

Sultanate of Oman

Continental Shelf Extension

Document to UNCLOS

Oman Continental Shelf Extension Document to UNCLCS

I. Introduction

The Sultanate of Oman reaffirms that it has the intention of submitting information to the Commission on the Limits of the Continental Shelf ('CLCS') regarding the outer limits of its continental shelf beyond 200 nautical miles (M), in accordance with the provisions of the article 76 of the United Nations Convention on the Law of the Sea (UNCLOS), in respect to the area that includes the narrow bathymetric shelf adjacent to the land mass of Oman, the Owen basin, and the Owen Ridge, and that abuts the deep ocean floor of the Arabian Sea (Indian fan) (Figure 1).

Further, the Sultanate of Oman confirms that it is actively involved in preparing such a submission and plans to present its submission within a period of 10 years from May 2009.

This document provides preliminary information indicative of the outer limits of the continental shelf beyond 200 M, and a description of the status of preparation and intended date of making a submission. This information is provided without prejudice to the final submission or its consideration by the CLCS, and is intended to satisfy the time period referred to in article 4 of annex II to UNCLOS, consistent with decision SPLOS/183 of the eighteenth meeting of the States Parties held in New York between 13 – 20 June 2008.

II. Preliminary Information Indicative of the Outer Limit of the Southeast Continental Shelf.

There is continuous prolongation from the territory of the Sultanate of Oman, across a relatively narrow bathymetric shelf and the large plateau of the Owen Basin, to the boundary with the deep ocean floor of the Arabian Sea marked by the Owen Ridge. The Owen Basin is morphologically continuous with the Omani landmass, and exhibits characteristics typical of continental crust. Although the Owen Ridge is characterised by extensive faulting and complex morphology, based on geological and geophysical evidence the foot of the continental slope can be identified along its eastern flank.

The main feature of the southeast Oman continental shelf is the Owen Basin, a large faulted plateau of relatively smooth seafloor between 3000 and 3500 m depth adjacent to the SE coast of Oman. It is bordered by distinct topographic boundaries to the east, west and south; to the north its termination is less well defined (Figure 2).

The eastern boundary of the Basin is the Owen Ridge, an asymmetric feature with a moderately dipping western flank and an extremely steep eastern flank.

The western boundary of the Basin is a steep fault parallel to a series of other major faults including the Masirah Fault, that lie along the steep outer margin of the narrow coastal shelf and Owen Basin.

To the south, the Owen Basin is bounded by a discontinuous line of seamounts that constitute the Sharbithat Ridge.

The northern limit of the basin is not clearly demarcated but is interpreted to lie near latitude 22° N, the boundary with the Gulf of Oman.

Some authors (Whitmarsh 1979, Cochran 1981, Stein & Cochran 1985) have assumed the Owen Basin to be one of the basins that formed by seafloor spreading between East and West Gondwanaland in the late Jurassic, like the Mozambique Basin, the West Somali Basin and North Somali Basin in the southern Indian Ocean (Figure 3). However, this interpretation is based largely on assumed analogies with those southern basins, rather than on compelling evidence from the basin itself. Geological and geophysical data gathered in the basin show that the crustal structure and composition of the Owen Basin are characteristic of continental rather than oceanic crust, and that it shares the geological characteristics of the Omani landmass. These data include:

- a) No seafloor magnetic anomalies have been interpreted within the Owen Basin (unlike the Mozambique and West Somali Basins). Although ophiolitic thrusts similar to the ones in Masirah and Ras – Madraka have been encountered by seismic surveys, there is no oceanic crust within the Owen Basin (Warren L. Prell & Al 1990).
- b) Gravity anomaly data over the Owen Basin show a continental affinity from the land mass of Oman to the Owen Ridge (Figure 4).
- c) The Masirah -1 oil well drilled in the south of Masirah Island reached Proterozoic clastic sediments of the Arabian craton (Gorin et Al 1982).
- d) The results from the JOIDES ocean drilling programme – leg 117 showed that the composition and accumulation rate of the Miocene deposits on the margin are similar to that of the pelagic Miocene sediments on the Owen Ridge about 350 km offshore (Warren L. Prell 1990).

Accordingly, preliminary analysis of the data shows that the Owen Basin is part of the Oman continental margin and that there is natural prolongation across the narrow coastal shelf and Owen Basin to the Owen Ridge. This continental margin has been affected by several faults (e.g., the Masirah Fault) due to tectonic activity in the Arabian Sea and to the sediment subsidence that introduced many

natural irregularities in the morphology of the margin. However, on the basis of geological and geophysical evidence the foot of the continental slope can be identified along the eastern flank of the Owen Ridge.

Based on the above and on the application of the 1% sediment thickness formula contained in article 76(4)(a)(i), the preliminary indicative outer limit of the Omani continental shelf extends to the constraint lines.

