	76, paragraph 5, 350M		1.33
<b>OL-SUR-08</b>	11° 49' 45.0006"	54° 17' 53.9395"	76, paragraph 5, 350M		1.96
<b>OL-SUR-09</b>	11° 49' 55.6781"	54° 19' 53.2367"	76, paragraph 5, 350M		1.96
<b>OL-SUR-10</b>	11° 50' 06.3417"	54° 21' 52.5365"	76, paragraph 5, 350M		1.96
<b>OL-SUR-11</b>	11° 50' 16.9913"	54° 23' 51.8389"	76, paragraph 5, 350M		1.96
<b>OL-SUR-12</b>	11° 50' 27.6270"	54° 25' 51.1438"	76, paragraph 5, 350M		1.90
<b>OL-SUR-13</b>	11° 50' 37.1952"	54° 27' 47.1663"	76, paragraph 5, 350M		1.90
<b>OL-SUR-14</b>	11° 50' 46.7503"	54° 29' 43.1911"	76, paragraph 5, 350M		1.90
<b>OL-SUR-15</b>	11° 50' 56.2921"	54° 31' 39.2182"	76, paragraph 5, 350M		1.90
<b>OL-SUR-16</b>	11° 51' 05.8207"	54° 33' 35.2474"	76, paragraph 5, 350M		1.90
<b>OL-SUR-17</b>	11° 51' 15.3362"	54° 35' 31.2789"	76, paragraph 5, 350M		1.90
<b>OL-SUR-18</b>	11° 51' 24.8384"	54° 37' 27.3126"	76, paragraph 5, 350M		1.90
<b>OL-SUR-19</b>	11° 51' 34.3274"	54° 39' 23.3486"	76, paragraph 5, 350M		1.90

\* The locations of outer limit fixed points OL-SUR-06 and OL-SUR-07 were revised by Suriname during the consideration of the submission by the Commission. Point OL-SUR-07 corresponds to the intersection of the outer edge of the continental margin and the 350 M distance constraint line. The remainder of the outer limit fixed points are as proposed in the original submission.

**ANNEX II**  
**LIST OF THE MATERIAL CONTAINED IN THE ORIGINAL SUBMISSION OF SURINAME MADE TO THE COMMISSION ON 5 DECEMBER 2008**

1. *Government of the Republic of Suriname. Submission on the Outer Limits of the Continental Shelf. Executive Summary* (7 pages, 22 copies provided in hardcopy, 1 copy provided digitally).
2. *Submission by the Government of the Republic of Suriname for the Establishment of the Outer Limits of the Continental Shelf of Suriname pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea. Volume I* (89 pages, 8 copies provided in hardcopy, 1 copy provided digitally).
3. *Submission by the Government of the Republic of Suriname for the Establishment of the Outer Limits of the Continental Shelf of Suriname pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea. Volume II: Appendices* (410 pages, 8 copies provided in hardcopy, 1 copy provided digitally).
4. *Appendix C* (2 copies provided in hardcopy)
  - a. 1A. *Seismic section of Line 07-SUR-1 & 1A uninterpreted; 1B. Seismic section of Line 07-SUR-1 & 1A interpreted; 1C. Seismic section of Line 07-SUR-1 & 1A with total sediment thickness distribution in metres*
  - b. 2A. *Seismic section of Line 07-SUR-2& 2A uninterpreted; 2B. Seismic section of Line 07-SUR-2& 2A interpreted; 2C. Seismic section of Line 07-SUR-2 & 2A with total sediment thickness distribution in metres*
  - c. 3A. *Seismic section of Line 07-SUR-3& 3A uninterpreted; 3B. Seismic section of Line 07-SUR-3& 3A interpreted; 3C. Seismic section of Line 07-SUR-3 & 3A with total sediment thickness distribution in metres*
  - d. 4A. *Seismic section of Line 07-SUR-4 uninterpreted; 4B. Seismic section of Line 07-SUR-4 interpreted; 4C. Seismic section of Line 07-SUR-4 with total sediment thickness distribution in metres*
  - e. 5A. *Seismic section of Line 07-SUR-9 uninterpreted; 5B. Seismic section of Line 07-SUR-9 interpreted; 5C. Seismic section of Line 07-SUR-9 with total sediment thickness distribution in metres*
  - f. 6A. *Seismic section of Line 07-SUR-20 uninterpreted; 6B. Seismic section of Line 07-SUR-20 interpreted; 6C. Seismic section of Line 07-SUR-20 with total sediment thickness distribution in metres*
  - g. 7A. *Seismic section of Line 07-SUR-21 uninterpreted; 7B. Seismic section of Line 07-SUR-21 interpreted; 7C. Seismic section of Line 07-SUR-21 with total sediment thickness distribution in metres*
  - h. 8A. *Seismic section of Line 07-SUR-7 uninterpreted; 8B. Seismic section of Line 07-SUR-7 interpreted; 8C. Seismic section of Line 07-SUR-7 with total sediment thickness distribution in metres*
  - i. 9A. *Seismic section of Line 07-SUR-8 uninterpreted; 9B. Seismic section of Line 07-SUR-8 interpreted; 9C. Seismic section of Line 07-SUR-8 with total sediment thickness distribution in metres*

**ANNEX III**  
**LIST OF ADDITIONAL MATERIAL SUBMITTED TO THE COMMISSION BY SURINAME**

**I. LIST OF ADDITIONAL MATERIAL DATED 24 AUGUST 2009.**

1. *Submission on the Outer Limits of the Continental Shelf. Presentation by the Republic of Suriname to the Commission on the Limits of the Continental Shelf* (44 pages, 22 copies provided in hardcopy, 6 copies provided digitally).
2. *Remarks by H.E. Henry L. Mac Donald to the Commission on the Limits of the Continental Shelf regarding the submission of the Republic Suriname ex. Article 76 of the United Nations Convention on the Law of the Sea* (2 pages, 6 copies provided in hardcopy).

