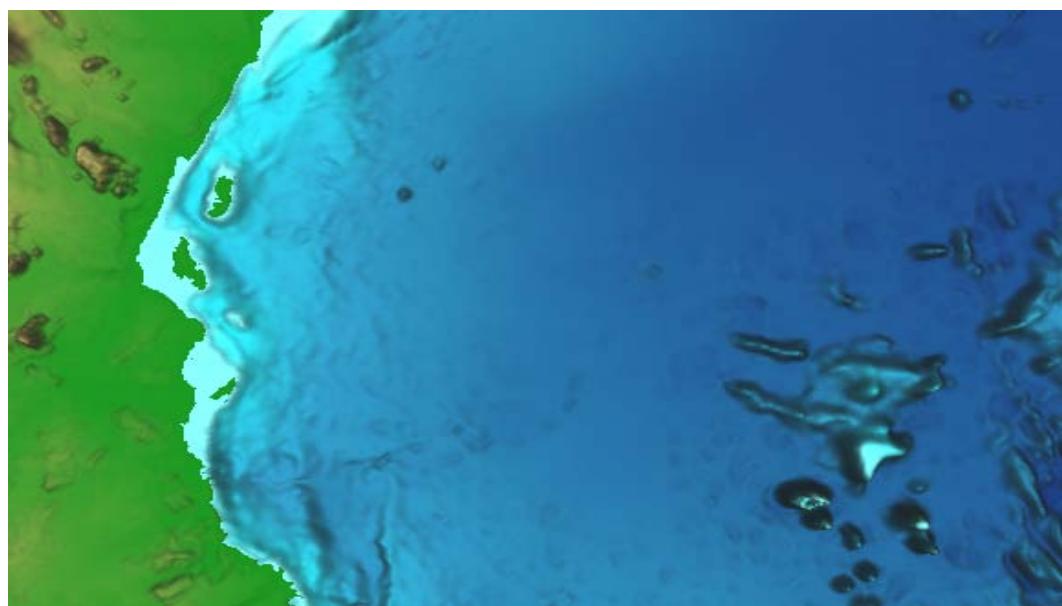




**Preliminary Information  
Indicative of the outer limits of the continental shelf  
and  
Description of the status of preparation of making a submission  
to the Commission on the Limits of the Continental Shelf  
for**

**UNITED REPUBLIC OF TANZANIA**



## **Table of Contents**

<b>1.</b>	<b>Introduction.....</b>	<b>3</b>
<b>2.</b>	<b>Assistance and advice received during the preparation of this communication .....</b>	<b>3</b>
<b>3.</b>	<b>Outer limit of the continental shelf of Tanzania and Baseline.....</b>	<b>4</b>
<b>4.</b>	<b>Provisions of article 76 invoked in support of this communication .....</b>	<b>4</b>
<b>5.</b>	<b>General description of the continental margin in the Indian Ocean off the coast of Tanzania.....</b>	<b>4</b>
<b>6.</b>	<b>Maritime delimitations and other issues .....</b>	<b>6</b>
<b>7.</b>	<b>Preliminary information indicative of outer limits of the continental shelf beyond 200 M .....</b>	<b>6</b>
7.1	Existing database .....	7
7.2	Foot of the continental slope points.....	10
7.2.1	FOS TZ 2_1 .....	11
7.2.2	FOS TZ 2_3 .....	12
7.2.3	FOS TZ 2_6.....	13
7.2.4	Indicative extent of continental shelf based on selected FOS points .....	14
<b>8.</b>	<b>Description of status of preparation and intended date of making a submission.....</b>	<b>14</b>
<b>9.</b>	<b>Conclusion.....</b>	<b>15</b>
<b>10.</b>	<b>References .....</b>	<b>16</b>

## **1. Introduction**

The United Republic of Tanzania, hereinafter referred to as “Tanzania” ratified on 30<sup>th</sup> September 1985 the United Nations Convention on the Law of the Sea, hereinafter referred to as the “Convention”. Thus Tanzania became the 24<sup>th</sup> State to declare its willingness to be bound by the Convention upon its entry into force in 1994.

By decision of the Eleventh Meeting of States Parties to the Convention (SPLOS/72), the date of commencement of the 10-year period for making submissions to the Commission on the Limits of the Continental Shelf, hereinafter referred to as “the Commission” for examination in accordance with article 76 of the Convention and article 4 of annex II of the Convention, was deferred to 2009. For Tanzania this implies that the 10-year limit will expire in May 2009.

Tanzania is mindful of its obligations under the Convention and of the importance of the work of the Commission for coastal States and the international community as a whole.

Recalling the decision of the Eighteenth Meeting of States Parties to the Convention (SPLOS/183) Tanzania has the honour to inform that it continues to face particular challenges in submitting information to the Commission, due to late acquisition of technical data it has not been feasible to fully process, analyze and interpret all available data in time.

