AquaSat Supplementary Information

November 27, 2018

Tables

Table 1: Summary of landsat wavelengths and resolution. Bands with an asterisk* indicate that they were not used in this project. Note that panchromatic band is only available for top of atmosphere data, not surface reflectance

Bands	**L5 Wavelengths**	**L7 Wavelengths**	**L8 Wavelengths**	**Resolution (m)**
Blue	0.45-0.52	0.45-0.52	0.452-0.512	30
Green	0.52-0.60	0.52-0.60	0.533-0.590	30
Red	0.63-0.69	0.63-0.69	0.636-0.673	30
Near Infrared (nir)	0.77-0.90	0.77-0.90	0.851-0.879	30
Shortwave Infrared 1(swir1)	1.55-1.75	1.55-1.75	1.566-1.651	30
Shortwave Infrared 2 (swir2)	2.09-2.35	2.09-2.35	2.107-2.294	30
Panchromatic	NA	0.52-0.9	0.503-0.676	15
Thermal*	10.4-12.5	10.4-12.5	NA	30
Cirrus*	NA	NA	1.363-1.384	30
Thermal (TIRS) 1*	NA	NA	10.60-11.19	30
Thermal (TIRS) 2*	NA	NA	11.50,12.51	30

Table 2: Table shows the characterstic Names used in our WQP data download.

parameter	**WQP characteristicNames**
cdom	Colored dissolved organic matter (CDOM)
chlorophyll	Chlorophyll; Chlorophyll A; Chlorophyll a; Chlorophyll a (probe relative fluorescence); Chlorophyll a (probe); Chlorophyll a - Periphyton (attached); Chlorophyll a - Phytoplankton (suspended); Chlorophyll a, corrected for pheophytin; Chlorophyll a, free of pheophytin; Chlorophyll a, uncorrected for pheophytin; Chlorophyll b; Chlorophyll c; Chlorophyll/Pheophytin ratio
doc	Organic carbon; Total carbon; Hydrophilic fraction of organic carbon; Non-purgeable Organic Carbon (NPOC)
secchi	Depth, Secchi disk depth; Depth, Secchi disk depth (choice list); Secchi Reading Condition (choice list); Secchi depth; Water transparency, Secchi disc
tss	Total suspended solids; Suspended sediment concentration (SSC); Suspended Sediment Concentration (SSC); Total Suspended Particulate Matter; Fixed suspended solids

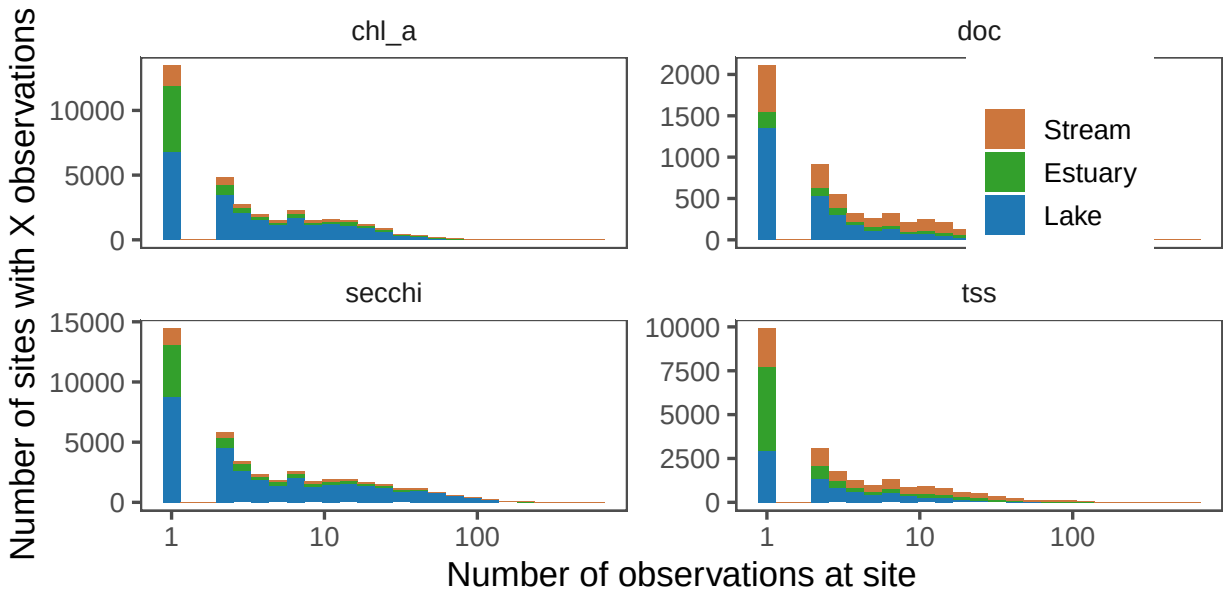

Figure 1: Shows the distribution of observations at a given site. Most sites only have a single overpass observation, but there are thousands of these sites

Supplemental Figures

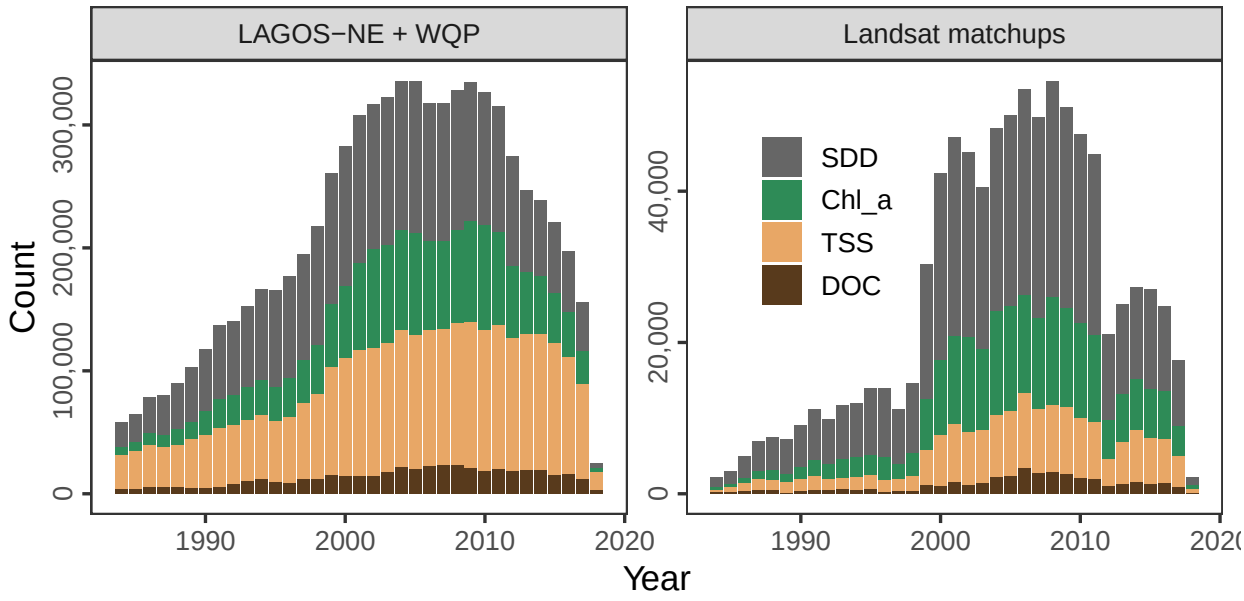

Figure 2: Shows the number of observations per year per parameter type. Note the different y axes, highlighting roughly an order of magnitude less matchup data than incoming data. The matchup data shows increased data availability when two satellites are in orbit.