III. The Status of Preparation of the Submission

As already advised, the Sultanate is actively involved in the preparation of a continental shelf submission and is in the process of completing the necessary collection and analysis of scientific data to complete it. So far the following steps have been achieved towards the completion of the submission:

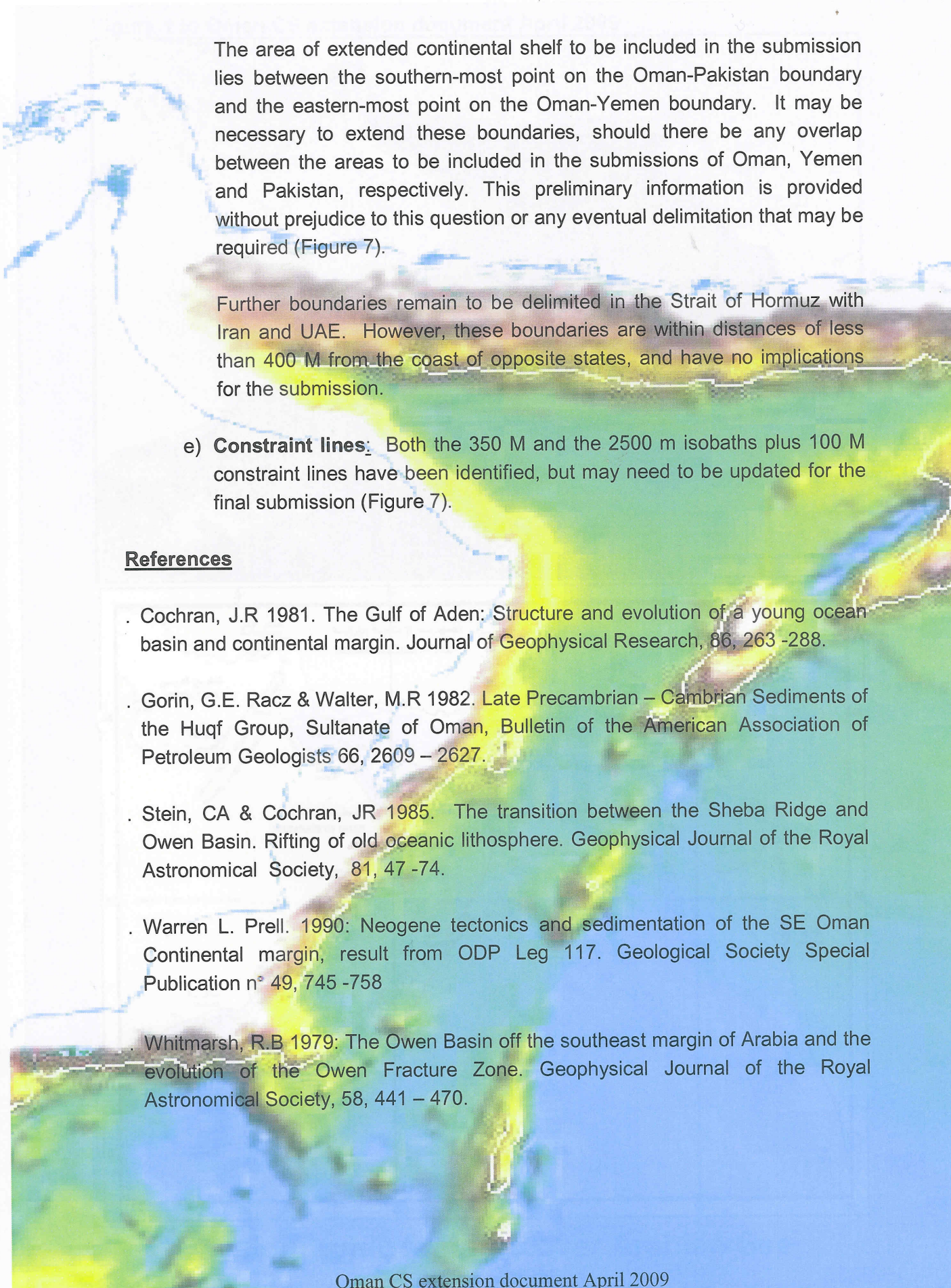
- a) **A desktop study:** It was done in 2002. It analyzed the legal and technical information supporting the preliminary determination of the outer limits of the continental shelf and international boundaries of the maritime spaces under the jurisdiction of the Sultanate of Oman.

This study has been thoroughly reviewed in the light of information acquired since 2002. Additional analysis may identify the need for further data to be collected.

- b) **Bathymetric data:** All the bathymetric data from single and multibeam surveys by Omani Authorities and from international surveys have been compiled and several types of maps produced. (Figure 5).

- c) **Baselines:** The Application of the straight baselines system in the Sultanate of Oman was issued by a notice of 1 June 1982 of the Government of the Sultanate of Oman. In Addition to the notice, a baselines database has been established from the largest available navigation charts and maps for the whole coast of Oman. However, these will need to be updated for the final submission (Figure 6).

- d) **Maritime Boundaries:** Oman has concluded three maritime delimitation agreements: the first, concerning delimitation of the continental shelf between the Sultanate of Oman and Iran in the Strait of Hormuz, concluded 25 July 1974; the second, delimiting the exclusive economic zones of Oman and Pakistan, concluded 12 June 2000; and the third, concerning delimitation of maritime boundary between Oman and Yemen in the Arabian Sea, concluded in December 2003.



The area of extended continental shelf to be included in the submission lies between the southern-most point on the Oman-Pakistan boundary and the eastern-most point on the Oman-Yemen boundary. It may be necessary to extend these boundaries, should there be any overlap between the areas to be included in the submissions of Oman, Yemen and Pakistan, respectively. This preliminary information is provided without prejudice to this question or any eventual delimitation that may be required (Figure 7).