Based on that decision of the Eighteenth Meeting of States Parties to the Convention (SPLOS/183), Tanzania has solicited assistance to facilitate a submission of preliminary information and such other material as would be appropriate, under prevailing conditions, in order to provide an indication of the outer limits of the continental shelf beyond 200 nautical miles (M) and a description of preparations of a submission in accordance with the requirements of article 76 of the Convention and with the Rules of Procedure and the Scientific and Technical Guidelines (STG) of the Commission.

## **2. Assistance and advice received during the preparation of this communication**

The Royal Government of Norway provided assistance in the preparations of this communication to the United Nations Secretary-General.

In the preparation of this communication advice was sought from Mr. Harald Brekke, member of the Commission. No advice was provided by any other member of the Commission. Other

technical advice and assistance was provided by UNEP Shelf Programme/GRID-Arendal, Geocap and GX-Technology.

### **3. Outer limit of the continental shelf of Tanzania and Baseline**

The present preliminary information and description deals with the outer limits of the continental shelf appurtenant to Tanzania, without prejudice to any issues of bilateral maritime delimitation with neighbouring States. Such issues will be referred to under item 6 below.

In this particular communication the straight baseline has been used.

### **4. Provisions of article 76 invoked in support of this communication**

The provisions of paragraphs 1, 3 and 4 of article 76 of the Convention are referred to in support of preliminary information indicative of the outer limits of the continental shelf beyond 200 M.

### **5. General description of the continental margin in the Indian Ocean off the coast of Tanzania<sup>1</sup>**

The Tanzania continental margin is part of the East African continental margin characterized by a narrow continental shelf which broadens slightly to the north. The continental slope has a smooth gradient compared to the more complex morphology to the north (Figure 1). The deep abyssal plain of the Somali Basin is at a depth of about 5000 m..

The evolution of the East African continental margin began with the separation of the West and East Gondwana Super continent during the Middle Jurassic, which resulted in the formation of the West Somali Basin. As part of the West Gondwana, Tanzania was juxtaposed to Madagascar which was then attached to India and Antarctica.

Both the Western and Eastern Somali Basin crust have magnetic anomalies that suggest that spreading started in the Middle Jurassic at magnetic anomaly M22 and became extinct at anomaly M0 during the Middle Cretaceous. During this period India,

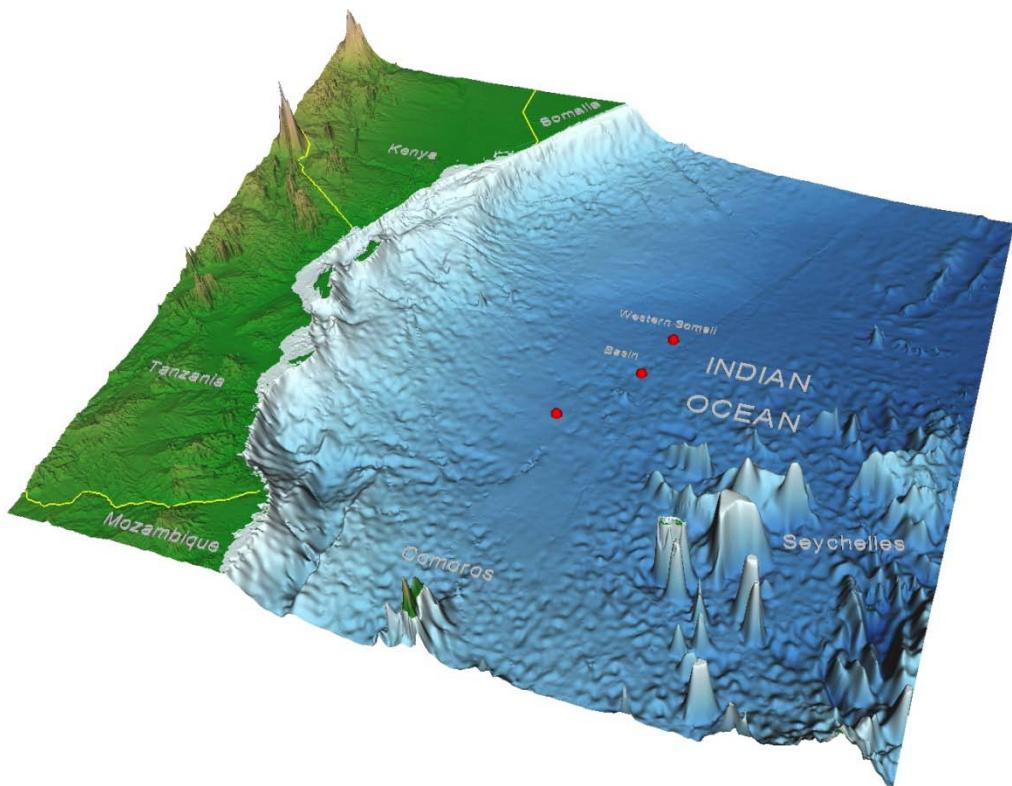
---

<sup>1</sup> Source: Bhattacharya, G.C. and Chaubey, A. K., 2001. Western Indian Ocean – A Glimpse of the Tectonic Scenario. In: The Indian Ocean, A Perspective, PP. 691 – 729.

