Trusted Spotter Network Austria - Towards a New Standard in the Field of Crowd-SourcedWeather- and Impact-Observations?

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Real-time observations of hazardous weather phenomena are essential for a validation and verification of impact based weather forecasts and warnings. While automatic weather stations can measure standard meteorological parameters like temperature, wind and precipitation with high accuracy and at high temporal resolution, they cannot directly tell us about the impact of a particular weather phenomenon on the local environment, human activities and our social life. Examples of phenomena which may have an immediate adverse impact are flash floods, damaging wind gusts, hail, fog, black ice, drifting snow, rime, and many others. Despite the help of state-of-the-art instruments like disdrometers, not even precipitation phase changes between rain, snow, freezing rain, or ice pellets can reliably and doubtlessly be captured without a targeted assessment of human observers yet.

The trend to automatize the weather station networks and to cut the number of official weather observers has left a void of "ground truth" information. However, such observations provide essential feedback which helps meteorologists to issue and adapt impact-based forecasts and warnings, and climatologists to improve the assessment of weather-related risks and their impacts.

In Austria, amateur meteorologists like spotters or storm chasers are organized within associations e.g. Skywarn Austria or ÖVSV (amateur radio spotter). The necessary infrastructure was developed to make their storm reports available in real-time to the forecasters at Austria's national weather service (Zentralanstalt für Meteorologie und Geodynamik, ZAMG) and to feed them into the European Severe Weather Database operated by the European Severe Storms Laboratory (ESSL). After a voluntary training, which is offered on an annual basis and includes a workshop with presentations, discussions and a "shadowing" of forecasters on duty, Skywarn members and radio spotters become part of the Trusted Spotter Network Austria. Their reports get a higher quality flag, which enables an even faster processing in the time-critical context of severe weather warnings.

This collaboration between Skywarn Austria, ÖVSV, ZAMG and ESSL is beneficial and fully satisfying to all involved parties and is advocated as a role model for other European countries. In particular, it helps the forecaster on duty to quickly update his/her warnings in reaction to feedback via real-time severe weather reports.

The recent release of ESSL's European Weather Observer mobile-application (EWOB) with its more manifold report types provides a new, much broader approach to engage citizens and the general public into such a feedback loop. In our contribution, we present the structure and functionality of the extended Trusted Spotter Network Austria as well as its quality management and training concept.