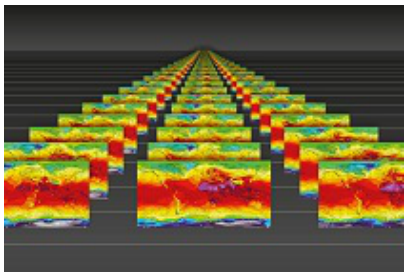

Contribution ID: **91** Type: **Poster presentation**

The Use of Multi-Model Ensemble Clustering in The Weather Prediction Center's Extended Range Forecast Experiment

The Weather Prediction Center (WPC) currently provides detailed weather forecasts out to day 7. There is intense demand and interest in extending daily weather forecasts to ten days. Extending daily forecasts out to day ten requires the development of a methodology to turn raw model guidance into consistent, actionable products and services for decision makers. To accomplish this, WPC's Hydrometeorological Testbed (HMT) began the Extended Range Forecast Experiment, a real-time experiment dedicated to forecasting for days 8, 9, and 10. Forecasting at these lead times requires extensive use of ensemble forecasts. Accordingly, forecasts tools that mine the ensemble data to extract meaningful signals about sensible weather during days 8-10 are of high value. This presentation will serve as an overview of a multi-model ensemble clustering tool that we developed to assist in the preparation of forecasts made during this experiment.

The ensemble clustering tool is an application of fuzzy clustering where ensemble members from the Global Ensemble Forecast System (GEFS), the Canadian Global Ensemble Prediction System (GEPS), and the European Center for Medium Range Weather Forecasts Ensemble Prediction System (ENS) are clustered based on their 500-hPa geopotential height pattern for days 8-10. A forecaster can view these clusters and each cluster' s forecast for sensible weather elements to get a comprehensive view of potential forecast scenarios for days 8-10. Forecasters also have the option to create their forecast for days 8, 9, and 10 by blending their preferred cluster solutions. Our experience has shown that presenting ensemble forecasts in this manner is more instructive to a forecaster than viewing ensemble mean forecasts from each ensemble prediction system (EPS). Similarly, creating a forecast by blending preferred clusters allows for a more tailored (and potentially more accurate) forecast than that created from the traditional method of blending ensemble means from each EPS.

Primary author: Mr LAMBERSON, William (Weather Prediction Center/I.M. Systems Group)

Co-authors: Mr BODNER, Mike (Weather Prediction Center); Ms SIENKIEWICZ, Sara (Weather Prediction Center/I.M. Systems Group); Mr NELSON, Jim (Weather Prediction Center)

Presenter: Mr LAMBERSON, William (Weather Prediction Center/I.M. Systems Group)

Track Classification: Workshop on Predictability, dynamics and applications research using the TIGGE and S2S ensembles