SeaDAS: NASA Software for the Analysis of Earth-Viewing Satellite Data

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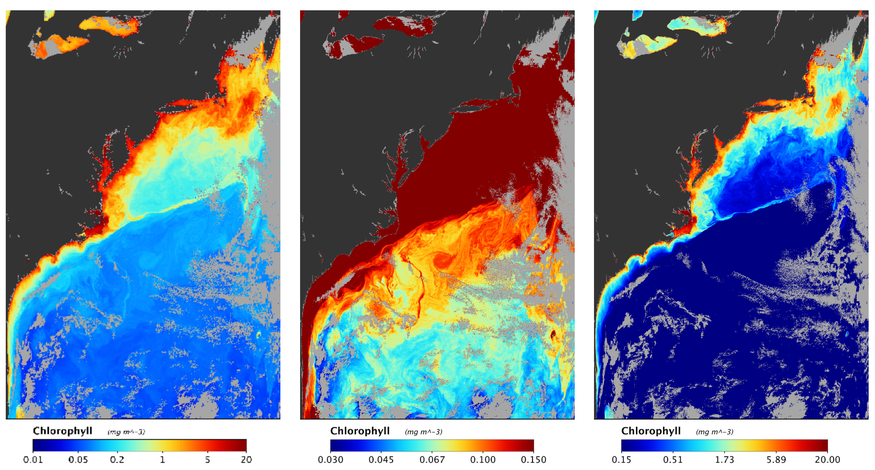
SeaDAS is visualization, processing, and analysis software for use with Earth-viewing satellite data. This open-source NASA software, (current version 7.4), enables users to work with all levels of OB.DAAC (Ocean Biology Distributed Active Archive Center) data. This is the official distribution source of the NASA OCSSW (Ocean Color Science SoftWare) processors (such as l2gen, l2bin, l3mapgen, etc.). These processors use the latest accepted NASA OBPG (Ocean Biology Processing Group) algorithms, which includes atmospheric correction. SeaDAS provides tools to retrieve and use the same coincident ancillary measurements used in NASA's official data processing stream. SeaDAS processing provides a standardized data format across a multitude of satellites, currently fully supporting over 16 missions. The visualization and analysis tools can be used on many other missions. SeaDAS allows for integration of field measurement data for comparison with satellite data. NASA provides strong user support for SeaDAS. Scientific data products can be exported from SeaDAS in formatted files readily readable by many third party GIS analysis packages.

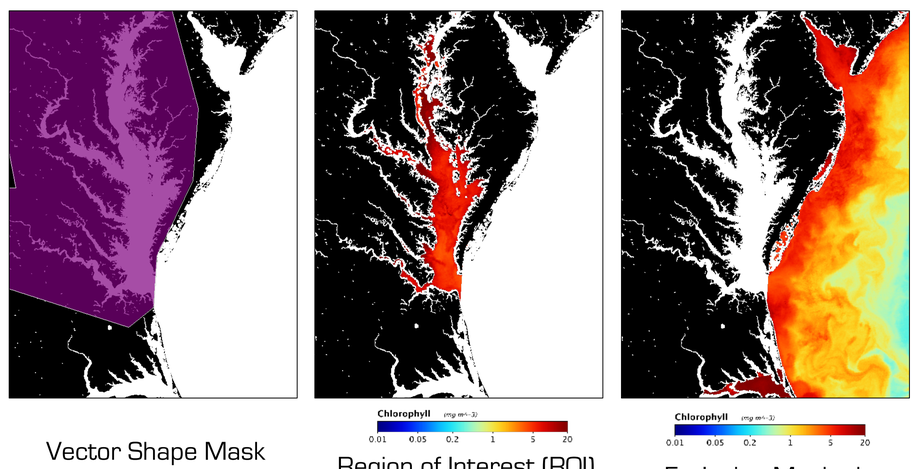
✧ Color Palette Scaling



Standard Range | Low Range | High Range

A2010283180500

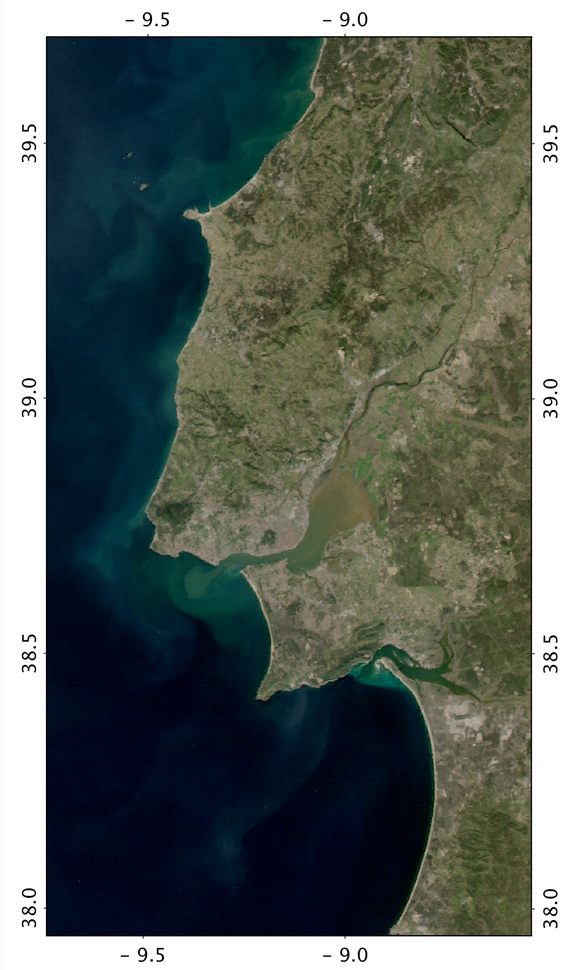
✧ Masking (Vector)



