

APIA OBSERVATORY, SAMOA.

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The programme of work in terrestrial magnetism, atmospheric electricity, seismology, and meteorology has been generally maintained during the year 1931-32 as in former years.

TERRESTRIAL MAGNETISM.

Absolute observations of the earth's magnetic field were obtained regularly with the Tesdorpf magnetometer and the Schulze earth inductor, and continuous records of declination and horizontal intensity were given by the Eschenhagen variometers. The variometer for vertical force remained out of action throughout the year, and the autographic records were interrupted in March, 1932, by a break-down of the driving clocks. A few experiments were made with stereograms as a means of representing terrestrial magnetic changes. With the exception of March, 1932, the year as a whole was free from magnetic disturbance.

The mean values of the magnetic elements—the so-called “all-days” value—for the past three years are given below :—

ANNUAL MEAN VALUES OF MAGNETIC ELEMENTS.

—	1929.	1930 (Six Months).	1931.
Declination	E., 10° 33'·5	E., 10° 34'·2	E., 10° 35'·2
Horizontal intensity	35209 gamma	35195 gamma	35171 gamma
Vertical intensity	20418 gamma (six months)	20428 gamma	..

SEISMOLOGY.

The seismographs are of Wicchert design. Both the horizontal and the vertical instruments have been out of action for a time during the year pending the arrival of new spare parts from Germany. The spare parts were eventually received, but the larger instrument still showed a certain amount of stiffness and defect of balance.

The following analysis shows the character of the records of earthquakes obtained during the year :—

Earthquakes registered 1st April, 1931, to 31st March, 1932.—Total number of shocks registered, 122. Of these, 10 were felt by residents in and around Apia.

The epicentres of the most prominent earthquakes have been determined, and are located as follows: Solomon Group, 7; near New Hebrides Group, 2; between Samoa and Fiji Groups, 1. None of these latter were felt by persons resident in Samoa.

Of the total number of shocks registered (122), 80 originated within 9 degrees of Apia, 17 from greater distances than 9 degrees, and 25 from indeterminate distances.

METEOROLOGY.

The work in meteorology included surface observations twice a day, as in previous years, and some measurements of upper winds from time to time, using pilot balloons. The hygrograph did not function very well, in spite of its being fitted with new hairs. The anemometer at Niue Island was received for repairs, and Lieutenant Warrant of H.M.S. “Veronica” kindly undertook the inspection of the stations in the Union Islands on behalf of the Observatory during the visit of His Excellency the Administrator. A weather diary was commenced to supplement the observations at fixed hours at the Observatory, and a trial was made of Bergeron's method of measuring visibility. In the autographic records of pressure millimetres were discarded in favour of millibars.

Preliminary mean values of meteorological elements for the year 1931 are as follows :—

METEOROLOGICAL SUMMARY—APIA OBSERVATORY, SAMOA, 1931.

Month.	Pressure.	Temperature.	Rainfall.	Humidity.	Sunshine.	Wind.
	In.	° F.	In.	Per Cent. (9 a.m.).	Hours.	Miles per Hour.
January	29·709	80·2	17·20	84	159·8	5·4
February	29·689	80·1	19·97	83	126·9	3·2
March	29·823	80·4	10·47	81	164·5	3·6
April	29·823	79·7	15·94	78	205·4	4·6
May	29·858	79·3	13·90	81	161·3	4·4
June	29·882	78·1	10·87	79	195·7	4·9
July	29·898	78·4	3·90	74	259·2	5·6
August	29·862	78·8	2·00	77	219·1	5·3
September	29·882	79·0	5·48	77	216·2	4·5
October	29·851	78·6	8·34	74	227·7	3·4
November	29·795	79·0	5·82	74	234·6	3·5
December	29·793	78·6	8·98	76	177·0	2·9
Total	122·87	..	2,347·4	..
Mean	29·822	79·2	..	78	..	4·3