10 ITWCVP

GIS Training

Day 1

Working with Raster Data

1. OBJECTIVE: Be able to work with raster data in QGIS for meteorological purposes
2. TASK: Create and clip raster mosaicing
   1. Open QGIS
   2. Digital Elevation Model (DEM)
      1. Import all DEM data
      2. Style all DEM data with the same symbology
      3. Merge all rasters into a mosaic raster layer
      4. Pull in country boundary layer. Select Ecuador. Save selected as a new layer.
      5. Clip mosaic raster to Ecuador
      6. Duplicate clipped layer
      7. Change style of duplicated layer to *Hillshade renderer*
      8. Set transparency of clipped layer to 50% and drag it above the hillshade layer
      9. Use *Identify* *Features* toolbar to determine elevation at some locations
3. TASK: Perform mathematical operations on raster data
   1. Existing Rasters
      1. Import 7 Days of CMORPH Data
      2. Adjust colormap to make display interpretation possible
      3. Explore raster calculator
         1. Calculate CMORPH weekly totals
         2. Compare CMORPH totals with provided CPC-Unified weekly totals (CMORPH-CPCU)
         3. Understand how it could be used for climatology and anomalies
         4. Adjust for unit differences mm to inches and vice versa
         5. Extract by value (e.g., precipitation >= 50 mm)
4. TASK: Interpolate point data
   1. Create your own raster
      1. Load Nigeria point precipitation data from excel sheet
      2. Save layer as a shapefile, called *nigeria.shp*
      3. Interpolate dekadal (10-day total) precipitation data: Raster >> Analysis >> Grid (Interpolation)
5. TASK: Sample interpolated data back over stations
   1. Ensure Point Sampling Tool plugin is installed and activated
   2. Sample previously-interpolated data over the stations and compare values