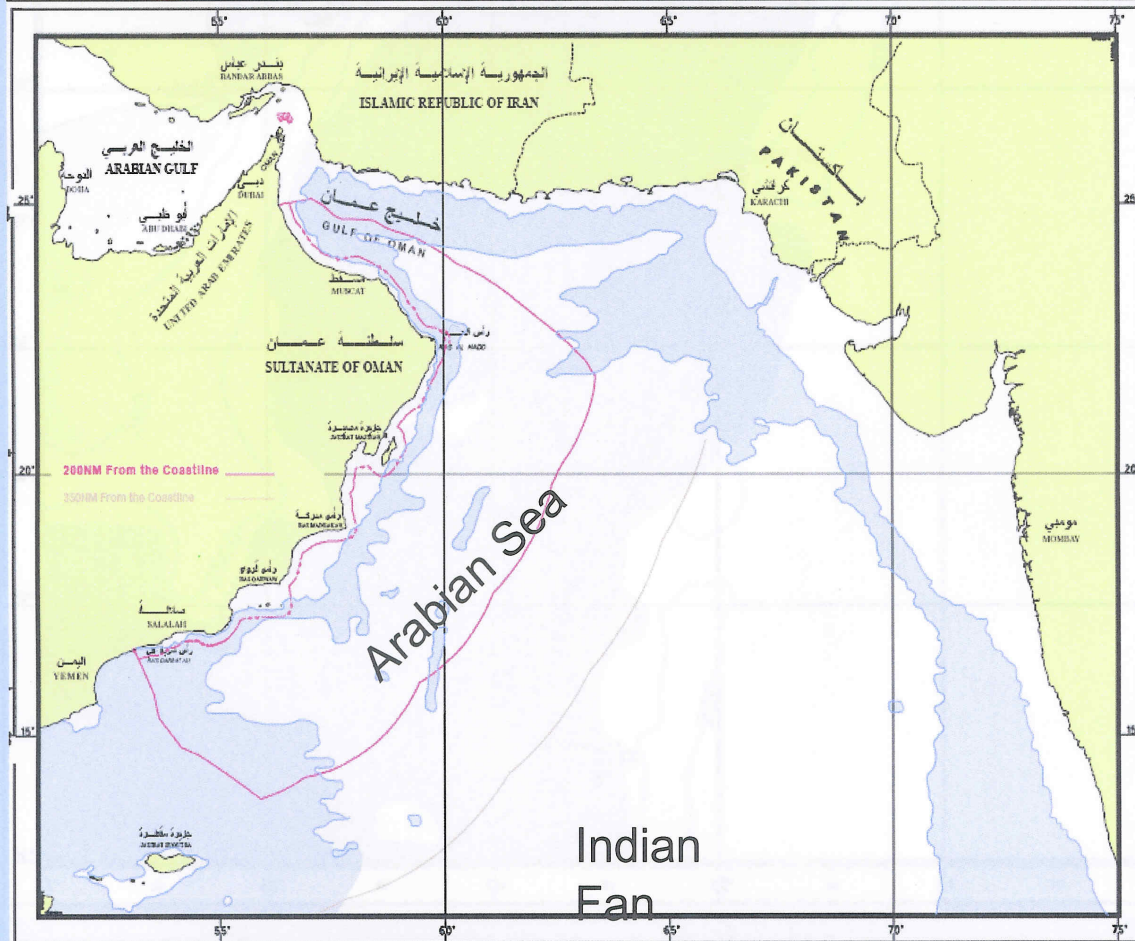
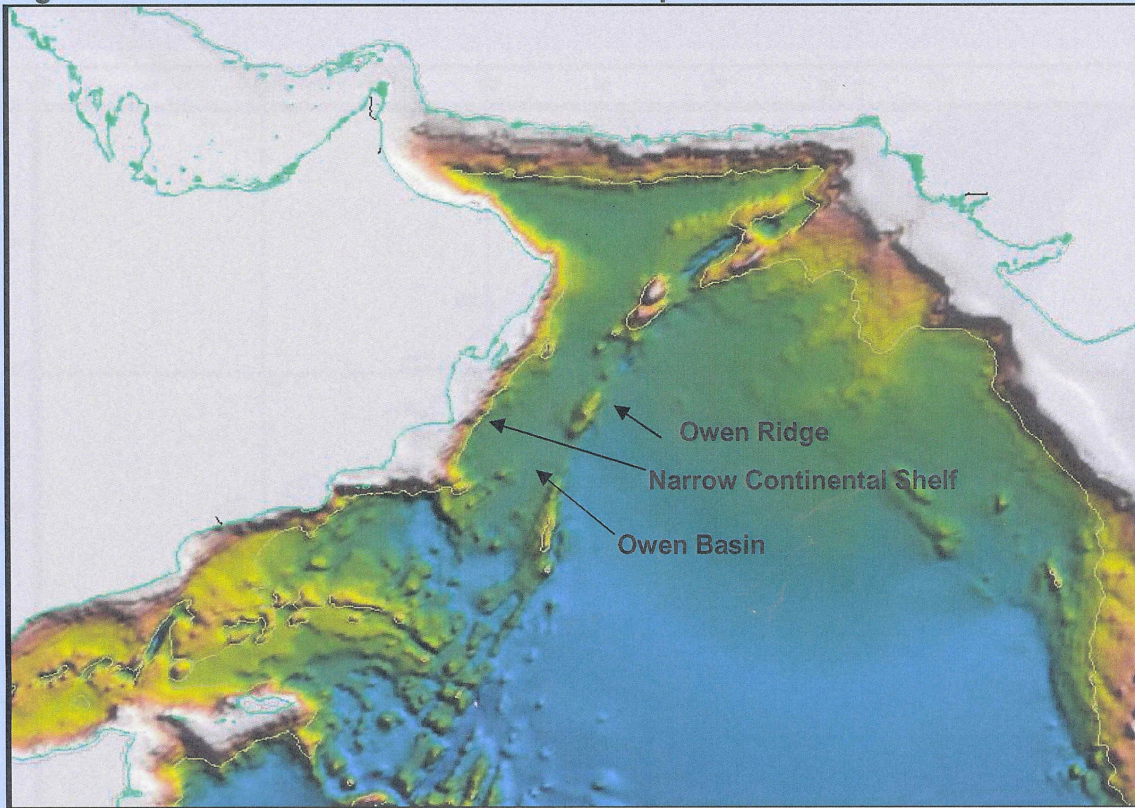
Further boundaries remain to be delimited in the Strait of Hormuz with Iran and UAE. However, these boundaries are within distances of less than 400 M from the coast of opposite states, and have no implications for the submission.

