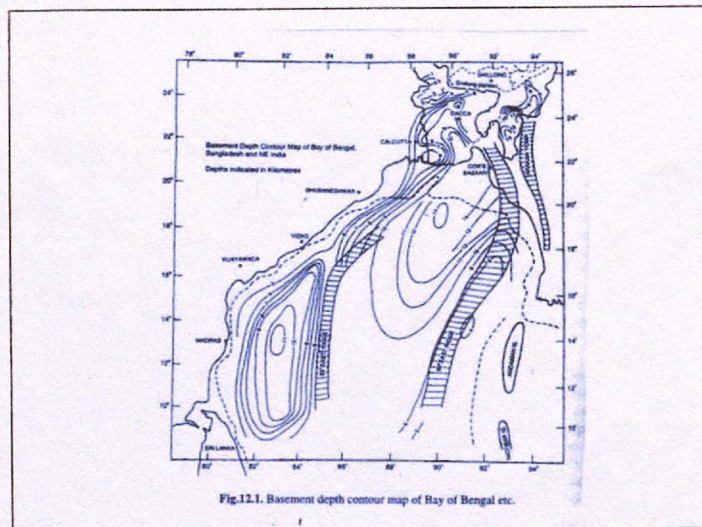


Bay of Bengal
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The Bay of Bengal is a part of the Indian Ocean stretching from about 20 degrees north latitude to about 5 degrees south latitude. On the west and east it is bounded by the Indian and Myanmar continents, and is one of the largest fans in the world. It is supposed to have been formed by the separation of India from Antarctica in the early cretaceous. While this is a general statement there are many unanswered questions regarding the internal structure of the bay. The existing data is presented below.

