

NATIONAL RESEARCH COUNCIL
CANADARADIO AND ELECTRICAL
ENGINEERING DIVISION

OTTAWA, 14 April, 1954

Mr. Grote Reber,
Wailuku, Maui,
Territory of Hawaii,
U.S.A.

Dear Mr. Reber,

The solar radio flux at 10.7 centimeters has been measured regularly at our laboratory, the results tabulated and mailed to you. For some time, we have been aware of a large systematic error in our flux values due to our continued use of a sky temperature of 50°K determined in early experiments. Until the sky temperature was investigated further and the antenna gain remeasured, it was felt that no correction for this should be made. These experiments have now been completed and it has been found that while the antenna gain remains the same, at a value of 700, the sky temperature should be reduced from 50°K to 8°K. It is believed that the best time to incorporate this new determination of a parameter which enters into the value of the daily radio flux is during the present quiet period just before the start of the new sunspot cycle. Thus the data for 1954 will differ from the past data by a multiplying factor.

The flux density is related to the equivalent temperature of the antenna when pointed towards the sun, by the equation:

$$F = \frac{2kT_a}{A}$$

T_a = equivalent temperature of the antenna
 k = Boltzmann's constant
 A = effective area of the antenna

In the daily calibration to find the equivalent temperature of the antenna, the reference points used are the radiation from the zenith and the radiation from a black box which is at outside temperature. Thus the multiplying factor to convert the previously published flux readings to new values based upon the 8° sky varies from day to day depending upon the temperature of the black box. This factor varies from 1.17 in summer to 1.19 in winter, with an average value of 1.18, and may be used to revise the past data. However, we have revised all the

past data, taking into account the particular temperature of the black box on each day, and will be pleased to supply you with copies. All subsequent tabulations will be based on the lower value of sky temperature.

We are anxious to bring our mailing list up-to-date, and would appreciate knowing if you are still interested in obtaining the data. We hope to issue quarterly summaries of the observations, which will include daily values of 10.7-centimeter flux, hours of observations and outstanding events. On special occasions the data could be provided on a more current basis.

