

A SEDIMENTARY STRUCTURE SOUTHWEST OF VITI LEVU, FIJI: THE BARAVI BASIN

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ABSTRACT

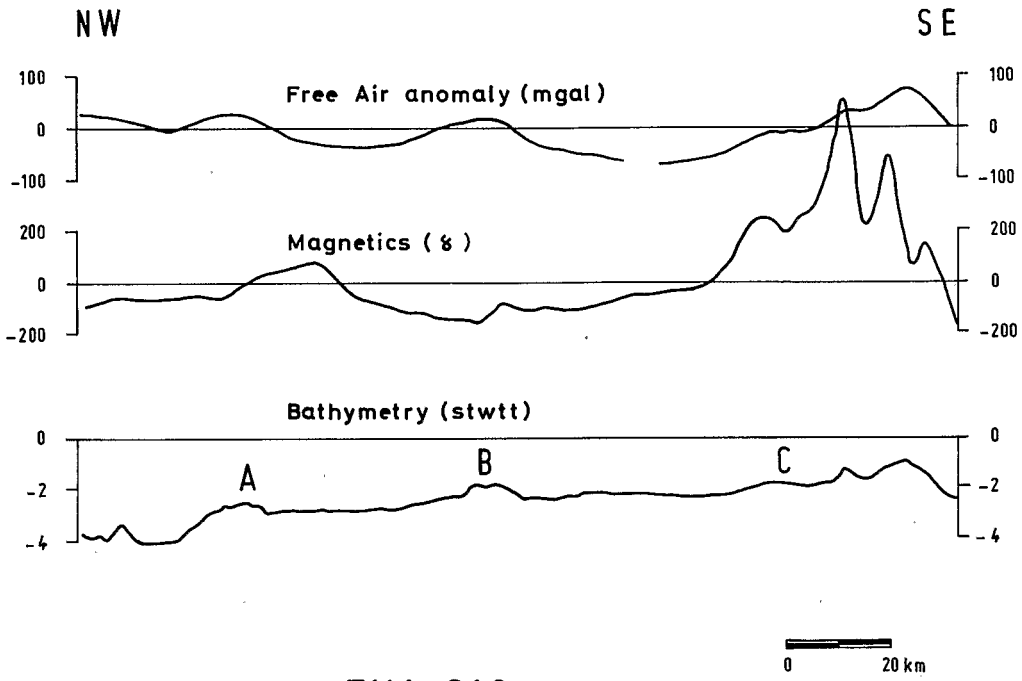
Geophysical data collected during the cruise EVA VI, jointly organized by ORSTOM and NOAA/NOS, identified a basin 2 to 2.5 km deep, oriented NNW-SSE, 20 km southwest of Viti Levu Island, Fiji. Its main features are: (1) Length 80 km; width 30 km (from a preliminary bathymetric map); (2) Sediment thickness equivalent to 2 s (two-way travel time) on a single-channel seismic-reflection profiler; (3) a -70 mgal gravity anomaly indicating a sedimentary section 3 km thick; (4) commencement of filling in Early Miocene times. The hypothesis that the basin was formerly connected with the Aoba Basin, New Hebrides, is discussed.

INTRODUCTION

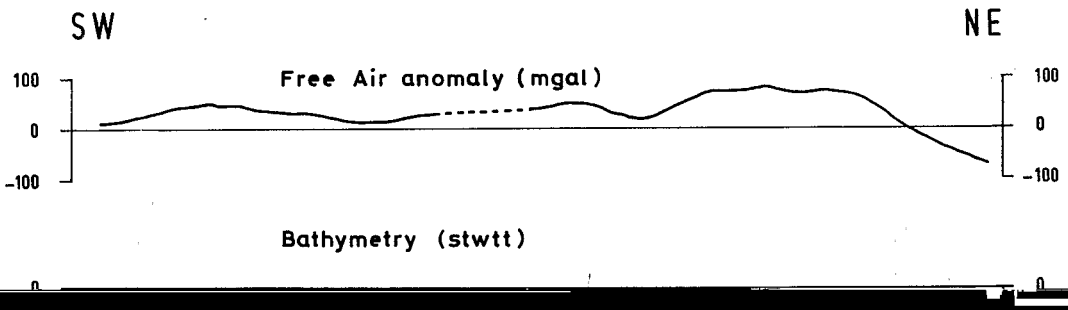
During EVA VI cruise (organized by l'Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM) Noumea

by the long wavelength of the magnetic anomaly, probably produced by a volcanic basement only slightly perturbed by the central ridge B (Fig. 2a).

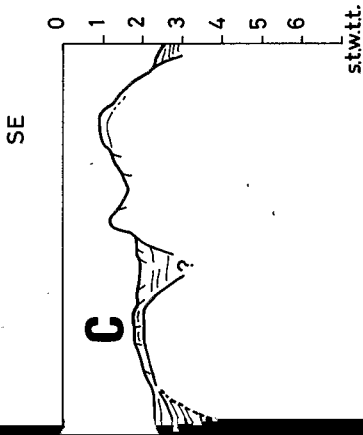




a: EVA 648



b: EVA 649

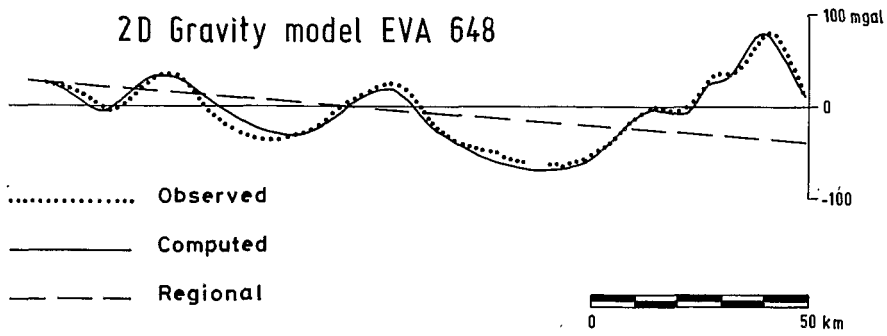


ridge A, deepening of the sea floor, thinning of the sedimentary blanket and fracturing of basement characterize the transition zone between the Fiji Platform and the North Fiji Basin.

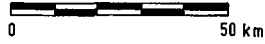
SEDIMENT THICKNESS

The total thickness of the sedimentary filling can be estimated by gravity. The free-air anomaly indicates a -0.4 mgal/km regional gradient in contrast to the bottom slope, which reaches -0.9 mgal/km after reduction of the

2D Gravity model EVA 648



..... Observed
———— Computed
- - - - Regional

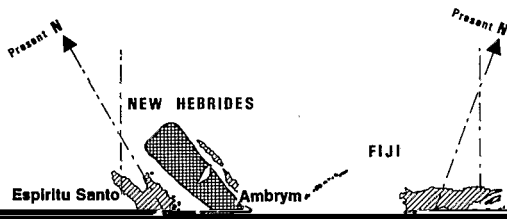


N.W.

S.E.



MOHO



It should be noted that they predate the opening of the North Fiji basin (Chase 1971; Falvey 1978; Malahoff *et al.* 1979; Halunen 1979). Thus a continuous structure (Fig. 5) could have been split by expansion of the marginal basin. Since, according to Wood (1980), the Yasawa Group marks the

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