

Ionospheric Precursors observed at low latitudes F-region Ionosphere during Koyna Earthquake

Kavita Sharma, Rupesh M. Das, R.S. Dabas, K. G. M. Pillai and S. C. Garg

Radio and Atmospheric Sciences Division, National Physical Laboratory, New Delhi-110 012,
India(rajdabas@mail.nplindia.ernet.in)

On December 11, 1967 at 05:21 LT, an immense earthquake of magnitude 6.5 -struck Koyna, the Indian province of Maharashtra. Its epicenter was located at geographic latitude 17.37°N and longitude 73.75°E with depth of about 3 km. In this paper the behavior of F2- region of ionosphere has been examined during the month of December 1967 around the time of Koyna earthquake. For this purpose, the ionospheric data measured by the ground based ionosondes at Hyderabad (located close to the earthquake epicenter) and Trivendrum (an equatorial station, located at about 1500 km from the earthquake epicenter) have been utilized. Anomalous electron density variations are observed during the pre sunrise hrs and daytime at both stations. These anomalies are strongly time dependent and appeared a couple of days before the main shock. The duration of each anomaly is about 3-4 hrs. Taking into account that this period was very geo-magnetically quiet, the observed anomalies over Hyderabad and Trivendrum were likely to be associated with this imminent earthquake. The possible mechanism to explain these anomalies is the effect of seismogenic electric field on the F2- region of the ionosphere.