

# **Relationship between cloud-to-ground lightning activity and cloud ice distribution profiles produced by MM5 model over the eastern Mediterranean**

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In this study we examine the possible connection between cloud ice and cloud-to-ground lightning activity. In order to investigate the presence of such a relationship, a number of cases with significant lightning activity over the region of the eastern Mediterranean are selected. The lightning data are provided by the ZEUS lightning detection system, operated by the National Observatory of Athens. For the same cases, simulations with the non-hydrostatic MM5 model are performed with the aim to reproduce the cloud ice profiles within the clouds of the systems related with the lightning activity. As lightning is related with presence of ice, at a first stage comparison of the simulated ice content with observed lightning provides an additional verification tool of the model performance. At a second stage, the simulated ice fields could be further used as a proxy for the presence of electrical activity.