

E1-503: Analysis of lightning activity over Sri Lanka using satellite data

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A study was carried out to analyze the lightning activity over Sri Lanka and in the area around the Indian Ocean using Optical Transient Detector (OTD) data. The "lightning data" is simply the optical pulses that OTD detects while passing over active thunderstorms. Four years data (1996 – 1999) have been collected and analyzed. The average lightning flash density over Sri Lanka was found to be 0.01 flashes km⁻². The land area of Sri Lanka was divided into two parts, representing the dry zone and wet zone and lightning activities within each zone were analyzed. The behavior of lightning activities was studied using lightning density maps over the land mass and sea. The monthly variation and the diurnal variation of the flash densities were also examined.

Although there is a high variation of the lightning activities between years, the general variation within a year is clear. The lightning activities are high for the two periods March - May and September – November, which coincide with the 1st inter-monsoon and 2nd inter-monsoon periods overlapped with the arrival and withdrawal of the South-West monsoon period. Compared to the dry zone, the wet zone has a higher flash density. The diurnal variation shows that thunderstorm activities are frequent during the early afternoon to midnight hours. There is a clear difference between the lightning activities over sea and land.

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