



## Lightning in the Mediterranean Storms

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In this paper we answer these questions, analyzing data from the Lightning Image Sensor (LIS) and the Precipitation Radar (PR) and TRMM Microwave Imaging (TMI) we show a quantitative relationship between microphysical characteristics of thunderclouds and lightning flash rate. We have performed a complete analysis of 3 years of data over the Mediterranean during the TRMM mission and show a range of reflectivity profiles as a function of lightning activity for both convective and stratiform regimes as well as seasonal variations.

When do we have lightning in the Mediterranean Storms? How often? Which season is the most active for lightning activity? What can we say about a producing lightning storm knowing the flash rate? A seasonal study has been done to understand the cloud properties during different period of the year to analysis the relationships between microwaves and lightning, lightning and reflectivity, lightning and rain rate within the storms.

Due to the increasing global coverage of lightning detection networks, this kind of study can be used to extend the knowledge about thunderstorms and discriminate between different regimes in regions where other measurements are not available.

This observational studies indicate that cloud electrification and microphysics are very closely related and it is of great interest to know the relationship between lightning and cloud microphysical quantities.