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Application of hailpad data by construction of anti-hail nets in Croatia

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Croatia is because of his location in the mid latitudes of the Northern Hemisphere, especially in the summer months exposed to the frequent occurrence of severe thunderstorms, especially in the continental part where modest climate, orography and rich soil enable intensive agricultural production.

Hail is frequent with a high possibility of doing heavy damage in agriculture and other mobile and immobile property. Measuring of hail parameters on the ground is because of spatial and temporal variability, as well as short duration very complex.

For receiving objective and exact hail data on the ground, several measuring instruments were developed. Very good results in practical measuring of hail stones where received from a simple and cheap measuring device, a hailpad. The most important data received from hailpads are number and size of hailstones and the kinetic energy, as indicators of the intensity of the hailfall which is directly connected with the grade of damage on different agriculture plants.

In order to receive precise and objective hailstone data, hailpads were installed during the season 2001 on each main meteorological and hail suppression station in continental part of Croatia.

On that way, a dense network with a 730 hailpads was obtained. Received results can be used for evaluation and climatology studies, also for the design and construction of passive protection devices (anti-hail nets). By nets design, the most important parameters are maximum kinetic energy, mass and number of stones per square meter, as there spatial distribution.

In this paper will be shown the maximum hailstone parameters together with the construction and characteristics of protecting nets types which are used for protection of important agricultural plants in Croatia. In addition will be shown different armature types where the nets are placed in horizontal, vertical and at different angle. Depending of frequency and intensity of hail it is considering the economic validity of placing the protective nets in different areas.