**II. LIST OF ADDITIONAL MATERIAL DATED 9 JUNE 2010.**

1. CD (1 copy) containing:
  - a. *Table of contents of Submission* (9 pages)
  - b. *Government of the Republic of Suriname. Submission on the Outer Limits of the Continental Shelf. Executive Summary* (7 pages)
  - c. *Submission by the Government of the Republic of Suriname for the Establishment of the Outer Limits of the Continental Shelf of Suriname pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea. Volume I* (89 pages)
  - d. *Submission by the Government of the Republic of Suriname for the Establishment of the Outer Limits of the Continental Shelf of Suriname pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea. Volume II: Appendices* (410 pages)
2. *Appendix C in PDF format* CD (1 copy) containing 27 PDF files.
3. *Appendix C in Adobe Illustrator format* CD (1 copy) containing 27 Adobe Illustrator files.
4. *Corrected Echosounder Data* CD (1 copy) containing 15 text files.

**III. LIST OF ADDITIONAL MATERIAL DATED 31 AUGUST 2010.**

1. *Presentation to the Subcommittee of An Addendum to the Original Submission of the Republic of Suriname for the Establishment of the Outer Limits of the Continental Shelf of Suriname* (30 pages, 8 copies provided in hard copy).
2. *Responses by the Delegation of Suriname to Questions 1-10 posed by the Subcommittee in its letter SCSUR\_LET\_SUR\_002\_27\_08\_2010 of 27 August 2010* (5 pages, 8 copies provided in hardcopy)
3. *Addendum to the Suriname Submission by the Government of the Republic of Suriname for the Establishment of the Outer Limits of the Continental Shelf of Suriname pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea* (18 pages, 13 copies provided in hardcopy).
4. Figure 3.1 of the Main Body (5 copies provided in hardcopy)
5. CD (1 copy) containing:
  - a. *Addendum to the Suriname Submission by the Government of the Republic of Suriname for the Establishment of the Outer Limits of the Continental Shelf of Suriname pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea* (18 pages, PDF and Word format)

6. *Addendum: Caris Lots computation of the 1% Sediment Thickness Points* CD (1 copy) containing 5 Word document, 5 text files.
7. *Total Sediment Thickness for all Seismic Lines* CD (1 copy) containing 1 Excel spreadsheet.
8. *Corrected Echo Sounder Data* CD (1 copy) containing 15 text files.

**IV. LIST OF ADDITIONAL MATERIAL DATED 1 SEPTEMBER 2010.**

1. *Presentation to the Subcommittee for Suriname Submission 31 August 2010* CD (1 copy) containing 1 Powerpoint presentation.
2. *ProMax Velocities + Semblance + Stacks* CD (2 copies) containing:
  - a. *Screen Dumps* (subdirectory containing 30 images)
  - b. *Semblance Plots* (subdirectories containing 15 PDF files, 850 images)
  - c. *Velocities* (subdirectory containing 30 text files)

**V. LIST OF ADDITIONAL MATERIAL DATED 3 SEPTEMBER 2010**

1. *Response to "Preliminary considerations regarding certain issues on the submission by Suriname, 2 September 2010"* (2 pages, 2 copies provided in hardcopy)
2. *Presentation to the Subcommittee by Suriname 2 September 2010* CD (1 copy) containing 1 PDF file, 1 Powerpoint presentation.
3. *Gravity and Magnetics Data* CD (1 copy) containing 1 PDF file, 31 Word documents, 151 text files, 53 images.

**VI. LIST OF ADDITIONAL MATERIAL DATED 17 DECEMBER 2010.**

1. *Response of the Delegation of Suriname to (1) Question 10 posted by the Subcommittee in its communication of 27 August 2010, and (2) to Item 7c of its communication of 2 September 2010, respectively* (11 pages, 1 copy provided in hard copy)
2. *Additional information and material concerning Question 3 posed by the Subcommittee of 27 August 2010 and in its Preliminary consideration of the Subcommittee concerning "Foot of the slope, item 3" of 2 September 2010, respectively* (3 pages, 1 copy provided in hard copy)
3. *Results of Gravity Modeling* (6 pages, 1 copy provided in hard copy)
4. *Publications referenced* CD (1 copy) containing 9 PDF files, 1 Word document, each provided in hard copy
5. *Grid Data* CD (1 copy) containing 4 grids.

