The programme of observations in terrestrial magnetism, atmospheric electricity, seismology, and meteorology has been maintained during the year 1930–31, apart from certain interruptions which occurred towards the end of 1930 owing to a sudden depletion of staff through illness and terminations of tours of duty.

Terrestrial Magnetism.

The Observatory possesses a Tesdorpf magnetometer, a Schultze earth inductor, and Eschenhagen variometers. Continuous photographic records were made during the year showing the variations in declination and horizontal intensity of the earth's magnetic field, but the records of vertical intensity were discontinued after September owing to the unsatisfactory behaviour of the variometer. The tabulations for 1930 are in arrears, and it is not yet possible to give the average values for this year. Work in the absolute magnetic hut had become almost impossible owing to the bad condition of the microscopes for reading the scales of the magnetometers, but this difficulty has been met by using a small non-magnetic hand-lamp kindly supplied by the Carnegie Institute of Washington.

Seismology.

Records of earthquakes are obtained from two Wiechert seismographs. The small instrument for vertical movements has not been recording properly, and requires some new spare parts. Both seismographs had to be stopped while the carpenters were repairing the inner walls and ceiling of the seismograph-room, which had become rotten with age.

The total number of earthquakes recorded during the seven months January to July, 1930, was 195. Most of them were very slight, and only seventeen of them would normally have been noticed by persons at rest.

Meteorology.

Continuous records of pressure, temperature, wind, sunshine, and rainfall were made, as well as observations of cloud, visibility, and humidity at fixed hours.

Preliminary mean values for the year 1930 are as follows:—

Month.	Pressure.	Temperature.	Rainfall.	Humidity.	Sunshine.	Wind.
1930.	In.	°F.	In.	Per Cent.	Hours.	Miles per Hour.
January	29·742	81·59	10·17	80	191·9	1·97
February	29·745	80·10	18·93	84	126·4	3·33
March	29·795	80·52	7·13	78	230·4	2·49
April	29·799	79·83	10·32	78	216·0	2·48
May..	29·848	80·33	3·45	79	218·8	2·29
June	29·841	78·64	3·46	76	205·1	3·07
July..	29·849	78·17	0·87	79	256·2	3·42
August	29·883	78·41	0·21	73	249·1	..
September	29·849	78·68	3·60	78	210·9	3·17
October	29·861	79·88	3·85	78	210·3	4·30
November	29·830	80·56	11·75	82	177·9	4·60
December	29·732	80·09	15·63	81	157·9	4·30
Mean or total..	29·815	79·73	89·37	78·8	2,450·9	3·22

Except in January, the mean temperature of every month was in excess of normal. May and November show an excess of nearly 2° F. The barometer, on the other hand, was consistently below normal, and the rainfall was 19 in. below normal for the year as a whole.

Five tropical cyclones occurred during the wet season in the area including the Fiji, Tongan, and Samoan Islands. The centre of the cyclone of December passed on a south-easterly course near the western portion of the Samoan group, while the cyclone of January was almost stationary over American Samoa for two or three days.

Storm Warnings.

The Observatory prepares a report of weather at 9 a.m. and 3.30 p.m. During the hurricane season these reports are broadcasted every day by the radio-station at Apia; at other times only the afternoon report is sent. Wireless reports are collected from about sixteen stations in the Southern Pacific and used at the Observatory for the construction of synoptic charts and the issue of warnings of storms. The service was maintained during the hurricane season, 1930–31.

Time Service.

The standard clock has been checked at intervals by observations of the sun with the transit telescope and by time signals issued from Arlington by wireless telegraphy.

Atmospheric Electricity.

The potential has been recorded by Benndorf electrometers at two stations, as in previous years—one in the grounds of the Observatory, and the other in a small hut erected on piles in the shallow waters of the lagoon about one-third of a mile off shore. The Department of Terrestrial Magnetism of the Carnegie Institution at Washington has again given generous assistance in this work.