- e) **Constraint lines:** Both the 350 M and the 2500 m isobaths plus 100 M constraint lines have been identified, but may need to be updated for the final submission (Figure 7).

References

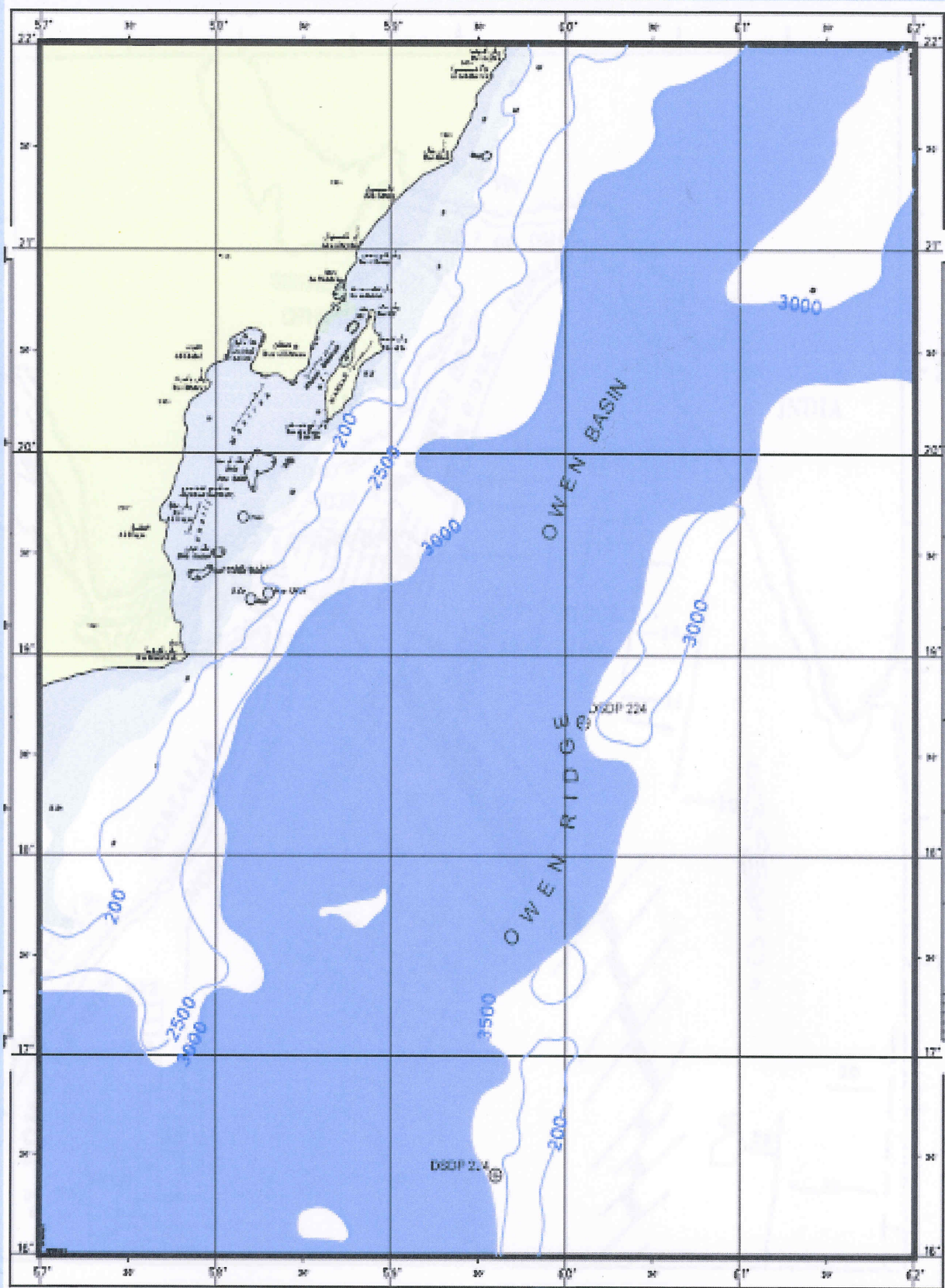
- . Cochran, J.R 1981. The Gulf of Aden: Structure and evolution of a young ocean basin and continental margin. *Journal of Geophysical Research*, 86, 263 -288.
- . Gorin, G.E. Racz & Walter, M.R 1982. Late Precambrian – Cambrian Sediments of the Huqf Group, Sultanate of Oman, *Bulletin of the American Association of Petroleum Geologists* 66, 2609 – 2627.
- . Stein, CA & Cochran, JR 1985. The transition between the Sheba Ridge and Owen Basin. Rifting of old oceanic lithosphere. *Geophysical Journal of the Royal Astronomical Society*, 81, 47 -74.
- . Warren L. Prell. 1990: Neogene tectonics and sedimentation of the SE Oman Continental margin, result from ODP Leg 117. *Geological Society Special Publication n° 49*, 745 -758
- . Whitmarsh, R.B 1979: The Owen Basin off the southeast margin of Arabia and the evolution of the Owen Fracture Zone. *Geophysical Journal of the Royal Astronomical Society*, 58, 441 – 470.

