

# **Storms and lightning activity in Greece during the warm period of the years 2004-2005**

**N. Mazarakis, K. Lagouvardos, and V. Kotroni**

National Observatory of Athens, Institute of Environmental Research, Greece

(nickmaz@meteo.noa.gr / Fax: 30-210-8103236 / Phone: 30-210-8109140)

The present work investigates the lightning activity over Greece during the warm season (May-September) of 2004 and 2005 and in relation with the synoptic meteorological conditions prevailing in the region. The study is based on the use of the UK-Metoffice ATD data of Cloud-to-Ground lightning activity over Europe, and of the ECMWF (European Centre for Medium-Range Weather Forecasts) analyses.

The largest number of flashes was observed in North and West Greece with secondary maxima in the Central and West Peloponnisos. Concerning the diurnal variability of the number of flashes it was found that the maximum occurs from 1500 to 1700 Local Time. In order to investigate the characteristics of the synoptic conditions associated with the presence of lightnings, 30 cases with significant lightning activity and 30 cases with no lightning activity over Greece have been studied. For the high lightning activity days at the 500-hPa level there is a well developed trough over the Ionian Sea. On the other hand, for the no lightning activity days a northwestern flow prevails over Greece. High lightning activity is correlated with high values of absolute vorticity, equivalent potential temperature and convective available potential energy (CAPE). Further, initial results for the warm season of 2005 from the ZEUS lightning network system operated by the National Observatory of Athens are also presented and compared to the observations of the ATD system.