Notes 2024-10-13

SMAP-HB / WRF-Hydro Project

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Progress

- Resampled IMERG to 30 m using nearest neighbor method
- Upscaled SMAP-HB 30 m to 50 km and then resampled using nearest neighbor method
- Resampled NLCD to standardize
- Organized folders
- Checked dimensions for all data (3600 rows and columns)
  - Fixed POLARIS dimensions

Resampling

- Used rioxarray reproject
  - Target resolution = 30 / (111320cos(30)) (deg)

Cleaning

- Looking for missing data
  - Only <1% missing for POLARIS and 1.4% missing for SMAP
    - Over water
    - Haven't checked all daily data yet, time-consuming

EDA

- Plot all data
  - maps, histograms, and correlation

To do

- Still need to standardize data further
  - Use “y” and “x”
  - Standardize whether x and y values are increasing or decreasing
  - Use rioxarray.reproject_match to standardize dimensions?
- After standardization, correlation for all data

MRMS rainfall download

- MRMS rainfall for 10/29/2019 rainfall event
  - Used HEC script for downloading .gz gauge-corrected hourly rainfall
  - 11/14/2019 at 7 am has radar-only
  - Resampling to 2000 m based on HEC tutorial

Running HEC-RAS 2D existing plans

- Fixing infiltration, soils, and land cover layers in HEC-RAS model
  - Source files are unknown and RAS-generated hdfs and tifs are corrupted
- Land cover: using NLCD 2016 that I got earlier
- Soils: GSSURGO

- For now, just have hydrologic soil group - Need textures for Green and Ampt infiltration - Tried running Curve Number infiltration with HSGs

To do

- Get soils data for original model
- Run plans with G&A infiltration
- Get DSS rainfall format from MRMS files