

Abstract Submitted
for the 4CF14 Meeting of
The American Physical Society

Can Volcanic Lightning be observed in Space? JOSE M. MARTINEZ, RONALD THOMAS, New Mexico Institute of Mining and Technology — Occurrence within ash clouds of volcanic lightning increases the difficulty to detect and measure it optically with remote instruments. Major volcanic eruptions are likely to have lightning. This lightning should be seen from space by LIS and OTD (Lightning Imaging Sensor, Optical Transient Detector). Ash clouds however absorb much more light than regular clouds which results in lower or no radiance measured for lightning in the ash plume. LIS/OTD satellite data was studied for a small region centered on different volcanoes during reportedly active periods. LIS and OTD are in low orbits and do not cover the entire globe. Since any volcano is observed only a few minutes each day the likelihood of observing lightning events during a volcanic eruption is low. Inter comparison of lightning data from several eruptions all over the world helps set a criteria to distinguish volcanic lightning from thunderstorm related lightning. LIS datasets, typically structured in four different levels – events, groups, flashes, areas – are plotted separately retrieving orbit data from individual HDF files. Events associated to volcanic lightning are distributed in fewer groups, which in turn are structured in less flashes than “regular” lightning.

Jose M. Martinez
New Mexico Institute of Mining and Technology

Date submitted: 09 Sep 2014

Electronic form version 1.4