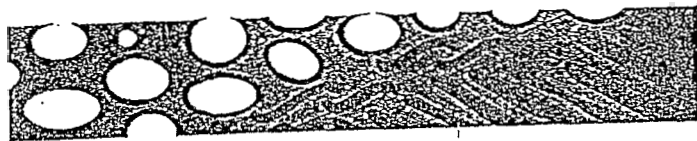


I A V C E I CANBERRA 1993

ABSTRACTS



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**ANCIENT VOLCANISM
& MODERN ANALOGUES**

3 Resumes

SEISMOTECTONICS-GEOCHEMISTRY RELATIONSHIPS ALONG THE NEW HEBRIDES VOLCANIC ARC

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The New Hebrides Plio-Quaternary volcanic arc may be divided into five segments: 1-Ureparapara-Vanua Lava, 2-Santa Maria-Ambrym, 3-Lopevi-Emae, 4-Efate-Mt Gemini and 5-the southern arcuate termination of the arc, based on the morphology of the subducted Australian plate, the nature of the crust beneath the volcanoes, the geometry and depth of the Benioff zone, and the structural pattern of the back-arc area.

Medium-K volcanics, predominate in the "normal" segments of the arc (1, 4), characterized by a deep trench, well defined slab, typical arc crust and back-arc troughs.

High-K volcanics predominate in segment 2 which includes the biggest strato-volcanoes built on the oceanic crust of the Aoba Basin or at its margins. These edifices are located along transverse "cracks" opened by compressive stresses related to the D'Entrecasteaux Zone collision with the arc. Intermediate seismicity delineates a longitudinal arched pattern the top of which coincides with the most K-rich volcanoes (Santa Maria and Aoba).

Segment 3, very active at present, lies on typical arc crust. In this area, the fore-arc shows evidence of ongoing collisions, and a piece of slab could be sinking beneath the volcanoes. The volcanics are medium-K in composition.

South of 21°30'S, the termination of the arc is marked only by submarine volcanoes. Seismo-tectonics is, at present, controlled by the Loyalty Ridge collision with the arc and by the proximity of the active axis of the North Fiji Basin. Only low-K, high-Mg andesites and dacites, related to high-Ca boninites, occur along this segment.

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