

Minutes from CHPS Forcing Team Call

Wednesday March 04, 2009

Mark Glaudemans, OHD

Participants:

ABRFC – Mike Boehmke, Mike Pierce

CNRFC – Art Henkel, Alan Haynes

NERFC – Ron Horwood, Jeff Ouellet

NWRFC – Don Laurine, Joe Intermill

OHD – Mark Glaudemans, Paul Tilles, Jingtao Deng, David Miller

OCWWS –

Next Call:

Wednesday 03/11/2009 12:00 Eastern

number: 866-614-2988; participant passcode: 7565560

1) OHD Status

a) Grid Transition

Mark and DaveM updated folks on OHD activities for the grid translators, which convert GFE and MPE output to GRIB1 input for use in FEWS and NPVU. These functions take 2.5 and 4 km polar stereographic grids in the GFE netCDF style and create GRIB1 files in either 2.5, 4, and 10 km polar stereographic. A prototype application has been developed to convert the GFE netCDF to GRIB1. Sample grids received from ABRFC and NWRFC GFE usage have been provided to OHD and GRIB1 grids have been generated which can be successfully decoded and displayed using “dgrid” software developed by MDL.

Sample generated GRIB1 grids have been sent to Deltares. As of this writing, they have not been able to import these grids. Beginning next week, Deltares staff will be working in Silver Spring as part of the Deltares USA office. This office is being led by Edwin Welles, and Peter Gijssbers will also be in the office. Peter is expected to be the focal point for grid import. Their local presence should facilitate communication and testing needs.

Our plan is to share the prototype application with CAT RFCs once we are able to ensure that FEWS software can import the software. RFCs can begin or continue to setup the FEWS configuration to handle the import of these grids. Later the configuration must be defined to use the grids in the adapted operations; at first this will be as part of side-by-side evaluations.

b) MPE/DQC Support/Adaptation

OHD is working to support NERFC and NWRFC in their use of MPE/DQC. For NERFC, we are working to address any problems with their use of MPE/DQC for QPE. Earlier problems with coop reported daily precipitation not being processed and problems displaying gridded fields have been resolved through configuration changes.

For NWRFC, OHD is working on changes to manage which time periods are processed based on the current time of day. This is a significant change due to the pervasiveness of the existing time period interpretations throughout many sections of the code. OHD is also working on adding the ability to save MPE/DQC grids in netCDF and GRIB format. Lastly, OHD is working on assorted items noted in the NWRFC recent review of MPE/DQC.

c) Temperature Grid Generation

Mark reported on recent OHD work. Development of this application, called GenHourlyQTE, is progressing. Temperature data is being read from the IHFS database, along with station list generated by the modified DQC setup utilities. Attention is now turning on the objective analysis (point-to-grid) operation, to be followed by work on the QC algorithm.

Review of the details of the DQC objective analysis for temperature data shows that it is not satisfactory for use in the new GenHourlyQTE. It does not use PRISM data, which can help spatially distribute values. It uses 24-hr minimum and maximum temperature values to spatially distribute the 6-hr instantaneous values, which can make for unusual temperature patterns with reference to the actual 6-hour data. It does not have a lapse rate per se, but rather uses the vertical distance when determining the station-to-station distance for use in its weighting algorithm. For these reasons, we are changing plans and will not use the DQC algorithm in GenHourlyQC for objective analysis.

Don reminded OHD of an application he sent us a few years ago. Mark reviewed this application and discussed it with Don. The application computes a dynamic lapse rate for defined sets of stations (i.e. it does not use the entire RFC area all at once), using actual 6-hour temperature data. This lapse rate is then used to "level" all the stations at the determined "mean" elevation. These lapsed values are then used to QC the temperature values using a buddy check which checks whether station values are within NN standard deviations of their neighbors. If not they are flagged and estimated values are assigned after a 2nd pass using only reports validated from the 1st pass. The 6-hour values are also QC'ed further by comparing them against the 24-hour maximum and minimum values.

OHD plans to use the concept of a dynamic lapse rate in the GenHourlyQC portion. It can be used to QC the values, and the max/min check can further QC the values. For the objective analysis, we are still considering our options, but we propose a collection of distance and PRISM normal weighting. How much proportionate weight to give distance versus PRISM values is a key issue. One thought is to base the weighting distribution in part on the lapse rate for the area in question. If the lapse rate indicates an inversion, then the PRISM data should be given much less weight and possibly the lapse rate itself should be applied to the grid points being estimated. In summary, the distance, PRISM normal, and lapse rate values will all contribute to the estimates at grid points. We plan to allow local controls over just how these three factors contribute to the final estimate.

