



Evaluation of weather-induced damage reports in Hungary

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The aim of this study is to show the possibility and importance of damage reports which can supplement conventional meteorological measurements and observations in case of severe weather. For example, damages in forests could be a good indicator for ice and wet snow depositions in the winter season. Also typically in summer, occasionally we could have information from local convective wind gusts or large hail only from damage reports. Number and density of damage reports in a particular area and time period could also be a good indicator of the overall social and economic impact of the weather.

To create our database we applied to the Hungarian National Disaster Management (Országos Katasztrófavédelmi Főigazgatóság – OKF) for the residential damage notifications. We worked with three types of reports: falling trees (by wind or icing), floodings, and general storm damages (structural damage in buildings). GPS coordinates and the time of notifications were available. Daily maps were created with the reports issued in each day exhibiting the spatial distribution and density of them. Next to the damage reports, we applied the daily analysis of maximum wind gusts, 24 hours precipitation amount, maximum precipitation intensity (mm/20minutes) and flash density interpolated from measurements to $0.05 \times 0.05^\circ$ resolution grid. About 5 years of data were processed.

We will present statistical relationships between the number of damage reports and meteorological data. Some typical extreme weather events will also be presented through case studies in which damage reports reveal considerable information about the severity of the situation.

We will discuss problems and limitations handling the damage reports. Possibilities of the operational forecasting the order of magnitude of the damage reports will also be addressed. Our future goal is to adjust the severe weather warning system and its criteria at the Hungarian Meteorological Service, taking into account the archive of damage reports.