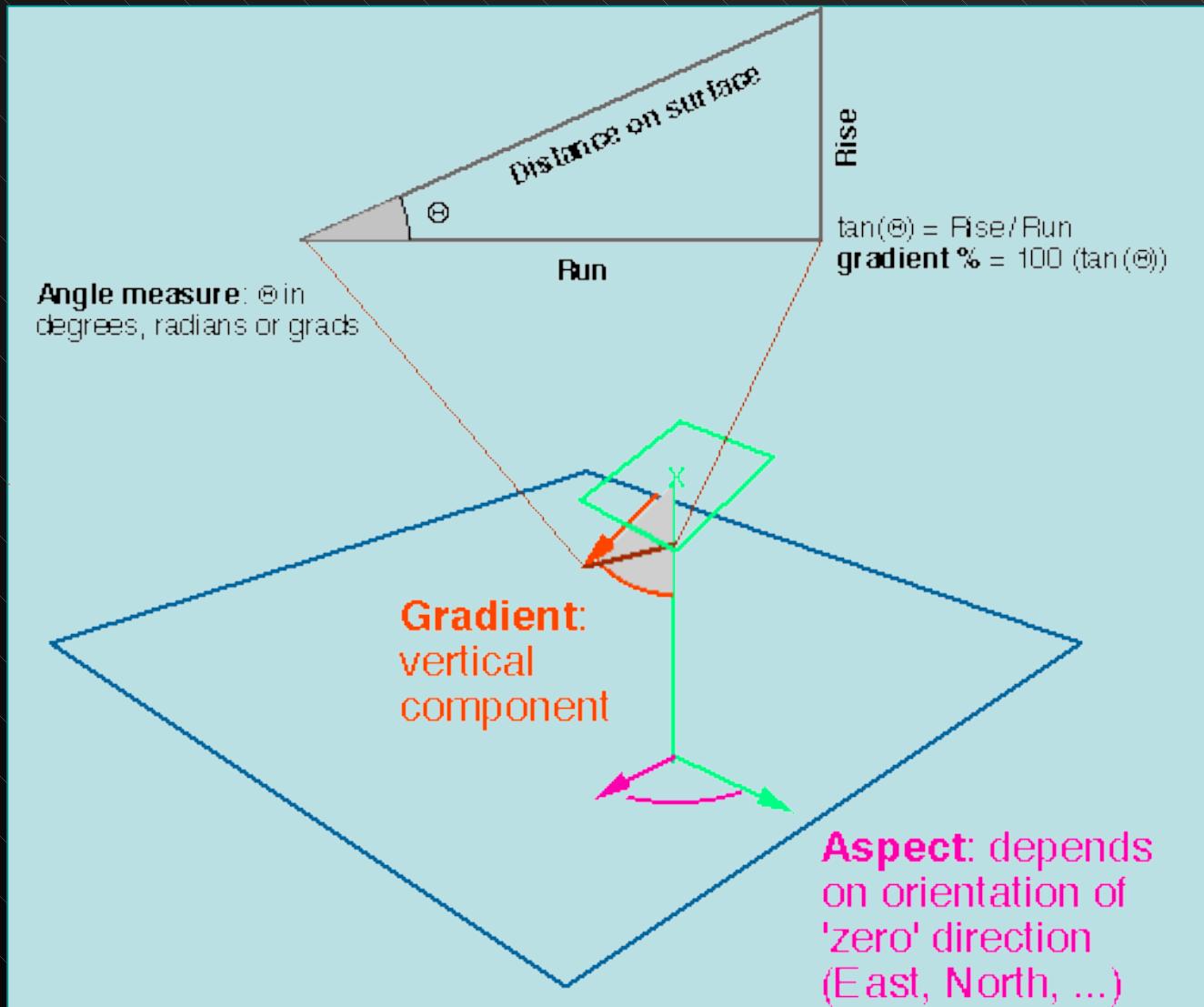


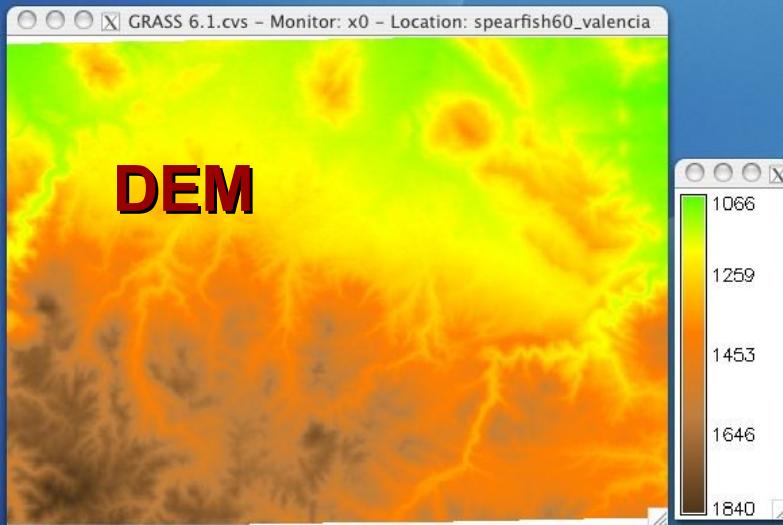
DEM/DTM

- Simple concept
- Not the way we normally conceive of the world spatially (remember world view)
- World as a surface
- Make possible a very diverse and powerful array of analytical methods for surfaces of all kinds
- Originally developed for landscape topography, but have subsequently been used for many other surfaces

