

Ionospheric effects of the total solar eclipse of 24 October 1995 over Ahmedabad

H.Chandra, G.D. Vyas and Som Sharma

Physical Research Laboratory, Navrangpura, Ahmedabad 380 009, India

Ionospheric effects of the solar eclipse of 24 October 1995 over Ahmedabad with maximum obscuration of 83% at 0800 hr (75° EMT) are studied based on digital ionosonde data. The variations with time of critical frequencies f_oE , f_oF_1 and f_oF_2 plotted every minute for the solar eclipse day and control day (23 October 1995) during the period 0630 - 1000 hr in Figure 1. The value of f_oE , remained constant between 0700 and 0810 hr and then recovered to the value on control day by 0930 hr. The f_oF_1 decreases from 3.5 MHz to 2.5 MHz between 0720 hr to 0800 hr and increased to the control day value of 4.5 MHz at 0915 hr. The value of f_oF_2 did not change much between 0710 and 0915 hr. Maximum deviations from control day are about 28% for f_oF_2 , 35% for f_oE , and 45% for f_oF_1 . There does not appear any time delay between the eclipse maximum and the maximum deviation for the critical frequency of any ionospheric layer. The decrease in maximum electron densities of 57%, 69% and 40% for the E, F_1 and F_2 layers respectively are slightly higher than the decrease of 40%, 57% and 25% seen in the solar eclipse of 16 February 1980 when the obscuration was 75%.

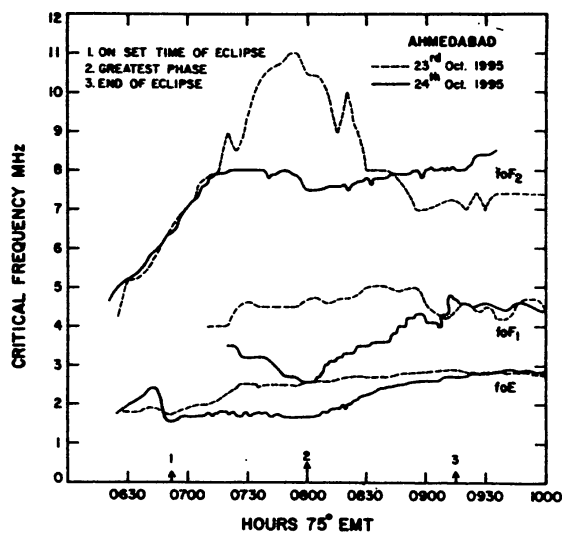


Figure 1.