

and is helping the research materially. The need for a more satisfactory index of ionospheric activity has been evident for some time, and after much investigation an improved index has been developed.

At Apia a survey of the station's sensitivity to earthquakes in the South-west Pacific was made, and details were obtained of the maximum distances from which shocks of magnitudes 6 to $7\frac{1}{2}$ had been successfully recorded.

GENERAL

The Director visited the Apia sub-observatory on two occasions for supervision and staff instruction purposes. Replacements for Apia have been drawn from the Christchurch organizations, and a roster covering several years has been drawn up so that officers are aware when they will be called on for service there. This will also be valuable in arranging training for their island terms.

In view of the proposed change in siting of the Campbell Island establishment to enable improved meteorological recording to be obtained, an officer visited the island to consider alternative locations for the ionospheric equipment. On the same trip this officer also visited the Australian scientific establishment at Macquarie Island.

As usual, the replacement operators for Rarotonga and Campbell Island received training in their duties, while tuition in ionospheric work was also given to the Post and Telegraph Department operators before their departure to Campbell Island.

GEOPHYSICAL OBSERVATORY, WELLINGTON

Director: Mr. W. M. JONES

Wave Studies.—A wave-recording unit and frequency analyser arrived from the Admiralty in February, 1950. In addition to the analysis of wave records, the analyser can be used for any type of record if converted into the black and white profile required. The wave-recorder is to be installed at Greymouth, and awaits only the laying of 2,000 yards of cable for the sea unit. A programme of study of wave patterns, their relations to weather conditions and to microseismic activity, and the possibilities of swell forecasting will then be initiated. Other wave records are being made at Island Bay, Wellington, by a microbarographic recorder.

Tides and Sea-level Oscillations.—A relation has been established with the age of the moon and the variations of tidal phase differences between Island Bay and Makara. Although these two places are only some ten miles apart, the times of high and low water at Makara vary between two and six hours behind those at Island Bay. The hydrographic survey of H.M.N.Z.S. "Lachlan," to be resumed in Cook Strait in April, will provide additional information on tidal times at different points in the area, and it is intended to intensify this study when the data are available.

In the course of visual observations—made every 15 seconds or 30 seconds—mainly at Island Bay, oscillations of a few inches of level, and of periods intermediate between those of ordinary swell and those of tides, have been detected. One of these, of 4-minutes period, is thought to be a seiche set up in the rock channel. Others, however, of 15 minutes to 30 minutes in period, are considered of more distant origin—possibly from distant storms.