DEM: Terrain Analysis



DEM: Terrain Analysis



X r.slope.aspect

Generates raster map layers of slope, aspect, curvatures and partial derivatives

Raster elevation file name (string, required):
elevation.dem

Output slope filename (string, optional):
slope

Format for reporting the slope (string, optional):
degrees

Type of output aspect and slope maps (string, optional):
float

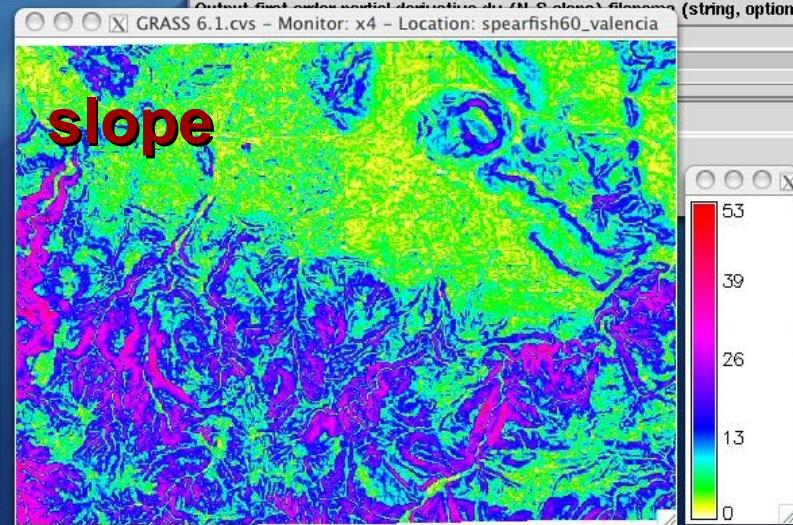
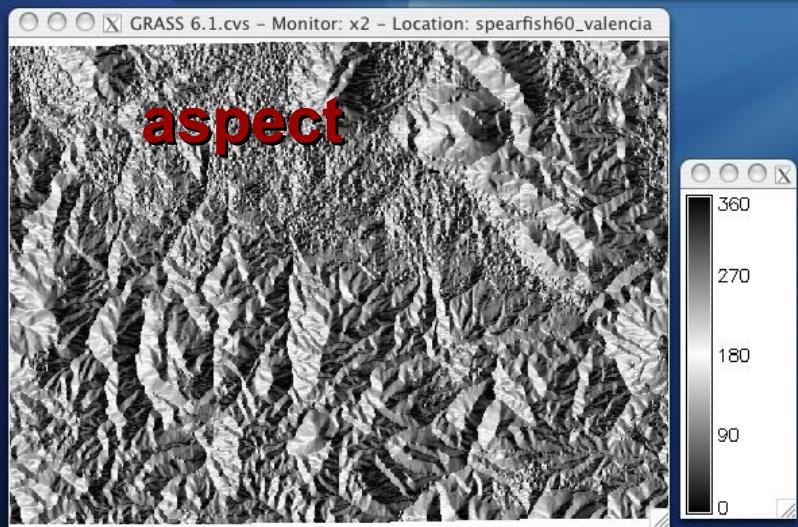
Output aspect filename (string, optional):
aspect

Output profile curvature filename (string, optional):

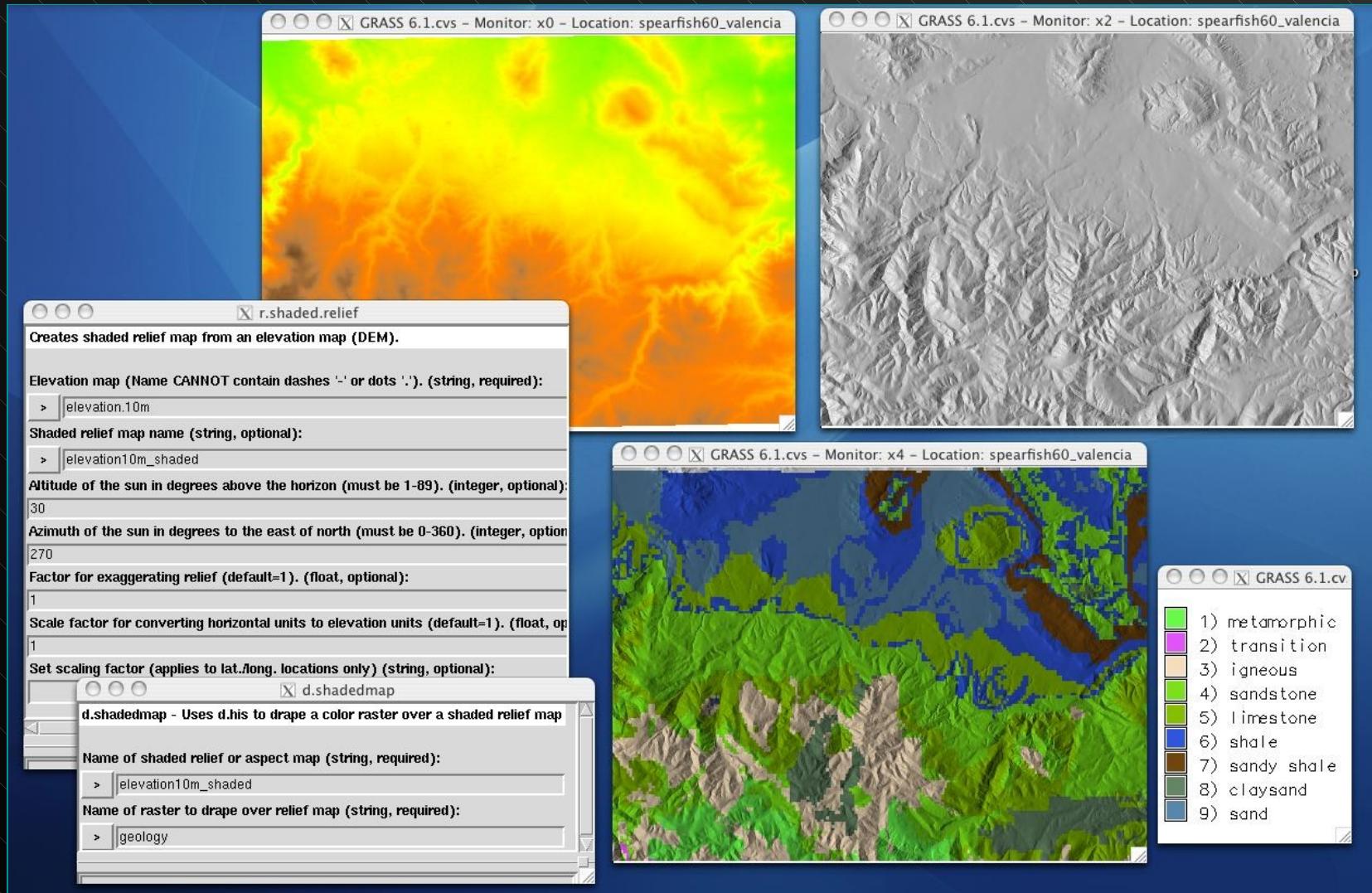
Output tangential curvature filename (string, optional):