**VII. LIST OF ADDITIONAL MATERIAL DATED 4 FEBRUARY 2011.**

1. *Results of Gravity Modeling updated version* (9 pages, 1 copy provided in hard copy)

**VIII. LIST OF ADDITIONAL MATERIAL DATED 14 MARCH 2011.**

1. *Response of the Delegation of Suriname to Letter SCSUR\_LET\_SUR\_004\_03\_03\_2011 of the Commission on the Limits of the Continental Shelf concerning the Establishment of the Outer Limits of the Continental Shelf of Suriname pursuant to Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea* CD (1 copy) containing 1 Word document.

**IX. LIST OF ADDITIONAL MATERIAL DATED 15 MARCH 2011.**

1. *Presentation by Suriname Delegation CD (1 copy) containing 1 Powerpoint presentation Review of the information and material provided by the Delegation of Suriname to the Subcommittee during the intersessional period & Review of Suriname's Response to the Subcommittee concerning its letter SCSUR\_LET\_SUR\_004\_03\_03\_2011*

**X. LIST OF ADDITIONAL MATERIAL DATED 16 MARCH 2011.**

1. *Revised outer limits of the extended continental shelf of Suriname CD (1 copy) containing 1 Word document Revised Outer limits of the extended continental shelf using FOS-SUR-5 instead of FOS-SUR-6/6B and 7/7B (1 page also provided in hard copy)*

**XI. LIST OF ADDITIONAL MATERIAL DATED 17 MARCH 2011.**

1. *Revised outer limits of the extended continental shelf of Suriname CD (1 copy) containing 1 Word document Revised Outer limits of the extended continental shelf using FOS-SUR-5 instead of FOS-SUR-6/6B and 7/7B (1 page also provided in hard copy)*

**ANNEX IV**  
**MATERIAL SUPPLIED TO THE DELEGATION BY THE SUBCOMMISSION – QUESTIONS, AND LIST**  
**OF DOCUMENTS AND PRESENTATIONS**

**A. QUESTIONS POSED BY THE SUBCOMMISSION IN WRITING**

**The responses to the above questions are referred to in footnotes contained in the “List of additional materials submitted to the Commission by Suriname” in Appendix III.**

**I. QUESTIONS 1 TO 10 OF 27 August 2010 (SCSUR\_LET\_SUR\_002\_27\_08\_2010)**

**Bathymetry**

*Question 1*

The Subcommittee would appreciate receiving in digital format, GIS or otherwise, copies of the bathymetric data upon which the foot of the slope locations given in Table 3.7 of the Main Body are located. This data could include, latitude, longitude, water depth and relevant collection information, along all the relevant profiles.

**Foot of the slope**

In its examination of the Submission, the Subcommittee has observed the following discrepancies in the descriptions of the foot of the slope locations:

*Question 2*

In Section 3.3.1 of the Main Body of the Submission (pages 19-21), it has been stated that in the case of line 07-SUR-01A, the application of both the Douglas-Peucker filter in CarisLots and the Savitzky-Golay filter yielded reasonable foot of the continental slope points, at locations of the shot point 4648 (8°37.5710'N : 52°44.7983'W) and 4689 (8°36.5640'N : 52°45.2639'W) respectively. Furthermore, because the difference in the locations of the FOS along the line amounts to only 40 shot points or 2000 m, a more conservative location at shot point 4648 has been chosen as the final location of the FOS. However, in the conclusion on page 21, the co-ordinates provided as corresponding to the location of the FOS at shot point 4648 are those for the shot point 4689.

*Question 3*

In para 3.3.3.6 (Conclusion) on page 28 of the Main Body, it has been stated that from the analyses performed by applying different methodologies, the location of shot point 3786 was selected as point FOS-SUR-3. However, in the next para, the final location of the FOS-SUR-3 has been indicated as corresponding to the location of shot point 3731. Furthermore, there is a discrepancy in the longitude corresponding to the location of the shot point 3731, on pages 25 and 28.



#### Question 4

The selection of the FOS-SUR-2 has been made only by applying Douglas-Peucker filter in CarisLots. The selection of the FOS-SUR-4 and FOS-SUR-5 has been by applying the Douglas-Peucker and Savitzky-Golay filters. The Subcommittee would like to receive more information on the reasons for the different methodologies adopted.

#### Question 5

The locations of the foot of the slope FOS-SUR-6 and FOS-SUR-7 have been determined by means of evidence to the contrary, as corresponding to the location “where the escarpment meets the surface of the oceanic basement of the Suriname-Guyana deep-water basin”. The Subcommittee is however, of the opinion that the geological/geophysical evidence provided in support of this argument is equivocal and would appreciate receiving additional evidence e.g. from ODP drill sites, geochemical information, potential field data, magnetic anomaly data etc. from this region in support of the location of the FOS. In this context, the Subcommittee would also like to request electronic versions, or hard copies, of the following papers cited in the Main Body of the Submission:

- Benkhelil, J., Mascle, J., and Tricart, P. (1995): The Guinea continental margin: an example of a structurally complex transform margin. *Tectonophysics*, 248: 117-137.
- Erbacher, J., Mosher, D., Molone, D.C., et al. (2004): Proc. ODP, Initial Reports, 207, [CDROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.
- Gouyet, S., Unternehr, P., and Mascle, A. (1994): The French Guiana margin and the Demerara Plateau: geologic history and petroleum plays. In Mascle, A (ed), Hydrocarbon and Petroleum Geology of France. *Spec. Public. – EUR. Assoc. Pet. Geosci.*, 4: 411-422.
- Greenroyd, C.J., Peirce, C., Rodger, M., Watts, A.B., Hobbs, R.W. (2005): Crustal structure of the continental margin offshore French Guiana, Central Atlantic. *American Geophysical Union, Fall Meeting 2005, abstract #T43B-1403*.
- Greenroyd, C.J., Peirce, C., Rodger, M., Watts, A.B., Hobbs, R.W. (2006): Crustal structure of the continental margin – implications for rifting and the early spreading of the equatorial Atlantic. *Geophysical Research Abstracts, Vol. 8, 07788, 2006*.
- Greenroyd, C.J., Peirce, C., Rodger, M., Watts, A.B., and Hobbs, R.W. (2007): Crustal structure of the French Guiana margin, Equatorial Atlantic, *Geophys. J. Int.*, 169: 964-984.
- Moscardelli, L., Wood, L., Mann, P. (2006): Mass-transport complexes and associated processes in the offshore area of Trinidad and Venezuela, *AAPG Bulletin*, 90, 7 : 1059-1088
- Moscardelli, C., and Wood, L. (2007): New classification system for mass transport complexes in offshore Trinidad, *Basin Research*, 20: 73-98, doi:10.1111/j.1365-2117.2007.00340x
- Silva et al., (1999) mentioned in page 6 of the Main Body

## **Sediment thickness**

### *Question 6*

The “C” version (interpreted with Total Sediment Thickness) of two of the seismic lines (07-SUR-01A and 02A) appears to have the Outer Limit points (OL-1 and OL-2) posted in the wrong position. Please confirm that this is the case.

### *Question 7*

The Subcommittee would appreciate receiving details of the velocity analyses, and copies of the velocity data derived therefrom, carried out on the seven relevant seismic lines 07-SUR-01A, 02A, 03, 04, 09, 20 and 21, as well as the navigation data, shot points, CDPs and time picks.

## **General**

### *Question 8*

Grid data: The Subcommittee would appreciate receiving digital/GIS copies of the grid data referred to in figures 2.1 (bathymetry) and 5.16 (total sediment thickness) of the Main Body of the Submission.

### *Question 9*

It is difficult to read the values of isobaths and co-ordinates in the Figure 3.1 of the Main Body, both in the hard copy as well as in the electronic version. The Subcommittee would appreciate receiving a more legible copy of the figure.

### *Question 10*

In figures 3.2A to 3.6C, while the X-axis values for the FOS locations using CarisLots are shown as distances along bathymetric tracks (in nautical miles), the values for corresponding plots using Savitzky-Golay filter are shown as shot point numbers. In order to facilitate a comparison of the FOS locations, the Subcommittee would appreciate if the shot point numbers as well as the distances are shown in all figures.

## **B. List of documents and presentations supplied to the Delegation by the Subcommittee**

- I. Preliminary considerations regarding certain issues on the submission made by Suriname 02 September 2010 (delivered to the Delegation during the meeting on 02 September 2010)
- II. Presentation to the Delegation entitled “Views and general conclusions of the Subcommittee on the Submission made by Suriname on 5 December 2008 prepared by the Subcommittee established to consider the Submission” (delivered on 22 March 2011)

## ANNEX V

### LIST OF NOTES VERBALES RELATED TO THE SUBMISSION OF SURINAME

[http://www.un.org/depts/los/clcs\\_new/submissions\\_files/submission\\_sur.htm](http://www.un.org/depts/los/clcs_new/submissions_files/submission_sur.htm)

1. Permanent Mission of France to the United Nations dated 22 December 2008, note verbale HR/fh No. 800;
2. Permanent Mission of Trinidad and Tobago to the United Nations dated 29 April 2009, note verbale No. 076
3. Permanent Mission of Barbados to the United Nations dated 31 July 2009, note verbale No. UN 6/6/3 Vol. IV

## ANNEX VI



## Commission on the Limits of the Continental Shelf

---

---

### **SUMMARY OF RECOMMENDATIONS OF THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF IN REGARD TO THE SUBMISSION MADE BY SURINAME ON 5 DECEMBER 2008<sup>1</sup>**

Recommendations prepared by the Subcommittee established for the consideration  
of the Submission made by Suriname

Adopted by the Subcommittee on 23 March 2011, and submitted to the Commission  
on the Limits of the Continental Shelf for consideration and approval by the  
Commission

Adopted by the Commission, with amendments, on 30 March 2011

---

<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 of the Commission. 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.

---

---

(page left intentionally blank)

## I. INTRODUCTION

- 1 On 5 December 2008, Suriname submitted through the Secretary-General of the United Nations to the Commission on the Limits of the Continental Shelf, in accordance with Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea of 10 December 1982, 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. The Convention entered into force for Suriname on 8 August 1998.

## II. GENERAL PRINCIPLES ON WHICH THESE RECOMMENDATIONS ARE BASED

- 2 The Recommendations of the Commission are based on the scientific and technical data and other material provided by Suriname 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 are without prejudice to matters relating to delimitation between States, or application of other parts of the Convention or any other treaties.