Vector Shape Mask *(shown in purple)* | Region of Interest (ROI) Masked | Exclusion Masked

A2010283180500

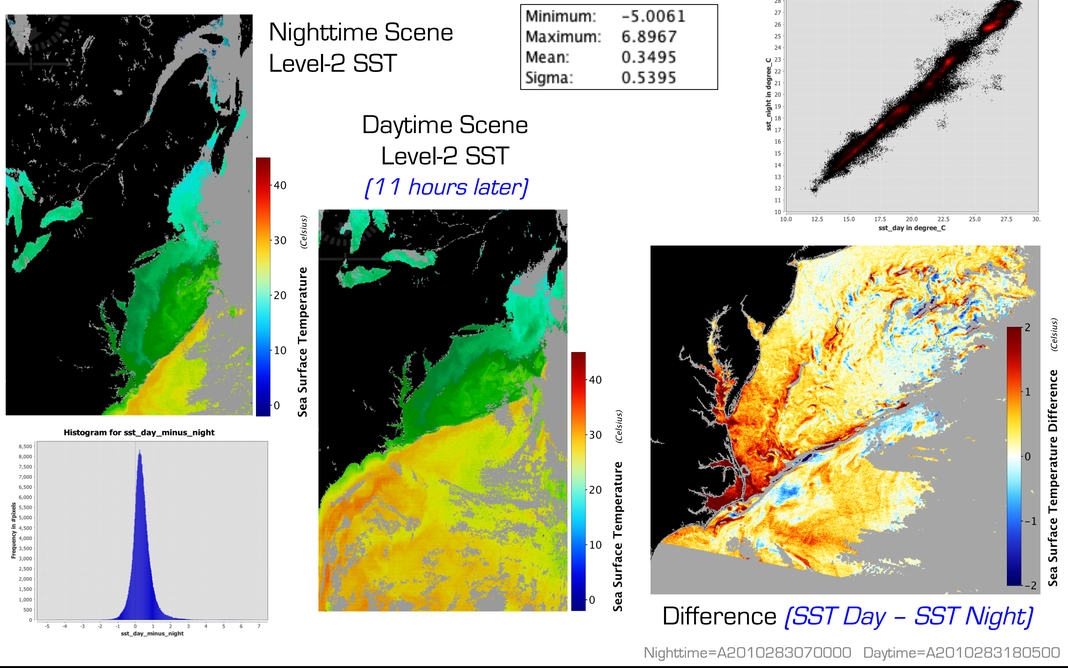
✧ True Color



MODIS Aqua Image of Lisbon Jan 17, 2017
Red=rhos_645 (resolution=250m)
Green=rhos_555 (resolution=500m)
Blue=rhos_469 (resolution=500m)

A2017017134000

✧ Data Comparison



Difference *(SST Day – SST Night)*

Nighttime=A2010283070000 Daytime=A2010283180500

✧ Standard Products

Ocean Color (OC) Product Suite

- aot — Aerosol Optical Thickness
- angstrom — Aerosol Angstrom Exponent
- Rrs — Remote Sensing Reflectance
- chlor_a — Chlorophyll Concentration
- Kd_490 — Diffuse Attenuation Coefficient
- pic — Particulate Inorganic Carbon
- poc — Particulate Organic Carbon
- ipar — Instantaneous Photosynthetically Available Radiation
- nflh — Normalized Fluorescence Line Height
- par — Photosynthetically Available Radiation