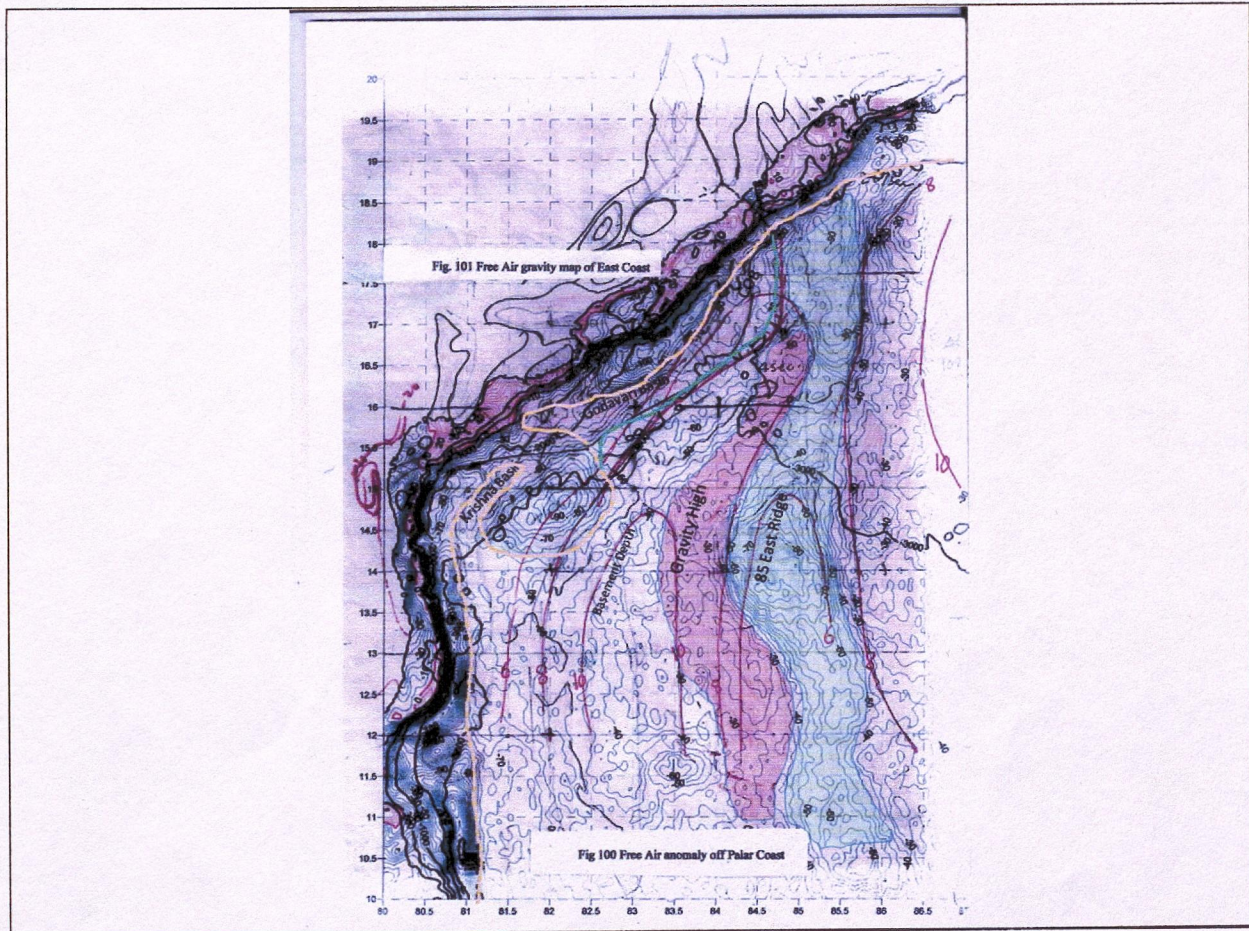
Slide 1



Slide 1:

This is a basement depth contour map of the Bay of Bengal. There are two lobes. The western lobe has a maximum basement depth of over 10 km., the eastern lobe has a depth of over 12 kms. The contours are based on general reconnaissance work and the details could change. The two lobes are separated by the 85 degree East Ridge which is under about 6 km. of water. Towards its northern end this ridge widens and abuts against the shelf edge. The eastern lobe attains a minimum water depth at the 90 degree east ridge. The latter enters the shelf in the vicinity of Cox's Bazaar and proceeds north under the Chittagong hills and nearly abuts against the Tripura horst. At about 17 degrees north latitude a narrow ridge takes off as a spur of the 85 degree ridge. This continues into the shelf and land as the Barisal High, which at its northern end turns east across the Teesta lineament to form the Tripura uplift.

