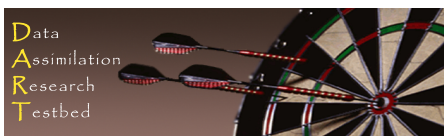


Catchment-based Hydrological Model Data Assimilation (CAHMDA VI)
and
Hydrologic Ensemble Prediction Experiment (HEPEX-DAFOH III)
Joint workshop
8–12 September, 2014, Austin, Texas, USA

Data Assimilation with DART presented during CAHMDA on 6 September 2014



[DART Lanai Documentation](#)



Before You Arrive

You will get much more out of the class if you prepare before you get to the workshop. There is a lot of information to present in a very short amount of time, so please be prepared. We want you to think about the material, not the mechanics.

1. If you don't already have Matlab® locally on your laptop, get a free trial Matlab. A significant part of the exercises will be using Matlab. The trial versions of Matlab are valid for 30 days and are free. Please install Matlab on your laptop before you get here. You will only need the base Matlab (no other toolboxes). If you intend to explore DART, there are two additional third-party packages. These will be covered later.



As of 25 August, I created trial license accounts for all the tutorial participants.

The instructions for [downloading and installing the trial Matlab can be found here.](#)



2. Any browser will be able to view the [DART documentation and tutorial material](#). DART does not run under Windows, although several motivated people have gotten DART to work under Cygwin-X. If you are bringing a Windows laptop but would like to explore DART, make sure you can remotely log on to a UNIX/LINUX machine (a compute-server) and be able to view the graphics on your laptop without having to ship the files back and forth between the compute-server and your laptop. There is free software for this and there is some software that costs money. **Make sure you have an X-server that works.** We will likely be running on some UT desktops/workstations.
3. If you have a *nix/OSX laptop, It will be worth your time to make sure you

understand how to compile and install software packages. If your O/S has a 'package manager' to help locate and install software, please be familiar with it before you arrive. Some good packages to install would be

- [netcdf](#)
- [NCO](#) (the netCDF Operators)
- [ncview](#) or [Panoply](#)

4. Lastly, my own professional experience. Very few (if any) of the larger land models run under Windows. The vast majority of the supercomputers on the planet do not run Windows. The more comfortable you are with the UNIX/LINUX command line, the better off you will be.

Agenda - Saturday 6 September

Time/Session Objective

- 09:00 -- 10:00 Introductions, motivational land DA examples.
- 10:00 -- 10:30 Software check and orientation.
- 10:30 -- 10:45 Coffee / Tea Break
- 10:45 -- 11:55 The Matlab-based DART Tutorial - [DART Lab](#)
[Section 1: The basics of ensemble data assimilation in 1D](#)
- 11:55 -- 12:00 jumping jacks [optional]
- 12:00 -- 13:00 [Section 2: How should observations impact model state variables?](#)
- 13:00 -- 14:00 Lunch
- 14:00 -- 14:45 [Section 3: Sampling Error/Localization](#)
Subtitled: "and other reasons why the simple implementations may not work very well."
- 14:45 -- 15:30 Introduction to the [Data Assimilation Research Testbed - DART](#).
A tour of the much more in-depth [DART Tutorial](#).
- 15:30 -- 15:45 Coffee / Tea Break
- 15:45 -- 16:30 DA and land models. Explore precomputed results. [DART's support of observations](#).
- 16:30 -- 17:30 [Was your assimilation successful?](#)
[What it takes to use your model with DART](#).

Helpful Links

[DART website](#)

<http://www.image.ucar.edu/DAReS/DART>

[Tutorial trial Matlab](#)

http://www.image.ucar.edu/DAReS/tutorial_CAHMMA_2014/MatlabDownload.html

[DART Lanai release](#)

<https://proxy.subversion.ucar.edu/DAReS/DART/releases/Lanai/index.html>

[Registering for DART](http://www2.image.ucar.edu/forms/dart-software-download) <http://www2.image.ucar.edu/forms/dart-software-download>

[Configuring MATLAB for DART](http://www.image.ucar.edu/DAReS/DART/DART_Starting.php#matlab_simple) http://www.image.ucar.edu/DAReS/DART/DART_Starting.php#matlab_simple

[Tim's SVN primer](http://www.image.ucar.edu/~thoar/svn_primer.html) http://www.image.ucar.edu/~thoar/svn_primer.html

[CLM page](http://www.cgd.ucar.edu/tss/clm) <http://www.cgd.ucar.edu/tss/clm>

[NOAH LSM page](http://www.ral.ucar.edu/research/land/technology/lsm.php) <http://www.ral.ucar.edu/research/land/technology/lsm.php>

[CABLE page](http://cawcr.gov.au/projects/access/cable) <http://cawcr.gov.au/projects/access/cable>

Need help? e-mail [dart \(at\) ucar \(dot\) edu](mailto:dart@ucar.edu)