



## Hail characteristics in Northern Greece

Dimitrios FORIS (1) and Vasileios FORIS (2)

(1) Meteorological Applications Center, EL.G.A., Thessaloniki, Greece (d.foris@yahoo.com), (2) Physics Department, Aristotle University of Thessaloniki, Thessaloniki, Greece (vforis@auth.gr)

Hail is a common phenomenon in Northern Greece during spring and summer. It is recorded, in the frame of the National Hail Suppression Program, via a hailpad network installed in a project area of 2850 km<sup>2</sup>. The network consists of 154 hailpads, evenly distributed, with a linear spacing of 4 km. In order to determine the hailstone characteristics, hailpads are digitally analyzed with specially designed semi-automatic software. Five year data (2009 – 2013) were used in this analysis.

For each hit hailpad examined, the output of the process gives the average and maximum sizes of hailstones, the number of stones, their mass, momentum and kinetic energy, all of them calculated per meter squared. The area occupied by hailstone dents, the area hit as a percentage of the area exposed, the aspect and orientation of the elliptical hailstones are also calculated.

The storms responsible for these hailfalls constitute another experimental unit. The hit pads per storm give an idea of the intensity of the storms. The yearly and monthly distributions of hailstorms, of hail days and of hit pads are also examined.

The hail size distribution is also presented for the whole period and for each year separately. Additionally, kinetic energy distributions are given on the basis of the Torro scale. Differences between seeded and non-seeded storms are investigated as well. Finally, the spatial distribution of hit pads reveals that storms are closely related to topography, that is, that they are merely orographically driven.