## III. RECOMMENDATIONS

### 1. Geographical and geological description of the region

- 3 The continental margin of Suriname consists of (i) an approximately 150 km wide shelf, (ii) a seaward bathymetric depression ("Suriname-Guyana Margin Basin") deepening to the north, (iii) the prominent Demerara Rise (Plateau) with its steep seaward flank, and (iv) the Suriname-Guyana deep water basin with water depths of over 4000 m (Figure 1). Most of the Demerara Rise (Plateau), stretching about 380 km along the shelf of Suriname and adjacent French Guiana to the east, lies in relatively shallow water (~700 m), but the north-western margin is a gentle ramp reaching water depths of 3000-4000 m. The Demerara Rise (Plateau) marks the eastern termination of the Suriname-Guyana Margin Basin, while the northern portion is open to the Suriname-Guyana deep-water basin.
- 4 The Suriname-Guyana Margin Basin is bounded to the south by the Precambrian Guiana Craton. The Margin Basin is a passive margin basin whose formation began presumably in the mid-Late Jurassic and was related to the Central Atlantic rift phase which resulted in the formation of rift grabens along the coast of Suriname and Guyana. The Demerara Rise (Plateau) is an uplifted portion of the Margin Basin. The formation of the Demerara Rise and its conjugate West African Guinea Plateau has been attributed to the compression due to the counter-clockwise rotation of Africa relative to South America during the South Atlantic rift and drift phase. There is a general agreement that the Demerara Rise is built on rifted continental crust of Precambrian and Early Mesozoic age covered by 2-3 km of sediments that thin out near the northeastern escarpment. The steeply seaward dipping Demerara escarpment bounds the Demerara Rise against the Suriname-Guyana deep-water basin.

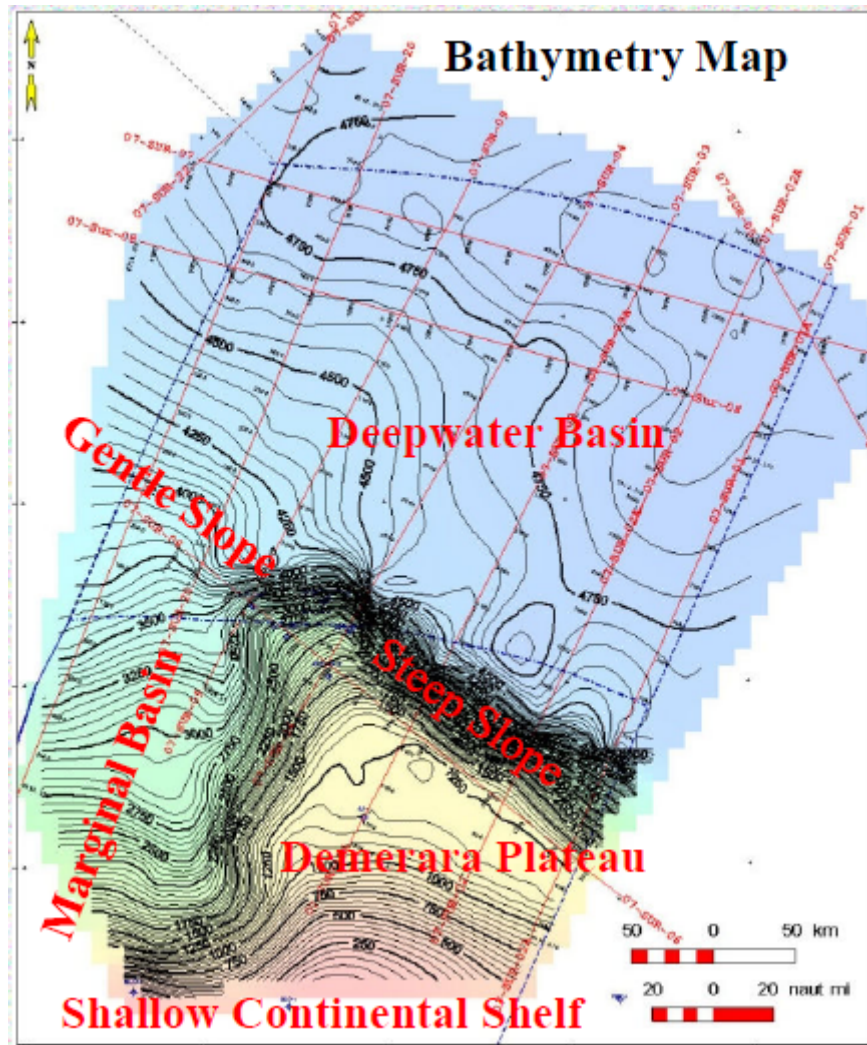


Figure 1. Locality map of the Submission of Suriname showing the main physiographic and geological features (Source: presentation by Suriname to the Commission 24 August 2009)

## 2. Notes verbales submitted by other States

- 5 In its note verbale HR/fh No. 800, dated 22 December 2008, the Permanent Mission of France to the United Nations informed that it "takes note of the Declaration of the Government of the Republic of Suriname, pursuant to article 76, paragraph 10, of the Convention, according to which the submission of Suriname does not prejudice the delimitation of the maritime boundary between France and Suriname. On this basis, it confirms that France has no objection to the Commission on the Limits of the Continental Shelf addressing its recommendations to Suriname with regard to the delineation of the outer limits of the continental shelf as long as those recommendations do not prejudice the definitive delimitation of the continental shelf between France and Suriname, for which negotiations are presently ongoing between the two States."



