

Effects of Annular Solar Eclipse on VLF Data

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The VLF radio waves propagate through the Earth-ionosphere waveguide. Irregularity in the ionosphere changes the waveguide properties and hence the signals get modified. We are receiving VLF signal (NWC, 19.8 kHz) at Medinipur (~80 km from Kolkata). Partial solar eclipse (75%) observed from our place on 15th January, 2010. The receiving station and the transmitter were in two opposite sides of the annular eclipse belt. We got clear depression in the data during the period of partial eclipse. There was also a solar flare (spot no.1240) on that day starting from B+, reaching maximum to C+ (as observed by GOES satellite) at the similar time when the moon maximally covered the Sun. We have earlier detected the minimum energy flare ~10-4 ergs/cm². We are anticipating that our observation is the result of coincidence of two rare ionospheric phenomena. We have extracted the effect of the flare from the data. I will present this combine effect on the data as observed by our receiver.

References :

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