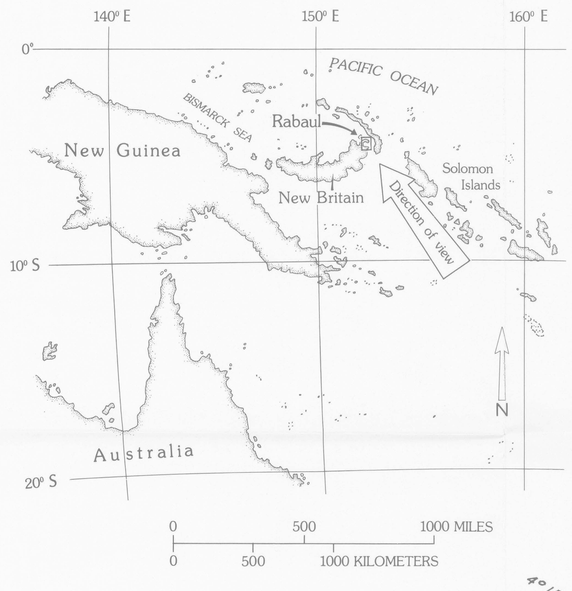
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-1778



Approximate horizontal scale 1:35,000

INTRODUCTION

This oblique map portrays both the onshore and offshore features of the Rabaul Caldera. The city of Rabaul, Papua New Guinea, population 24,778 (1971), is located on the north shore of this partly submerged 12- by 8-km volcanic caldera, which forms a natural harbor (McKee, 1981). In 1937, on the west rim of the caldera, a major volcanic eruption killing 505 people produced a new volcanic cone called Vulcan Crater. The last violent volcanic activity at Mt. Tavurvur was during the Japanese occupation of 1943. Between 1973 and 1978, the south end of Matupit Island was uplifted, which connected it to the mainland. The airport runway near Sulphur Creek is constantly in need of repair because of the ongoing earth movements related to volcanic activity.

If history repeats itself, future eruptions may begin offshore. The 1937 Vulcan Crater eruption began offshore producing tsunamis that destroyed the waterfront of Rabaul. In recent years the strongest concentrations of earthquakes have occurred in Blanche Bay, the submerged part of the caldera (McKee, 1981). According to McKee (1981) "it is probable that another volcanic eruption will occur in Rabaul before the end of the century."

SOURCES OF DATA

Calder, M., 1982, Preliminary map of Blanche Bay, eastern New Britain, Papua New Guinea: Royal Australian Navy, unpublished smooth sheet, scale 1:12,500

Greene, H. G., Wong, F. L., 1983, Hydrocarbon resource studies in the Southwest Pacific, 1982: U.S. Geological Survey Open-File Report 83-293, 24 p.

Hunt, R.B.A., 1941, Preliminary map of Blanche Bay, eastern New Britain, Papua New Guinea: Royal Australian Navy, unpublished smooth sheet scale 1:12,500.

U.S. Army Corps of Engineers, 1944, Rabaul, New Britain, Papua New Guinea, April 1944: Military Map B56/2, scale 1:100,000.

——1944, Blanche Bay, New Britain, Papua New Guinea, July 1944: Military Map B56/B, scale 1:100,000.

U.S. Geological Survey, 1982, Intermediate penetration and high-resolution uniboom seismic-reflection profiles: Unpublished data from Research Vessel S. P. Lee, June 11, 1982.

——1982, A sonobouy refraction profile: Unpublished data from Research Vessel S. P. Lee, June 11, 1982.

REFERENCES CITED

McKee, C. O., 1981, Recent eruption history of the Rabaul volcanoes, present volcanic conditions, and potential hazards from future eruptions: Geological Survey of Papua New Guinea Report 81-5, 16 p.

OBLIQUE MAP OF RABAUL, PAPUA NEW GUINEA

By

Tau Rho Alpha and H. Gary Greene

1985

HOW TO MEASURE HORIZONTAL DISTANCES ON THIS OBLIQUE MAP

On a planimetric map, the scale is the same in all directions and orientations, and the user can measure the distance between two points by comparing the map distance with the bar scale. On an oblique map, because the front-to-back scale is foreshortened and the left-to-right scale remains constant, an elliptical scale must be used to measure horizontal distances. To use it, place a scaling instrument on the map, note the number of units between the two points of interest, and then move it to the zero point on the elliptical scale, keeping the instrument parallel to its original alignment on the two map points. Read the distance, from the elliptical scale, estimating as necessary.

Interior—Geological Survey, Reston, Va.— 1985

For sale by Branch of Distribution, U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80225