tary layer with thickness of about 300 to 990 ft (100 to 300 m), lying on the second layer of the oceanic crust. According to the dredging, the acoustic basement roof on the marginal oceanic swell (Hokkaido Rise) is mainly composed of metamorphosed basalts and it seems to include the sedimentary rock intercalation. From the whole rock K-Ar data, the period of intensive basaltic volcanism on the Hokkaido Rise is from Cretaceous to Paleogene.

Crustal faults along the Kuril-Kamchatka and Aleutian trenches can be characterized as "normal faults," especially for the oceanic side, which points out their development in crustal tension conditions.

The faults transversal to the trenches are mainly established from magnetic data. The anomalous magnetic field is subdivided generally in two regions in which the trend of anomalies varies from the subparallel (in the southern part of trench) to the subtransversal to the trench (in the northern part). A vast region next to the oceanic plate adjacent to the crustal and northeast parts of the Kuril-Kamchatka trench is characterized by the absence of linear magnetic anomalies which can be associated with the structure and movement of the subducted plate.

GNIBIDENKO, HELIOS S., Sakhalin Complex Scientific Research Inst., Novoalexandrovsk, Sakhalin, USSR, and IGOR I. KHVEDCHUK, Pacific Expedition Soyuzmorgeo, Yuzhno-Sakhalinsk, Sakhalin, USSR

Cenozoic Sedimentary Basins of Okhotsk Sea

The northern and central parts of the Okhotsk Sea is the epi-Mesozoic platform. The hetero-aged acoustic basement is represented by the deformed geosynclinal rocks from Cretaceous to Paleozoic and, probably, Precambrian. The slightly deformed sedimentary cover leveled the uneven surface of the acoustic basement, and this upper Paleogene-Neogene-cover filled the system of the structural basins. The general northwest to southeast and east-to-west trending taphrogenic horsts and grabens of the acoustic basement were formed due to extending and subsiding of the earth's crust during late Paleogene–Neogene time.

GREENE, H. G., U.S. Geol. Survey, Menlo Park, California, D. FALVEY, Univ. Sydney, Sydney, Australia, A. MACFARLANE, Vanuatu Geol. Survey, Port Vila, Vanuatu, and Scientific Party of SOPAC Cruise, R/V *S. P. Lee:* G. COCHRANE, USGS, Menlo Park, California; D. J. ORSTOM, Noumea, New Caledonia; M. A. FISHER, USGS, Menlo Park, California; M. L. HOLMES, USGS, Seattle, Washington; H. R. KATZ, New Zealand Geol. Survey, Lower Hutt, New Zealand; G. L. SMITH, USGS, Menlo Park California, J. PRAGNELL, Univ. Sydney, Sydney, Australia

Preliminary Results of Leg 2 *Lee* Cruise in Central Basin of Vanuatu to Assess Hydrocarbon Potential and Geologic Evolution of New Hebrides Arc Basins, Southwest Pacific

We report on a CCOP/SOPAC coordinated cruise, funded by Australia, New Zealand, and the United States (ANZUS), that surveyed the Central basin of Vanuatu (former New Hebrides) in May 1982, to examine the hydrocarbon potential of the region. Our work was concentrated primarily in the Big Bay-Jorden River graben area and along the eastern flanks of Espiratu Santo and Malekula Islands, where we examined structural and stratigraphic characteristics in detail. The collection of continuous multichannel seismic, single-channel intermediate penetration and high-resolution seismic, magnetic, and gravimetric profiles provided significant new data for the evaluation of oil and gas traps and geologic hazards.

The region is an active volcanic arc that overlies an east-dipping seismic (Benioff) zone. Geologic history of the region is complex because subduction directions shifted from east to west in post middle Miocene time. Subsequent tectonism resulted in block faulting of upper Tertiary sedimentary and volcanic rocks, forming islands with narrow shelves and intervening deep-water basins.

GREENWOOD, P., and P. ROBINSON, Papua New Guinea Univ. Technology, Lae, Papua New Guinea

Small Scale Hydropower in Papua New Guinea

Papua New Guinea has an area of 178,364 mi^2 (461,961 km^2) and is large compared to the other island nations of the western Pacific. It lies between 2 and 10° south of the equator, has one of the highest average rainfalls anywhere in the world, and has a mountainous geography. These factors give the country a vast potential for hydropower. To date, with one or two notable exceptions, this potential has not received significant attention. Public Utility schemes form the mainstay of the electricity development plan, but smaller scale applications are proving difficult to initiate in significant numbers. During the last 20 years, many small hydropower schemes fell into disuse, mainly through lack of skilled maintenance. Some were even replaced by diesel generation despite the disparity in total cost.

Recently there have been moves in several areas of the country to implement modest Rural Electrification Programmes. Papua New Guinea has only a few transmission lines, linking a handful of centers. A national electricity grid system has yet to evolve. Small towns and rural centers are supplied independently, usually by diesel generators.

Rural Electrification research and development work has been proceeding at the University of Technology in Lae for nearly 10 years. Over the last few years, development has concentrated on small (1-50 kW), village scale, self-help hydrosystems which are inexpensive, easy to operate and, above all, reliable. This has led to developments in these areas: (1) electronic load controllers and protection devices; (2) turbine design suitable for local manufacture; (3) inexpensive transmission lines; (4) induction generators; and (5) reticulation and wiring for bush material houses.

At the same time, the university has become involved in site surveys and project evaluation on behalf of local governments. It also assists with planning and submissions for funding. While the details of these developments will be of interest in other Pacific Islands, perhaps the most important aspect is the coordination between local governments and users to implement and maintain these projects.

GREGORY, ARTHUR, III, Exxon USA, New Orleans, Louisiana, and LOREN W. KROENKE, Hawaii Inst. Geophysics, Honolulu

Reflection Profiling Studies of 500-Meter Shelf South of Oahu: Reef Development on a Mid-Oceanic Island

(No abstract)

GREY, J. K., Canadian Hunter Exploration

Developing Canada's Energy Resources in the 1980s

(No abstract)