Output first order partial derivative dx (E-W slope) filename (string, optional):

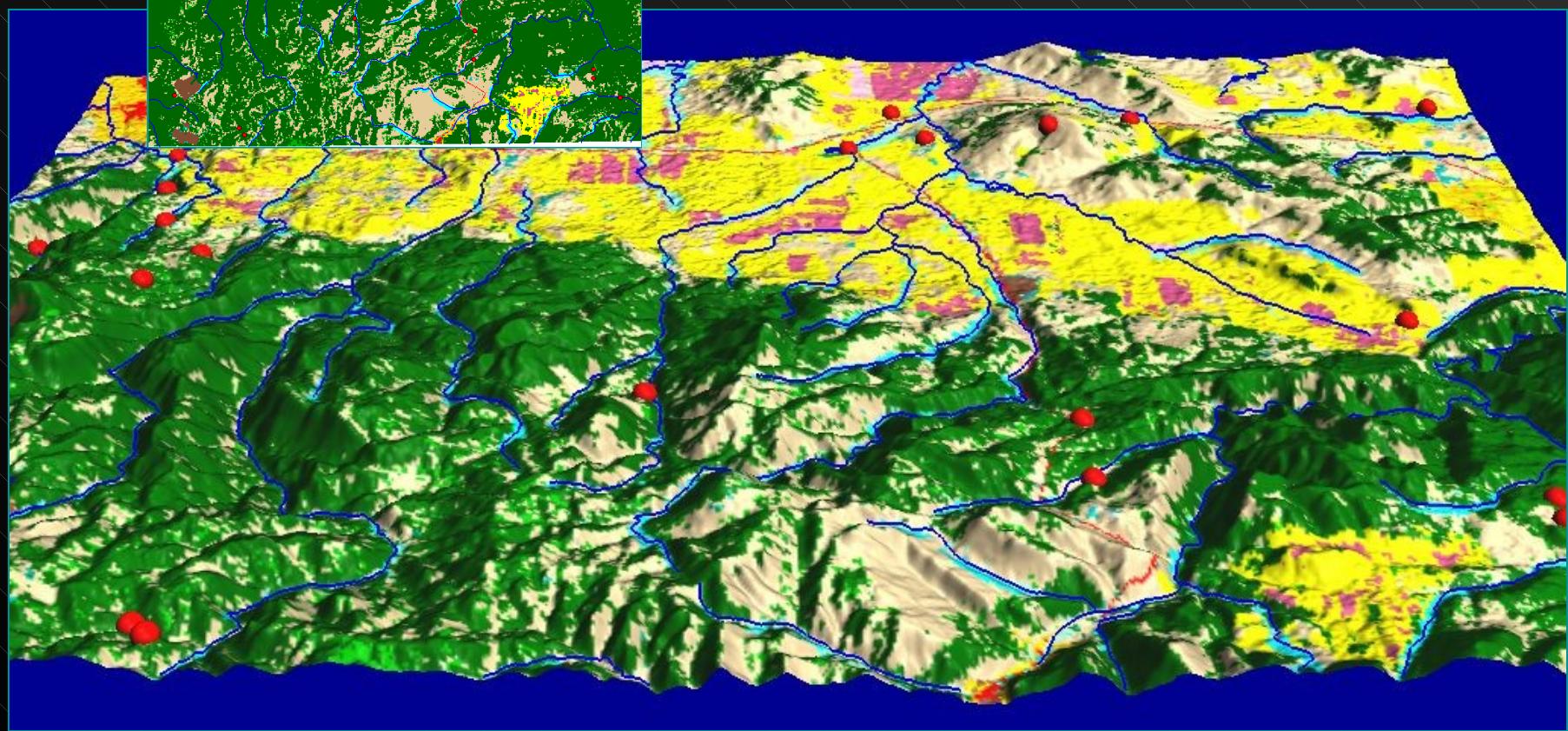
Output first order partial derivative dy (N-S slope) filename (string, optional):