Yours sincerely,

A E Covington

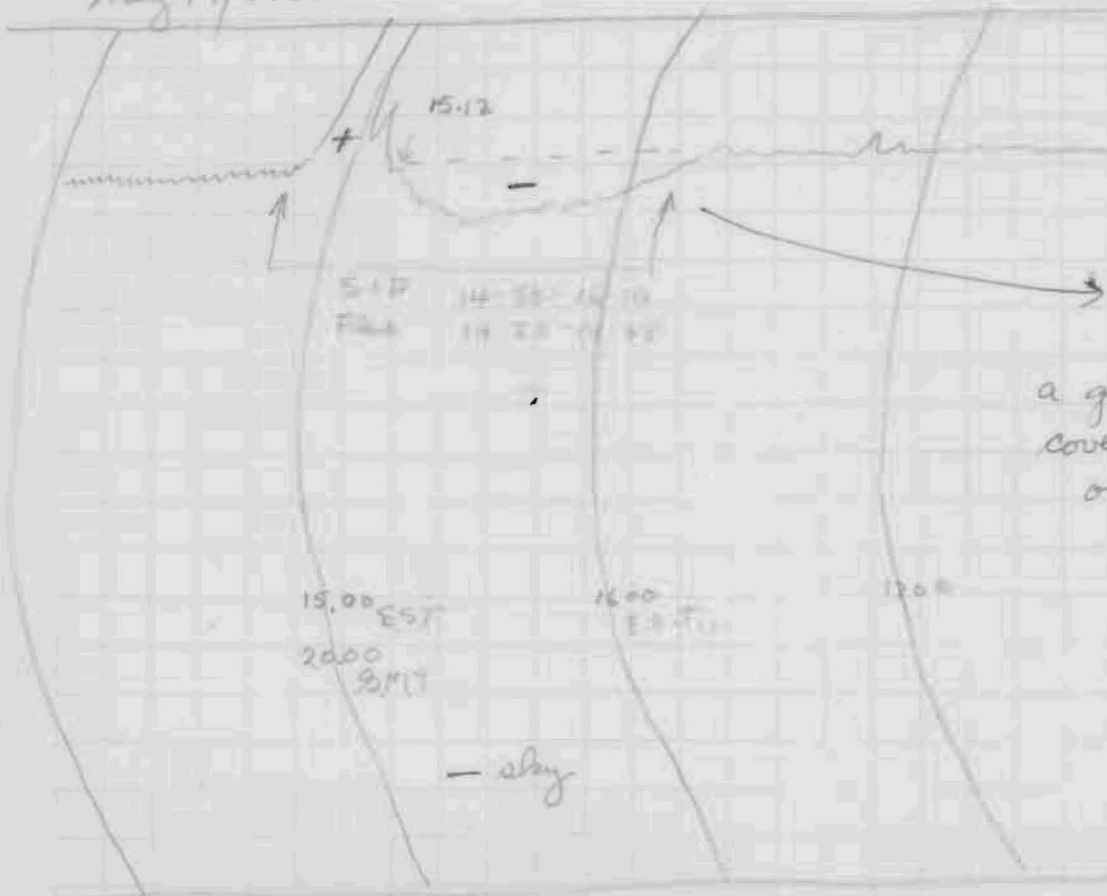
AEC:HP

A. E. Covington,
Microwave Section

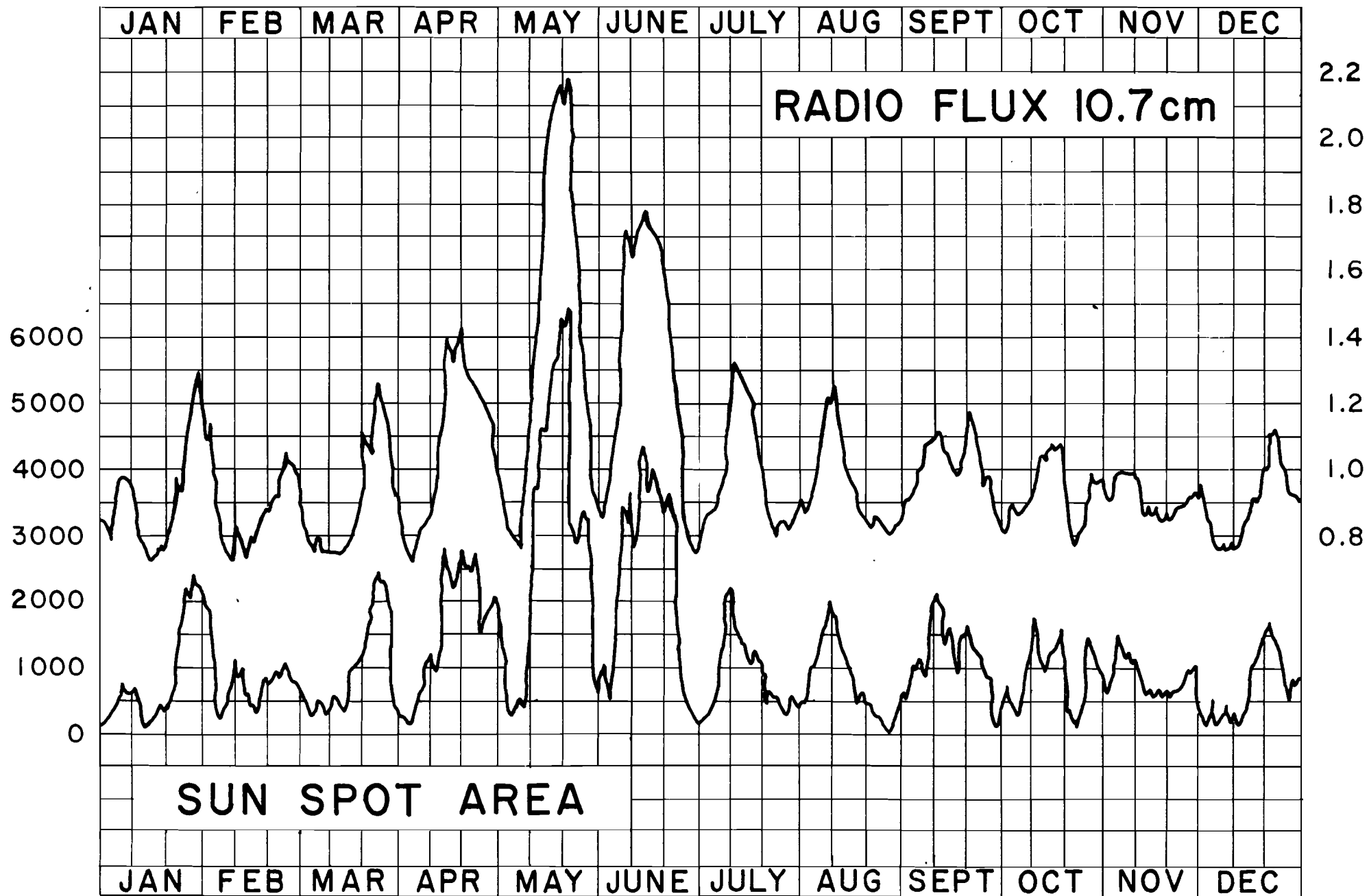
*P.D. I hope you are still planning a trip to Ottawa.
AEC*