- 6 It is reiterated, in relation to the above note verbale from France, that the recommendations of the Commission relating to Suriname only deal with the outer limits of the continental shelf of Suriname in this region and shall not prejudice any bilateral delimitation issues between States.
- 7 In its note verbale No. 076, dated 29 April 2009, the Permanent Mission of Trinidad and Tobago to the United Nations informed the Secretary-General that “[h]aving regard to the areas of potential overlap between areas of continental shelf appertaining to Trinidad and Tobago and to Suriname, the Permanent Mission takes due note of the declaration of the Government of the Republic of Suriname, made pursuant to article 76, paragraph 10, of the Convention, and according to which the submission of Suriname does not prejudice the delimitation of maritime boundaries with neighbouring States. On this basis, the Permanent Mission confirms the reciprocal undertaking entered into between Trinidad and Tobago and Suriname not to object to the submission of the other State to the Commission”.
- 8 It is reiterated, in relation to the above note verbale from the Republic of Trinidad and Tobago, that the recommendations of the Commission relating to Suriname only deal with the outer limits of the continental shelf of Suriname and shall not prejudice any bilateral delimitation issues between States.
- 9 In its note verbale UN 6/6/3 Vol. IV, dated 31 July 2009, the Permanent Mission of Barbados to the United Nations informed the Secretary-General that:

“... the Government of Barbados notes that there is potential overlap in respect of areas of its submission to the Commission relating to its continental shelf beyond 200 M and that of the Republic of Suriname.

The Government of Barbados further notes that article 76 of the United Nations Convention on the Law of the Sea (“UNCLOS”) as well as Annex II of UNCLOS and the Rules of Procedure of the Commission on the Limits of the Continental Shelf (including Annex I thereto) provide that the actions of the Commission shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts. It is therefore the position of the Government of Barbados that the submission made by Suriname and any recommendations by the Commission are without prejudice to Barbados’ submission and the delimitation of boundaries between Barbados and Suriname.”
- 10 It is reiterated, in relation to the above note verbale from Barbados, that the recommendations of the Commission relating to Suriname only deal with the outer limits of the continental shelf of Suriname and shall not prejudice any bilateral delimitation issues between States.
- 11 The Commission took note of the contents of the three notes verbales referred to above from France, the Republic of Trinidad and Tobago and Barbados, and in accordance with its Rules of Procedure, proceeded to consider the Submission made by Suriname and make recommendations.

**3. Submerged prolongation of the landmass and entitlement to the continental shelf beyond 200 M**

- 12 From a morphological point of view, the Demerara Rise (Plateau) is a submerged prolongation of the Suriname landmass.
- 13 The outer edge of the continental margin, established from the foot of the continental slope of Suriname by applying the provisions of article 76, paragraph 4, of the Convention, extends beyond the 200 M limit. On this basis, the Commission recognises the legal entitlement of Suriname to delineate its continental shelf beyond the 200 M limit in this region.

**4. The determination of the foot of the continental slope**

- 14 The Demerara Rise (Plateau) and the Suriname-Guyana Margin Basin are the morphological features where Suriname conducted its analyses in search of the base and the foot of the continental slope.
- 15 The original Submission included seven critical FOS points (FOS-SUR-1 to 7). Five of them (FOS-SUR-1 to 5), which were determined based on the general rule (maximum change in the gradient at the base), are located at the base of the Demerara Rise (Plateau) while the other two (FOS-SUR-6 and 7), which were determined based on evidence to the contrary, are located in the Margin Basin. All these FOS points were used by Suriname to establish the outer limits of the continental shelf.
- 16 Suriname had determined the locations of the FOS points FOS-SUR-6 and 7 by means of evidence to the contrary, as corresponding to the location where the buried Demerara escarpment meets the surface of the oceanic basement of the Suriname-Guyana deep-water basin. The Subcommittee was, however, of the opinion that the geological/geophysical evidence provided in support of this argument was equivocal and therefore requested the Delegation to provide additional evidence from this region in support of the locations of the FOS.
- 17 In response, the Delegation in a presentation made to the Subcommittee on 31 August 2010 as well as in the "Addendum to the submission of the Republic of Suriname for the establishment of the outer limits of the continental shelf of Suriname", provided additional geophysical information in the form of free-air gravity maps of the region in support of invoking evidence to the contrary for locating the two FOS points. The Subcommittee examined the additional information and came to the conclusion that it was still not in agreement with the proposed locations of the two FOS points. This was conveyed to the Delegation by the document of 2 September 2010 on the "Preliminary consideration regarding certain issues on the submission made by Suriname".
- 18 In two communications dated 16 December 2010 and 4 February 2011, Suriname provided additional information in the form of gravity data as well as the results of gravity modeling carried out along the profiles SUR-20 and SUR-21 on which the FOS points FOS-SUR-6 and 7 were located. The Subcommittee examined the additional information as well as the seismic data along these lines but found no evidence to support a boundary between transitional crust and oceanic crust in the area of FOS-SUR-6 and 7.
- 19 The Subcommittee observed that the geophysical data provided by Suriname in support of invoking evidence to the contrary to locate the FOS points FOS-SUR-6

and 7 were inadequate. This was conveyed to the Delegation by a letter dated 3 March 2011 as well as during a meeting with the Delegation on 15 March 2011.

