<u>Minutes from CHPS Meeting Thursday April 17, 2008</u>

Attendees:

NCRFC - John Halquist
ABRFC - Billy Olsen
CNRFC - Rob Hartman
NWRFC - Harold Opitz, Joe Intermill
Deltares - Karel Heynert, Micha Werner
OHD - Pedro Restrepo, Jon Roe, Joe Gofus, Chris Dietz
OCWWS - Mary Mullusky

Documents distributed prior to this meeting:

- Draft version of the software migration mapping document (aka gap analysis)
- Preliminary list of documents which will be written by OHD and Deltares in the upcoming weeks/months
- Version 5 of the BOC requirements document

1. Status of OHD software development?

There is not much new to report since last week.

UHG, and Cons_use are now working as stand-alone models and have been tested to show they yield the same results as within NWSRFS (but only for one or two cases).

SSARRESV is fairly close behind the two above.

Development is underway for RES_SNGL, SARROUTE and Lag/K. RES_SNGL may take the longest to complete.

We are discussing how to handle the configuration files for these models with Deltares.

We expect to be able to provide UHG, Cons_use and SSARRESV to the CAT sites in late May or June, but they will not have the run-time MODs capability at that time.

2. How will OHD models (e.g. Unit-HG) get into the system?

RFCs will need to determine which segments the new models apply to. Exact installation instructions yet to be worked out, but they will be provided as part of a complete delivery package.

Deltares suggests a 2-step test approach to be conducted by the RFCs after installation: Step 1 = standalone test to make sure the model does what the corresponding version used to do in NWSRFS operational environment; Step 2 = incorporate and test new model in the

current client-server (Pilot) configuration. Deltares said they could provide some support during the second test phase.

3. When will migration of model parameters be done?

Not yet. To be done by Deltares. Expect to be ready some time next autumn.

4. Rumor has it (from the FEWS User's Group last year) that HEC RAS is already integrated into FEWS – is this true?

It is true, but Deltares reported that it is not a neat solution. A more robust solution is coming under the HEC-RAS project.

5. How will NWS address use of licensed/fee-based models such as SOBEK? Also MIKE-11?

Pedro agreed OHD wants to investigate using these models. It's possible these models might be acquired and evaluated under an MOU between NOAA and Deltares; work on such an agreement has just begun. The 'fatal' flaw with MIKE-11 is that it does not/will not run on Linux.

A further complication with these models is AWIPS's (OS&T SEC) reluctance to deal with any licensed/fee-based software; they want to be able to respond to requests for information (e.g., under FOIA) without having to worry about special cases. This issue is still being worked; we're waiting for SEC to take the next step. OHD's impression is that this is simply SEC overreacting to a fairly straightforward issue.

6. BOC document discussions

Need to add page numbers.

Discussed use of BOC term versus "Phase 1" in document title versus IOC and FOC. Outcome 1: Remove "Phase 1" from document title. Outcome 2: Deltares will send an outline of expected releases and their content. We can then begin to speak in terms of the releases instead of confusing ourselves with xOC terminology. Use of the term BOC will continue, and its meaning will become clearer in the context of the various releases.

List of operations – OHD says SS-SAC is still worthy of investigation, as it's the first model to do data assimilation. CNRFC agreed SS-SAC can be excluded from BOC.

Discovered that the legacy Frozen Ground component of the SAC-SMA model is also required for BOC. OHD will add Frozen Ground to the list of legacy software to migrate. Reason: the new SAC-HT would require recalibration, which is likely not do-able in time; we also don't know if it performs as well as the original Frozen Ground. Also, the pilot version of SAC-HT is now out of date as NCRFC has made progress with the NWSRFS

calibration version, which includes features which hadn't been identified previously for BOC.

1st bullet on page 4: DHM to support FFG. All agreed that DHM (currently in the AWIPS baseline) is not needed in BOC. However ABRFC uses the HL-RDHM to generate the gridded FFG. The group agreed that HL-RDHM should stay external to CHPS, but there must be a way to access it via CHPS. NCRFC requested that both PE and snow be included. Deltares suggested that HL-RDHM be 'adapted' (create adapter) for use by the end of CY 2009 for BOC but only as a stop-gap measure; a longer term solution can be put in place before RFCs go live. OHD (?) will look into how to make that happen, and will put a placeholder in the project plan.

2nd bullet on page 4: NWSRFS generation of FFG. CNRFC, ABRFC, and NWRFC don't run the baseline FFG at all. ABRFC uses its own version. NCRFC recently conducted some tests on 1 year's worth of data through the system but results were unreasonable because the snow was treated as rain. Further tests are planned by switching on the snow model and using ~6 months of data October through mid-March. NCRFC said a new (original work) post-model process of some kind is needed to account for snow. The group agreed that the NWSRFS FFG is not worth porting to CHPS, so something else is needed. Does BOC need a national solution? HOSIP project exists but the ARC decided to allocate $$ elsewhere (DMIP) so the project is stalled. Deltares suggested that for BOC the RFCs stay independent (i.e. continue to do their own thing); and address a national solution for post-BOC.

