



OSU



OSU HICO data sets and products

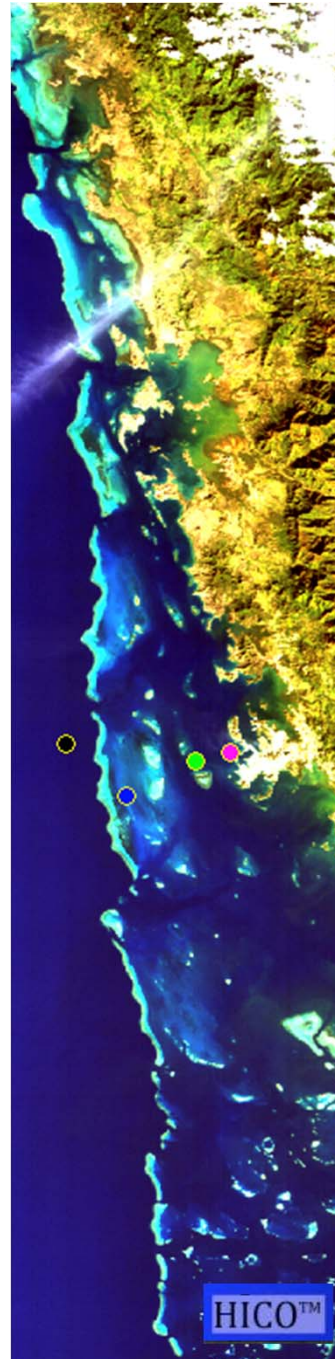
Nick Tufillaro and Curt Davis
Oregon State University
February 22, 2011

nbt@coas.oregonstate.edu

Outline

- Data sets for Workshop
- Update on OSU Cal/Val
- Simple products
MCI, FLH
- More complex products
Developing derivative spectroscopy

Noumea 19 December 2010

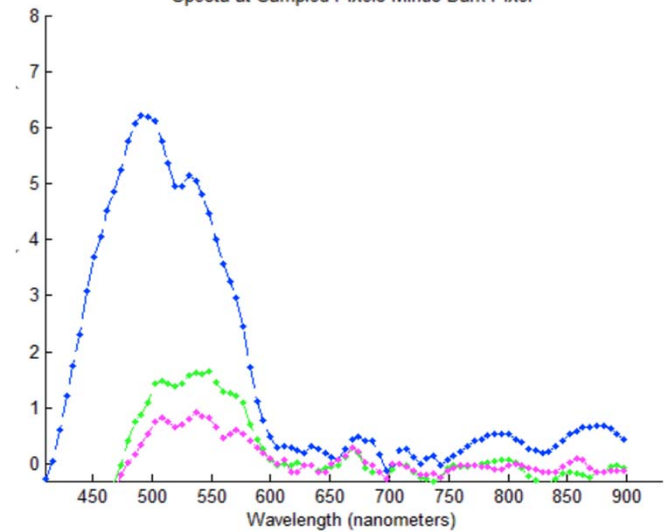


Cruise data from Cecile Dupouy

STATIONS

17-Dec-10lat (°S)	min(60)	lon (°E)	min(60)	Time
Recif Senez	22	16.897	166	21.134 10h05
slick	22	19.904	166	21.648 11h05
Canard Island	22	18.828	166	26.003 11h47
15-Dec-10				
B50	22	14.71	166	33.2418h48
B03	22	15.07	166	32.9199h33
14-Dec-10				
OC1	22	24.11	166	15.038h58
G003	22	22.87	166	20.27610h32
M33	22	21.263	166	23.39411h32
I12	22	18.792	166	26.02712h20
GD10	22	13.768	166	20.016
13-Dec-10				
GD10	22	13.23	166	22.4310h30
Recif Senez	22	17	166	20.89211h15
OC1	22	24.11	166	15.0312h07
G003	22	22.34	166	20.3712h45


Spectra at Sampled Pixels Minus Dark Pixel



HICO OSU Web Portal

hico.coas.oregonstate.edu/datasearch/data-search-advanced.php

OSU Oregon State University



HICO Home

- HICO
- Design & Heritage
- Calibration
- Targets
- Orbit
- Meet the Team
- Publications & Presentations
- Contact Us

Become a HICO Data User

Datasets

- How to request data
- Subscribe
- Search data archive
- Data characteristics
- Working with the data

Image Galleries

Current Projects

HICO Data Search

TIP: To select more than one item from a list, hold down the control or shift key while clicking. Select the Help button below for details about the selection parameters.

