



Outgoing long-wave radiation over earthquake regions

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Abstract

Parts of the earth under the stressed condition induce physico-chemical changes in the rocks which manifests into various observable signs. Nature of these signals depends on type of activity taking place within the earth. It is well known that before the occurrence of earthquake tremendous amount of stress energy gets accumulated in the earthquake preparation zone. This stress energy triggers emission of transient thermal infrared (TIR) as one of the several outgoing energies which can be detected through thermal sensors of satellites. Emitted thermal radiation flux in 10 to 13 micron spectral range is termed as Outgoing Long-wave Radiation (OLR).

National Oceanic and Atmospheric Administration (NOAA) 15, 16, and 17 satellites have recorded outgoing long-wave radiation all over the world. This OLR data (values given as W/m²) has been interpolated spatially as well as temporally in the form of global grids (2.5° x 2.5°). The data coverage is available for monthly, daily and four times a day since 1974 to present. In order to examine any changes in OLR signal a few earthquakes from India and neighboring countries have been studied for period of few days before and after the event. The study revealed enhancement in OLR values prior to and during the earthquakes.

Keywords: OLR, Thermal Infrared, Earthquake, energy radiation