- 20 Based on its consideration of the technical and scientific documentation contained in the Submission of Suriname and the additional information provided in documents referred to in paragraphs 17-18 above, the Commission concluded that the FOS points FOS-SUR-1, 2, 3, 4 and 5 fulfil the requirements of article 76 of the Convention and Chapter 5 of the Guidelines.

#### **5. The establishment of the outer edge of the continental margin**

- 21 The outer edge of the continental margin of Suriname beyond 200 M is based on sediment thickness points established from the foot of the continental slope by applying the provisions of article 76, paragraph 4(a)(i), of the Convention. Based on its consideration of the technical and scientific documentation contained in the Submission of 5 December 2008 and the additional information provided by the Delegation in its communications of 31 August 2010, 1 September 2010 and 14 March 2011, the Subcommission is in agreement with the methodology adopted by Suriname for the determination of five points measured on 1 per cent sediment thickness formula from FOS points FOS-SUR-1 to 5 as well as with the locations of two additional points measured on the same formula from FOS-SUR-5.
- 22 The Commission recommends that these seven points be used as the basis for delineating the outer limits of the continental shelf in this region.

#### **6. The delineation of the outer limits of the continental shelf**

- 23 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. The Subcommission agrees with the way Suriname has applied the constraint line constructed by the application of the distance constraint contained in article 76, paragraph 5, of the Convention.

##### **6.1 The outer limits of the continental shelf**

- 24 The Commission recommends the determination of the fixed points listed in Annex I to these Recommendations, establishing the outer limits of the continental shelf from OL-SUR-01 to OL-SUR-19 (Figure 2).
- 25 The Commission recommends that the delineation of the outer limits of the continental shelf of Suriname 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. The establishment of the final outer limits of the continental shelf of Suriname may depend on delimitation between States. The Commission recommends, taking into consideration article 9 of Annex II, of the Convention, that Suriname proceeds to delineate the outer limits of the continental shelf on the basis of:
- (i) the outer edge of the continental margin referred to in paragraphs 21 and 22 above;
  - (ii) the Commission's views on the outer limits of the continental shelf of Suriname as referred to in paragraphs 23 and 24 above; and
  - (iii) the provisions of article 76, paragraphs 7, 8, 9 and 10, of the Convention.