Madagascar and the Antarctica moved south with respect to Africa along the Davie Fracture Zone. Also, active faulting related to the earliest rifting during the Permo – Triassic or Karoo time continued intermittently throughout from the Middle Jurassic to the present time.

Recent seismic data recorded by GX-Technology from 2006 to 2008 indicate major crustal elements and thick sedimentary rock sequences. Ongoing data interpretation indicates development of large submarine fans. The main sediments materials was carried into the basin mainly from the west by major rivers systems including Ruvuma, Rufiji, Ruvu, Pangani and Tana.

The details of the opening of the Indian Ocean are still a matter of discussion and research, but it is clear that the continental margin of Tanzania is part of a continental margin that was formed by the continental break-up between the African Continent and the continental block of Madagascar and India in Jurassic times.



*Figure 1: Three dimensional view of the continental margin of Tanzania and the western Indian Ocean with names on key submarine features and state borders. Coloured circles represent FOS points. .*

## **6. Maritime delimitations and other issues**

All information and maps contained in this communication are without prejudice to issues of maritime delimitation. Nor do they constitute any statement or expression of views by the United Nations, Norway or UNEP Shelf Programme/GRID-Arendal.

The Tanzania Delegation has been in contact with the Republic of Kenya and the Republic of Seychelles. Both Governments have indicated to the Tanzanian Delegation that they have no objection to submitting this communication for the purposes referred to in SPLOS/183 and making a future submission in accordance with the requirements of article 76 of the Convention, without prejudice to any future delimitation.

Tanzania has no objection against the Republic of Kenya and the Republic of Seychelles making submissions including maritime areas of potential overlap with Tanzania continental shelf. Such consideration and recommendation will be without prejudice to any future delimitation.

## **7. Preliminary information indicative of outer limits of the continental shelf beyond 200 M**

In accordance with SPLOS/183 op.p. (operative paragraph) 1 (a), this communication seeks to document that several foot of the continental slope points (FOS points) have locations that make it clear that Tanzania's continental shelf extends beyond 200 M from the baseline.

Considering late acquisition of scientific data it has not been feasible to fully process, analyze and interpret all available data in time. In this regard no final conclusion is made in respect of the most appropriate location of the base of the continental slope of Tanzania's margin at this stage. Rather, it is found incumbent, based on available data, to document at least the minimum extent of the continental shelf – by providing compelling *prima facie* evidence that FOS points may at least be located in certain areas, if not further from ashore.

While there may be grounds for carrying out additional analysis and data collection for the precise identification of FOS points (for which there is the possibility of significant variations), the following FOS points and their projected preliminary outer limit points are submitted as part of preliminary information. These may be subject to later revision, and the present document is presented without prejudice to such revision.

## **7.1 Existing database**

Figure 2 and Figure 3 show track lines for proprietary and publicly available bathymetric and seismic data that is available for analyses to determine if Tanzania fulfils the criteria for an extended continental shelf beyond 200 M (test of appurtenance).

The majority of publicly available bathymetric and seismic data are sourced from the Geophysical Data System (Geodas) of NOAA National Geophysical Data Center (NGDC) in Colorado.

The following satellite derived bathymetric grids have been used: ETOPO1 and SRTM30plus\_V4.

All publicly available data are assembled, reformatted and provided by the One Stop Data Shop (GRID-Arendal, ([www.continentalshelf.org](http://www.continentalshelf.org))).

The analyses of the data were done in the Geocap software utilizing the UNCLOS Module ([www.geocap.no](http://www.geocap.no)) and SMT Kingdom seismic interpretation software. Methods used are documented in the respective software documentation.