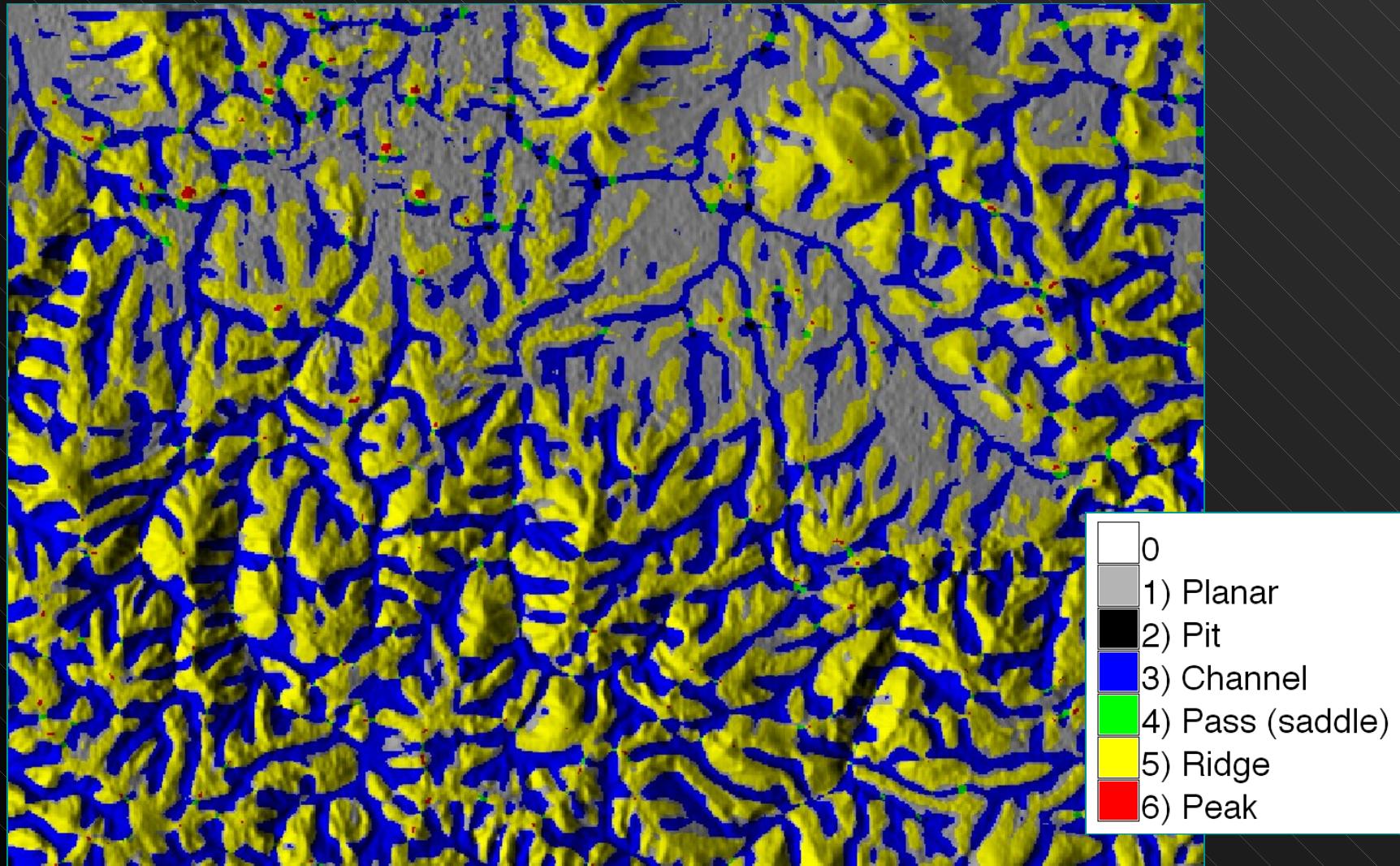
DEM: Shaded Relief



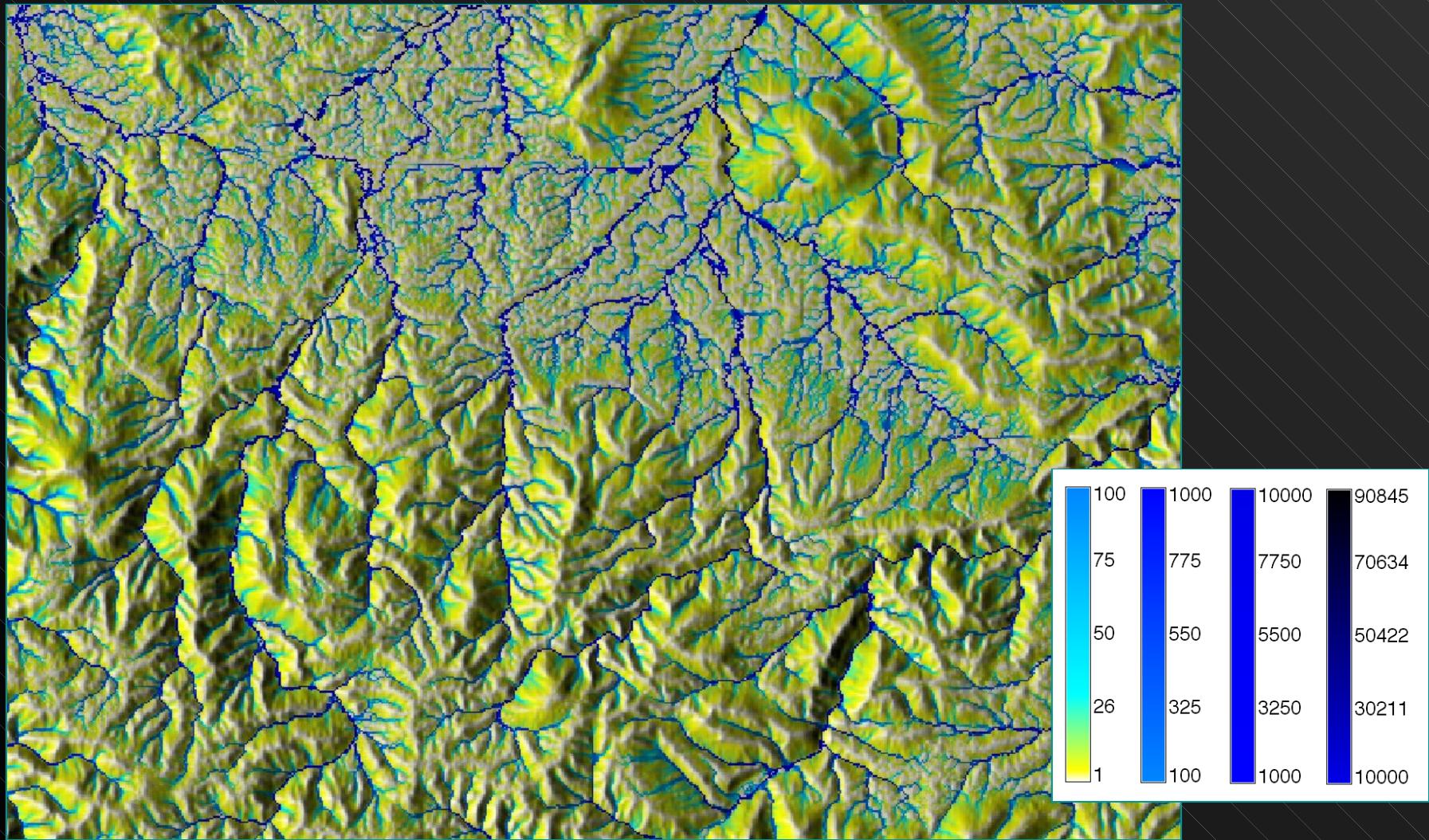
DEM 2.5D Visualization



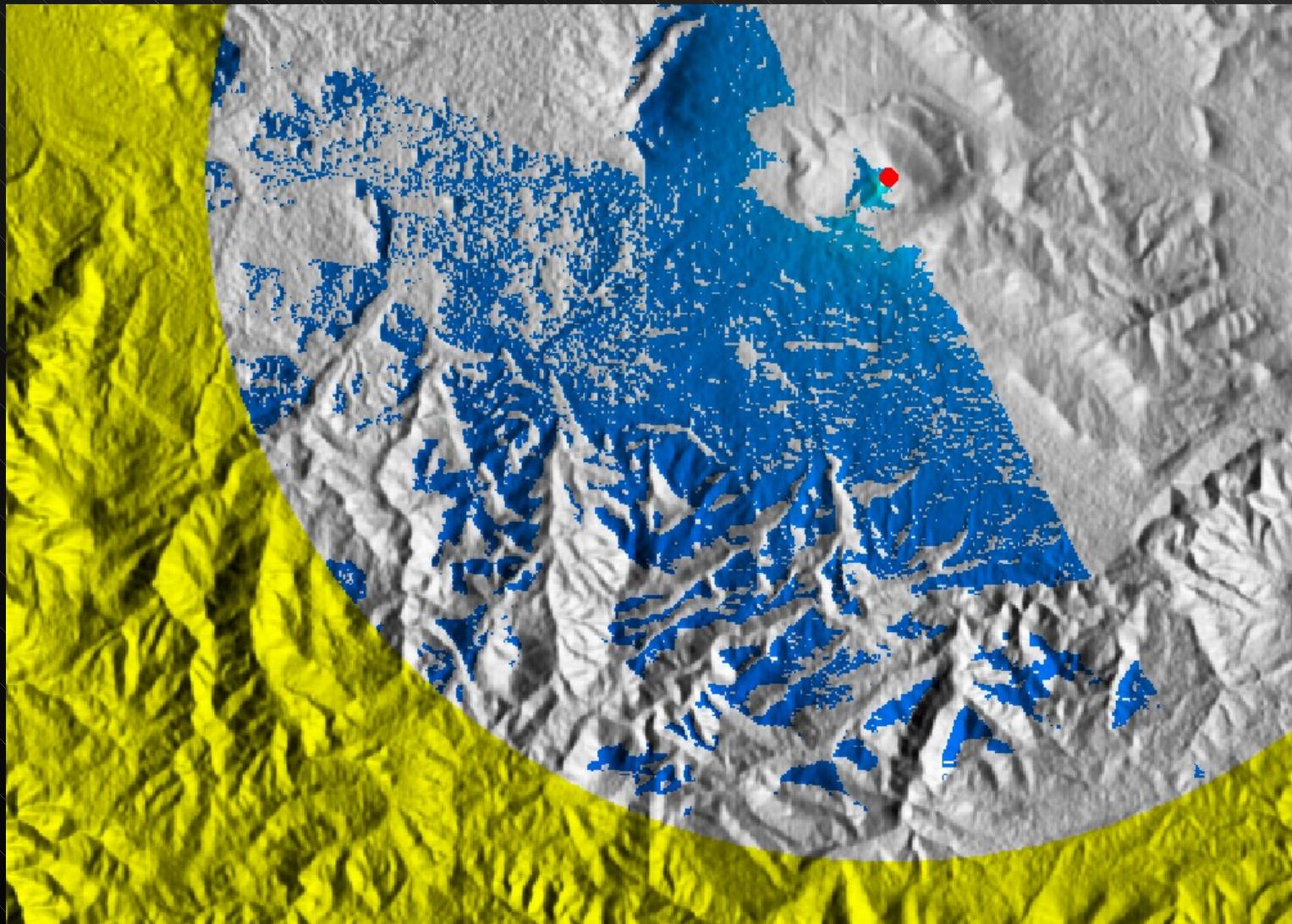
