



## **Anomaly in Kp, Eflux and atmospheric temperature before the earthquake of Sumatra on 26th December 2004**

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When the Kp (planetary indices) and E-flux (electron flux) changes suddenly it affects the environment of the earth. These phenomena changes the thermosphere and lithosphere locally as well as globally. The response of the magnetosphere to interplanetary shocks or pressure pulses can result in sudden injections of energetic particles into the inner magnetosphere. It has been recorded that 36 hours before the occurrence of earthquake Kp values and E-flux increases drastically. After this increase sudden fall in Kp and E-flux has been noticed before the earthquake and tsunami. The phenomenon was recorded before the Sumatra earthquake on 26th December 2004. Abnormal temperature increase in the earthquake and tsunami effected area of Sumatra (N15°- S5°, E80°-E130°) was also noticed. The NCEP temperature images were used for the period from 13th December 2004 to 26th December 2004. It has been observed that the temperature rise takes place from 14-22 December. Rise in Eflux and Kp value has been recorded from SOHO satellite data during 22nd December from 09-12 UT. After this sudden rise there was a continuous fall in Eflux and Kp till 26th December 00.00 hrs UT. The abnormal phenomenon of increase in temperature (more than 5°C) in the Sumatra area and sudden drop before the earthquake (as recorded by NCEP) gives an early warning of earthquake in this area. Similar phenomenon was observed before Ms.7.6 Gujarat India, January 26, 2001, Ms.7.0 Iran December 26, 2003, Ms.8.0 Hokkaido, September 26, 2003, Ms 7.0 Japan October 23, 2004, Ms d.2 Dayao, China July 21, 2003, Ms 6.1 Dayao, China October 16, 2003, Ms 6.7 Tibet, China July 12, 2004, and Iran February 23 2005 etc. All these case studies strongly support the changes of abnormal increasing temperature, Eflux, Kp and sudden fall before the

seismic activity which has produced the killer tsunami and earthquake on the boxing day of 2004. It is possible to correlate the influence of Starburst on the development of the sunspots and further the sun-earth environment.