Figure 1 to Oman CS extension document April 2009



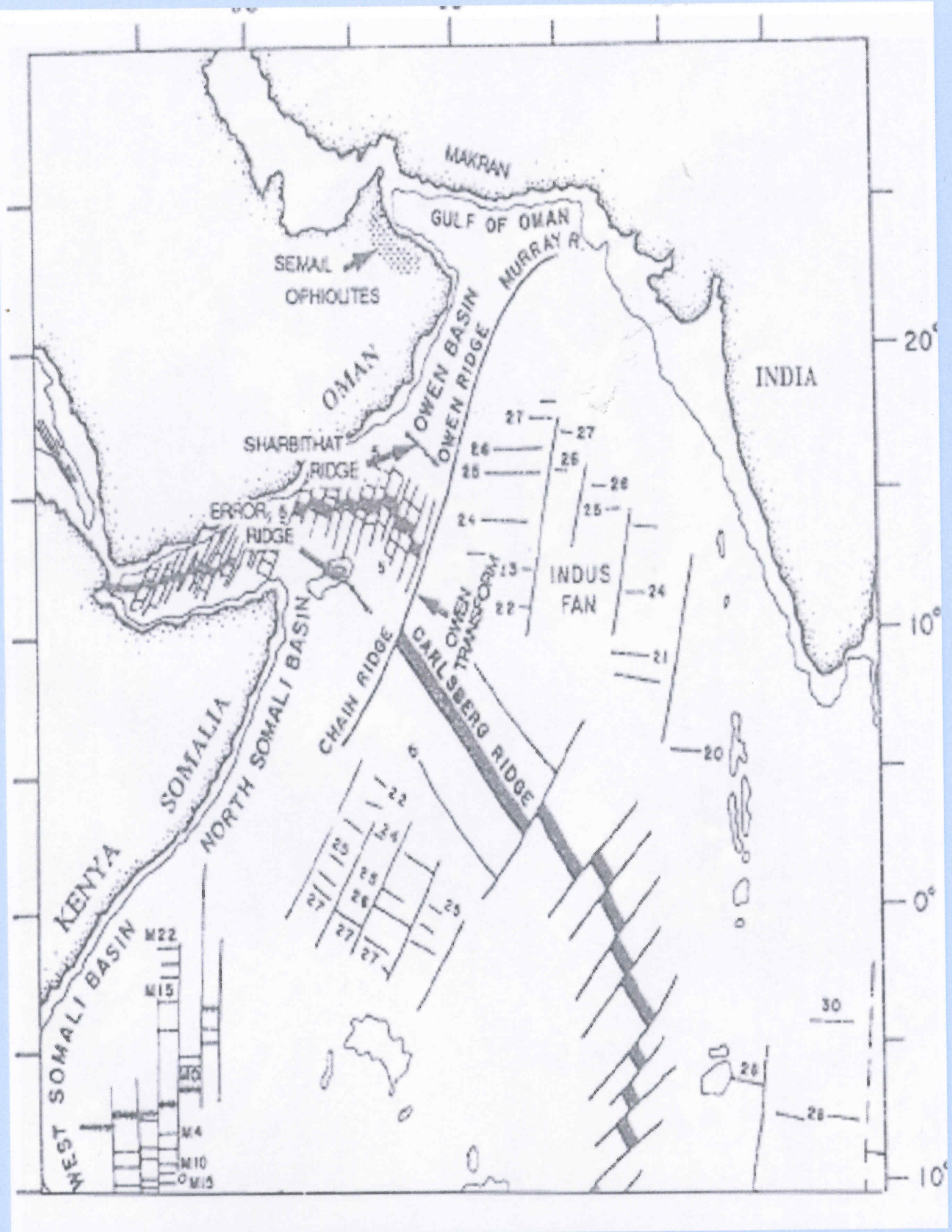
Physiographic features over Arabian Sea and Gulf of Oman

