README

**TOPOGRAPHY –**SRTM data are in **integers**

All the SRTM1 topography data that is needed is in a file called N39W113\_4X3.hgt, which contains data in the region from 39-43 North, 247-250 East. All topography data is in 2 byte integers

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**CEnvData\_AlongPath.m** - gets environmental data along the path described by parameters listed at the top of the program

Still need to dump output to file

TopoNAZ.in -topography for a given azimuth

ccNAZ.in – 2D sound speeds for a given azimuth

wwNAZ.in – 2D wind speeds for a given azimuth

need to convert this to C++ code such that, given an input of rinc,zinc,azimuth, maxrange, etc will dump out the environment files listed above.

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**Cpath\_topoSRTM1.m** reads the integer topographies along a given path.

**Cgroup\_TileSRTM.m** is what was used in the first place to create the file called N39W113\_4X3.hgt. The program reads in 1X1 degree SRTM tiled data (now located in NOBACKUP/CH2MHill\_project/ topography/SRTM1) and makes one larger NXN degree file. It calls CreadTileSRTM.m

**CreadTileSRTM.m** reads in a 1X1 degree SRTM file and uses inpaint\_nans to clean up the voids in the data. The elevations are signed integers, see SRTM\_Topo.pdf

Other programs, used for testing:

**CompareTopo\_AlongPath.m** - compares along path topography data (SRTM1 vs CH2MHill data)

**CompareTopoMaps.m** – same as above but for a whole map area.

See <http://geographiclib.sourceforge.net/1.29/C/geodesic_8h.html>

For code in C. especially geod\_direct

(to check on code, just get equivalent line on a flat surface)

Also see

<https://searchcode.com/codesearch/view/20141826/>

or

<https://starbase.jpl.nasa.gov/mgn-v-rdrs-5-gvdr-v1.0/gvdr_0001/software/source/proj/src/geoforwd.c>

search on geographic projection library

<http://geographiclib.sourceforge.net/>

can download the code from here

(click on library documentation)

(is this enough or need proj.4?)

proj.4 is at <https://github.com/OSGeo/proj.4/wiki>

(see LICENSE paragraphs at bottom)

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NOTE: the earth is a WGS84 ellipsoid