TARGET

- Belle-2
- Belle-5
- Bermuda
- Boucaup
- Bristol Channel_UK
- BroadBay_NZ
- Cape_Town_SAfrica
- CatalinaIsland_CA_usc
- CatalinaIsland_CA_dps
- Cauca

LEVEL

All
1.1a

DATA FORMAT

Full Standard

DATE RANGE

Use dropdown in the middle date range combobox

2009-09-27 to 2011-01-14
YYYY MM DD

SCENE DETAILS

orbit direction: All

scene ID:

satellite orientation: All

VIEWING CONDITIONS

land coverage < 100 % (0 - 100%)

solar zenith angle > 0 ° (0 - 90°)

view zenith angle < 90 ° (0 - 90°)

STATUS

product status: All

include non public data

VERSION

data version: All
01

calibration code version: All
Version 3.0.7
Version 3.0.3
Version 3.0.2

RESULTS FORMAT

show images

true color

show text

- target name
- date
- level
- land percent
- image links
- scene ID

Submit Reset Help

<http://hico.coas.oregonstate.edu>, HICOworkshop Alexandria2011

sftp Site for Workshop

How to access the files

To access the files please use 'sftp', an example of a client for Windows is 'WinSCP'. sftp to:

sftp: `mercurv.coas.oregonstate.edu`

The login and password are 'hicoguest' and 'hicodata'.

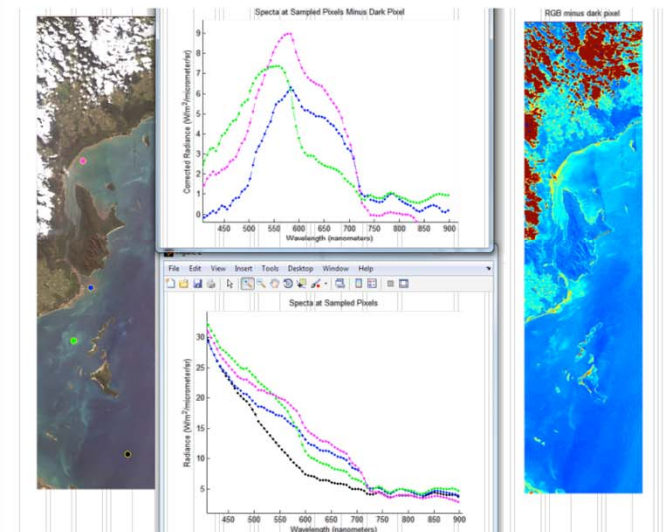
data sets

- aaot_2010_07_11
- aaot_2010_08_08
- ccny_2010_01_18
- ccny_2010_10_02
- lucinda_2010_05_07
- lucinda_2010_12_07
- manzalah_2010_06_16
- manzalah_2010_06_18
- monterey_2010_03_27
- monterey_2010_04_01
- monterey_2010_05_09
- noumea_2010_12_19
- wavecis_2010_12_09

files

- 6s_in
- dps
- dps_image
- iss.2010163.0612.030453.L1B.Lucinda_Jetty_AUS.v03.3042.20100614200244.100m.hico.bill
- iss.2010163.0612.030453.L1B.Lucinda_Jetty_AUS.v03.3042.20100614200244.100m.hico.hdr
- iss.2010163.0612.030453.L1B.Lucinda_Jetty_AUS.v03.3042.20100614200244.100m.hico_rad_flag.bsq
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- iss.2010163.0612.030453.L1B.Lucinda_Jetty_AUS.v03.3042.20100614200244.100m.hico_rad_rgb.bsq
- iss.2010163.0612.030453.L1B.Lucinda_Jetty_AUS.v03.3042.20100614200244.100m.hico_rad_rgb.hdr
- lucinda_2010_12_07_0304_L2A_tafkaa_orig.vapbin
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_arfl.hdr
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_arfl
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_diag_refl.asc
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_NLsf.hdr
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_NLsf
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_prod.hdr
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_prod
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_R_rs.hdr
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_R_rs
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_refl.hdr
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_refl
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_solar_irr.asc
- lucinda_2010_12_07_0304_L2A_tafkaa_orig_vaplib.asc

