Subject: USGS DEM file geolocation questions
Posted by Kenneth Bowman on Wed, 26 Jun 2013 13:24:33 GMT
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Does anyone understand the details of the geolocation metadata in USGS DEM (e.g., GRIDFLOAT files) files? I have looked in the documentation I can find online, but it is unclear.

First, do the xllcorner and yllcorner parameters in the header files (see example below) refer to the location of the first data *point* in the lower-left corner of each tile, or to the lower-left corner of the lower-left grid *cell* in the tile (with the cell center offset by cellsize/2)? Should I think of the elevation data as point data or as averages over the grid cells? With the lat and lon numbers given, the latter seems to make more sense to me, but I am not familiar with the conventions used with DEM data.

ncols 3612
nrows 3612
xllcorner -106.0016666667
yllcorner 37.99833333333
cellsize 0.000277777777778

Second, the 1 arcsecond files contain 3612 x 3612 values, which includes 6 rows or columns of overlap on each side. When I compare, for example, the elevations of the 6 columns outside a 1 x 1 deg tile with the first 6 columns inside the adjacent tile, which I think should match exactly in location, the numbers are close, but not the same. That seems to defeat the whole point of having a seamless national DEM. For the two sample tiles that I picked (Pikes Peak, which contains steep terrain), the elevations differ by 10 - 20 m.

I can just ignore the overlap rows and columns, but I fear I am making some more fundamental error.

Thanks, Ken Bowman