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The time has come for the periodic update of GLERL's Advanced Hydrological Prediction System (AHPS). I do this approximately every 2-3 years in order to update the historical data sets and incorporate any improvements we may have made in the package. This time is no exception. This new AHPS package includes the following updates/improvements:

1) I have incorporated a new version of the Large Lake Thermodynamics Model for estimating evaporation. This work was supported by USACE-Detroit. It started out to be a simple recalibration, but I found that we had a newer version of the LLTM that does a better job of estimating ice cover. Due to the nature of the model, I still do not recommend putting a lot of confidence in the ice estimates, but this new LLTM at least shows some ice cover when the previous version was grossly under-estimating the ice amount.
2) The lake level module now uses the coordinated model (CGLRRM). This requires that the CGLRRM be installed on your PC, and there are some dependencies built into AHPS regarding that installation. If you do not currently have the CGLRRM installed, then the installation procedure will install it as part of AHPS and the integration will be fairly simple. If you already have CGLRRM installed, then life will be slightly more complicated. I will work with you individually in that case.
3) As usual, the historical data sets (available as time series for forecasting) have been updated. They are complete through 2011. That includes the files used for computing weights (the NOAAwgts program in the Weighting folder).
4) I made an adjustment in the way cloud cover is handled, which means we have a lot more cloud cover data availability, both for the historical and provisional periods.

When installing it, there are a few things to keep in mind. The installation is a bit of a mashing together of separate pieces. Some parts are standard Windows-based, but some parts of AHPS are command-line oriented. As such, it can be messy. The following steps/suggestions are required or highly recommended.

1) Before installing the new AHPS, do your required runs, etc, and then make a backup copy of your current AHPS installation. This is in case some unexpected issues arise.
2) Do not install the new AHPS over the top of the old one. You will almost certainly end up causing all sorts of problems when you have a mix of old and new files. Date extents will be inconsistent, etc, and it will be a massive headache.
3) If you are going to install the new AHPS in the same folder name as the old one, rename your old AHPS folder to something else (or delete it if/when you are sure you no longer need it). However, do NOT delete it right away. There are actually ***some*** files in your current install that you may want to re-use. I will explain those later.

So, the procedure for installation is:

1) As already stated, backup your current AHPS install. If necessary, rename that folder.
2) Download the installation file from GLERL's website, saving it on your local PC: http://www.glerl.noaa.gov/wr/ahps/GLAHPS.exe
3) Run the install file. Please accept the default install location (C:\AHPS\). In order to automate the CGLRRM I had to make an assumption regarding the installation location of the CGLRRM software, and it is hard-coded into the AHPS procedure for building the CGLRRM control file. If it is not possible to install to C:\AHPS\ (due to IT rules, network setup, etc) but you want to be able to run the level forecasts, then I will work individually with you to modify the CGLRRM setup.
4) Assuming you accept the default installation folder, you can just click through all of the screens, entering the basic info as prompted. Nothing complicated here. When it completes, you should have an almost-working install of AHPS. Just one more thing to do if you are going to use CGLRRM. If not, then you are done.
5) If you are going to use CGLRRM, and it was not previously installed, then you need to add the CGLRRM \bin\ folder to your path. The folder name is (by default) C:\AHPS\CGLRRM\BIN\. If you need help on this part, I can help you walk through it. Basically, though, you need to get to your "Environment Variables" and edit the PATH

variable, adding the following text to the end – ";c:\ahps\cglrrm\bin\". The semi-colon is used to separate entries.

The AHPS you have now installed contains some very basic station data for a "provisional" data period (January 1, 2012 – March 30, 2013). That is, it has only one station per lake as a starting point. The first thing you should do is add a real set of station data. In the \AHPS\InputData\ folder I have included a recent evtp.dat file for that purpose.

1) Start the AHPS application (C:\AHPS\PROGRAMS\ahps.exe)
2) Select the toolbar button (along top) named "Configuration File". From the popup window, choose "Load" and then select C:\AHPS\AHPS.CFG.
3) Click the "Station Data" toolbar button and on Data Source choose "Create new station files from this MCC-format file:", then select the C:\AHPS\InputData\evtp.dat file. This should actually already be configured for you by loading the ahps.cfg file in step 2.
4) Under "Which Stations", select all of the checkboxes. (Again, should already be done.) Under Destinations and Actions, I suggest you again just accept the default stuff I have already set up in the ahps.cfg file. Then click the "Go" button.
5) It will take a while to process, and while it is creating new station files there will be no real feedback. It may seem like the application has gotten stuck, but please just let it go for a few minutes. Better feedback at this stage is something on my long "to-do" list.

Assuming everything works according to plan, you now have a good install and can do a complete forecast run. Just as a test, I suggest you do that to make sure there are no issues that I didn't uncover in my limited testing. I only really had one PC (my own home setup) for testing.

Once you are satisfied that everything is working correctly, you will want to change the "Data Source" tab to use updated data. Either download the evtp.dat file manually, or have AHPS do it. Option 3 "Retrieve MCC-format file via FTP" is set up to do that by downloading the file from GLERL, but you have the option to modify those settings as necessary.

To use the CGLRRM, you will need to manually update a few user-edited files in the\AHPS\Levels\UserEdited\ folder. Specifically, you need to maintain the FlowGate.P77 and ForceLevels.txt files. The WellandFlows.txt file is filled with long-term mean values that are reasonably acceptable for the near-term future, but feel free to update it if you wish.

The last step that you may wish to do is to update the weighting folder with your own choices. If you have been entering climatic outlook information, and want to use your own entries as opposed to entries made by GLERL personnel over the years, then you can overwrite the following files in \AHPS\Weighting\, using similar files from your old AHPS installation. Note that GLERL is currently only updating the U.S. 1 and 3 month outlooks. If you run into issues with any of the others, I will try to help individually.

CLIMOTLK.*	(U.S. 1 and 3 month outlooks)
OTLKEC1.*	(Env Can 1-month outlooks)
OTLKEC3.*	(Env Can 3-month outlooks)
OTLKEC3x.*	(Honestly, I am not sure what these are)
OTLKN610.*	(U.S. 6-10 day outlooks)
OTLKN814.*	(U.S. 8-14 day outlooks)
OTLKUSER.*	(any user-defined outlook probabilities)

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