



Concurrent ground-based VHF and space-born optical measurements of lightning flashes during the STERAO-A experiment

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The Stratosphere-Troposphere Experiment: Radiation, Aerosols and Ozone - Deep Convection (STERAO-A) project was conducted in Colorado during the summer 1996 in order to study the NO_x production by lightning. The Office National d'Etudes et de Recherches Aérospatiales (ONERA) VHF interferometric mapping system was deployed to record the total (intra-cloud (IC) and cloud-to-ground (CG)) lightning activity while reports from the US National Lightning Detection Network (NLDN) were used to document the CG activity. During four minutes on the 9th of July 1996 the space-born NASA Optical Transient Detector (OTD) sensor sampled the storm activity within the STERAO-A domain. The concurrent observations of the three lightning sensors were analyzed and will be discussed here. Typical observations for negative CG flashes and IC flashes will be presented. Detection efficiency and location accuracy of the three sensors during the OTD overpass will be discussed. Macroscopic parameters such as flash duration as determined independently from the VHF and optical measurements will also be presented.