

APIA OBSERVATORY, SAMOA.

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During the year 1936-37 the same geophysical programme was maintained as in previous years, the principal subjects of study being terrestrial magnetism, seismology, meteorology, and atmospheric electricity.

TERRESTRIAL MAGNETISM.

The programme of work in terrestrial magnetism at Apia consists of absolute measurements of horizontal intensity, declination, and the angle of dip, together with continuous recording by means of autographic instruments of the variations in horizontal intensity, declination, and vertical intensity. It has been decided that Tesdorpf magnetometer No. 2025 is too old for extensive repairs, and the instrument, which was sent to Germany last year, is being held there pending finality in the matter. In the meantime the Observatory has magnetometer C.I.W. 9 on indefinite loan from the Department of Terrestrial Magnetism, Washington, and this latter instrument has been used during the year for the absolute observations in horizontal intensity and declination. The Schulze earth inductor was used for all absolute measurements of the angle of dip. The same autographic instruments have been used as in the past—namely, a Godhavn balance recording variations of vertical intensity and two Eschenhagen variometers giving the variations of horizontal intensity and declination. All recording is done photographically.

In all three elements the mean hourly ordinates have been scaled in millimetres, and, after conversion to magnetic units, the results have been presented as departures from the daily means.

SEISMOLOGY.

The seismological instruments at Apia consist of the 1,000-kilogram astatic pendulum and the 80-kilogram vertical seismograph, both designed by Weichert. The vertical instrument is the original type, and is now of very little use. It was out of commission during the latter part of the year.

During the year ending 31st March, 1937, there were 196 seismic disturbances recorded. Many of these shocks were local in origin, but none of them exceeded an intensity of 3 on the Rossi-Forel scale. The horizontal instrument gave good traces of some of the more distant earthquakes. Seismological bulletins were issued quarterly.

METEOROLOGY.

Meteorological work during the year included surface observations twice daily, made at 9 a.m. and 3 p.m. zone time, 165° west meridian. Continuous records also were obtained of the principal meteorological elements. Measurements of upper winds have been made from time to time, using pilot balloons, and altogether 143 ascents were made during the year, the greatest height reached being 54,000 ft. Special flights were made in connection with "International Days." The single-theodolite method of following the balloons has been used in all ascents this year, and, in flights after nightfall, the balloons have been followed by means of small lighted lanterns which they carried.

Rainfall reports were received from eighteen local stations in Samoa and one on Swain's Island.

Synoptic weather maps of the South Pacific were prepared in the Observatory from reports received by wireless at the Apia Radio Station. Two maps were drawn daily during the hurricane season, and one a day during the dry season. During the hurricane season a weather report, with any necessary inference regarding storms, was prepared daily and displayed at two conspicuous points in Apia. Storm warnings were issued when necessary with the general collective broadcast of weather reports from the Apia Radio Station. The Postal and Radio Department established a wireless station at Atafu in the Tokelau Islands, and consequently weather reports made by the meteorological observer there are now received at Apia and included in the collective broadcast.

Since September, 1936, the Observatory has maintained a barograph outside the Customs Office in Apia for the information of shipping and general interests.

METEOROLOGICAL SUMMARY, APIA, 1936.

Month.	Pressure.	Temperature.	Rainfall.	Humidity. (9 a.m.)	Sunshine.	Wind.
	In.	° F.	In.	Per Cent.	Hours.	Miles per Hour
January ..	29.719	80.1	14.78	82	164.1	6.1
February ..	29.743	80.3	11.72	81	166.7	5.3
March ..	29.805	79.7	10.92	79	201.7	3.9
April ..	29.805	80.4	8.70	79	197.8	5.6
May ..	29.823	79.8	7.21	79	223.7	5.1
June ..	29.878	78.4	4.10	75	218.9	7.9
July ..	29.882	78.4	3.15	79	234.1	9.6
August ..	29.844	77.2	7.64	75	234.7	8.8
September ..	29.884	78.3	4.72	74	242.9	9.4
October ..	29.857	79.2	12.97	79	185.7	9.5
November ..	29.778	78.7	7.85	77	222.8	5.3
December ..	29.752	79.5	11.38	79	181.7	6.7
Total ..	..	..	105.14	..	2,474.8	..
Mean ..	29.814	79.2	..	78	..	6.9