

Minutes from CHPS Meeting Thursday March 18, 2010

Attendees:

ABRFC – Billy Olsen, Mike Pierce

CNRFC – Rob Hartman

NERFC – Rob Shedd, Alison MacNeil

NWRFC – Harold Opitz, Joe Intermill

NOHRSC – John Halquist

Deltares – Edwin Welles

OCWWS HSD – Dave Riley

OHD – Jon Roe, Chris Dietz

Pre-reading:

- Support Log distributed via chps_ops on March 17

1. Health check on Support Log

NERFC: want to note that we closed one Support Log item this week! We finally got the GFS short term ensemble ingested into CHPS and displayed correctly; it apparently imports a grib(1) file as if it's grib2. The problem involving UpdateStates may finally be resolved – a loop-timestep was missing from the configuration. NERFC will make the change and test soon. It isn't clear at what point the configuration changed – it was correct in an earlier version.

ABRFC: new AWIPS workstations seemed to help some but now they're seeing hang-ups again. It seems the more they go through the IFD the more it slows down. There are times when it takes 15 minutes to synchronize. The problem with the configuration manager is now fixed – they can upload now.

NWRFC: delays associated with plots performance seem to go up exponentially. RickV just sent an email on the topic this morning. The only way to stop the problem is to remove the local data stores. It isn't clear if this was an issue in January because we've only recently been looking into it. The problem seems to be most obvious when kicking off jobs. Any scheduled job is impacted. It seems that removing the FSS local data store cures the problem for a while then the sluggishness goes up again. CNRFC has also noticed the same problem. Micha and Peter are looking into why the database is growing. It seems to be related to the length of time the database has existed not to its size. The initialization time increases. NERFC still has the rolling barrel problem – maybe the two are related. NWRFC has been reporting all their issues via the list; however there are some major issues which Deltares needs to investigate much more aggressively. The first is the import mods process – we can't import mods into the OC (it works fine in the SA). The second is the “double mod thing”, where you touch a single zone (e.g., upper zone) but it changes the other zone too (e.g., lower zone). It is stumping everyone. There's been no feedback from Deltares to even indicate whether they can reproduce the problem. Edwin asked if deleting the local FSS data stores improve performance. It did speed things up but it didn't prevent the IFD from stopping. The synchronization may have sped up a little but not noticeably.

Action: none.

2. Performance: status, goals, when to provide input to AWIPS

The performance issues seem to be never-ending. They are already holding up the CAT RFCs. Micha, Frederik, and Peter are now conducting a thorough examination of the databases,

analyzing the sizes and effects. They do not know how long it will take to get to a resolution. The plan is to fix the UpdateStates thing first. Deltares must address one problem at a time; they can't try various solutions all at once. Chris is concerned that we can't get CHPS into the AWIPS hardware baseline until we can specify the performance needs; we're almost in April already. The first database being investigated is NERFC's; Deltares is already noticing some trends but don't know if it's the same at other RFCs. Does other activity on CHPS impact performance – e.g., will the database grow much larger if they prototype ensembles? No the size will not be impacted. What about the directory structure in combination with NFS mounting? No it will not impact performance.

On the subject of database size: Deltares has noticed there are an extremely large number of forecast grids in the NE database – e.g. SREFs, QPFs. For NERFC the expiry time is set to the agreed default of 30 days, but we must revisit this value in order to improve performance. Deltares proposes scaling back significantly more to (say) 3 days. The idea would be to archive off the forecast grids frequently for later re-import. Such a DB configuration change would be easy to implement, by adding an installation instruction or two.

The disadvantage would be that the RFCs would need to archive off their data much more frequently than they had expected. CNRFC uses their archives for displaced real-time training but does not archive off the fs5files on a daily basis as Edwin assumed. JohnH noted that this topic had arisen during his recent archive database conversations with Deltares in Delft. The problem is you can't archive too frequently otherwise the archive will get huge even though it's zipped/tarred. On the other hand the more frequently you capture an archive the smaller the database is to archive and the less time it takes to capture. Deltares/John concluded that an optimal frequency for archiving is probably some number of times per week (i.e., not daily but more than once a week).

Edwin suggested for forecast grids only a 5 day expiry time. This will give some overlap with the archiving frequency. NERFC, CNRFC, NWRFC, and ABRFC all agreed to try the 5 day setting. Deltares will proceed with the value and conduct further experiments.

On the subject of directory structure: Edwin described Randy's plan to first install the chps 4,5,6 hardware, create the new directory structure, install the software, then switch operations to chps 4,5,6. Next introduce the new directory structure on chps 1,2,3 and re-install. This is only required at CNRFC, NERFC, and ABRFC. NWRFC and all CAT-II RFCs have the new directory structure.

The software upgrade is expected to be delivered the week of April 5; this allows 1 week of final bug fixes after SAT (which is next week). The CATs will receive it first for beta testing, then the CAT-II's will receive it.

The CATs will not need to re-run performance tests because Deltares has not yet stabilized performance. Instead they need to look to see if the same symptoms reappear. If performance problems have disappeared then re-run the performance tests.

Onno has not been able to test the multi-threading capability for ensembles. He has not been able to reproduce the problems with FEWS which Lee's group found. The task is starting to get squeezed out of the March release. Deltares can issue a patch later.

Action: none.

3. FYI: Graphics Generator v1.0 now available.

Chris reminded everyone that chps_ops should not be used for operational support of the Graphics Generator, which was released yesterday. NERFC has only just come on board with the Graphics Generator and is unaware of any other support arrangements. Chris will check with Hank to make sure NERFC knows who to contact.

Action: Chris will ask Hank to let NERFC know how to get Graphics Generator support.

