MARINE FRONTIERS ABSTRACTS

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SEAPSO Project in New Hebrides–Fiji-Tonga Area

The SEAPSO project, organized jointly by Ifremer and Orstom, was conducted on the R/V *Jean-Charcot* from October 1985 to January 1986. The new data concern multinarrow-beam bathymetry, gravity, magnetics, 3.5-kHz echo sounding, single-channel seismic reflection, sediment coring, rock dredging, hydrocasts, and sea-floor photographic observations. The purpose of the cruise was to conduct regional bathymetric and geologic surveys of selected targets within three major themes.

First, we considered tectonics of the interaction between aseismic ridges and subduction zones. Tectonic effects were studied at: (1) the intersection of the Loyalty Islands Ridge and the New Hebrides volcanic arc, which represents an early stage of the phenomenon; (2) the frontal collision of the d'Entrecasteaux Ridge and the New Hebrides subduction zone; and (3) the oblique collision of the Louisville Ridge and the Tonga volcanic arc.

Second, we considered tectonics and magmatism of back-arc basins. The back-arc troughs of the New Hebrides Ridge appear as simple or double grabens that may represent an incipient stage of back-arc basin development. The Lau and North Fiji basins are examples of young and mature back-arc basins, respectively.

Third, we considered oceanic accretion and hydrothermalism in back-arc basins. First-order objectives in the North Fiji and Lau basins were to identify crustal accretion centers and to search for hydrothermal activity on a regional scale.