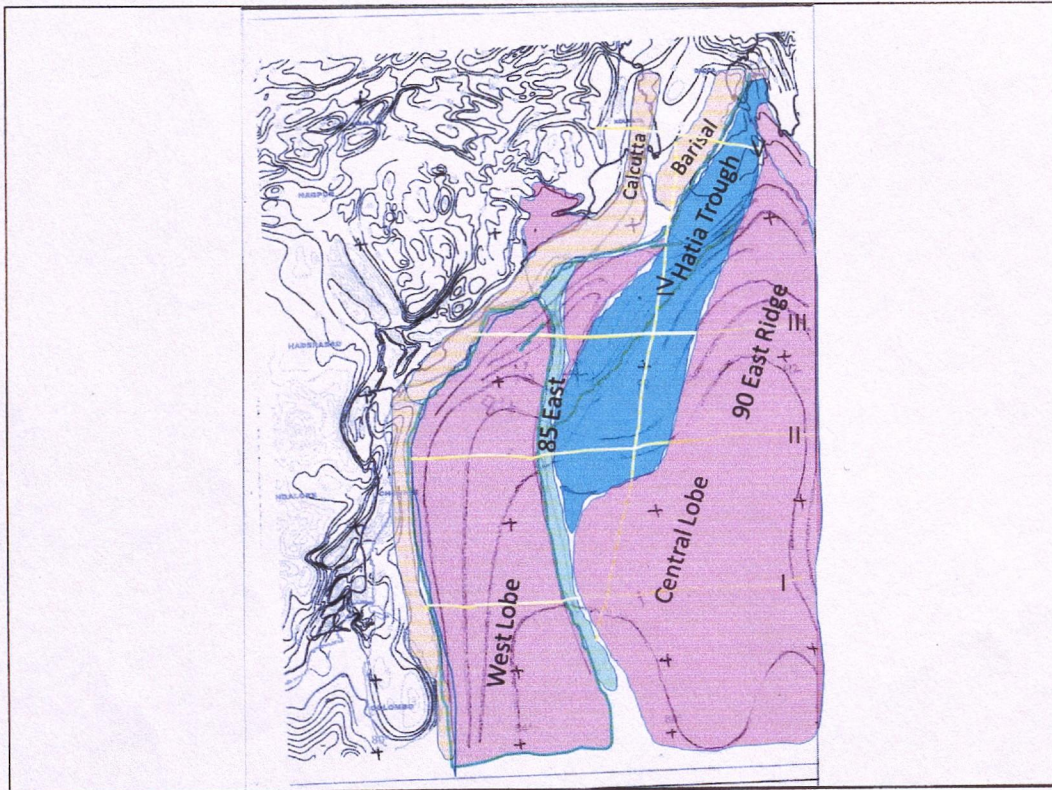
Slide 2



Slide 2:

The structure of the western lobe is examined with respect to the satellite gravity anomaly picture. The position of the continent ocean boundary has been explained in Docket 4. The estimated eastern limit of the KG Basin has been shown by a green line. The separation of the Krishna and Godavari basins has also been explained in Docket 4. Towards the east the western lobe is dominated by a North-South gravity high, followed by the 85 degree east ridge, which has a negative anomaly. The sedimentary thickness contours are shown by red lines. Its maximum lies to the east of the 3000 m. bathymetry line.