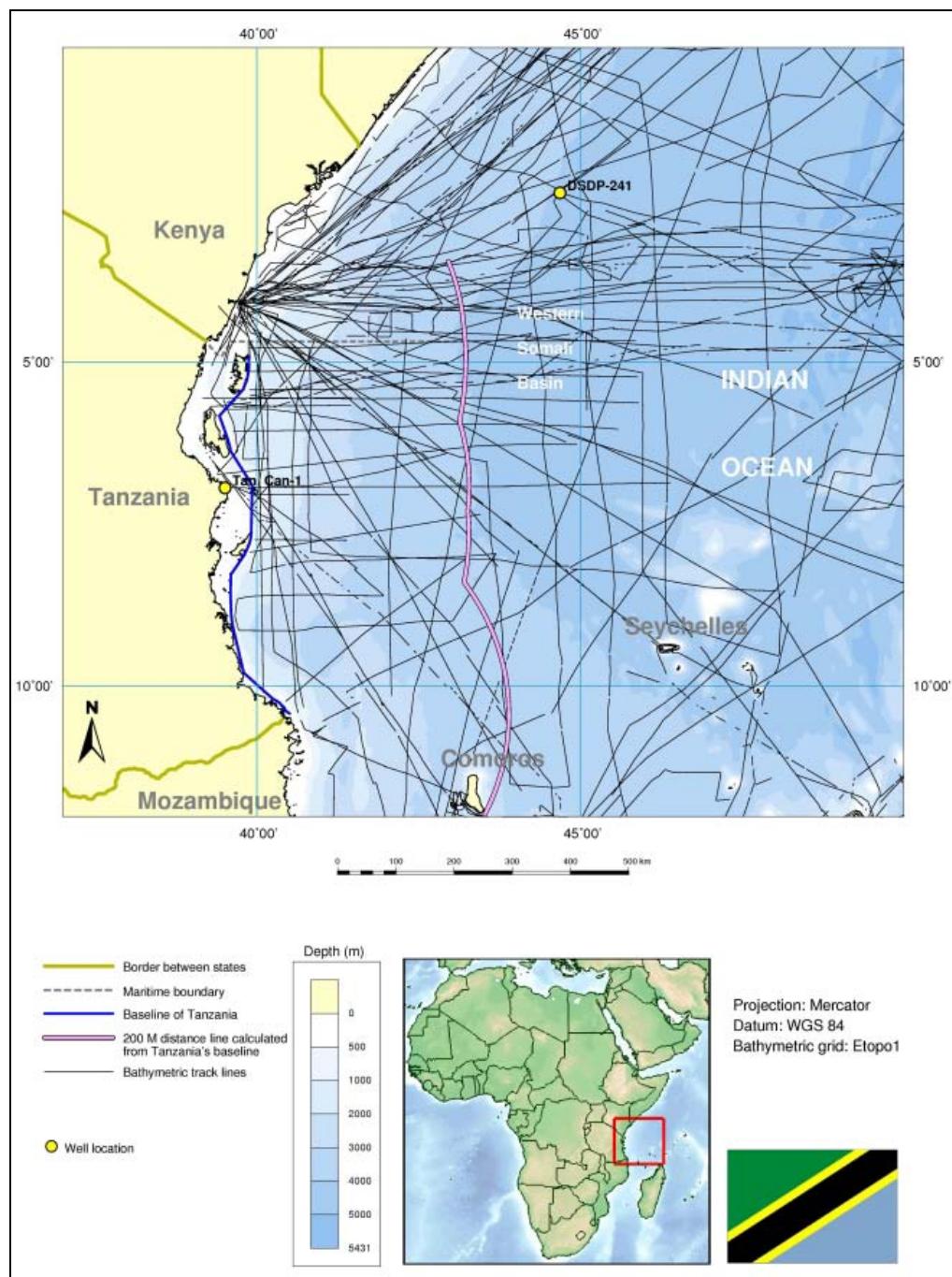


Figure 2: Map showing ship's track lines for echo sounder single beam corrected depth measurements and the position of drill sites.