images



Workshop TAFKAA Files

Parameters:

```
Tafkaa 6s

Options:

tafkaa_atom_model:
  Tropical
  Mid-Lat Summer
  Mid-Lat Winter
  Sub-Artic Winter
  US Standard 1982

Ozone Amount: 0.3400

Selected Gases: H2O 03 N2O 02

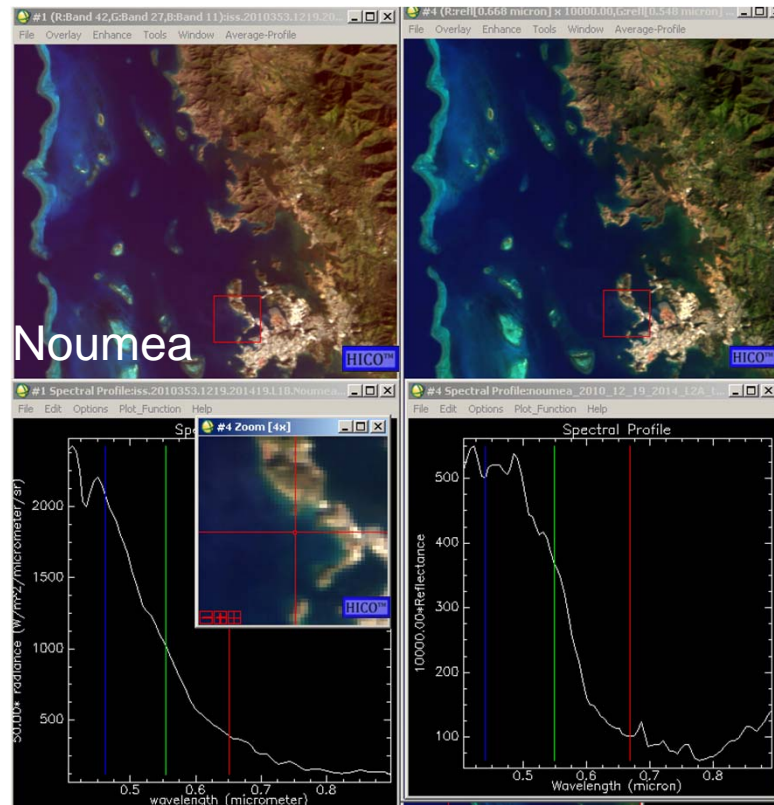
Aersol Model:
  None
  Continental
  Maritime
  Urban
  User Specific Basic Components
  Desertic
  Biomass Burning
  Stratospheric
  Aeronet Inversion Data
  Visibility (KM) or Optical Depth
  Visibility (0-299KM)

Water Vapor Line 1
  0.7050 (3) 0.7250 (5) 0.7450 (3)

Water Vapor Line 2
  0.8050 (3) 0.8250 (5) 0.8450 (3)
```

Products:

```
*.arfl      Apparent at-sensor reflectance
*.NLsf     Normalized ground (water) leaving radiance
*.R_rs     Remote sensing reflectance
*.refl     Reflectance
```



