

In collaboration with other observatories, quarterly reports on the character of the magnetic disturbances occurring each day were forwarded to the Comité Météorologique International, De Bilt, Holland. A statement describing magnetic storms, the time of commencement and the variations in their intensity, has been prepared quarterly and published in the *Journal of Terrestrial Magnetism*. Although the year 1927 was near the maximum of sun-spots, the magnetic records were more notable for the regularity of their daily course than for abnormal fluctuations. The days of greatest magnetic disturbance were the 13th April and the 22nd October.

In February, 1928, a general summary of the magnetic observations for 1927 was distributed to hydrographic offices and investigators.

SEISMOLOGY.

The Observatory is equipped with a 1000 kg. horizontal and a 180 kg. vertical seismograph, both of Wiechert design. The behaviour of the seismograph generally was satisfactory, and distant earthquakes in Japan and South America were clearly registered. The total number of earthquakes recorded was 336, which may be classified as follows: 217 instrumental of local origin and very feeble; 35 local, not reported felt; 15 reported felt; 35 with epicentres less than 1000 km. distant; the majority of them in the vicinity of the Tongan Islands; 34 with epicentres more than 1000 km. distant.

The most intense shock felt locally occurred on the 3rd July, and was of intensity 5 on the Rossi-Foré scale (1-10). Both seismographs were put out of action. The heaviest earthquakes recorded were on the 24th January, in the New Hebrides, 1,300 miles distant, and on the 22nd May, in Kanzu Province of China, about 5,650 miles distant. Of the earthquakes in the Crimea on the 11th September, only the long waves were recorded at this station.

The seismological data for the year ending 31st December have been published in quarterly reports, which were sent to about eighty seismic stations. Continuing the arrangements made with Science Service in 1926, reports of all large earthquakes occurring in the South Pacific are sent at the expense of that Department to the Director of the United States Coast and Geodetic Survey.

METEOROLOGY.

There are five main divisions in the meteorological work: (1) Routine observations at Apia; (2) upper-air investigations with pilot balloons; (3) atmospheric electricity; (4) solar radiation; and (5) supervision of weather stations in Samoa and other islands in the Pacific.

Routine Observations at Apia.—At the Observatory continuous records were obtained of temperature, barometric pressure, rainfall, humidity, and sunshine. A *résumé* of these data is given below:—

Meteorological Data, 1927.

Month of 1927.				Temperature Extremes.		Barometer: Mean Values.	Sunshine.	Humidity.	Rainfall.
				High.	Low.				
				°F.	°F.		Hours.	Per Cent.	Inches.
January	..	..	..	88.5	71.2	29.81	158.1	86.9	28.80
February	..	..	..	87.6	72.1	29.83	121.6	87.7	17.93
March	..	..	..	88.0	72.3	29.85	198.8	84.8	8.11
April	..	..	..	88.3	71.1	29.84	234.7	84.5	10.68
May..	..	..	..	87.6	71.1	29.86	240.4	84.2	7.59
June	..	..	..	87.3	72.3	29.90	211.9	82.0	4.10
July	..	..	..	86.4	71.6	29.89	250.6	83.4	3.36
August	..	..	..	86.4	71.4	29.90	259.6	84.0	1.36
September	..	..	..	86.4	71.6	29.92	236.4	81.1	4.20
October	..	..	..	87.4	72.5	29.89	213.7	85.3	12.90
November	..	..	..	89.1	73.8	29.78	182.9	84.9	13.22
December	..	..	..	88.7	73.4	29.78	167.3	86.7	20.08
Totals or means	..	..	..	87.66	72.03	29.854	2,476.2	84.62	132.33

The year 1927 was unusual in that the values of mean temperature, mean pressure, annual rainfall, and hours of sunshine were in every case above the normal for their values based on thirty-four years, 1890-1924. Although only slightly above normal from January to April, the temperature for three months, June, July, and August, was 2.5° above its usual value. For many years Samoa has been growing warmer, for which a possible reason may be a slight change in the direction of the ocean currents. In order to test this hypothesis temperature will in future be measured during the trips of the mail-vessel between Apia and Pago Pago.

Although a persistent condition of high temperature is usually associated with low barometer pressure over the same period, owing to the absence of cyclonic storms the pressure continued above normal for every month except November.