



Research and Observations

Space based sensors can provide us with literally several times more data than ground based sensors. Most ground based and airborne sensors are only capable of detecting cloud to ground lightning, which is known to make up only about 25% of total lightning activity. This is further limited by the facts that ground sensors can only detect activity over land, and airborne sensors have a limited observation time. Thus, with these sensors alone, we are incapable of studying lightning activity over the two-thirds of the earth that is covered by ocean.

A space based sensor can detect lightning activity over land and sea, 24 hours a day, and can detect all forms of lightning. Thus, such sensors will allow the development of the first global database of lightning activity. Such information can be used for severe storm detection and analysis, and lightning-atmosphere interaction studies.

Lightning Imaging Sensor



LIS is a space based instrument used to detect the distribution and variability of total lightning that occurs in the tropical regions of the globe.

Optical Transient Detector



OTD is a space based instrument used to detect the distribution and variability of total lightning.

Lightning Mapper Sensor



The LMS program is intended to place a sensor, capable of continuously mapping lightning discharges during both day and night, into a geostationary orbit.

Space Shuttle Experiments



The Space Shuttle has been used as a platform for lightning studies from the beginning of the shuttle program.

Operational Linescan System



Maps of global lightning activity derived from the Defense Meteorological Satellite Program (DMSP) Operational Linescan System (OLS) sensor.

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