Figure 2 to Oman CS extension document April 2009



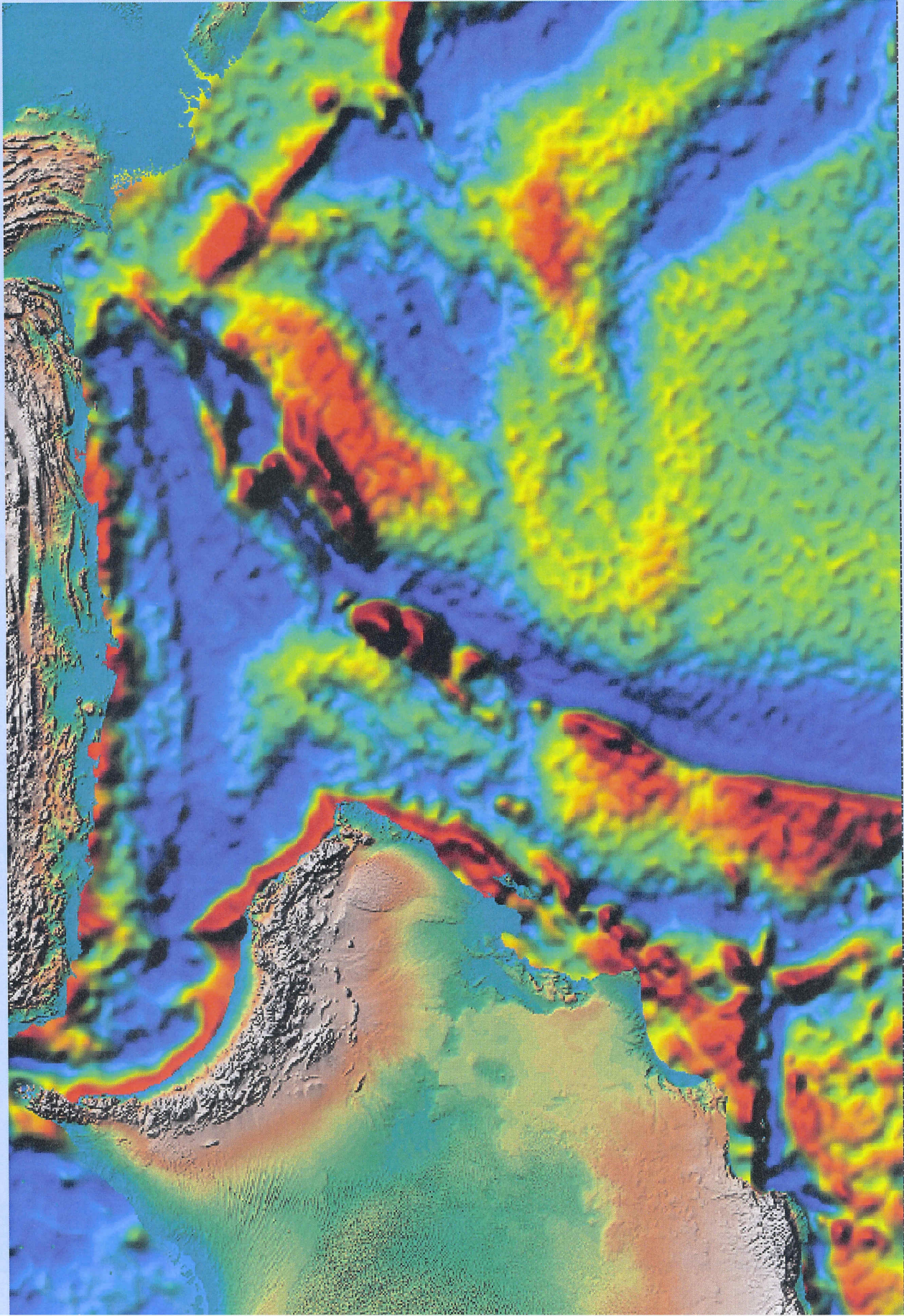
Owen Basin

Figure 3 to Oman CS extension document April 2009



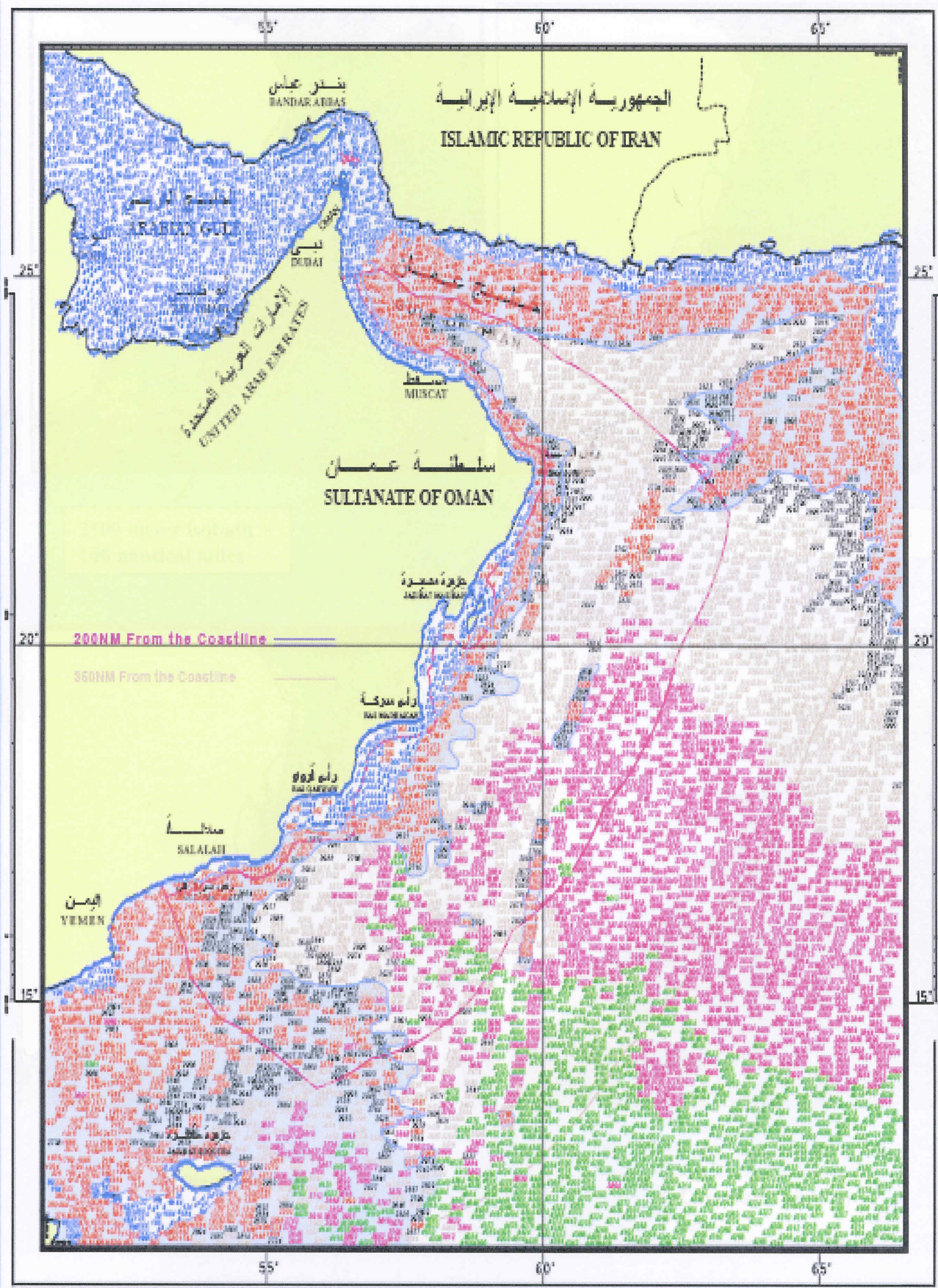
Seafloor magnetic anomalies in the Indian Ocean