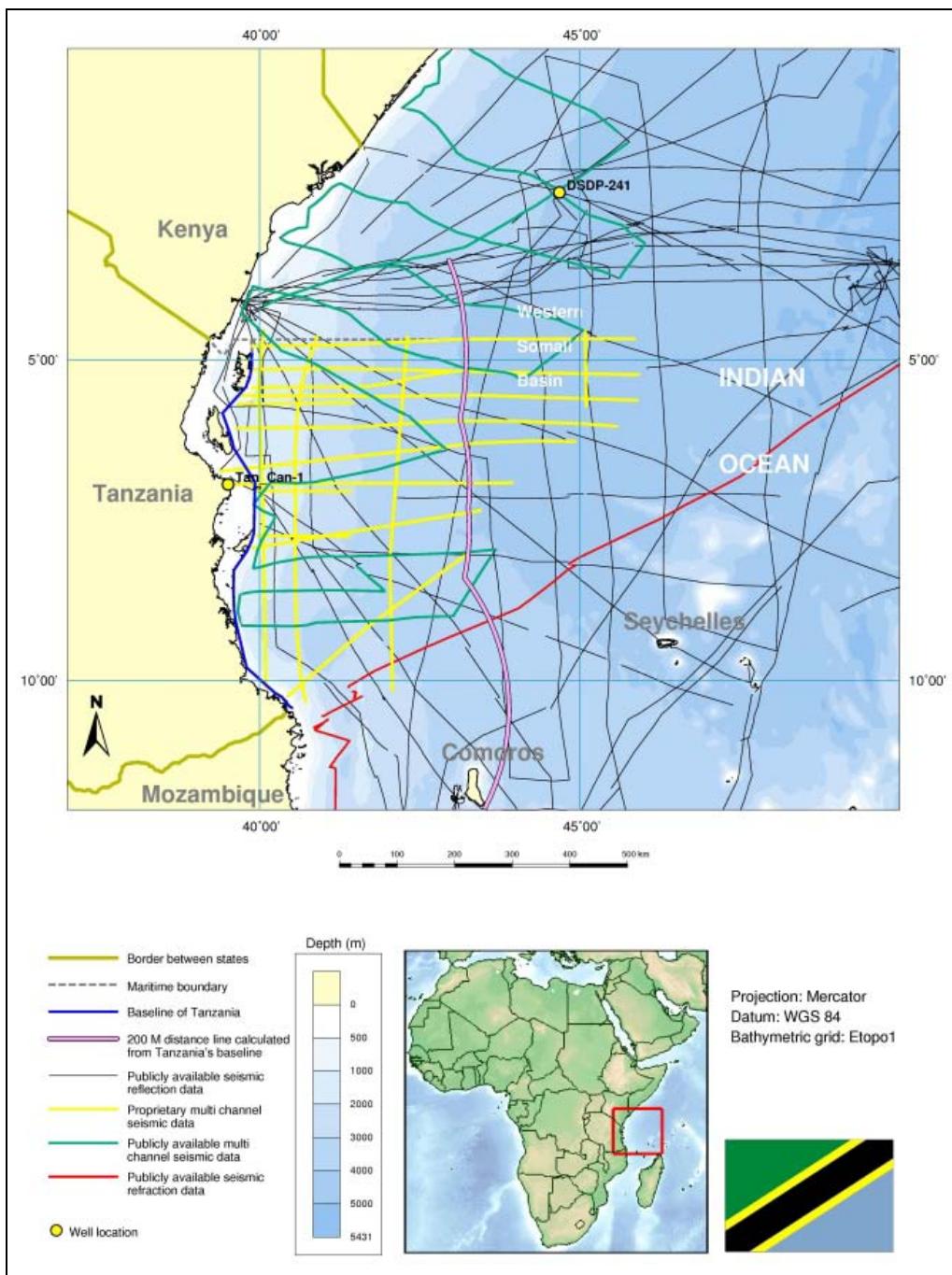
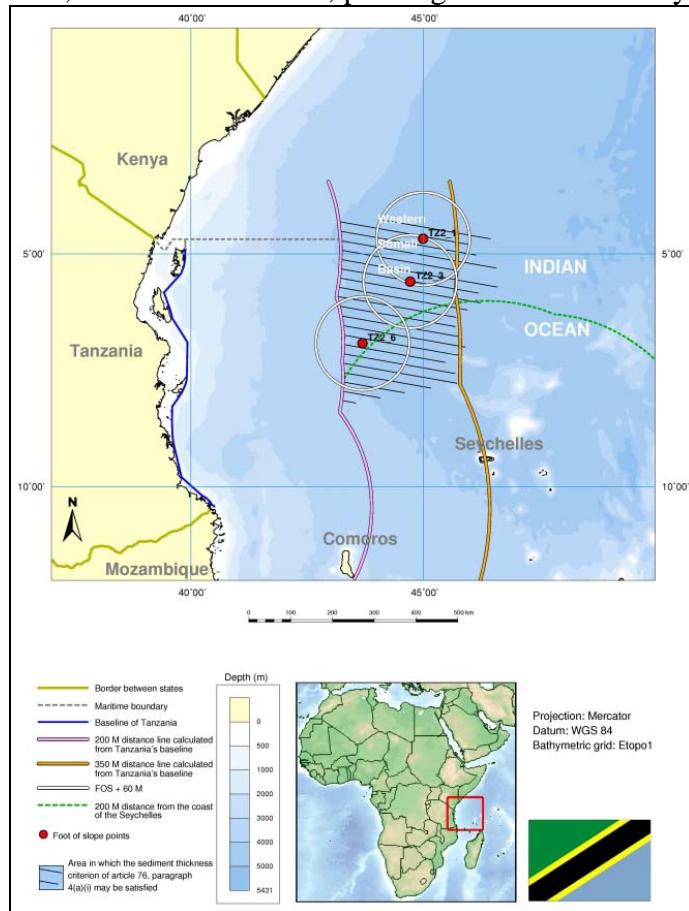


Figure 3: Map showing ship's track lines for analogue, CDP and refraction seismic data and the position of drill sites.

