Minutes from CHPS Forcing Team Call
Wednesday January 21, 2009
Mark Glaudemans, OHD

Participants:
ABRFC – Mike Boehmke, Mike Pierce
CNRFC – Art Henkel
NERFC – Jeff Oullett
NWRFC –
OHD – Mark Glaudemans, Paul Tilles
OCWWS –

Next Call:
Wednesday 02/04/2009 12:00 Eastern
number: 866-614-2988; participant passcode: 7565560

1) Forcings Grid Form:

Repeating the previous week's minutes, information on RFC preferred grid forms was added to an expanded version of the "matrix", used previously for only identifying the application/method planned for creating the gridded forcing. This updated matrix was posted.

Mark mentioned that after talking with some folks last week, and pondering it some more, he was recommending use of netcdf (not Grib1/2, not hdf5) for sending grids to FEWS. (These discussions included chats with Steven Worley from NCAR and Tom Lefebvre of GSD). This recommendation is based on the belief that the netCDF files are easier to work with from a software perspective than the Grib files. We would follow the "CF" standard for netCDF, which seems to relatively stable. Also, there is an established user community for netCDF, outside of FEWS, and it is the format for ISC grids involving the NDFD/GFE grids. Some have said netCDF grids are often about 2x larger than GRIB, and Mark noted that may not be (?) a showstopper. Other numbers are less conclusive…

The precise interaction between netCDF used in GFE and GRIB may need some attention. Currently offices using GFE create temporary xmrg format files in order to get to GRIB. API software for managing netCDF CF files is available in alpha form at: http://www.unidata.ucar.edu/software/libcf/.

This netCDF recommendation was met with some concern.

Mike B did not have a major problem with it as long as it works and a pathway exists to get to that point. Mike was concerned about the alpha status of the API software noted in the web page. Mike noted that GFE uses the ifp_netcdf interface. He also agreed that the GRIB documentation was difficult to follow and that the netCDF docs were more understandable. Mike wrote Java code to read netCDF using Java library from Unidata.

JeffO was mainly concerned that whatever method is chosen actually works (fair point). Jeff noted the issue of the xmrg archive and any transition/conversion issues.

ArtH feels that GRIB-1 is working for us now and that we should use that for BOC-1. Art noted the big issue with the netCDF larger size compared to GRIB1, and even larger when comparing netCDF to GRIB2.

Joe Intermill wrote later:…It's true that those [netCDF] files are huge. Joe did send a netCDF file to Deltares a while back to see if they could read it but they have not responded. I need to bring this up next week during their visit.

Don Laurine wrote later: …At first I was not sure this was the right approach, but after further thought and discussion with GSD on format issues, I have come to the conclusions that netCDF may not be the wrong direction. Why not transfer the netCDF files in compressed form using GZIP. From GSD experience, these files are much smaller than the grib1 equivalent. With the limits of grib1, why not stick with netCDF.

Some of my thoughts on this are that the transfer size is not the major size issue, but rather the size of any long-term storage/archive of these files. I must research the size comparisons between netCDF and GRIB1/2, as I seem to have conflicting information/data. Ignoring the size issue, the tradeoff seems to be between the easier to manage netCDF and the more established use of GRIB1. I want to do more research and consider this more, but in the interest of playing it safe, for now GRIB1 is still the frontrunner…

2) **Longer-Term Vision for Forcings:**

During the CAT Preparation workshop on 1/27-29, there will be discussion of the longer-term vision. This would cover the period after BOC-1 when the other (9) RFCs implement CHPS, and also the period beyond that BOC-2 period.

As noted before, one desire is to get away from the xmrg format. Also, any inconsistencies among RFC w.r.t. grid forms provided to CHPS should be reviewed. Lastly, consideration of improved methods/applications for generating grids should be considered, such as implementing MPE within GFE. Any decision is greatly muddled by the AWIPS-2 migration for GFE and MPE. Recently, the Raytheon TO10 demo'ed MPE_Editor in the CAVE interface – it had some key functionality available but also had major omissions.

I will talk about the preparation workshop next week, and asked folks to talk to their CAT members about this. Folks offered some thoughts on this…

MikeB noted that we flexibility to implement changes, which is a key reason why ABRFC and some other RFCs make use of local software. JeffO noted that RobS wishes to centralize local apps into common package. These two points illustrate the key tradeoffs in national software solutions – they require less collective work and provide a unified approach, but also are more difficult to have changed in a timely fashion for individual office needs. ArtH thought it a bit earlier to discuss the "5-year" plan, given that we need to focus on BOC-1. Art noted that the science issues should also be considered, and not just the software and data form issues.

All these are good points and will be discussed among the CAT members. Additional comments from all are always welcome.

3) RFC Status Update:

ABRFC noted that their QPE is not operational in QPF and they are still using NMAP. This is related in part to the NPVU requirements, which are the subject of separate discussions this week. They have prepared tools for QTE and QTF and have a separate process to produce xmrg, from which the grids can go to GRIB1. They are still working on PET generation.

CNRFC plans to use GRIB for QPE and QPF. No changes planned for PET, with SAC-SMA calibration handling that. For freezing level, no change is planned to the current approach, with the RSNWELEV operation continued to be used. For temperature, they plan on modifying approach to have pre- or post-processing wrt MM/DQC. For QTE, they will make use of instantaneous values for simple averaging, with the 24-hour max/min still used for range checking. For QTF, they plan to use some max/min data based on MOS; the weighting of this data must be considered, and is complicated by the specific forecast day (e.g. partial day) being considered.

4) PET Grids:

In separate correspondence, MikeB clarified how ABRFC plans to useGFE to generate PETE. The plan is to generate grids using MSAS for wind, temperature, and dew point data. Sky cover is not part of MSAS, but is available in RTMA, which initializes its info using satellite datad I state this right?]. For forecast PET, ISC/NDFD grids can provide this data.

Other Notes:

1) RFC Tracking: CAT RFCs are asked to report on their progress towards generating their grids beginning with the 02/04 call. This is part of the need for RFCs to create actual grids using their planned methods. RFCs can initially display these grids within FEWS, and then, FEWS must extract data from these grids for use in model operations.

2) Deltares Coordination: Mark will also begin initial coordination with Deltares to identify specific methods for ingesting the grids.

3) ESP Forcings: This needs later investigation and discussion.