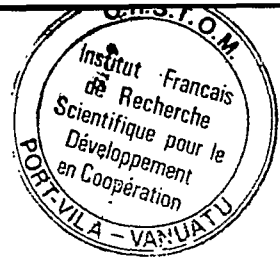


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A DETAILED STUDY OF A SEQUENCE OF MAGNITUDE 6 EARTHQUAKES IN THE CENTRAL NEW HEBRIDES ISLANDS

R.K. Cardwell

B.L. Isacks (both at: Dept. of Geological Sciences, Cornell University, Ithaca, NY 14853)

J.L. Chatelain (ORSTOM, Noumea, New Caledonia)

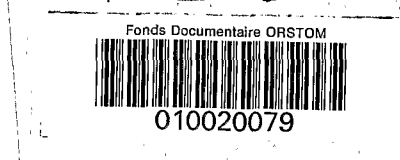
From September 1978 to August 1979 a sequence of four moderately large earthquakes (Ms=6) occurred in the central New Hebrides Islands less than 100 km from a new, permanent seismograph network. The events occurred on September 1, 1978 (Ms=5.9), January 27, 1979 (Ms=5.9), August 17, 1979 (Ms=6.2) and August 26, 1979 (Ms=6.1). Except for the January event the earthquakes were followed by numerous aftershocks. There were also swarms of earthquakes in March 1979 and December 1979, but no single, large-magnitude event accompanied that activity. All events in the sequence were located in the arc-trench gap at shallow depths.

The January earthquake is located south of the seismograph network and appears to be a high-angle normal fault within the upper plate. The other events are all located west of the network near the northern end of the South New Hebrides Trench. The aftershock zones of the earthquakes in this region abut, but do not overlap. The northern limit of the aftershocks coincides with a prominent bathymetric depression which trends nearly perpendicular to the island arc. The earthquakes appear to occur in both the upper plate and along the main zone of underthrusting between plates. Research is continuing to determine the exact geometries of the structural features along which the earthquakes occurred. This region has been a seismic gap for large, thrust-type earthquakes for at least 30 years.

1. Spring Meeting 1980
2. CARD037872
3. Corresponding address:
Richard Cardwell
310 Kimball Hall
Cornell University
Ithaca, NY 14853
4. T or S
6. 0
7. 0 %
8. a. Mr. T. Trecansky
Dept. of Geological Sciences
Kimball Hall
Cornell University
Ithaca, NY 14853
- c. Student rate applicable
9. C

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