## 7.2 Foot of the continental slope points

Three FOS points have been identified on proprietary seabed profiles. The GEODAS database and bathymetric profiles extracted from the SRTM30plus\_4V grid have been supportive in this process. These FOS points are described below for documentation purposes and to demonstrate the variable nature of the continental margin of Tanzania.

The possibility of identifying FOS points located further seaward than the three documented here, cannot be excluded, pending further data analysis and collection.



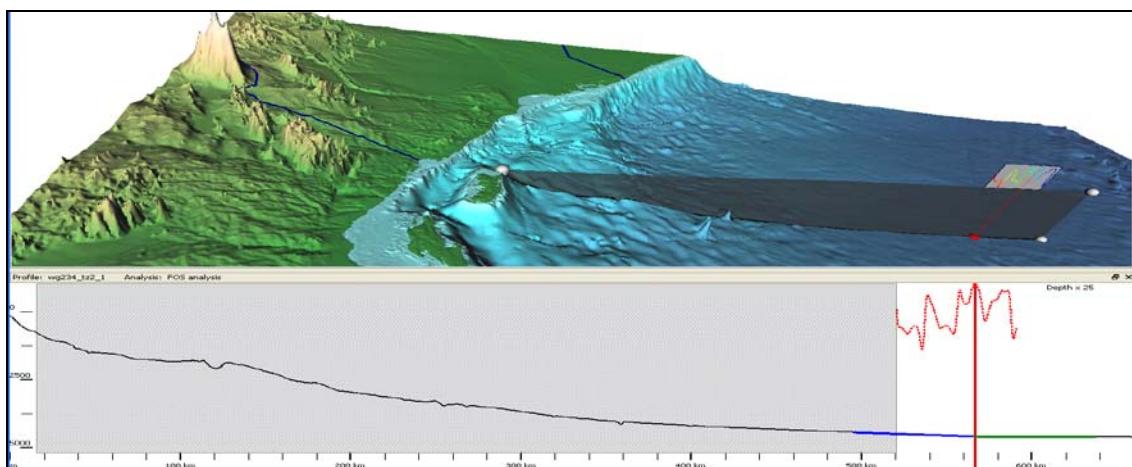
*Figure 4: Map showing the location of three FOS points. These FOS points generate continental shelf area beyond 200 M based on the sediment thickness criterion and/or the 60 M distance criterion of article 76 paragraphs 4(a)(i) and 4(a)(ii), respectively. Three of these FOS points are described in more detail in Section 7.2.1, 7.2.2, and 7.2.3.*

### 7.2.1 FOS TZ 2\_1

#### Basic Data

Data type	Data source
Single beam bathymetric profile/Seismic-derived bathymetric profile	Surveys: WG 00 and TZ 2 Lines: WG 00 234 and TZ 2_1

Point FOS TZ 2\_1 is situated at the base of the continental slope of the north eastern part of Tanzania. The continental slope in this area connects the shallow shelf of Tanzania with the abyssal plain of the Western Somalia Basin in the Indian Ocean. The area of the base of the slope is identified on the basis of the morphology of the continental slope in the area as its depicted both by the single beam bathymetric data, seismic-derived bathymetric data and the SRTM30plus\_4V bathymetric grid. Point FOS TZ 2\_1 was determined as the point of maximum change in gradient within the base of the slope area (Figure 5).



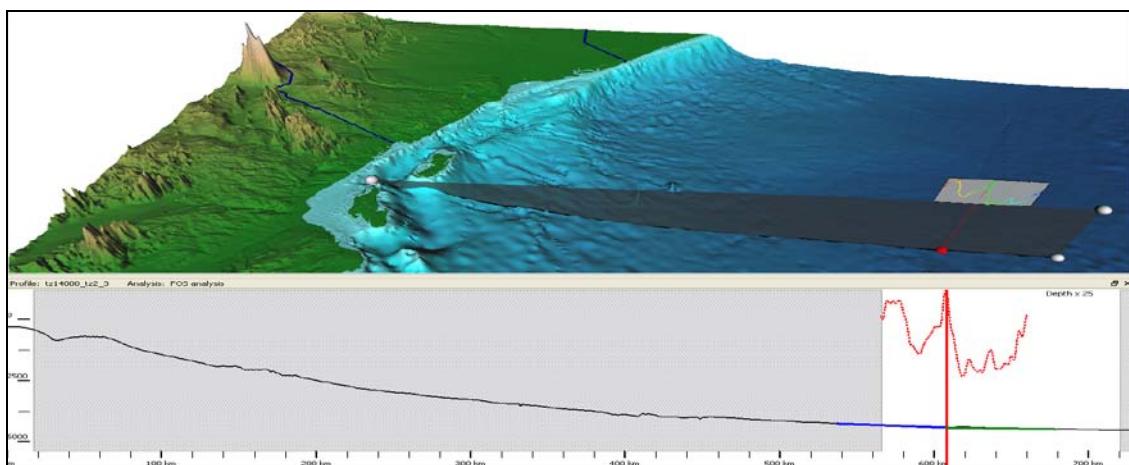
*Figure 5: Analysis of point FOS TZ 2\_1 at the base of the continental slope, based on bathymetric profile WG 00 234 and TZ 2\_1 (lower panel). The upper panel shows a 3D view of the continental margin of Tanzania viewed from south towards north, including the location of FOS TZ 2\_1 (red dot) and the bathymetric profile WG 00 234 and TZ 2\_1 (grey shaded panel). Point FOS TZ 2\_1 has been calculated to be the point of maximum change in average gradient across the area of the base of the slope based on the 2<sup>nd</sup> derivative of the slope (red dotted graph in lower panel).*

