Evolving Early Warnings with the Power of Impact Data

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The better availability and use of weather impact data has significantly promoted the Early Warning Systems of National Meteorological and Hydrological Services (NMHS). This has remarkably changed the paradigm of forecasting from “what the weather will be” to “what the weather will do.” Instead of focusing solely on describing the weather conditions, it is more effective to anticipate the potential impacts of the weather. End users can gain a clearer understanding of the potential severity of the weather and receive guidance on how to respond accurately.

The evolution of impact-based warnings over the past decade has engaged the entire meteorological community, including organizations like WMO and NMHSs. More recently, impact-based warnings have significantly improved due to the availability of an even larger amount of data from various parts of society, often referred to as 'big data'. Moreover, the implementation of advanced computer techniques like AI and Machine Learning has proven to be even more pivotal in enhancing these warnings.

In addition to discussing the general evolution of weather warnings, this presentation will showcase specific examples that highlight the types of impact-based forecasts and warnings provided by the Finnish Meteorological Institute.