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The North Atlantic Waveguide and Downstream Impact Experiment (NAWDEX): First results

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First results will be presented from the NAWDEX experiment, an international field campaign with the overall goal of increasing the physical understanding and quantifying the effects of diabatic processes on disturbances to the jet
stream over the North Atlantic, their influence on downstream propagation, and consequences for high-impact weather in Europe. The campaign took place from 19 September to 18 October 2016, and deployed a variety of remote-sensing and
in-situ instruments that provided an extraordinarily detailed picture of the interacting dynamics and thermodynamics. Thirteen intensive observation periods took place over the course of the campaign, including moisture inflow and
diabatic processes in warm conveyor belts, cloud and dynamical structure in outflow and ridge-building events, as well as other events

This presentation will briefly review the weather events that were observed during NAWDEX and give a preliminary evaluation of how the observations contribute to new understanding of midlatitude weather systems. As an example, an
analysis of the structure and evolution of ex-Tropical Storm Karl will be presented. This system was observed by a sequence of aircraft flights over a period of six days, as it moved from the subtropics into the midlatitudes off the coast of North America, reintensified explosively as a midlatitude cyclone south of Greenland, and eventually contributed to poor precipitation forecasts for Norway.