Figure 4 to Oman CS extension document April 2009



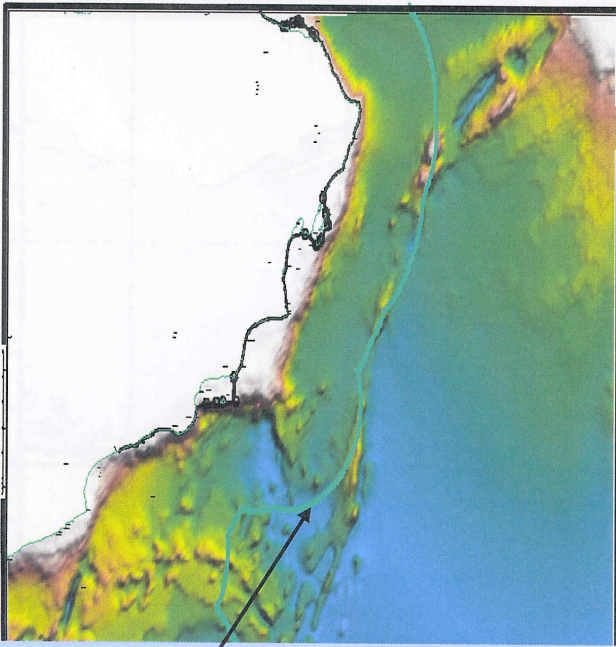
Gravity anomaly data over Arabian Sea and Gulf of Oman

Figure 5 to Oman CS extension document April 2009

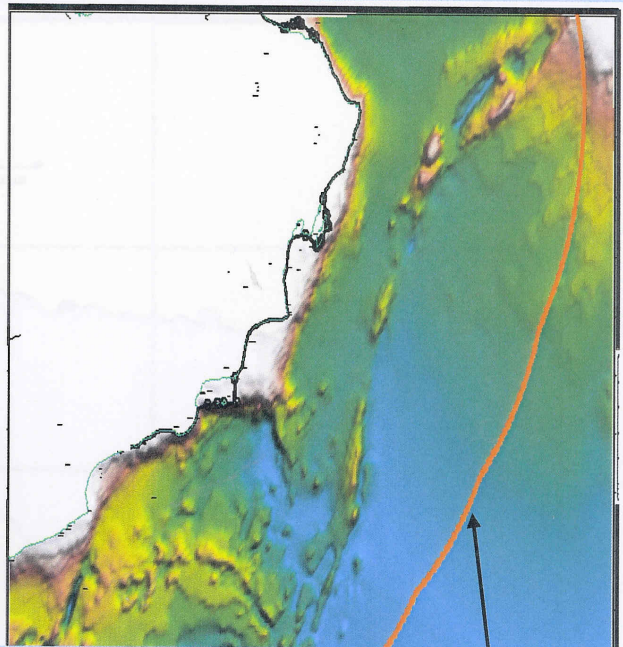


Compiled bathymetric data

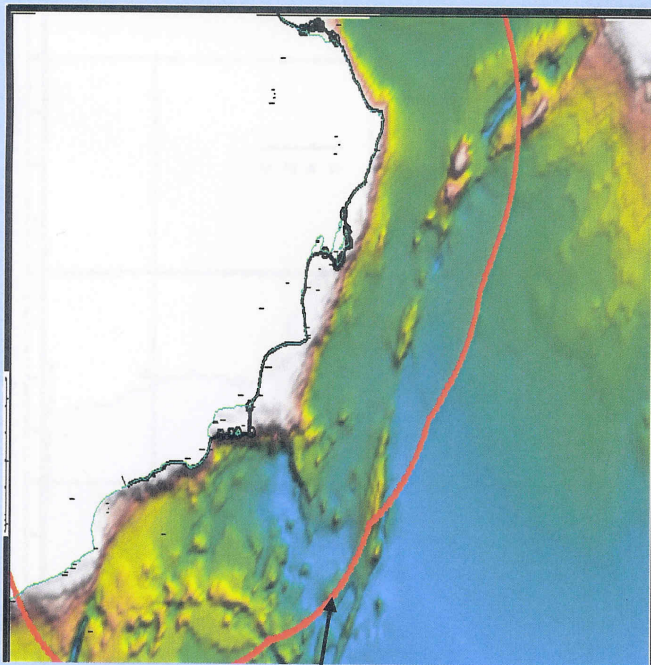
Figure 6 to Oman CS extension document April 2009