DEM: Terrain Features



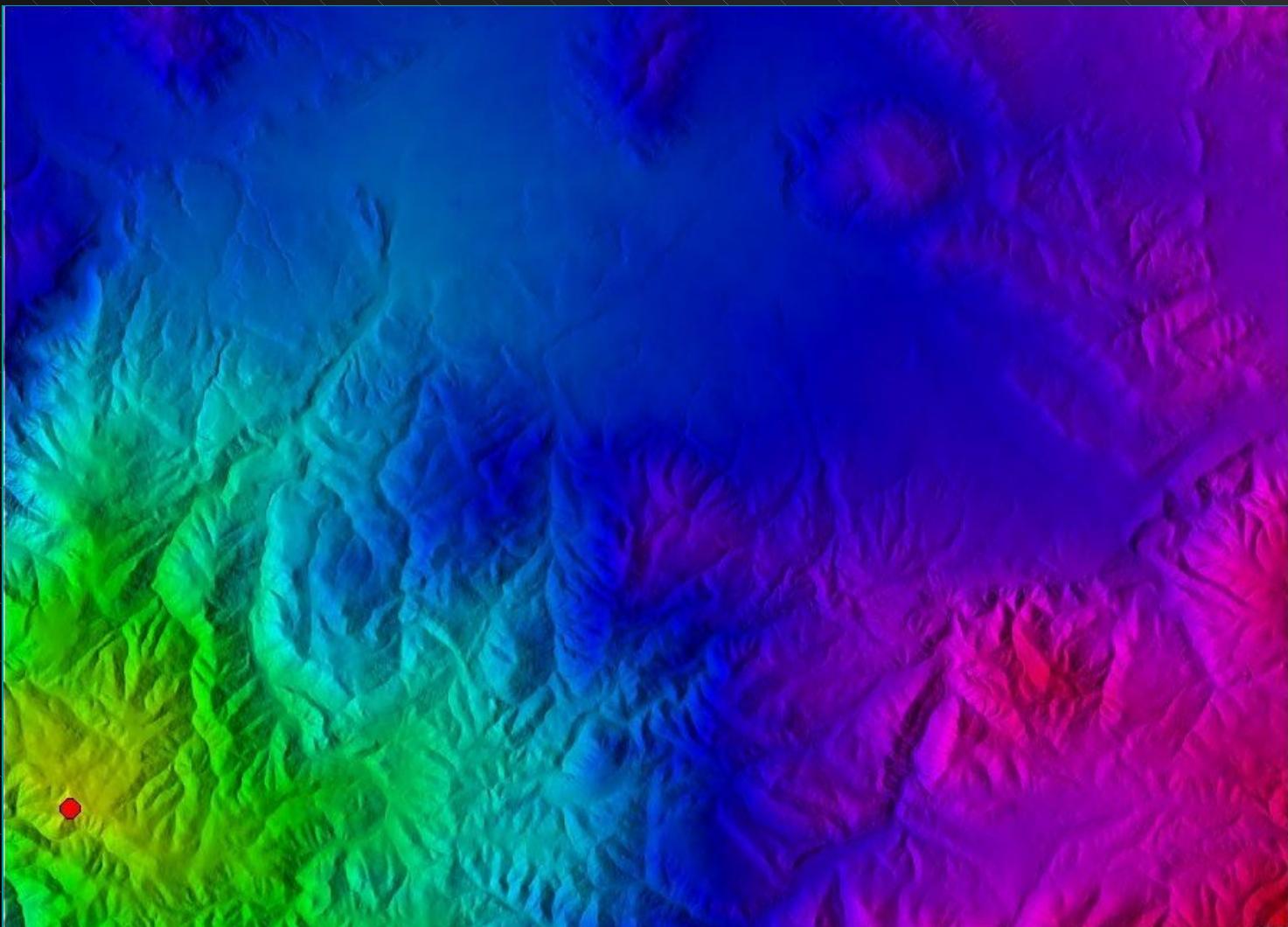
DEM: Hydrology -Accumulation



DEM: Visibility - Viewsheds



Cost Surfaces



Cost Surfaces

Requires **point of origin**

Distance

Cell value = number of cells away from point of origin X width of cell in map units

