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Reports on the Progress of Astronomy

SOLAR ACTIVITY

SUNSPOTS

As was to be expected, the level of solar activity remained high during 1968, significant outbursts of sunspot and flare activity taking place in January, May and the autumn.

The definitive yearly mean Zürich sunspot number rose to 105·9 (from 93·8 in 1967), the lowest monthly value being 81·2 in April, immediately followed by the highest, 127·2 in May.

Fifty sunspot groups with maximum corrected areas exceeding 500 millionths of the visible hemisphere were observed, fourteen of these attaining areas exceeding 1000 millionths.

The largest group of the present cycle (with a maximum area of 2800 millionths) crossed the disk between January 24 and February 6 (Central Meridian Passage January 30·6) in latitude 12° North.

Solar flare activity dropped noticeably compared with the previous year, the number reported in the High Altitude Observatory *Preliminary reports and forecasts of solar-geophysical activity* amounting to rather more that 600 $\geqslant$ Class 1 (of which 51 were in Class 2 and 4 in Class 3) against 900 in 1967.

Although there was considerable activity in January and the autumn, the number of Sudden Ionospheric Disturbances reported by Cable and Wireless Ltd, and Sudden Enhancements of Atmospherics on 25·5 kHz recorded at Herstmonceux, fell to 28 and 32, respectively, from 45 and 42.

Although it is still too early to give a precise time, owing to the possibility of renewed fluctuations, it would seem that maximum phase occurred at about the middle of 1968.

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PROMINENCES

Table I gives the mean daily areas and numbers of calcium prominences at the limb, derived from spectroheliograms obtained at Kodaikanal during 1968.

TABLE I

	Area (min²)					Numbers				
1968	N	S	E	W	Total	N	S	E	W	Total
January–June	4·30	3·26	3·79	3·77	7 56	6·65	5·11	5·86	5·90	11 76
July–December	3·93	2·90	3·18	3·65	6 83	6·51	5·38	5·91	5·98	11·89
Whole year (weighted mean)	4·15	3·12	3·55	3·72	7·27	6 59	5 22	5·88	5·93	11·81

Compared to the last year, there is no variation in activity of areas, whereas the numbers show an increase of 14·4 per cent. The distribution of areas in five-degree ranges in latitude in the northern hemisphere shows two peaks of activity extending from 35° to 40° and 70° to 75°. In the southern hemisphere, the maximum is between 55° and 60°.

The mean daily areas and numbers of hydrogen absorption markings on the disk as obtained from Kodaikanal records are in Table II.

TABLE II

	Hα dark marking area (in millionths of the Sun's visible hemisphere uncorrected for foreshortening)					Numbers				
1968	N	S	E	W	Total	N	S	E	W	Total
January–June	3266	3022	3171	3117	6288	26 05	24·11	25·08	25·08	50·16
July–December	2998	2665	2904	2759	5663	27 94	23·01	26·02	24 93	50·95
Whole year (weighted mean)	3155	2874	3060	2969	6029	26 83	23·65	25·47	25 01	50 48

Compared to the previous year, there is no appreciable variation in activity of areas, whereas the numbers show an increase of 11·4 per cent. In both the hemispheres there was a predominance of activity in the latitude belt 15°–25°.

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