Marsh Detection/Mapping Method

Study area:

* Virginia coastal areas

Data acquisition:

Images

* Sentinel-2 MSI: 2015 – present (all year round should be included for classification)
* Resolution: 10 m (RGB/NIR), 20 m (5,6,7,8A band: designed for vegetation characterization, SWIR 11&12 band: evaluating vegetation moisture stress), 60m (1, 9, 10: atmospheric correction and cloud screen).
* How to get data?
  + Python code retrieve the raw data from santinelsat
  + Google earth engine to retrieve the images from study area

Labels

* National wetland inventory (NWI)
* NOAA Coastal Change Analysis Program (C-CAP): Starting 1996 and updated every 5 years, lack of marsh details and remain high uncertainties.
* Collaborating with local agencies and universities, NOAA National Estuarine Research Reserve Systems (NERR) have been providing long-term monitoring with detailed information concerning coastal habitat conditions over the 26 designated estuaries on the U.S. coasts.
* Virginia shoreline inventory (VSI): marsh boundaries with the type of marshes.
  + Understand the different types of marshes that coded in this database, and differentiate into high marsh and low marsh.