II–2. BATHYMETRIC SURVEY

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The topographical regularity and parallel distribution pattern which are present in the southern area of the Ryukyu arc system are extend into the northern surveyed area.

Tunghai Shelf

The shelf edge is clearly defined at the shelf margin, north of Okinawa Island but further north it gradually becomes more indistinct, and a few ridges occur on the slope. This suggests that the structural uplifted zone at the shelf margin in the southern area shifted to east on the slope in the northern area (Fig. II–2–1).

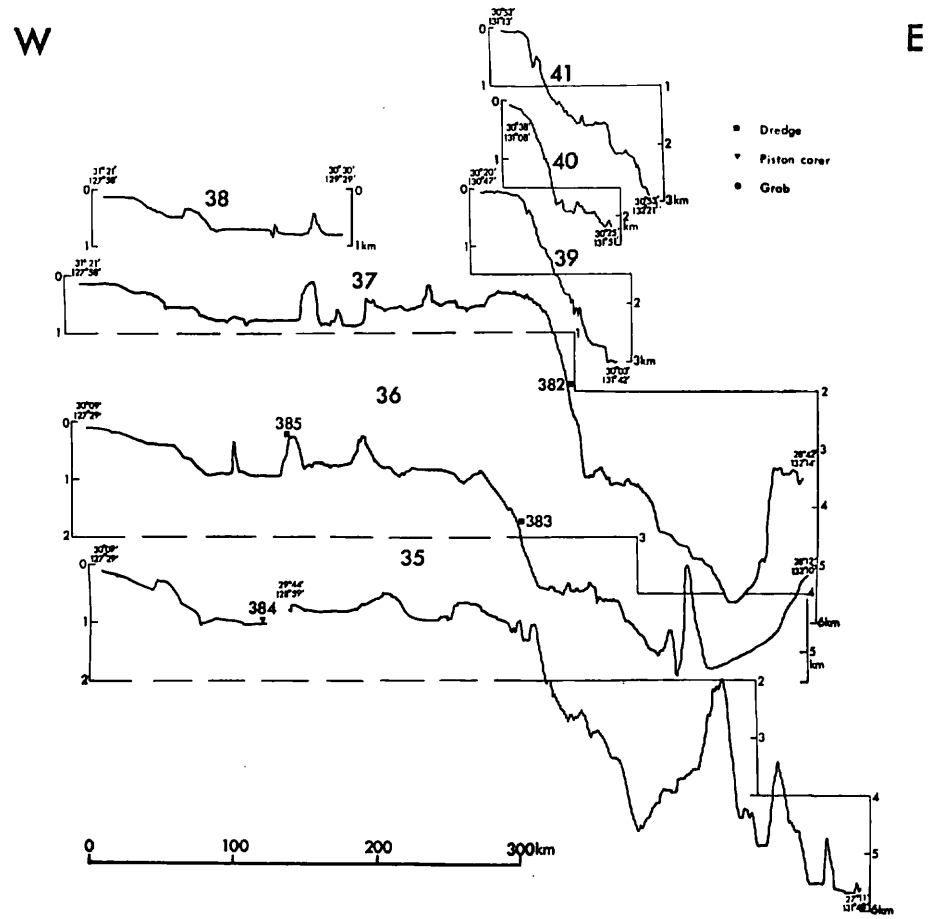

Fig. II–2–1 Profiles of bottom topography (Line 35–41).

Okinawa Trough

The depth of the trough bottom increases gradually toward the SW. It is approximately 800 meters deep at the northern margin and about 1,900 meters deep in the southern margin of the surveyed area north of Okinawa Island. A smooth bottom is partly present in the trough. However, in many places the bottom of the trough is rather rough with many hills, ridges and valleys. These features suggest active tectonic movement in Recent times. A volcanic chain (Tokara Volcanic Islands) which are present in the eastern margin of the trough extent along the full length of the northern surveyed area. In the southern area of the trough, the volcanic chain cannot be distinguished.

The trough between the Tokara Volcanic Chain and the Ryukyu Ridge is designated here, as the Amami Trough. The Amami Trough is narrow with a width of 50 to 80 km (Fig. II-2-2).