Friction surface

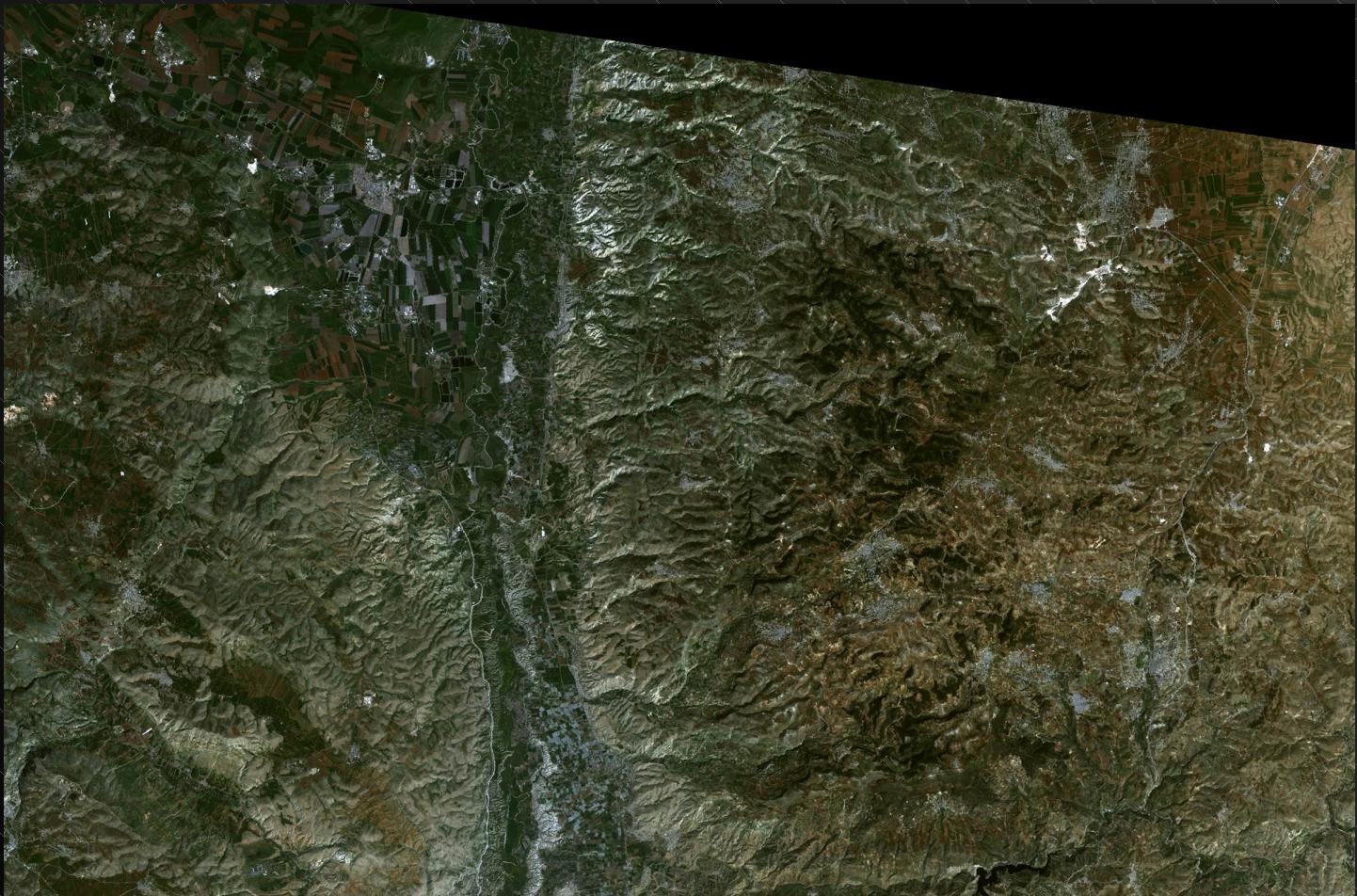
Cell value = cost of traversing that cell