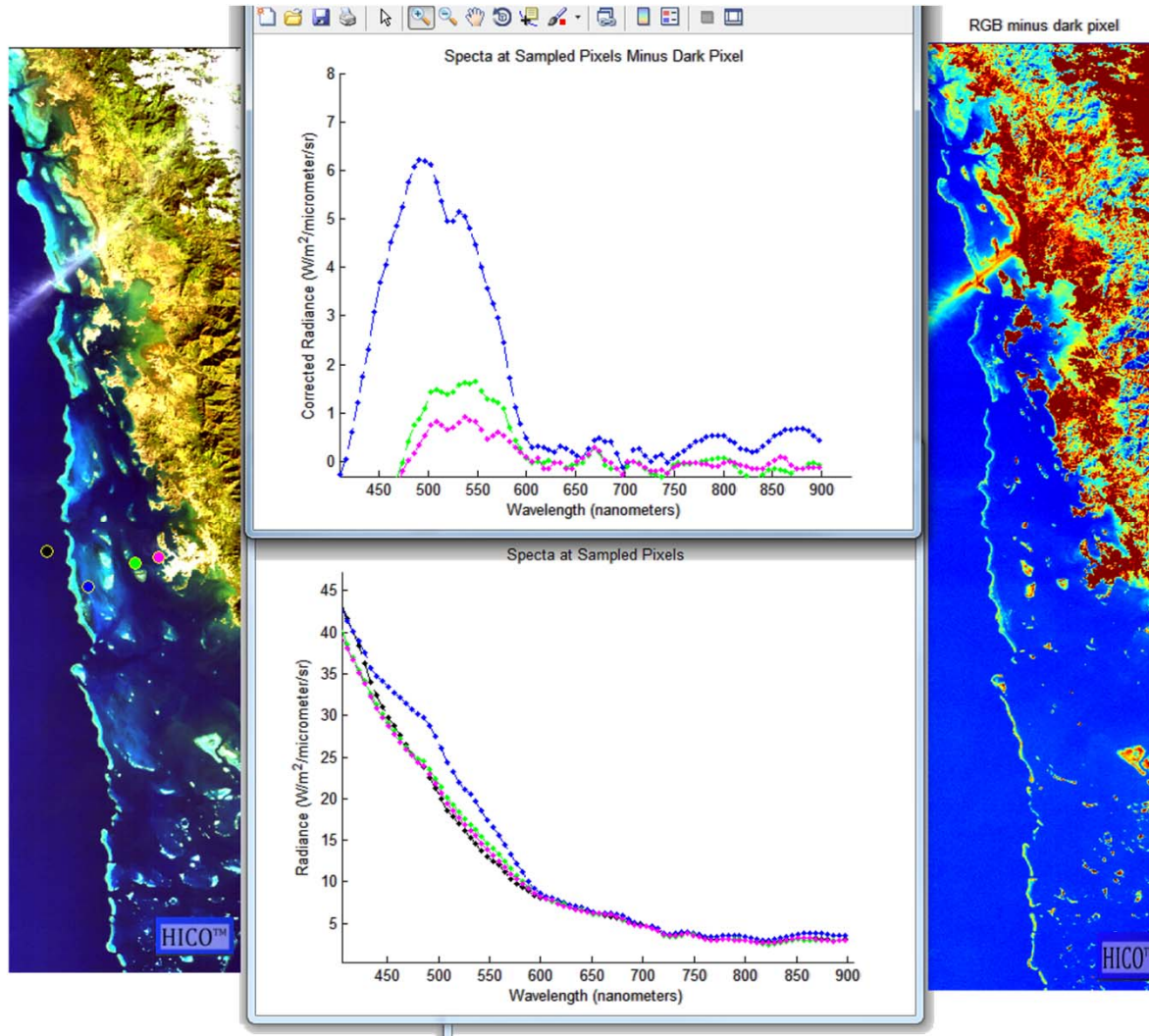
Reference

tafkaa_6s: An Atmospheric Correction Algorithm for the Land, Marcos J. Montes & Bo-Cai GAO, NRL, 2004 September 10 (marcos.montes@nrl.navy.mil)

Dark Pixel Subtraction

Input:

tafkaa *.arfl file



Reference: Abstract from '[Oceans Optics XX](#),' 27 Sept -- 1 Oct 2010, Anchorage, Alaska. [Indicators of plumes from HICO.](#)

CALVAL

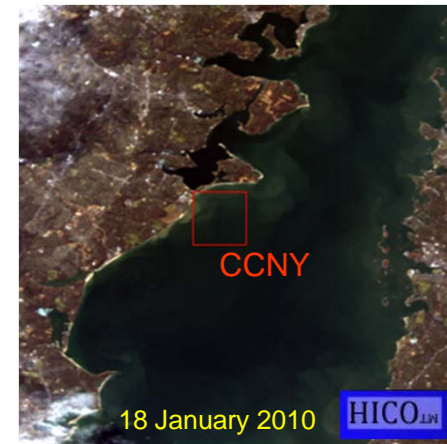
SeaPRISM

EUREKA, CCNY, AAOT, ...