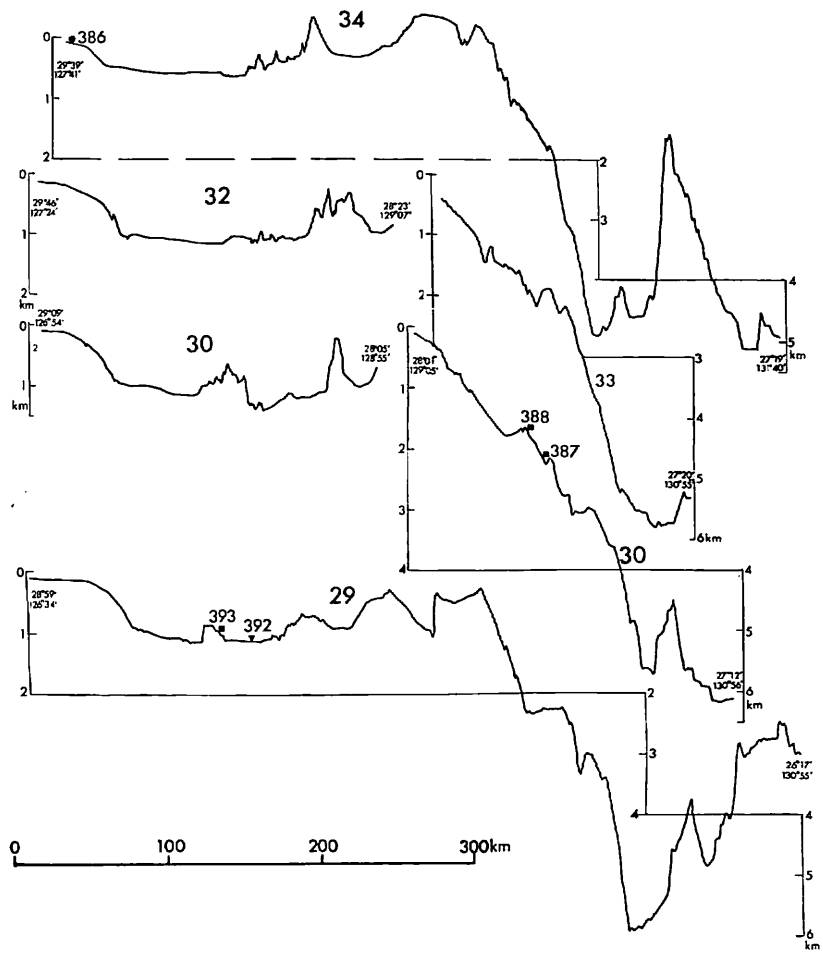

Fig. II-2-2 Profiles of bottom topography (Line 29-34).

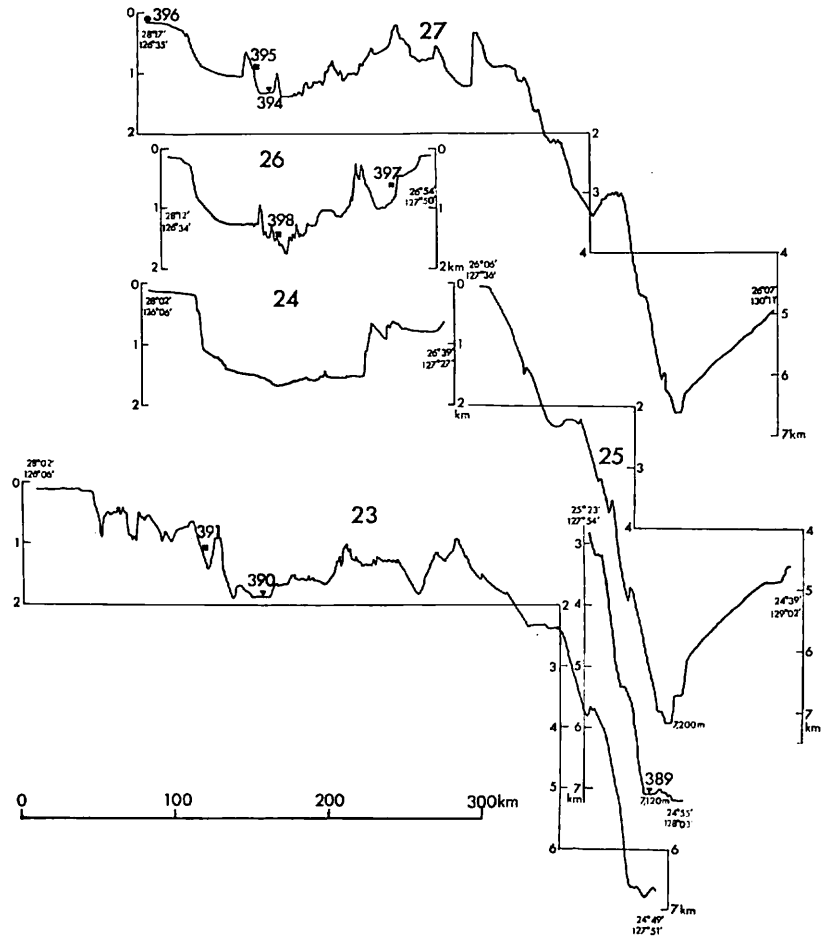

Fig. II–2–3 Profiles of bottom topography (Line 23–27).

Ryukyu Ridge, Ryukyu Trench and Philippine Basin

The break in the trench slope in the frontal slope of the Ryukyu Ridge is not clearly distinguished in the surveyed area. This feature is more obvious in the nothern area where the frontal slope is steeper. The Ryukyu Trench becomes shallower towards the north and the trench profiles are different from those of the southern area where the profiles are typical of island arc systems. Many rises and ridges occur on both the inner and outer trench slopes. The Ryukyu Trench is bordered by the Amami Plateau, Daito and Oki-Daito Ridges in the northern area. Therefore, deformation of the trench in the northern area may be the result of subduction of the rough topography areas under the Ryukyu Ridge in the northern Philippine Basin.