3rd bullet on page 4: Ensembles. A discussion with OHD HEP (DJ Seo) was planned for later in the day. Deltares said they will update the CAT at next week's CAT call.

4th bullet on page 4: Hardware/software system performance. How do RFCs use their REPs? RFCs use them for a variety of purposes, such as handling and processing multiple data feeds, running NWSRFS ensembles, or as the main workhorse for generating web graphics.

OS&T (Jim Lane)'s PECP for Form-Fit-Function replacement for the REPs has come too soon; we're not ready to provide specs for CHPS yet. Randy Rieman has an outstanding request into Deltares to provide some early specs, and Jim Lane has agreed to hold off submitting the PECP for a few days; but the group believes it will hurt us more if we do things too hastily. OHD agreed to find out if this PECP could be delayed for more than just a few days – one or two months would be ideal.

CHPS isn't scheduled to specify its hardware requirements until the end of August 2008. Given that Raytheon estimates it will take one year to get the replacement REPs fully deployed, that's too late for BOC for the CAT sites, probably too late for all sites.

Deltares thinks they could start the hardware analysis sooner; Karel will set in motion discussions with Deltares hardware engineers upon his return to Holland. Initial ROM for hardware at all 13 RFCs is not too drastic (< $0.3M). Deltares recommends an architecture

which supports backup and redundancy, as well as operational (online) and non-operational or test (offline) configurations at each RFC. The group sees a need to consider computational as well as disk and LAN requirements, in support of backup and data transfer.

OHD suggested that hardware for the CAT sites could be handled outside this PECP; e.g. by using AHPS funds to purchase the Deltares recommended hardware, and by using the CAT hardware as a performance evaluation test platform with an approved ATAN. OHD would have to find an alternative mechanism for the 9 follow-on RFCs.

The issue then becomes how to get AWIPS to adopt the new CHPS REP, an exercise which has been done before but is not easy. Adoption means taking on full sustaining engineering responsibility for the REPs, the associated costs for which would fall to AWIPS.

The group noted that the AWIPS hardware refresh cycle is far too slow and is unrealistically tied to platform obsolescence, rather than to software release requirements. AWIPS needs to improve its responsiveness as a whole, or everything will come to a standstill.

OHD suggested funding for initial hardware could come from existing budgets such as discretionary Water Resources or AHPS. OHD is also trying to put together a "clustered" hydrology test bed, the funds for which could be used towards CHPS. Pedro agreed to discuss use of FY08 funds with Gary Carter.

Also of interest was a meeting between OHD and Steve Schotz earlier in the day; Steve comes from NCEP and is now the project manager for AWIPS II Extended (which includes CHPS, N-AWIPS migration, thin client, and WES integration). Steve stated that a condition of N-AWIPS migration is an 'out of cycle' hardware refresh; OHD said the same needs to be true for CHPS. Steve is one of the few people who understand that the needs of the RFCs vastly differ from the needs of the WFOs.

7. Migration document discussions

Formerly called Gap Analysis by Deltares, now known as Software Migration Mapping. What is the relationship between this document and the BOC document? There is still a need for both documents as they address different and distinct topics. BOC document identifies WHAT needs to be built from operational perspective; the migration document identifies what the SOLUTION will look like (i.e., how we get to the 'What').

Deltares confirmed that this document primarily addresses BOC; but will also include placeholders for post-BOC topics so they don't get lost over time.

The document seems to suggest that the pre-processors are now back in CHPS not AWIPS II? Correct. Deltares proposes that we reduce risk by addressing them as a part of CHPS, rather than relying on AWIPS II to deliver them on time and working correctly. It would be

an interim measure until we know for sure what AWIPS II can and cannot do. The BOC document will be updated to reflect this change.

8. Summary of discussions between OHD and Deltares this week

Good progress was made over a series of discussions which began on Monday 4/14. Although we expressed a desire to talk at a detailed level with specific RFC individuals, we ran out of time this week and so we will address questions as they arise in the coming weeks.

NWRFC suggested that in future the CAT be included in this type of meeting. Perhaps they could be held at an RFC in future. OHD pointed out that this week was a key first meeting to discuss high level planning between OHD and Deltares, and to provide OHD software developers with vital technical information so they can make further progress on the modeling software.

Action items:

1. Rob: create and distribute a new version (v6) of BOC document based on today's meeting. Need to add page numbers. Remove "Phase 1" from document title. Fill in words on page 4 to reflect outcome of today's discussions. Show that pre-processors are now back in CHPS vice AWIPS II.
2. Deltares will send an outline of expected releases and their content to the group.
3. OHD will add Frozen Ground to the list of legacy NWSFS software to migrate.
4. OHD (?) will look into how to adapt HL-RDHM for CHPS BOC, and will put a placeholder in the project plan, with details to follow later.
5. Deltares said they will update the CAT on Ensembles at next week's (4/24) CAT call.
6. OHD agreed to find out if Jim Lane's PECP could be delayed longer than just a few days.
7. Karel will set in motion discussions with Deltares hardware engineers concerning specs for CHPS, earlier than originally scheduled.
8. Pedro agreed to discuss use of FY08 funds for CHPS hardware with Gary Carter.

Next meeting: Thurs 4/24/08