Severe Weather Research at the European Severe Storms Laboratory

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The European Severe Storms Laboratory's (ESSL) aim is to increase understanding of high-impact weather, with a particular focus on phenomena with small spatial and temporal dimensions, such as large hail, convectively-driven severe wind gusts, tornadoes and extreme precipitation.The ESSL performs and supports research activities and contributes to enhancing forecasting and warning capabilities in several ways.

First, ESSL supports research by providing quality-controlled point data on severe weather events in the European Severe Weather Database. These data are collected through collaborations with networks of voluntary observers, and National HydroMeteorological Institutes throughout Europe.

Second, research carried out at ESSL includes modelling the present and future occurrence of severe weather phenomena. This is done by developing proxies for severe weather events for use with reanalysis and climate model data.

Third, at the ESSL Testbed, new products to support forecasting and warning operations are tested and demonstrated. Among these tools are visualizations of NWP ensemble data as well as radar, satellite and lightning detection data. Testbed participants provide feedback to the products and receive training in forecasting severe convective weather.

Last, every second year ESSL organizes or co-organizes the European Conferences on Severe Storms.