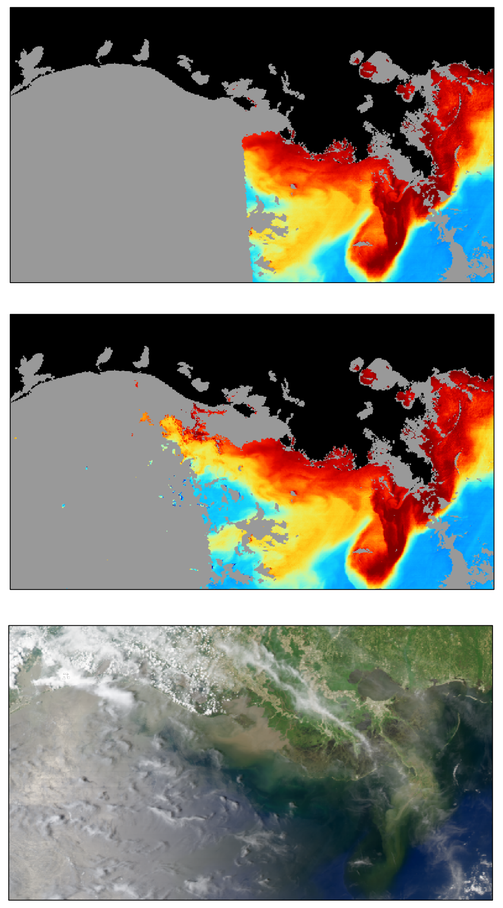
Sea Surface Temperature (SST) Product Suite

- sst — Sea Surface Temperature

Inherent Optical Properties (IOP) Product Suite

- a — Total Absorption
- bb — Total Backscattering
- aph — Absorption due to Phytoplankton
- adg — Absorption due to gelbstoff and detrital matter
- bbp — Particulate Backscattering

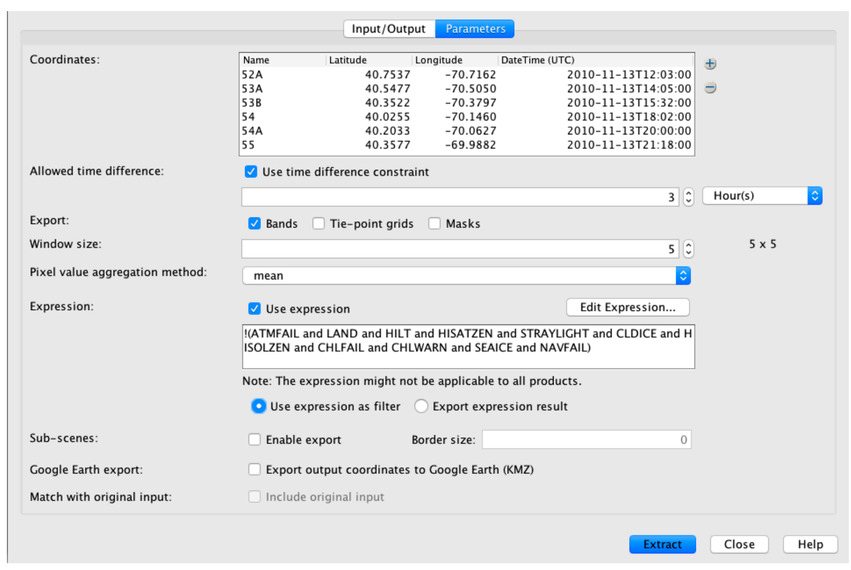
✧ Masking (Raster)



Top: Chlorophyll (HIGLINT masked)
Middle: Chlorophyll (no glint masked)
Bottom: True Color Scene Image

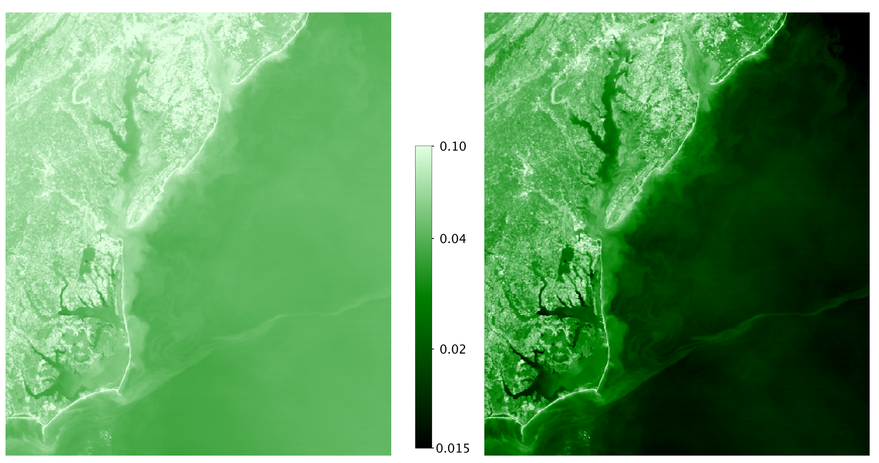
A2016135192500

✧ Pixel Extraction



A2010317175500

✧ Atmospheric Correction



No Atmospheric Correction
Reflectance at top of atmosphere
(rhot_555)

Atmospheric Correction Applied
Reflectance at the planet surface
(rhos_555)

A2010283180500

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BEAM Developer: Brockmann Consult (ESA)

http://seadas.gsfc.nasa.gov