OHD will set up a call between NWRFC and CBRFC to discuss the QTE grid algorithms in DQC and the proposed method in GenHourlyQTE.

2) RFC Status

- a) ABRFC –
 - i) Producing daily PETE grid within GFE for comparison with the NWSRFS "COMP MAPE" function.
 - ii) Working on GFE procedures to automate the manual steps for QTE, QTF, and PETE grids-- completed GFE procedures that call the GFE calculation tools, then produce XMRGs. MikeB mentioned that they switched from using the MSAS QTE info and are using the RTMA info. The MSAS had too much smoothing of the data.
 - iii) Wrote C-shell scripts that call those procedures from outside of GFE and then GRIB up resulting XMRGs.
 - iv) Still have to complete the GFE tools/procedures for PETF...should not be difficult.
- b) CNRFC
 - i) Art had some questions about the OHD gribit software and QPF domains and requested the software. The gribit software was provided shortly after the call.
 - ii) Continued working on the QTF grid generation.
 - iii) Have configured import of QPE and QPF grids, generated via gribit, into FEWS and can display them in FEWS. They are currently not being used numerically. They also have configured FEWS to ingest the SHEF encoded QTE.

- c) NERFC
 - i) Producing QPF, QTE, and QTF in GFE. Using RUC13 for QTE.
 - ii) Continued working with checkout of MPE/DQC for QPE. Will start evaluating in operations starting 3/15.
- d) NWRFC
 - i) GFE operations stable.
 - ii) Don checked on RTMA for QTE, but unfortunately it does not cover the northern most area of Canada that is in their model area.

3) IFPS/GFE Items

- a) Mark mentioned the IFPS list server just in case folks were not aware of it. This list server is dominated by discussion of GFE implementation methods.
- b) Mark shared information on regional GFE initialization policies. Diane Cooper provided guidance on regional approaches and focal points for IFPS usage:
 - i) Southern - GFS (discussing GFSMOS) for all WX elements, except QPF Day 1, 2 (moving to HPC guidance for those periods.) (Melinda Bailey or Jack Settlemaier)
 - ii) Central - no policy but think they mainly use HPC Day 1,2, 3 (if posted) and then GFS. (Pete Browning)
 - iii) Eastern - HPC day 1,2 and 3, and then GFSMOS (Dave Novak)
 - iv) Western - ??? (Carl Gorski)
- c) Mark briefly mentioned usage of the RTMA for observed grids. Manuel Pondeca/Geoff DiMego are noted as focal points for NCEP/EMC for specifics on the RTMA. There have been recent threads on the IFPS list serve on using RTMA to initialize in GFE; this capability was included in OB8.3.
- d) Mark mentioned that initialization of the GFE forcings grids at RFCs may someday need to be consistently performed, based on the precedent of certain conformance policies for WFO GFE use. This team will not be imposing any GFE grid initialization requirements, leaving this to be a local office decision. Given that RFCs generally use GFE grids without editing them, do not export to the NDFD, and have limited specialized use for GFE, imposing any initialization requirements is not meaningful.

4) Miscellaneous News

- a) After the call, OHD began looking into how forecast basis time is noted in the GFE netCDF files. While these files have a creation time encoded in their format, there is no provision for a true basis time in the format. These files also don't clearly identify a grid as being either an observed or forecast grid. ABRFC informed us that they are using filename conventions to identify the forecast basis time and time domain. The GRIB format does allocate data fields for this information. OHD will need to establish some sort of filename convention and/or method for identifying file contents so the data can be properly encoded in GRIB.
- b) Mark updated the matrix showing the applications and grid forms to be used by each RFC for each forcing. New information was added and the matrix was cleaned up. This matrix is posted on the list serve and will soon be on the web page (<http://www.weather.gov/oh/hrl/chps/Forcings.html>)
- c) Mark reported on the status of the team at the recent HIC conference in Silver Spring. A copy of the presentation was placed on the list serve on 3/3/2009.

Other Notes:

- 1) RFC Tracking: CAT RFCs are asked to verbally report on their progress towards generating and using their grids within FEWS.
- 2) ESP Forcings: This needs later investigation and discussion.
- 3) Basin Delineation: This is not directly a forcings team issue. However, the basin delineations must be imported into FEWS to be used for determining the MAP values. RFCs will need to develop these basin maps (i.e. shapefiles) if they have not done so already.