LETTERS TO THE EDITORS

The Result of Observation of the Rate of Ion Pair Production in the Atmosphere during the Solar Eclipse, Apr. 19, 1958.

The observation of the rate of ion pair production in the atmosphere near the ground has been carried out by the author at Tanashi, Tokyo, from the view point of the atmospheric physics.

The instruments used for this observation are the ionization chamber and the vibrating reed electrometer. The form of the ionization chamber is a cylinder 90 cm long and 20 cm in radius having a volume of 27 liters. The wall of the chamber is myler of 7 micron thick \((8.5 \times 10^{-4} \text{g/cm}^2)\). The inner electrode, 5 mm in diameter, is supported centrally in the base of the chamber by a shielded insulator (teflon), and is connected to a vibrating reed electrometer (made by "Applied Physics" U.S.A.) by a shielded wire. The vibrating reed electrometer measures the saturated ionization current, to indicate the rate of ion pair production. The ionization chamber is set in the air flow cylinder. The air intake is placed at 1 m height from the ground surface.

Figure shows the record of the rate of ion pair production during the solar eclipse of Apr. 19, 1958. In Tokyo, the solar eclipse was about 90 per cent of total. It was found that as the Sun’s disk was obscured, the rate of ion pair production in the atmosphere immediately increased, again decreasing as the Sun came into view.

The value of the rate of ion pair production during the solar eclipse was larger than that of the other days. And, the maximum value occurred at the time of the eclipse maximum, and is over twice of the value at the same time of the other days.
The detailed discussion on the result of observation mentioned above will be reported in the future.

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