Slide 3

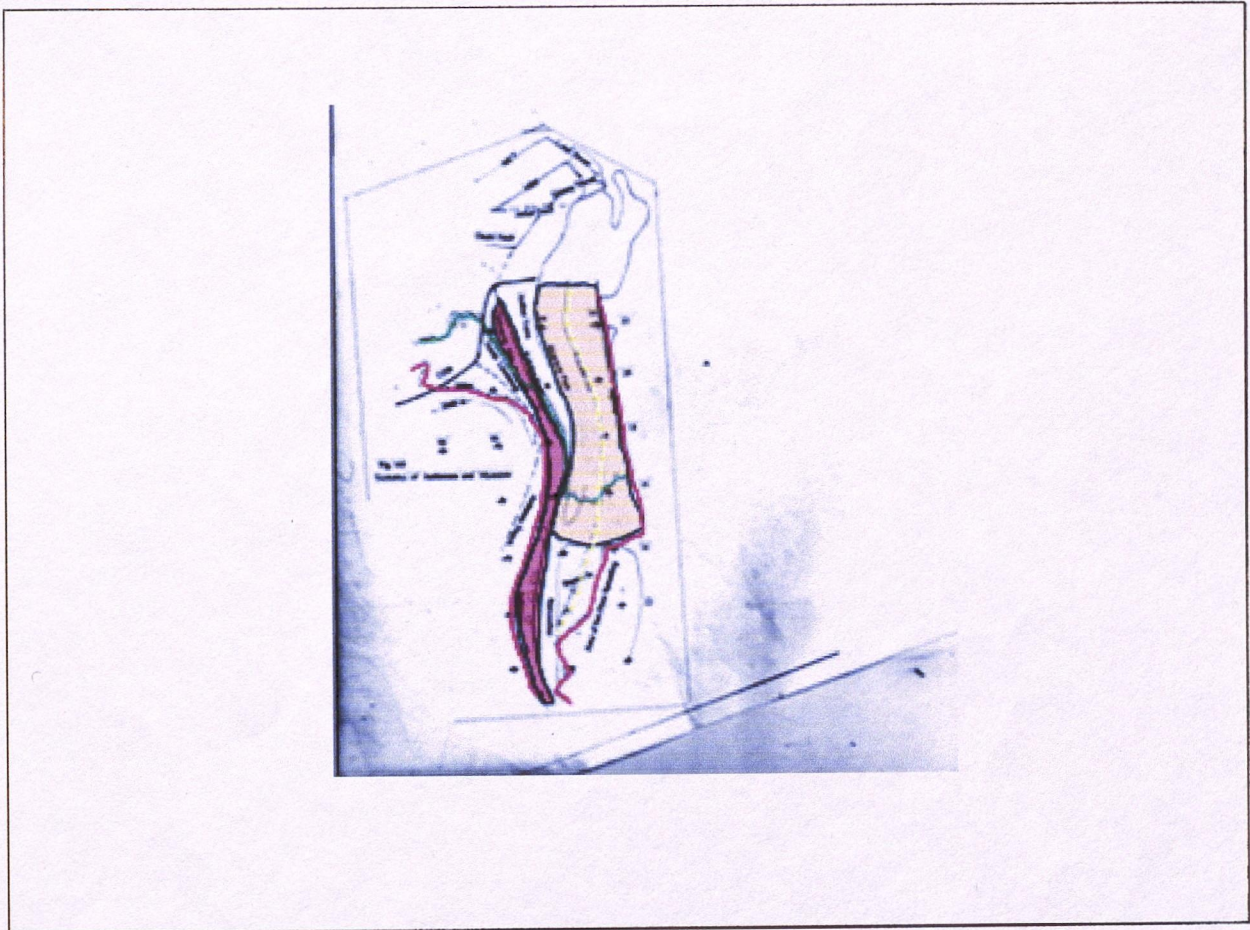


Slide 3:

This is the regional gravity anomaly picture of the Bay of Bengal. It shows the tectonic break up into the eastern and western lobes, the 85 degree and 90 degree ridges and the extended Hatia trough. The continent ocean boundary is the 2000 m. bathymetry up to the "Swath of No Ground". After this it proceeds along the Meghna lineament up to the Tripura horst. According to another view the continent ocean boundary could be running parallel to the Bengal coast before getting buried under the Assam-Arakan folds. In this case the Hatia trough as described above would be divided into continental and oceanic parts. Both of these have to subside together at some point in time, which somehow seems very coincidental. The matter is open.

The extended Hatia trough is sandwiched between the Barisal ridge and the extended Central lobe. The depth to basement varies from 16 to 20 km. It is about 1000 km long and about 250 km. wide. It is thus a huge sedimentary basin and has the appearance of a foredeep, much like the Ganga valley. The latter has a continental basement and to its north has undergone a continental collision that has slowed down the northward movement of the Indian shield. As the Hatia trough has an oceanic basement, the next subduction could possibly be under the Barisal- Tripura high. This is the next phase of orogeny!!

Slide 4



Slide 4:

The eastern boundary of the bay is formed by the Chittagong Hills in the north and the Andaman Islands in the south connected through a strip of the shelf edge of Myanmar. This is a subduction zone where the bay plunges under the Myanmar mass. The toe of the subduction is probably the NS trending volcanic arc (yellow line). The Andaman Sea lies to the south of the shelf edge. This is cut across by a line of sea floor spreading (red lines). The western edge of the Chittagong Hills is the Teesta lineament, which proceeds seaward as the western edge of the Andamans. Its eastern edge is the Kaladan fault.