Cost map = distance X friction for each cell

Isotropic vs. anisotropic

Imagery

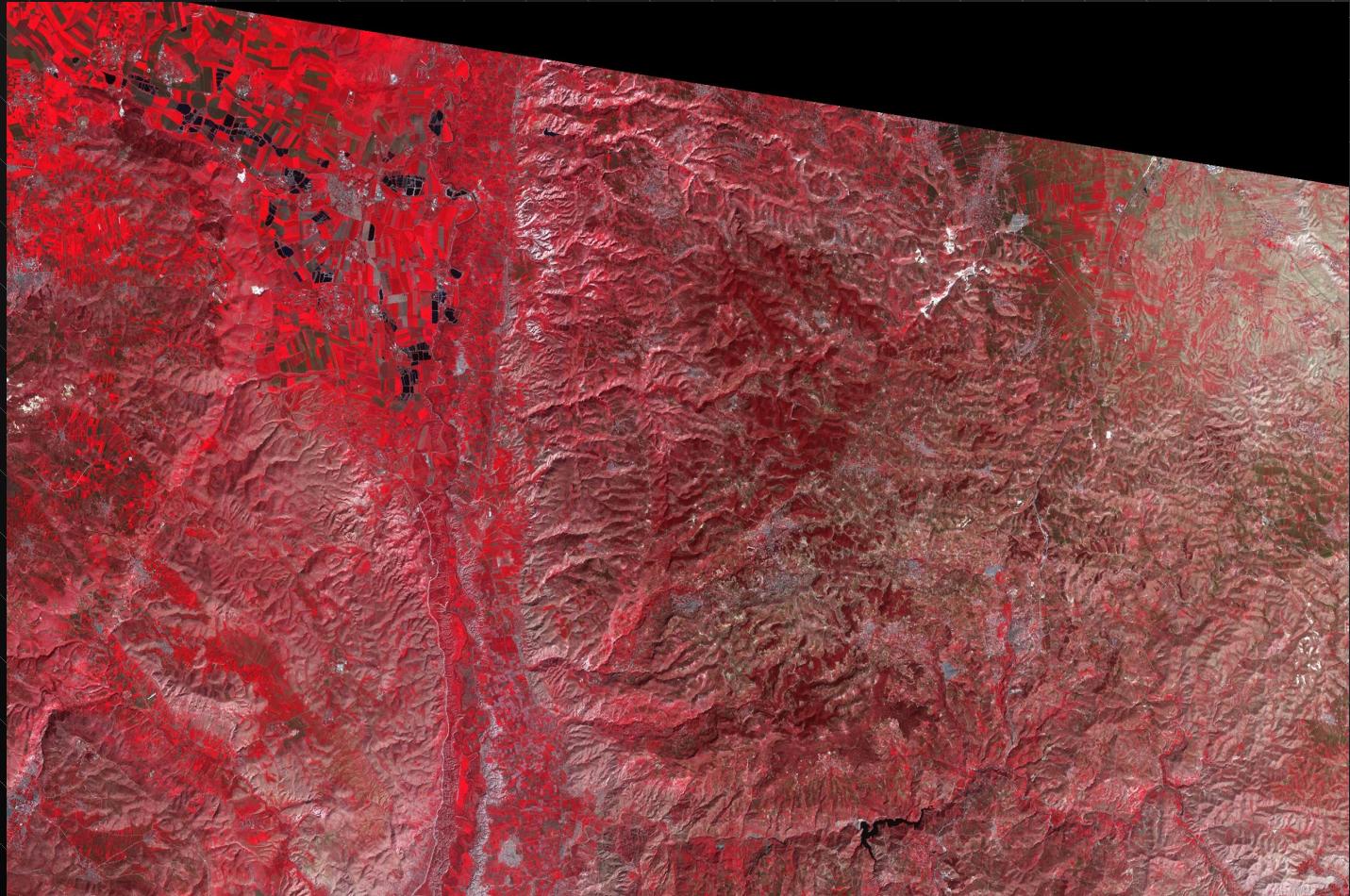
Landsat



Visible Color: Red, Green, and Blue Spectra

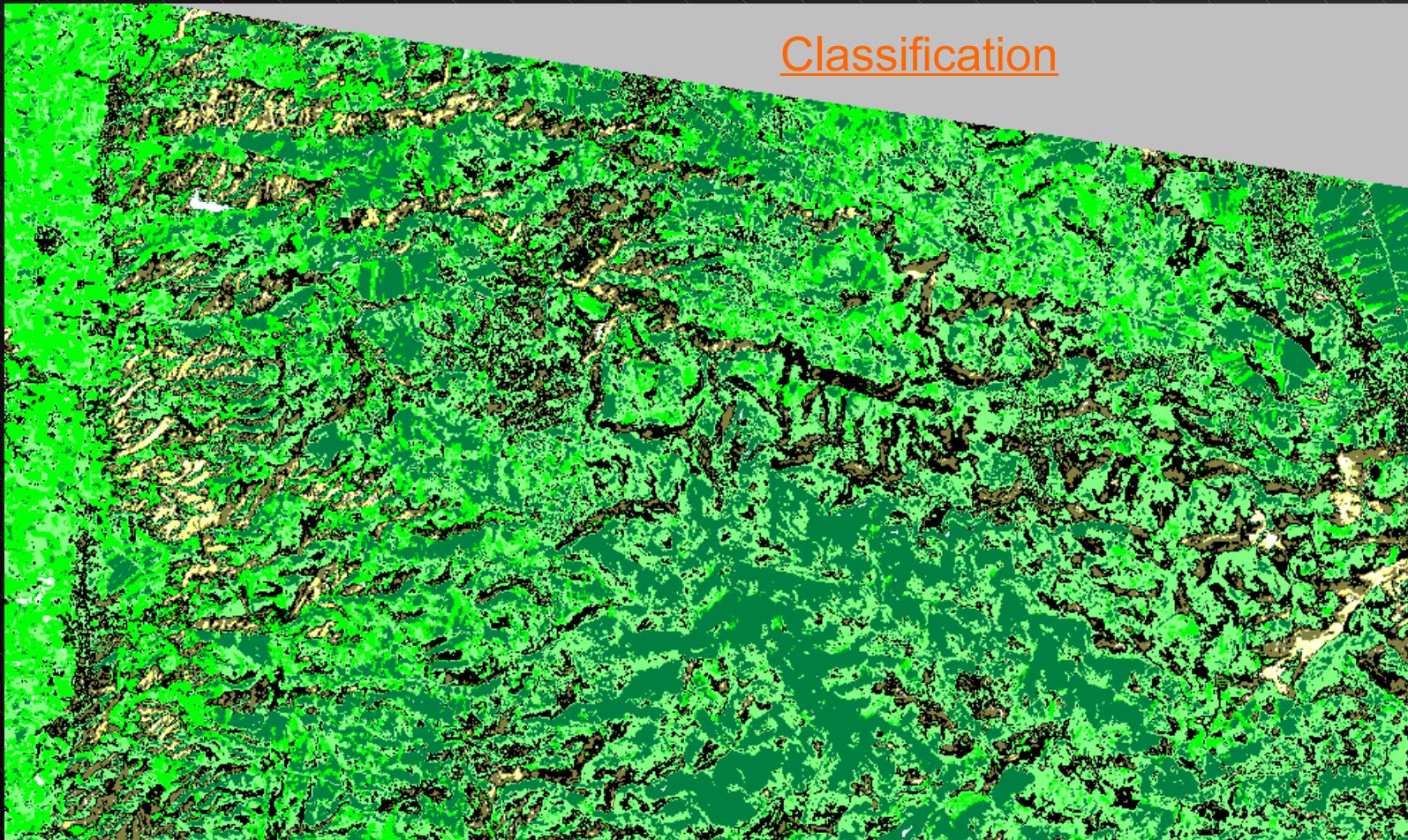
Imagery

Band Manipulation



Growing Vegetation: Near Infra-red, Red, and Green Spectra

Imagery - Landcover



Unsupervised (automatic) landcover classification

Imagery - Landcover

