



Atmospheric Meteorological Parameters and Ionospheric F2 Layer Critical Frequency (f_0F_2) Observation for 6th December, 2016 Indonesia Earthquake (M 6.5): A Case Study

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Abstract

Ionospheric critical frequency of F2 layer (f_0F_2) variations are very sensitive to the seismic effect and results of ionospheric perturbations associated with earthquakes seem to very hopeful for short-term earthquake prediction. But, the atmosphere near the ground surface is affected more than the ionospheric region in terms of ionization by the electromagnetic emissions caused by various reasons. Thus, meteorological parameters, viz., air temperature, relative humidity, atmospheric pressure and wind speed show few anomalies before any strong seismic activities. The evidence for atmospheric anomalies has yet to be meticulously analyzed. Here, the case of 6th December, 2016 Indonesia Earthquake (M 6.5) is studied. Certain random anomalies in temperature, relative humidity, pressure, wind speed and f_0F_2 frequencies are observed. The variations of these parameters might help to predict the occurrence of earthquake 2-3 days prior of its occurrence. The confidence level for ionospheric anomalies regarding the seismic signatures can be enhanced by adding the analysis of some other ionospheric parameters along with these in regular and systematic manner.