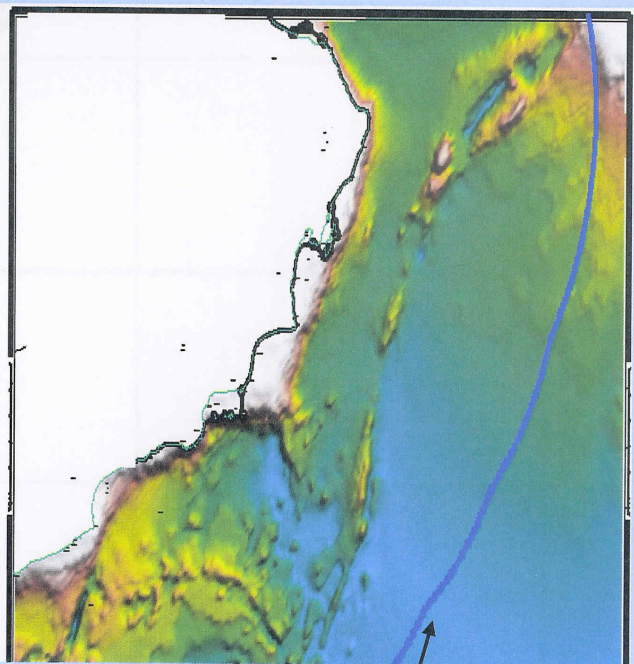
2500 meter isobath +
100 nautical miles



350 Nautical Miles



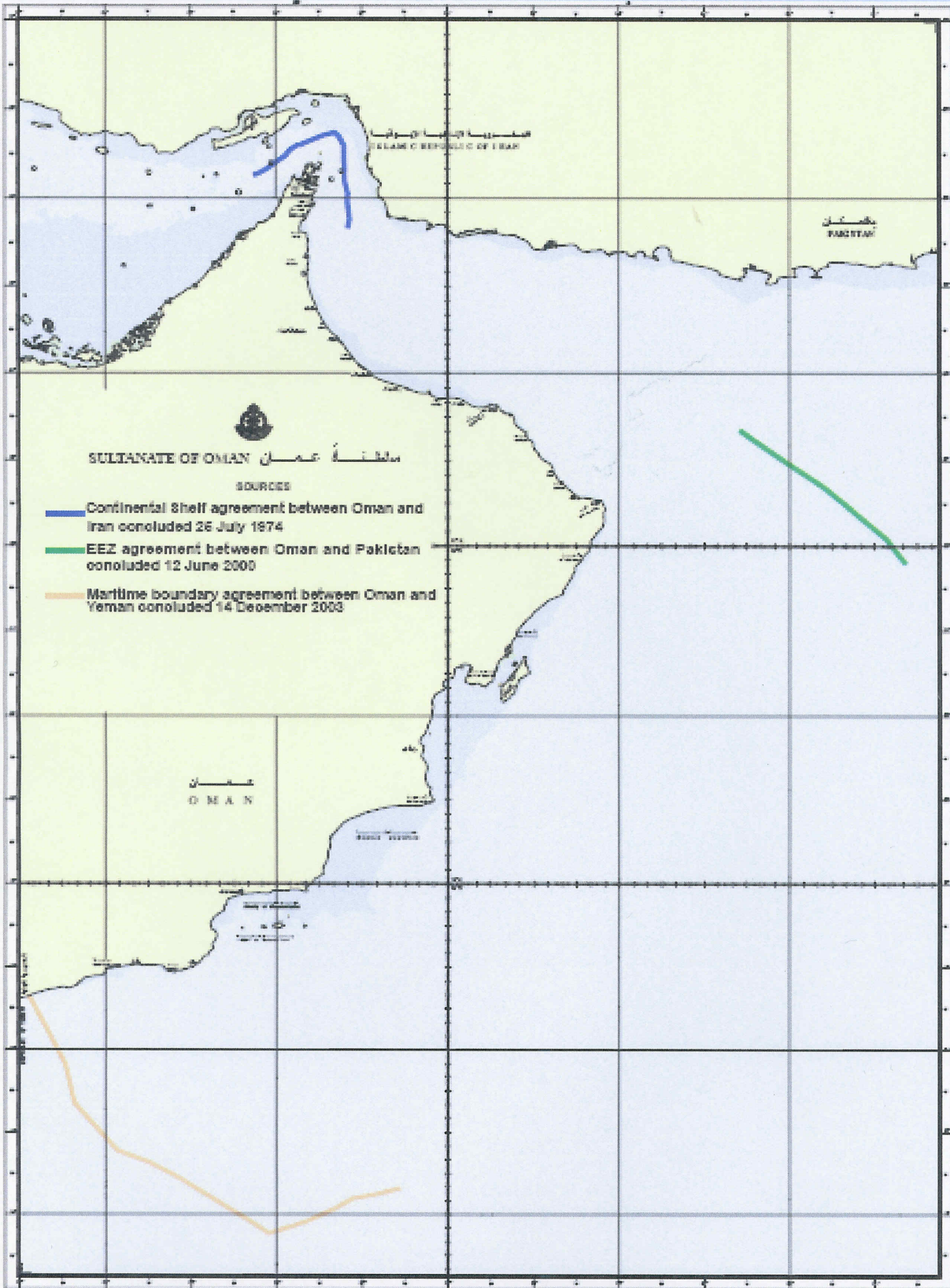
200 Nautical Miles



Constraint (cutoff)
line

Sultanate of Oman Baselines and constraint lines

Figure 7 to Oman CS extension document April 2009



Oman maritime boundaries delimitation agreements