4. Other items

- Rob Hartman wanted to discuss implementation of ESP in CHPS. There are some issues related to the time and time zones of states and forcings. About a month ago NWRFC/Joe recalled discussing with Edwin such topics as ingest of historical time series, how to blend in a more seamless fashion, whether to use Z time (UTC) or local time, etc. Joe's recollection of that discussion was they would stick with local time for now, with a possible different solution on the horizon. Edwin reiterated to the group that ESP in CHPS is implemented the same way as in NWSRFS. First, time series are treated as 'sacrosanct' – there's a basic assumption that it is too difficult to time-shift the time series themselves, so some other adjustment must be made. Instead model states are grabbed and set to the beginning of the start of local standard day; this is okay to do because these TS won't change rapidly over an 8 hour period (especially when considered in the light of a climate forecast). So you actually run ESP in local standard time. Time series blending becomes a little murky. CNRFC pointed out they don't operate in local standard time; and in any case, all RFCs will eventually use EPP3 which is all Z-based anyway. Edwin pointed out that since there is no time information in the cardfile you can tell the system it's Z and the system will store it in Z. You could say it's 10Z if you want – you have total control over the time you keep the states in. So if CNRFC imports historical forcings in Pacific local time, say 0z – 6am, can we tell the system to pretend it's (e.g.) 10pm – 4am? Yes, you can do that. JoeI said their RFC has played with this a little and confirms it can be done. So if HEFS won't run in local time just tell it the time series are in Z (pretend!). CNRFC said this approach is acceptable.
- Chris would like to know the group's recommendation regarding user training for CAT-II. She has received a request from APRFC for basic CHPS "knobology" training, perhaps in the form of a GoTo presentation or webinar. APRFC would like to expose more of its staff to the system, and perhaps also "develop an informed opinion on how the displays should be established as a default". Chris interpreted this to mean configuring standard displays unique to APRFC, not changing the IFD. Edwin said it would be fairly simple to put together a webinar without too much preparation. Plus it wouldn't be difficult for any forecaster to 'walk around' the system, using the F12 help key. Harold pointed out this would be a distraction for Deltares from their top priorities, which are getting the software working properly and fixing performance. The CATs felt that APRFC already has the perfect skills within their office - the 'train the trainer' concept is supposed to apply here. The plan has always been to conduct User Training for CAT-II RFCs in October 2010. Prior to that time we don't have the capacity to take on additional support, which would be inevitable. Edwin suggested giving the OHD developers a training exercise which would be to develop a CHPS introductory demo; he is looking for project ideas anyway. Chris pointed out that was supposed to have already been done by the NWSTC, who were invited to participate in ABRFC's User training last October for that very reason. She said another alternative is for APRFC to consider Edwin's May FEWS class in Silver Spring. Its focus is primarily configuration, but does include a small amount of basic FEWS-101. The CAT-II's would have to pay for it themselves. Jon also mentioned that HSEB is currently looking into using OHD

internal training funds to get one or two OHD developers to this class; if for some reason we can't identify a second HSEB person there might be a free spare slot. APRFC would still, however, have to pay for the travel. Chris will provide a response to Robin based on this feedback.

- Harold inquired about the status of direct access from Deltares to all RFC servers inside AWIPS; with the CAT-II's coming on board the need is becoming more urgent. Why has nothing been done? He does not care what the solution is, just that Deltares be provided direct access into their systems for troubleshooting purposes. He insisted the action item be completed ASAP, agreeing to a target date (i.e. providing Deltares with direct access inside AWIPS to all RFCs) by October 1.
- RobH would like to know the status of the CHPS Operational Support Plan being prepared by Michael Kane. A draft was supposed to be ready before now. Chris will ask.
- RobH would like to revisit the discussion last week concerning the SHEF decoder. The group agreed last week that a more capable SHEF decoder is required but is not a top priority at the moment. CNRFC and NWRFC would like to change their votes. The current SHEF decoder in FEWS only handles a very limited set of SHEF messages (it originated in the FEWS for CHPS Pilot); a more capable one is needed operationally, especially as CAT-II RFCs begin using CHPS – which will be very soon. We can't ignore SHEF; it isn't going away any time soon. The "Dave Street" version of the decoder (owned and maintained by OHD and posted on the Web) is in AWIPS but has been rewritten by Raytheon for AWIPS-II. A companion version is used in NWSRFS but with posting to fs5files not ihfs_db. We will need a parser (a la Dave Street) paired with a poster specifically for CHPS. NERFC has developed a parser-only, based on the Dave Street version; OHD does not have one. Although the RFCs could similarly create their own parsers we don't want 13 different solutions - a single/national version is warranted. The CAT had previously asked for FEWS to ingest the shefout file; Deltares will do that if NWS really wants to, but it isn't a smart solution from a FEWS perspective. It would be better to convert special formats to XML. Why don't we provide a converter from shefout to XML, which FEWS already ingests? JohnH recalled that some time ago he wrote a shefout-to-XML converter. He will dig it out. That, with Rob Shedd's parser, could become the national solution. At some point in the future we will change the XML to WaterML. The priority of this SHEF decoding task was raised to high. RobH would like to see a solution ready for the June release if possible.
- JohnH commented that CAT-II's are now ingesting gridded data into CHPS. Does Deltares need those data sets? Edwin will ask Deltares and let John know if any additional data are required, or if John needs to disable any data feeds.
- Question: is Deltares hiring additional people? Edwin expects to put out a hiring advertisement soon. If anyone knows of worthy candidates please provide Edwin with names.

Action: Chris to ask Michael Kane when we can expect to see a first draft of the CHPS Operational Support Plan

Action: John Halquist to locate the source code for his shefout-to-XML converter.

Next meeting: Thursday March 25, 2010