HIRES Projects Summer 2015

(Project 1 and 2 can work together and present one poster by the end of summer)

Project 1: Use of high-resolution satellite product (LANDSAT) to validate coarser one (MODIS)

Software: EXCEL and MATLAB or ENVI/IDL

Tasks

a. Use LANDSAT to validate MODIS river mask
b. Check if MODIS based river ice is assessment is validated by LANDSAT images
c. Make a mask for the lower part of Sus. River, from Marietta to Chesapeake Bay, based on summertime images.
d. If there is time, make mask for Kuskokwim River
e. Compare river ice map with GIS record project 2 d)

Project 2: Visualize ice jam data in GIS

Software: QGIS/ArcGIS and EXCEL

Tasks

a. Obtain base GIS layers for either Susquehanna or Kuskokwim
b. Get data from CRREL ice jam database/river forecasting center, past 5 years
c. Screen the data for errors, in particular coordinates and river name
d. Scan through the descriptions to extract more relevant information such as additional jam warnings and jam events and map them
e. Compare database records with river ice map of project 1 b)

Project 3: Change detection for traffic cameras

Software: MATLAB or ENVI/IDL

Tasks

    a. Capture daytime traffic camera images, with focus on bridges and rivers in background
    b. Create mask for the image for a particular region, in particular 1) road, 2) river
    c. Track time series of change in R,G,B for 1) road, 2) river
    d. Try to correlate changes to amount of traffic on 1) road, 2) river