## 7.2.2 FOS TZ 2\_3

### Basic Data

Data type	Data source
Single beam bathymetric profile/Seismic-derived bathymetric profile	Surveys: TZ 1 and TZ 2 Lines: TZ 4000 and TZ 2_3

Point FOS TZ 2\_3 is situated at the base of the continental slope of the north eastern part of Tanzania. The continental slope in this area connects the shallow shelf of Tanzania with the abyssal plain of the Western Somalia Basin in the Indian Ocean. The area of the base of the slope is identified on the basis of the morphology of the continental slope in the area as its depicted both by the single beam bathymetric data, seismic-derived bathymetric data and the SRTM30plus\_4V bathymetric grid. Point FOS TZ 2\_3 was determined as the point of maximum change in gradient within the base of the slope area (Figure 6).



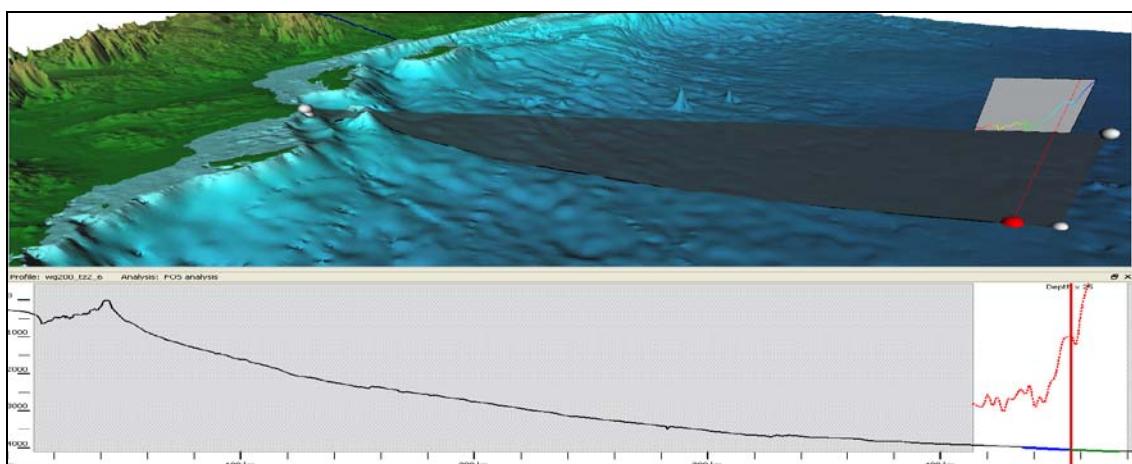
*Figure 6: Analysis of point FOS TZ 2\_3 at the base of the continental slope, based on bathymetric profile TZ 4000 and TZ 2\_3 (lower panel). The upper panel shows a 3D view of the continental margin of Tanzania viewed from south towards north, including the location of FOS TZ 2\_3 (red dot) and the bathymetric profile TZ 4000 and TZ 2\_3 (grey shaded panel). Point FOS TZ 2\_3 has been calculated to be the point of maximum change in average gradient across the area of the base of the slope based on the 2<sup>nd</sup> derivative of the slope (red dotted graph in lower panel).*

### 7.2.3 FOS TZ 2\_6

#### Basic Data

Data type	Data source
Single beam bathymetric profile/Seismic-derived bathymetric profile	Surveys: TZ 1 and TZ 2 Lines: TZ 3500 and TZ 2_6

Point FOS TZ 2\_6 is situated at the base of the continental slope of the eastern part of Tanzania. The continental slope in this area connects the shallow shelf of Tanzania with the abyssal plain of the Western Somalia Basin in the Indian Ocean. The area of the base of the slope is identified on the basis of the morphology of the continental slope in the area as its depicted both by the single beam bathymetric data, seismic-derived bathymetric data and the SRTM30plus\_4V bathymetric grid. Point FOS TZ 2\_6 was determined as the point of maximum change in gradient within the base of the slope area (Figure 7).