May 19/1951

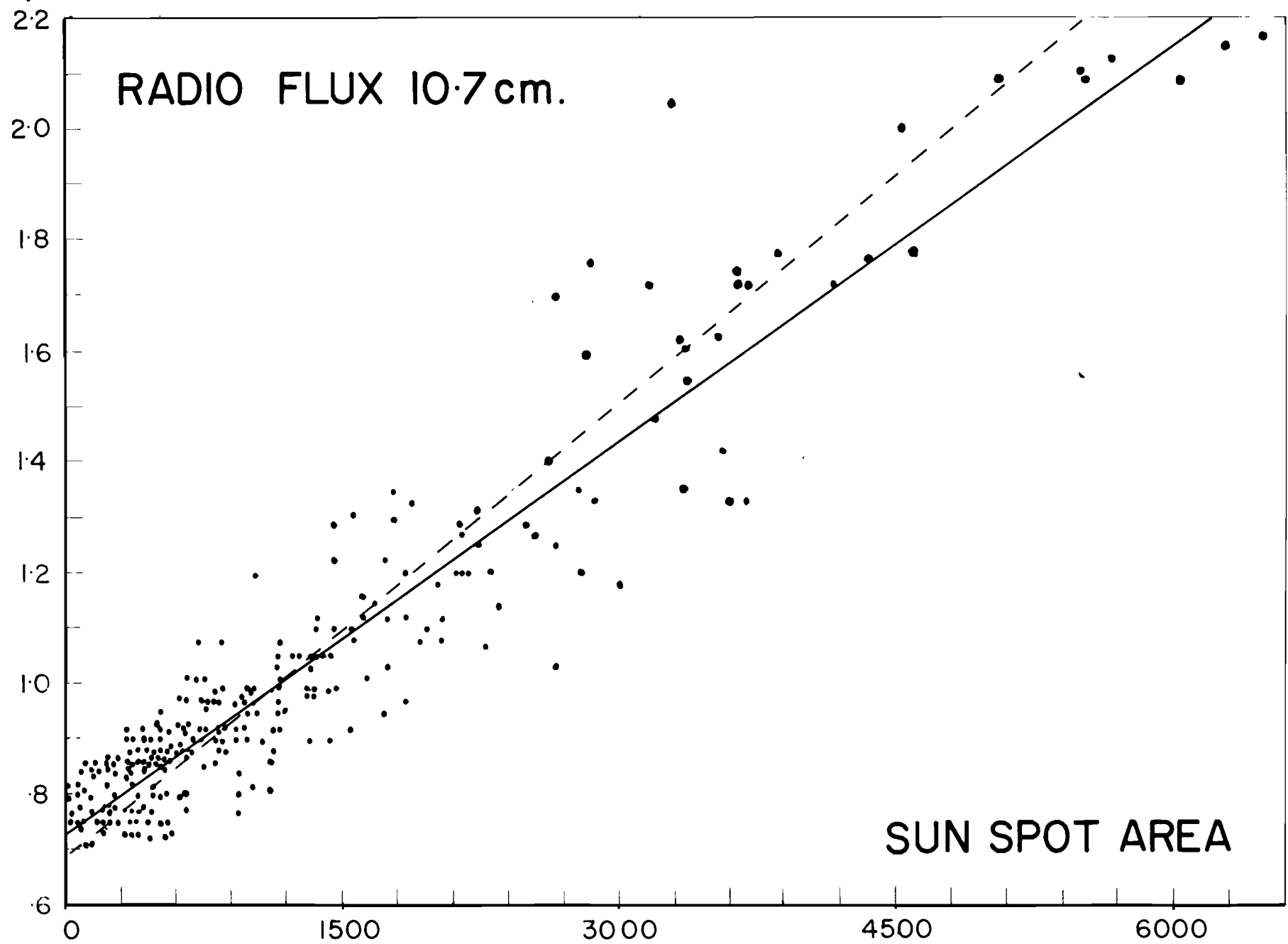
10 cm radio emission



a giant dark flocculus
 covered the flare
 on this day.
 See astrophysical
 journal
 for pictures
 AZP



1951



RADIO FLUX

