

RADIO OBSERVATIONS OF THE ECLIPSE OF 30 JUNE 1954

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The laboratory of radio astronomy of the Institut d'Astrophysique at Paris has observed the eclipse of 30 June 1954 at Öland (Sweden) and at Meudon (France) [1].

The equipment was analogous to that used at Khartoum for the eclipse of 25 February 1952 [2]. At Högbý ($\phi = 57^\circ 9'$, $L = -17^\circ 2'$) a mirror of

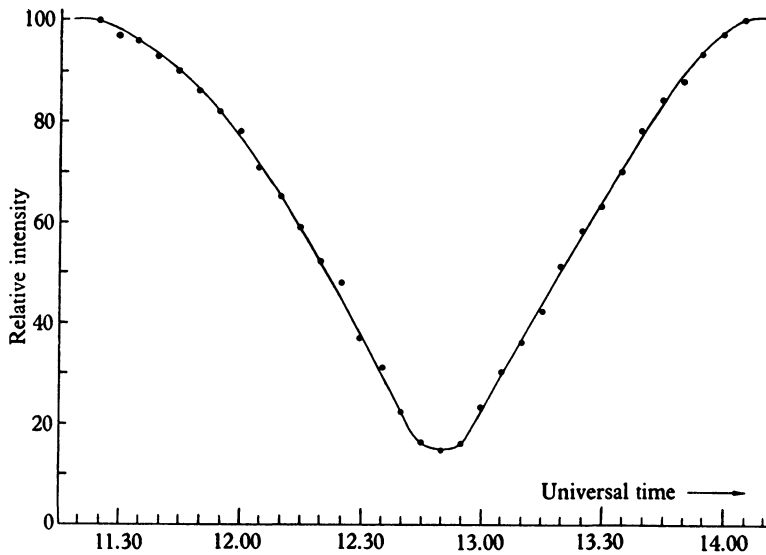


Fig. 1. The eclipse curve observed at Högbý at 545 Mc/s.

6 metres diameter and 3.40 metres focal length was used. The beam width was 22° between the first zeros. The receiver at 545 Mc/s. possessed one stage of r.f. amplification and had a band-width of 1.5 Mc/s. The time constant was about 1 sec. A fixed region of the sky served as a standard at 5-minute intervals.

Table 1. *Solar radiation observed during the eclipse*

Högby 545 Mc./s.		Meudon 545 Mc./s.		Meudon 255 Ms./s.	
U.T.	Intensity (%)	U.T.	Intensity (%)	U.T.	Intensity (%)
11 ^h .25	100	11 ^h .17	100	11 ^h .06	100
30	97	27	98	17	100
35	96	37	88	26	99
40	93	43	84	37	96
45	90	48	79	44	91
50	86	56	74	50	86
55	82	12 ^h .02	69	57	83
12 ^h .00	78	09	64	12 ^h .02	75
5	71	16	56	08	71
10	65	21	51	16	65
15	59	28	46	21	58
20	52	36	44	27	54
25	48	44	42	36	49
30	37	56	46	43	43
35	31	13 ^h .06	51	56	42
40	22	15	58	13 ^h .06	54
45	16	24	65	15	63
50	14.7	32	74	24	71
55	16	41	84	32	77
13 ^h .00	23	50	93	42	87
5	30	58	100	51	94
10	36	14 ^h .06	100	59	99
15	42	—	—	14 ^h .17	100
20	51	—	—	—	—
25	58	—	—	—	—
30	63	—	—	—	—
35	70	—	—	—	—
40	78	—	—	—	—
45	84	—	—	—	—
50	88	—	—	—	—
55	94	—	—	—	—
14 ^h .00	97	—	—	—	—
5	100	—	—	—	—

At Meudon the equipment for the daily measurements of solar intensities was used. The antenna is a Wurzburg paraboloid with 7.50 metres diameter having two crossed quarter-wave dipoles at its focus. The beam-width at 545 Mc./s. is 16° in azimuth and 24° in altitude. A pilot computer is used for following the sun.

The records were corrected for the following effects:

- (1) The presences of side-lobes; no correction was needed.
- (2) The interference by ground reflexion; measured on adjoining days.

(3) The radiation of the comparison field on the sky; measured six months later, leaving an error $< 1\%$ in the eclipse curve.

(4) Sensitivity variations; the residual errors after using the sky comparisons are $< 2\%$.

The corrected results are given in Table 1.

REFERENCES

- [1] Laffineur, M., Vauquois, B., Coupiac, P. and Christiansen, W. N. *C.R.* **239**, 1589–90, 1954.
- [2] Laffineur, M. *Ann. d'Astrophys.* **17**, 358, 1954.
- [3] Laffineur, M. *Bull. Astronomique*, **18**, 1, 1953.