Slide 5

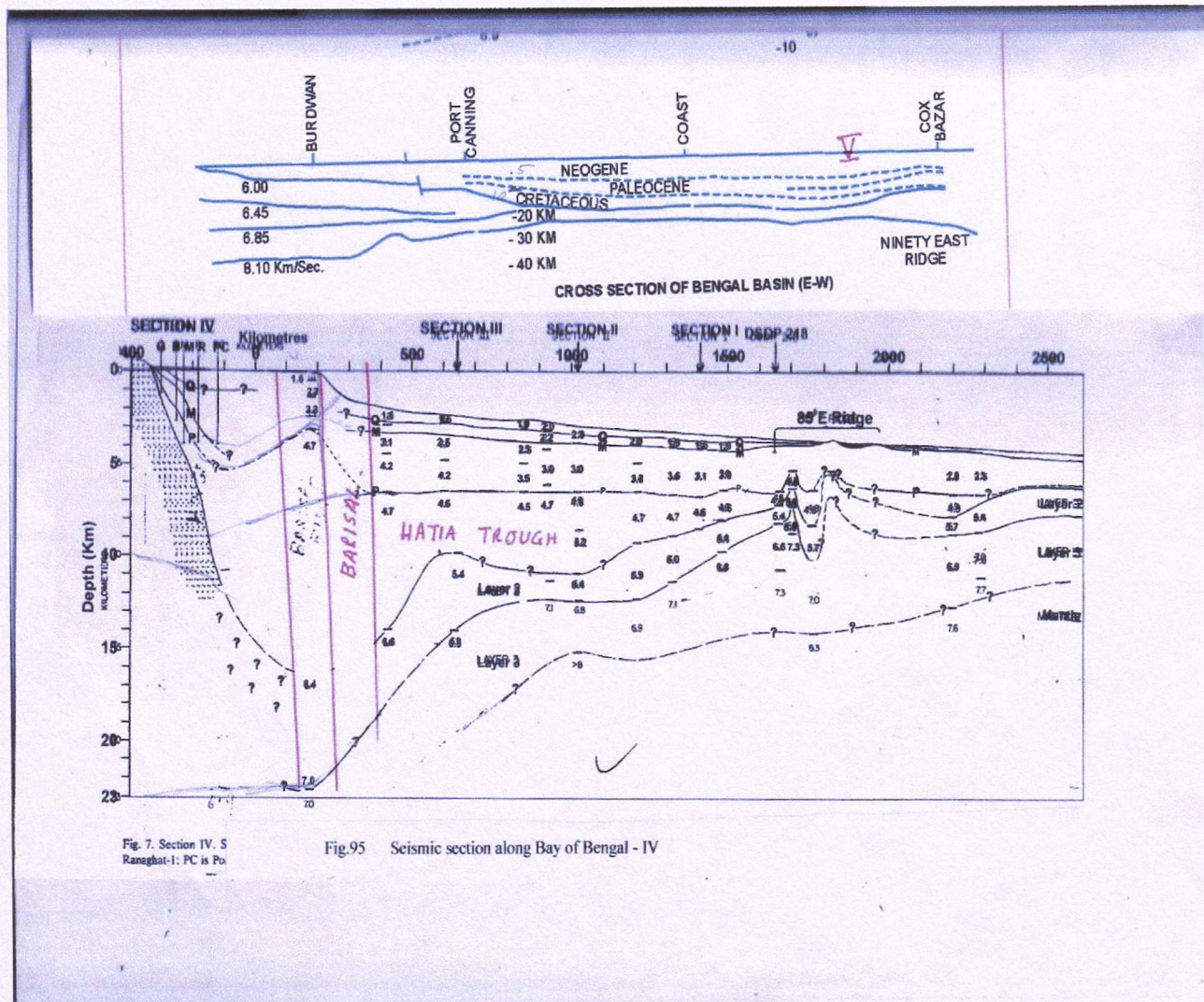


Fig. 7. Section IV. S Ranaghat-I; PC is Po

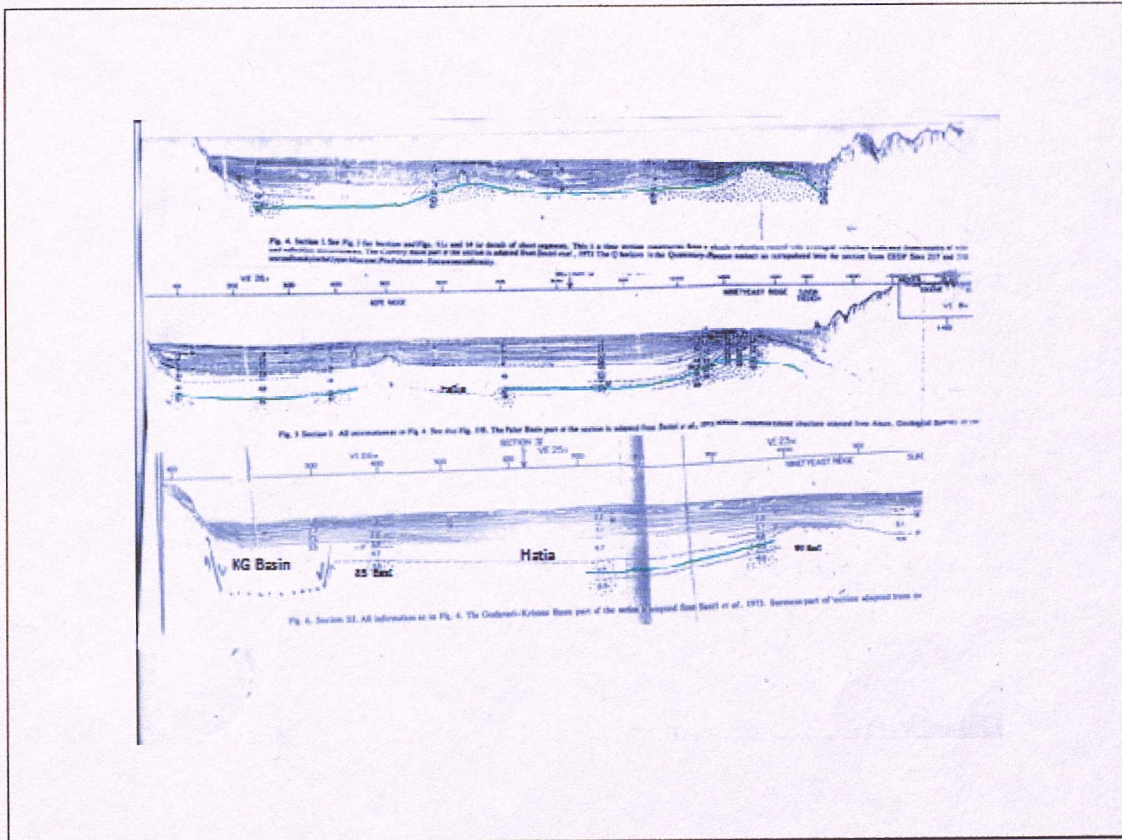
Fig.95 Seismic section along Bay of Bengal - IV

Slide 5:

Seismic profile V is shot from west of Burdwan on land, through Port Canning up to Cox's Bazaar in an EW direction. There is a sudden increase in sedimentary thickness across the Calcutta Hinge zone. The Barisal ridge is barely visible.

Seismic refraction profile IV starts on land and goes into the sea in a SSW – NNE direction to cut across the 85 degree ridge. It intersects profiles I, II, and III. The increase in sedimentary thickness in a northward direction, particularly beyond profile II is very visible. It need hardly be said that this represents the strong presence of the Hatia trough. In the north the sedimentary thickness suddenly decreases as the profile crosses the shelf edge on to the Barisal ridge.