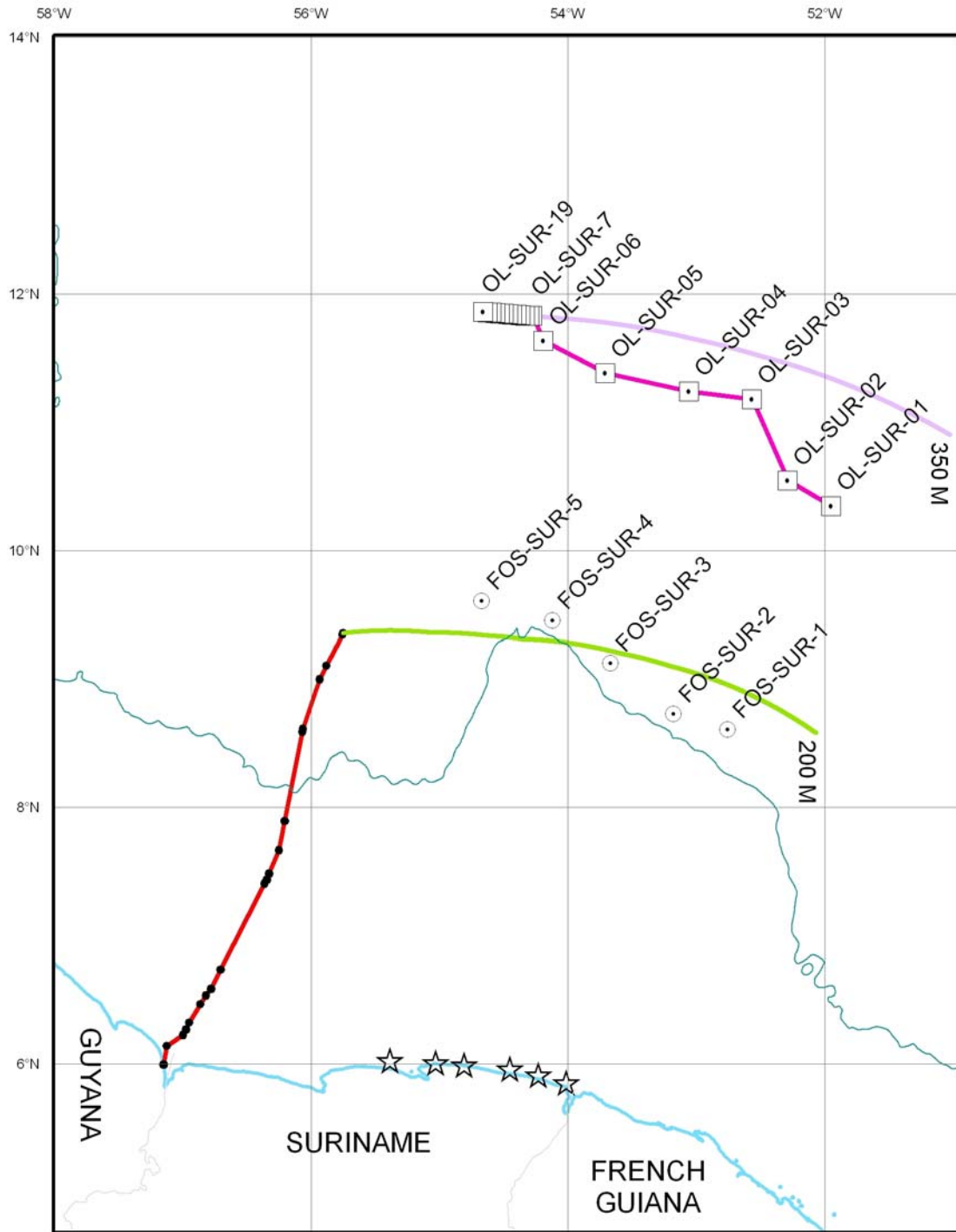


Figure 2. Extended Continental Shelf of Suriname as proposed by Suriname in its letter of 17 March 2011 and agreed by the Commission (map prepared by the Commission)

## ANNEX I

**TABLE 1. GEOGRAPHIC COORDINATES AND OTHER INFORMATION RELATED TO THE AGREED FOS POINTS**

<b>FOS ID</b>	<b>Latitude (N)</b>	<b>Longitude (W)</b>	<b>Water Depth (m)</b>
FOS-SUR-1	08° 36.5640'	52° 45.2639'	4283
FOS-SUR-2	08° 43.8928'	53° 10.5079'	4352
FOS-SUR-3	09° 07.6796'	53° 40.1163'	4473
FOS-SUR-4	09° 27.4172'	54° 07.1447'	4558
FOS-SUR-5	09° 36.4831'	54° 40.3303'	4275

**TABLE 2. GEOGRAPHIC COORDINATES AND OTHER INFORMATION RELATED TO THE ESTABLISHMENT OF THE OUTER LIMITS OF THE CONTINENTAL SHELF BEYOND 200 M**

<b>OL Points</b>	<b>Latitude (N)</b>	<b>Longitude (W)</b>	<b>Article 76 provision invoked</b>	<b>Contributing FOS point</b>	<b>Distance to next Point (M)</b>
<b>OL-SUR-01</b>	10° 20' 41.0255"	51° 56' 53.4917"	76(4)(a)(i)	FOS-SUR-1	23.34
<b>OL-SUR-02</b>	10° 32' 42.5394"	52° 17' 13.6281"	76(4)(a)(i)	FOS-SUR-2	41.33
<b>OL-SUR-03</b>	11° 10' 47.8018"	52° 33' 57.1475"	76(4)(a)(i)	FOS-SUR-3	29.23
<b>OL-SUR-04</b>	11° 14' 25.3949"	53° 03' 27.7128"	76(4)(a)(i)	FOS-SUR-4	39.25
<b>OL-SUR-05</b>	11° 22' 52.7738"	53° 42' 28.7868"	76(4)(a)(i)	FOS-SUR-5	32.22
<b>OL-SUR-06*</b>	11° 38' 10.7106"	54° 11' 23.7185"	76(4)(a)(i)	FOS-SUR-5	12.57
<b>OL-SUR-07*</b>	11° 49' 44.3694"	54° 16' 32.6045"	76, paragraph 5, 350M		1.33
<b>OL-SUR-08</b>	11° 49' 45.0006"	54° 17' 53.9395"	76, paragraph 5, 350M		1.96
<b>OL-SUR-09</b>	11° 49' 55.6781"	54° 19' 53.2367"	76, paragraph 5, 350M		1.96
<b>OL-SUR-10</b>	11° 50' 06.3417"	54° 21' 52.5365"	76, paragraph 5, 350M		1.96
<b>OL-SUR-11</b>	11° 50' 16.9913"	54° 23' 51.8389"	76, paragraph 5, 350M		1.96
<b>OL-SUR-12</b>	11° 50' 27.6270"	54° 25' 51.1438"	76, paragraph 5, 350M		1.90
<b>OL-SUR-13</b>	11° 50' 37.1952"	54° 27' 47.1663"	76, paragraph 5, 350M		1.90
<b>OL-SUR-14</b>	11° 50' 46.7503"	54° 29' 43.1911"	76, paragraph 5, 350M		1.90
<b>OL-SUR-15</b>	11° 50' 56.2921"	54° 31' 39.2182"	76, paragraph 5, 350M		1.90
<b>OL-SUR-16</b>	11° 51' 05.8207"	54° 33' 35.2474"	76, paragraph 5, 350M		1.90
<b>OL-SUR-17</b>	11° 51' 15.3362"	54° 35' 31.2789"	76, paragraph 5, 350M		1.90
<b>OL-SUR-18</b>	11° 51' 24.8384"	54° 37' 27.3126"	76, paragraph 5, 350M		1.90
<b>OL-SUR-19</b>	11° 51' 34.3274"	54° 39' 23.3486"	76, paragraph 5, 350M		1.90

\* The locations of outer limit fixed points OL-SUR-06 and OL-SUR-07 were revised by Suriname during the consideration of the submission by the Commission. Point OL-SUR-07 corresponds to the intersection of the outer edge of the continental margin and the 350 M distance constraint line. The remainder of the outer limit fixed points are as proposed in the original submission.