

BREAKOUT SESSION 2 GROUP A

BREAKOUT TOPIC 1: What are priorities for parameter/product/verification needs as the production suite evolves in the UFS framework towards more ensemble-based systems?

1. Need many ways to evaluate ensemble - more than MAE - CRPS; focus on dispersion, reliability, and bias
2. Verification system should demonstrate error of ensemble system need to be similar to errors of deterministic system (should the ensemble have same resolution as deterministic?)
3. Regional verification of ensemble (not bulk NH, global stats) - similar to grid to obs

GFS deterministic verification

BREAKOUT TOPIC 2: How do we reconcile a transition towards more ensemble-based model guidance with NDFD and DSS products being more deterministic?

1. EMC should focus on creating reliable ensemble and provide PDFs to users/testbeds to build products
2. DSS are not deterministic - they are impact based and derived by probabilistic forecasts - future NDFD should be scalable to handle these probabilistic products

BREAKOUT SESSION 2 GROUP B

BREAKOUT TOPIC 1: What are priorities for parameter/product/verification needs as the production suite evolves in the UFS framework towards more ensemble-based systems?

1. Need more advanced ensemble-based verification products in MET+ (e.g spread skill)
2. Training on use of the ensembles and understanding the reliability of ensembles
3. Physics-based process-oriented ensemble verification\

BREAKOUT TOPIC 2: How do we reconcile a transition towards more ensemble-based model guidance with NDFD and DSS products being more deterministic?

1. More sophisticated ensemble post-processing to extract specific key information
2. Re-evaluate the whole product suite towards ensemble-based products
3. Enhance the National Blend of Models (NBM) to include all ensemble-based information
4. UFS enhanced NBM would be the vehicle to get ensemble information into the hands of forecasters

BREAKOUT SESSION 2 GROUP C

BREAKOUT TOPIC 1: What are priorities for parameter/product/verification needs as the production suite evolves in the UFS framework towards more ensemble-based systems?

1. Conditional climatologies (to determine when/where/how models are doing well)
2. Produce gridded probability distributions (e.g., PDFs) (not just at ASOS stations)
3. Meaningful (e.g., sensible weather) parameters in extreme weather scenarios
4. Disseminate probabilistic verification fields and provide training on how to interpret them (e.g., reliability)

BREAKOUT TOPIC 2: How do we reconcile a transition towards more ensemble-based model guidance with NDFD and DSS products being more deterministic?

1. One-on-one training (not just modules) on how to interpret probabilistic forecasts, tools, and verification
2. Make more probabilistic fields available in NDFD in order to build expertise through practice
3. Developing new interactive visualization tools in order to view ensemble forecasts using the cloud

BREAKOUT SESSION 2 GROUP D

BREAKOUT TOPIC 1: What are priorities for parameter/product/verification needs as the production suite evolves in the UFS framework towards more ensemble-based systems?

1. Evaluate the physics and dynamics of deterministic forecast first.
2. Acquire/utilize necessary observational data for verification, e.g. high-resolution obs for CAM, global/tropical precip, clouds.
3. Improve communication as we are moving forward with the UFS.

BREAKOUT TOPIC 2: How do we reconcile a transition towards more ensemble-based model guidance with NDFD and DSS products being more deterministic?

1. Understand the needs of the public in DSS products.
2. Training and communication for use of ensemble-based products to forecasters/users/public.
3. Need tools to draw out important impact-based information from ensemble guidance.

BREAKOUT SESSION 2 GROUP E

BREAKOUT TOPIC 1: What are priorities for parameter/product/verification needs as the production suite evolves in the UFS framework towards more ensemble-based systems?

1. An agile, web-based tool to illustrate real-time output (e.g., ensemble member clustering, subsetting of data) would be useful.
2. Real-time and retrospective verification with a large enough sample size to capture statistical significance.
3. Observational gaps (e.g., land surface, ocean, ice) need to be addressed.

BREAKOUT TOPIC 2: How do we reconcile a transition towards more ensemble-based model guidance with NDFD and DSS products being more deterministic?

1. DSS products should evolve to become more probabilistic over time.
2. Forecasters need to be trained to effectively utilize probabilistic information and message it.
3. Tools need to be provided to forecasters in order to build confidence in the probabilistic output for a given scenario (see #'s 1-2 for question 1).