

ICP meeting notes 8/24/2009

Participants (in attendance):

David Ahijevych
Tara Jensen
Ellen Sukovich
Jason Nachamkin
Chris Davis
Barb Brown
John Halley Gottway
Lakshmanan
Eric Gilleland

Remote Participants:

Barbara Casati
Beth Ebert
Bill Gallus
Marion Metemeier

What to do next:

Prepare a paper employing the different techniques with an aim towards analyzing model performance:

- Compare forecasts instead of verification methods themselves. Look at various strengths and weaknesses from a number of perspectives
- Good to do now that the basics of most of the methods have been published.
- Need a dataset, ideally would like 30 or more cases. Apply all methods to the cases.
- Emphasize the strengths and weaknesses of the models, not just the methods.
- The applicability of the methods should become more apparent with this exercise.
- Need a user-based perspective.

General comments for all future activities:

- Users need uncertainty estimates, but uncertainty is difficult to gauge from some methods.
- Need to choose numerical cases and observations
 - Piggyback on other DTC tests.
 - Use methods in MET when possible.
 - For methods not in met, developers will need to conduct the experiment
 - Need to put the data in the same text format that was used for the first ICP experiment.
 - 2009, 2010 Hazardous Weather Testbed (HWT) data

- Severe storm oriented
- Floating subdomain

- For now it is best to focus on simple 2-D verification and timing errors.
- All participants agreed that timing error verification is critical and should be included.
 - Need time series data as well as 2-D fields
 - Hard to get data from wind farms – proprietary concerns.
 - May have to stick with mesonet data – wider coverage.

Future test cases (suggestions and concerns):

- Other variables and locations besides precipitation
 - Clouds, wind
 - Meteo Swiss data already available – mostly convection
 - Any central European precipitation data?
 - UK MET office high resolution output: 1.5 km cloud forecasts, winds, rain, snow. Primarily a maritime region
 - Need high-resolution analyses to use as ground truth.
 - VERA dataset
 - Some techniques may not work with wind data (u, v components, isolated point measurements at stations).
 - However, wind forecasts are very important for many users.
 - Navy – ships at sea (both high and low wind events)
 - Dispersion trajectory models
 - Fire weather
 - Wind energy (timing important)
 - Wind gusts and extremes
 - Verifying data: wind analyses from model probably good enough for our purpose. SSMI data also good, but someone would have to process it.
 - Hydromet testbed data – clouds and winds
 - Winds are a vector field and thus require special consideration. How to handle that – derive vorticity and divergence and use spatial techniques.
 - May want to derive vorticity and divergence at NCAR and distribute these fields to all users because these fields are very sensitive to the method of calculation.
 - May also want to generate analytical test fields based on wind considerations – gradients and jets.
 - Many possible avenues to pursue.
- All participants should check for possible datasets

Future Meetings

Want to make meeting more accessible to as many participants as possible, and try to involve new participants (e.g., to expand to a larger meta-vx project to compare other types of techniques).

- Prob and Stat. conference? AMS? 2 yrs away.
- Remote access should be available.
- WMO verification workshop – France or Australia – 2 yrs away.
- Europe a good idea – attract more participants who can not make it to US.
 - Makes sense if European datasets are used.
 - Make contact with European verification group, exchange ideas, discuss their methods.
- Advertise ICP meeting at other applicable AMS/trade meetings.

Miscellaneous comments:

- If you publish a paper, send a copy to the ICP list, or advertise it as soon to be published.
- Most participants in the ICP are performing this work on their own time.
- Users should be incorporated.
- Solicit as much user input as possible

Extremes and Ensembles

- Little has been done to expand this verification work towards ensembles.
- Ensembles are a good topic to think about for the near future.
- Need forecast data
 - Wind outfits may be running ensembles (Three Tier?)
 - Wind farm wind data (at hub height) hard to obtain.
 - Could use high resolution model forecasts 2009 CAPS data, NRL dispersion forecasts using COAMPS
 - Wind farm data is poor in quality but wind energy people want results at hub height.
 - However 10 m mesonet data is easy to obtain and more ubiquitous.
 - Verification methods could still be applied to the mesonet data with the implicit notion that they could be extended to wind farm data.
 - May want to minimize terrain influence when verifying basic wind forecasts against high resolution forecasts.
 - Wind energy field has many definitions for wind – gusts, maximum wind speed over 1-hr, 10-min average winds.
 - Since little or no funding to conduct ICP experiments, we should stick to basic datasets that are easily obtained.

Future Publications

- Book? Monograph?
- Explain where the methods originated and how they relate to existing statistics
- Best to wait for results from the wind verification and focus on the most robust and established methods.
- Could/should also write papers based on the wind verification experiment.

Hurricane Wind Verification

- Considerable research currently ongoing to investigate the hurricane intensity problem.
- Hurricanes are well defined features
- Could attempt to verify radial wind profiles, symmetry, and intensity.
- Data a possible concern – what to use as ground truth?
- Dropsondes, gridded analyses from the hurricane center
- Could also verify precipitation and cloud structures.

Need to decide what to do soon. What datasets should we use? What codes should be imported to MET? Propose to have developers visit NCAR and import their methods into MET.