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The new Extreme Weather Index as a possible tool to predict high impact weather

An accurate prediction of severe and high-impact weather events is the core task of the DWD. Public authorities (Home ministry, Flood response agencies, Civil defence) as well as internal DWD units are vital interested to get tailored related alerts already for the medium range time scale. For relief organisations (Emergency management, the Red Cross etc.) forecasts on a global scale are desired.

A key role for these predictions plays the ENS of the ECMWF. To condense the outcome of the ENS the Extreme Forecast Index (EFI) has been established. Because of the systematic weakness of the EFI that suppresses the part of the ENS distribution beyond the model climate maximum the "Shift of Tails"(SOT) has been introduced. EFI and SOT are designed to alert forecasters and other well-skilled users. But a large value of the EFI does not necessarily mean that an extreme event will happen. On the other hand, the SOT analyses leads to very uncertain predictions. Therefore, users outside of the meteorological community may have difficulties to interpret these products.

To create a single quantity which gives an indication of severe weather, the development of the Extreme Weather Index (EWI) has been started at DWD. The idea is to blend EFI and SOT with the 90th Percentiles of the ECMWF- as well as the ICON-EPS by applying well-proven severe weather thresholds. Comparing the EWI to observed historical extreme weather events allows its calibration. The result is a product in a traffic-light style which provides absolute values for the severity of the expected events.

Primary author: Mr SCHUMANN, Thomas (Deutscher Wetterdienst)

Co-authors: Dr DENHARD, Michael (Deutscher Wetterdienst); Mr KIRCHHUEBEL, Lars (Deutscher Wetterdienst)

Presenter: Mr SCHUMANN, Thomas (Deutscher Wetterdienst)

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