



Lightning Characteristics of Eastern Mediterranean Thunderstorms

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Lightning activity in the Eastern Mediterranean region frequently occurs during the passage of cold fronts of Cyprus Lows (CL) in winter months (DJF), and also in less frequent events of Red Sea Trough (RST) that mostly occur in autumn months (SON). The seasonal distribution and synoptic distinction are important because the differences in cloud properties such as vertical dimension, spatial coverage and microphysical and electrical structure.

We present analysis of lightning ground strokes detected by the Israeli Lightning Detection Network (operated by the Israeli Electrical Corporation) for the period October 2004 – December 2010. We find clear spatial-temporal differences in the numbers of strokes, peak current, stroke polarity, their temporal and spatial distributions and the multiplicity of flashes between CL and RST synoptic settings. The differences are linked to the vertical development of thunderclouds under dissimilar thermodynamic and wind-shear conditions.