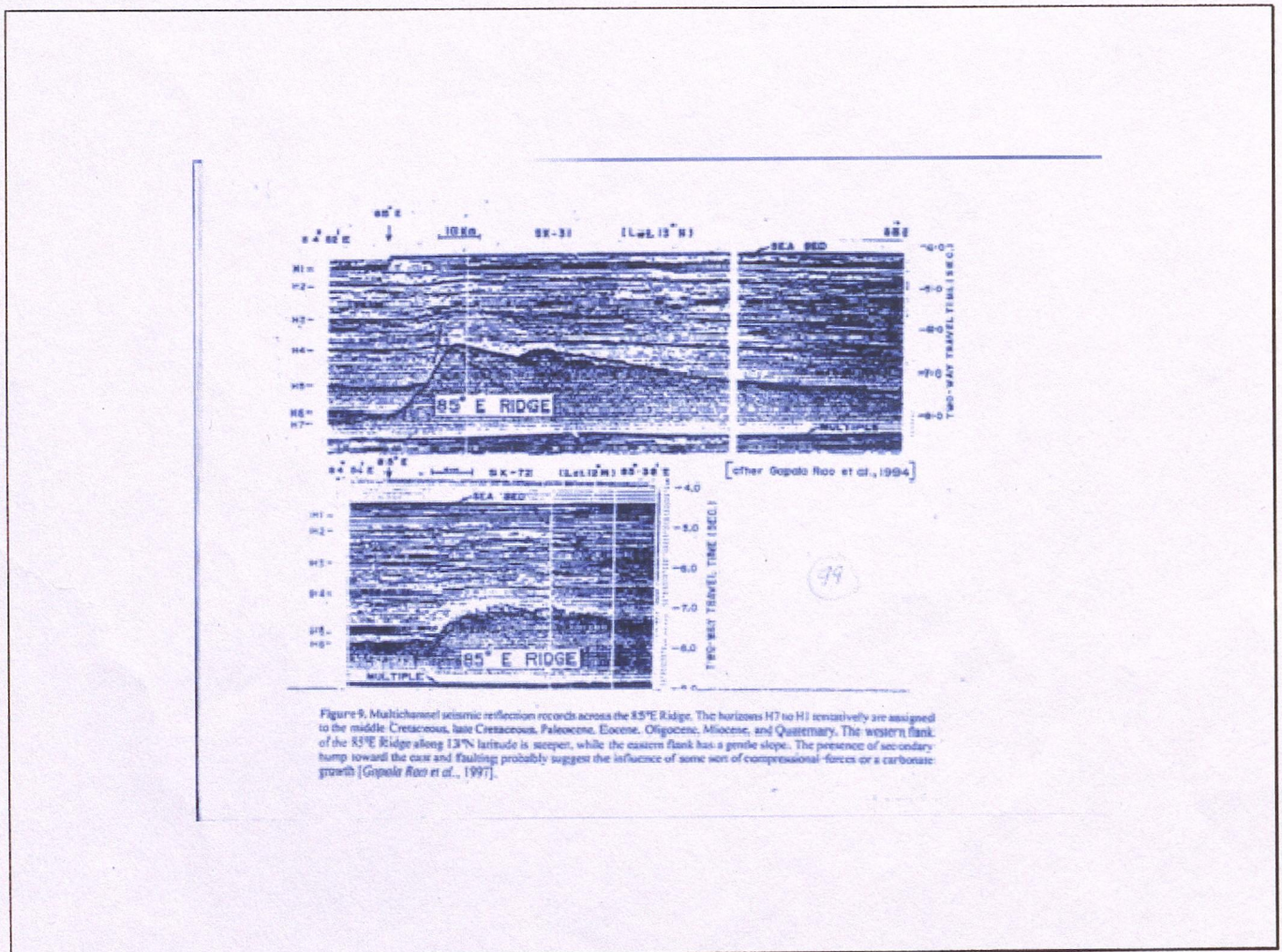
Slide 6



Slide 6:

Refraction profiles I, II and III are at latitudes 10, 14 and 17 degrees. The effect of the Hatia trough is barely seen on profile I. It is more apparent on profile II and dominant on profile III. The position of 85 degree ridge is clear on profiles I and II, but hardly visible on profile III. The ridge is obviously a northern plunge. It is not visible north of 17 degrees latitude. Profile III is sharply faulted on the Western side to generate the KG Basin.

Slide 7



Slide 7:

This is a section across the 85 degree ridge at latitude 13 degrees north. It has a sharp western fault and the section tapers off eastwards to form the Hatia trough.