



## **Sensitivity of the Simulated Structure of Tropical Storms to**

Sara Michelson and Jian-Wen Bao

NOAA/ESRL, Boulder, United States (Jian-Wen.Bao@noaa.gov)

This presentation highlights major results from a series of idealized experiments with the Advanced Research Hurricane WRF (AHW) model and the Hurricane WRF (HWRF) model, both of which are popularly used in research and operational communities of the world. The purpose of the experiments is to compare the sensitivity of the intensification and the evolution of the structure of an idealized tropical storm to commonly used microphysics and boundary-layer parameterization schemes that are shared by the two models. The model is initialized with a weak axisymmetric vortex disturbance in an idealized tropical environment that is favorable for the vortex disturbance to develop into a hurricane. The initial mass and wind fields associated with the weak vortex disturbance are obtained by solving the nonlinear balance equation for the given wind distributions of the initial vortex, and the prescribed background thermal sounding and winds. The comparison focuses on the azimuthally averaged storm structure and the surface wind-pressure relationships.