Ocean Swell Study to be made by UCSD Geophysicists

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Ocean swell generated by storms in far-off Antarctica will be recorded in Alaska this summer by a team of University of California, San Diego, scientists.

In one of two challenging geophysical studies to be conducted by the Institute of Geophysics and Planetary Physics, University personnel will man recording installations in six different Pacific Ocean locations to probe physical factors which weaken the power of ocean swell as it travels thousands of miles through the Pacific.

Involved in the research are some 15 scientists and engineers, a San Diego "ham" radio operator, a Marine weather expert, and months of inventive planning.

Even the Scripps Institution of Oceanography's unique research craft, FLIP, has been called into duty on the project.

Another IGPP study, designed to measure a continuous shaking of the sea floor called "microseismic noise," gets underway in the Pacific basin early in July.

The IGPP's associate director, Dr. Walter Munk, Professor of Geophysics, will head the swell study, and take charge of one recording station on the South Pacific island of Samoa. Dr. Hugh Bradner and Dr. Richard Haubrich will direct the measurements of microseisms at Hawaii and New Zealand.

A "pressure sensing device," which is lowered from a cable into the ocean to measure the fluctuating pressure on the sea bottom, is the primary instrument in the swell study. Using this device-- and computers to unravel the maze of information which is punch-taped and returned to San Diego for interpretation-- has made it possible for oceanographers to determine the direction of travel of ocean swell. In fact, directional accuracy within a few degrees can be attained, even when the swell is only a few tenths of an inch in height.

Using other reliable instruments, it is also possible to distinguish between swell which comes directly from a storm, and swell that may have reflected from a nearby coast.

Ocean waves and swell produced from distant storms are "attenuated, or weakened in origin. A study conducted by Dr. Munk, as they travel from their origin. A study conducted by Dr. Munk and associates in 1959, which measured the distribution of wave energy as a function of frequency and direction, showed this, but the physical processes responsible for the attenuation are as yet little understood.

For the summer study, IGPP swell installations will be located on the South Pacific islands of Samoa and Palmyra, at New Zealand and Hawaii, and on the coast of Alaska at Yakutat.

FLIP will conduct experimental work in the Pacific between Hawaii and Alaska, employing a pair of pressure sensing devices. Jack Northrup, Associate Specialist in Marine Geophysics, will direct the measurements.

First to leave San Diego to inaugurate the study were research engineers Frank Snod4grass and Frank Peterson, who have established a station on Cape Pallister, New Zealand. Snodgrass has returned to Hawaii, where he will be headquartered this summer. Peterson will man the New Zealand station.

Marine Sergeant William Powers, Jr., on detached duty with IGPP, will take charge of weather prediction at New Zealand.

The communications center for the entire project will be established at Palmyra by San Diego "ham" Jim Carr. Dr. Gordon Groves, a Visiting Associate Research Geophysicist, will man the Palmyra swell installation.

Dr. Klaus Hasselmann,, Associate Professor of Geophysics, has charge of the Hawaii station. Graduate student, Gaylord Miller will fly into Yakutat soon to establish the Alaskan station.

The study of microseismic noise employs the use of a three-component seismometer to monitor a shaking of the sea floor, thought to be caused by numerous factors, including storms at sea and the pounding of the surf.

Last October off the coast of Hawaii, Dr. Bradner's research group dropped seismometers to record Pacific Ocean depths, and made simultaneous land measurements with seismometers located at the Volcano Observatory on the island of Hawaii, and at La Jolla.

The Office of Naval Research is supporting the ocean swell study. The seismic measurements are made in collaboration with the Air Force Office of Scientific Research as part of the Advanced Research Projects Agency's Vela-Uniform Program.