*Figure 7: Analysis of point FOS TZ 2\_6 at the base of the continental slope, based on bathymetric profile TZ 3500 and TZ 2\_6 (lower panel). The upper panel shows a 3D view of the continental margin of Tanzania viewed from south towards north, including the location of FOS TZ 2\_6 (red dot) and the bathymetric profile TZ 3500 and TZ 2\_6 (grey shaded panel). Point FOS TZ 2\_6 has been calculated to be the point of maximum change in average gradient across the area of the base of the slope based on the 2<sup>nd</sup> derivative of the slope (red dotted graph in lower panel).*

#### **7.2.4 Indicative extent of continental shelf based on selected FOS points**

Foot of slope points FOS TZ 2\_1, TZ 2\_3 and TZ 2\_6 generate continental shelf area beyond 200 M based on both the sediment thickness criterion and the 60 M distance criterion of article 76 paragraphs 4(a)(i) and 4(a)(ii), respectively. The exact location of the outer limits of the continental shelf beyond 200 M awaits the final analyses to be submitted to the CLCS (see section 8). However, the extent of the continental shelf beyond 200 M is indicated in a general way in Figure 4.

### **8. Description of status of preparation and intended date of making a submission**

The Tanzanian Delegation is of the opinion that this communication takes advantage of available public data from relevant intergovernmental bodies and organizations and Tanzania proprietary data.

The utilization of the Tanzania proprietary data and data from the UNEP Shelf Programme One Stop Data Shop by the Technical Core Group of the Tanzania Continental Shelf Delineation Project, acting on behalf of Tanzania provides a careful documentation of minimum location of several Foot of the Slope Points and their projections, thus providing in good faith *prima facie* evidence that Tanzania's continental shelf extends beyond 200 M from the baseline.

However, additional data collection and further analysis will be necessary to provide exact information on the location of foot of the slope points.

The Scientific and Technical Guidelines (STG) of the Commission<sup>2</sup> gives guidance to the type and quality of the data that is required to support the submission of coastal State to the Commission concerning the outer limit of its continental shelf. Chapter 9 of the STG specifies the format and recommended contents of such a submission. The STG, on the other hand, does not give any guidance to the planning and organisation of the project for preparing a submission.

---

<sup>2</sup> Commission on the Limits of the Continental Shelf, 1999. Scientific and technical guidelines of the commission of the continental shelf. Division for Ocean Affairs and the Law of the Sea Office of Legal Affairs United Nations, document CLCS/11, 92 p.

The Training Manual provided by Division for Ocean Affairs and the Law of the Sea Office of Legal Affairs (DOALOS)<sup>3</sup>, contains further details on how such a project may be conducted.

According to this Training Manual the following steps should be taken to plan and manage a submission:

1. Undertake the initial appurtenance study;
2. Produce a desktop study;
3. Plan and acquire data;
4. Analyse all data and produce all relevant scientific and technical documentation;
5. Prepare the final submission; and
6. Provide technical support to political level throughout the project cycle.

Current status of the Tanzanian Continental Shelf Delineation project is that steps 1-3 are completed while 4-6 are ongoing.

To fund further activities related to preparing a submission, Tanzania has made an application to the “*Trust fund for the purpose of facilitating the preparation of submissions to the Commission on the Limits of the Continental Shelf for developing States, in particular the least developed countries and small island developing States, and compliance with article 76 of the United Nations Convention on the Law of the Sea*” (UN Trust Fund) ([http://www.un.org/Depts/los/clcs\\_new/trust\\_fund\\_article76.htm](http://www.un.org/Depts/los/clcs_new/trust_fund_article76.htm) ).

The Tanzanian Delegation envisages regular reporting on progress pertaining to the above conditions. A full submission is planned to take place within 2 years of submission date of this preliminary information document, unless otherwise specified in light of circumstances.

## **9. Conclusion**

The above preliminary information submitted in accordance with SPLOS/183 op.p. 1 (a) is without prejudice to the submission in accordance with the requirements of article 76 of the

---

<sup>3</sup> Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, 2006. Training Manual for delineation of the outer limits of the continental shelf beyond 200 nautical miles and for preparation of submissions to the Commission on the Limits of the Continental Shelf.

Convention and with the Rules of Procedure and the Scientific and Technical Guidelines of the Commission, and the future consideration by the Commission.

The Tanzanian Delegation would like to request that the Secretary-General inform the Commission and notify member States of this communication in accordance with SPLOS/183 op.p. 1 (d).

## **10. References**

*Coffin, M.F. , and Rabinowitz, P.D (1988). Evolution of the conjugate East African-Madagascar margins and the Western Somalia basin. Geological Society of America Special paper 226.78pp. Journal Africa Earth Science.*

*Bhattacharya, G.C. and Chaubey, A. K., 2001. Western Indian Ocean – A Glimpse of the Tectonic Scenario. In: The Indian Ocean, A Perspective, PP. 691 – 729*