GMTSAR Short Course - August 16-18, 2017

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COMPUTER

GMT5SAR can be run on any laptop with a UNIX system (csh) and at least 6 Gbytes of internal memory. The smallest data sets are ~2 Gbytes so you will need some disk space. If your laptop is not capable or does not have UNIX then an alternative is to have a terminal window to login to a larger computer. Please contact me if you do not have any of these options and we can arrange something. David Sandwell dsandwell@ucsd.edu

HOMEWORK 1 - UNIX and csh/tcsh

We will use UNIX commands for all InSAR processing so one should be able to do the basics. The following web site has a tutorial.
http://www.ee.surrey.ac.uk/Teaching/Unix/

Go through each tutorial unless your are already a UNIX whiz. You will need to have a basic text editor available for this exercise. Common UNIX text editors are vi or emacs. The following web site has an extensive list.
http://en.wikipedia.org/wiki/List_of_text_editors

Note that to do this exercise your computer must have the C-shell (or bash) installed as well as a C-compiler installed. If you have trouble with these installations please send e-mail questions.

Tutorial 8 is especially important. Each type of unix will have slight variations in the .tcshrc or .cshrc file. The default shell on many systems today is bash. GMTSAR is based on the tcsh/csh shell so make sure csh is installed.

After going throughout the tutorial and setting up your .tcshrc or .cshrc (or .bashrc) file, please send me or Eric a copy of that file with embedded comments on your custom additions.

HOMEWORK 2 - Generic Mapping Tools (GMT5)

Remove old versions of NETCDF and GMT from your computer unless you are 100% sure you have the latest complete installation including the source code. Many problems related to the installation of GMT5SAR are due to having an old installation of GMT. Installations can be done in a variety of ways. Here is a web page describing the installation options.

http://gmt.soest.hawaii.edu/projects/gmt5sar/wiki

LEARN GMT5
To make sure everything is working properly, you must close all your terminal windows and start new ones. Make sure you are running csh/ tcsh in each window by typing the command csh or tcsh. Then type the command 'gmt grdinfo' to make sure the GMT5 programs are in your path.

If you are not familiar with GMT5, then go through the GMT5 Tutorial at the following web site.
http://gmt.soest.hawaii.edu/doc/latest/tutorial.html

The last part of this exercise is to make a map of the area where you live using topography data from the following web site.
http://topex.ucsd.edu/gmtsar/demgen/

Use this on-line tool to extract a 1-degree grid of elevations for the area where you live. Use GMT5 to make a shaded relief map and send the resulting postscript file. This same tool will be used to prepare digital elevation models for InSAR processing. We will show all the relief maps during the short course.

HOMEWORK 3 - GMTSAR

The third assignment before the workshop has 3 parts. Part 1 is to install Google Earth. If you have UBUNTU 16.04 then use these instructions.
http://www.configserverfirewall.com/ubuntu-linux/install-google-earth-ubuntu-16-04/

Part 2 is to read the review paper by Burgmann et al., 2000. Here is the link.
http://topex.ucsd.edu/insar/burgmann_insar_rev.pdf

Part 3 is to install GMT5SAR. Go to the following web site and follow the installation instructions.
http://gmt.soest.hawaii.edu/projects/gmt5sar/wiki

Add GMT5SAR to your path
Note: If you are using a Mac OS X and macport, make sure change the following environmental variables in your .cshrc or .tcshrc or .bashrc file before compiling:

for tcsh/csh
```
setenv GMT5SAR YourPathTo/GMT5SAR
setenv PATH $GMT5SAR/bin:"$PATH"
```

for bash
```
export GMT5SAR=YourPathTo/GMT5SAR
```

```
export PATH=$GMT5SAR/bin:$PATH
```

Logout and login again to activate the shell. Type the following three commands to make sure things are installed properly

```
% esarp
% SAT_baseline
% p2p_ALOS.csh
```

If this all works then you can start InSAR processing. There are example
data sets with README.txt instructions at the following site:
http://topex.ucsd.edu/gmtsar/downloads

HOMEWORK 4 - Watch Video on SAR Data Access

https://www.youtube.com/playlist?
list=PLzmugeDoplFPxtJz3wytyD6KoiUWspUYx