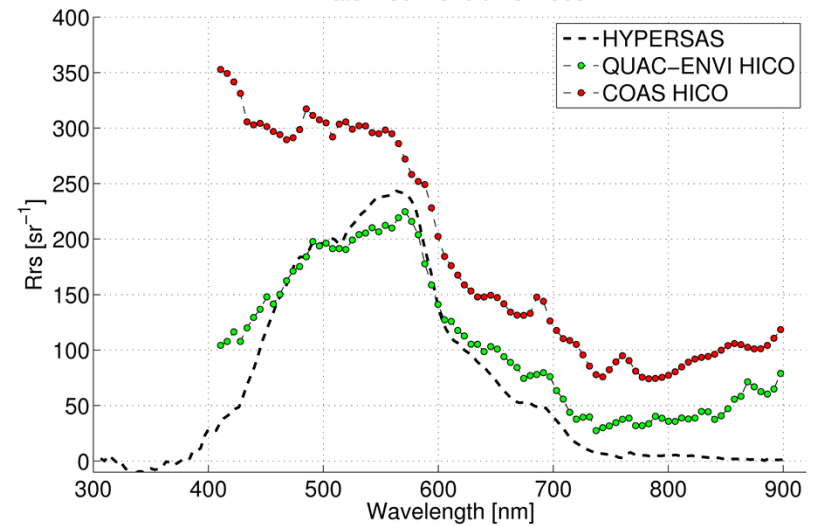
Cruises

OREGON (MILOCO, MOCHA ...), CHILE, HAWAII, OTAGO, NOUMEA, ...

CCNY HyperSAS

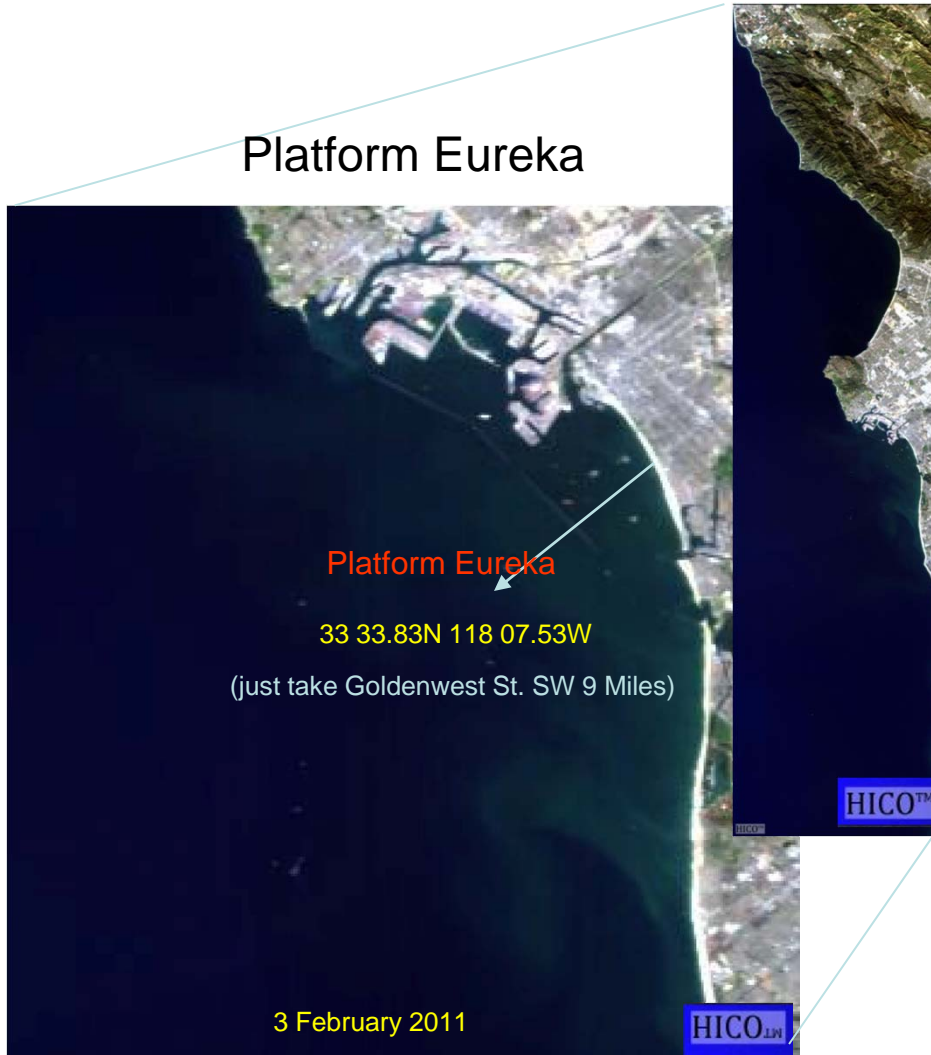


Date: 18012010 time: 1900



Plot from Tristan Harmel and Alex Gilerson, CCNY

Platform Eureka



Platform Eureka

33 33.83N 118 07.53W

(just take Goldenwest St. SW 9 Miles)

3 February 2011

Burt Jones, USC

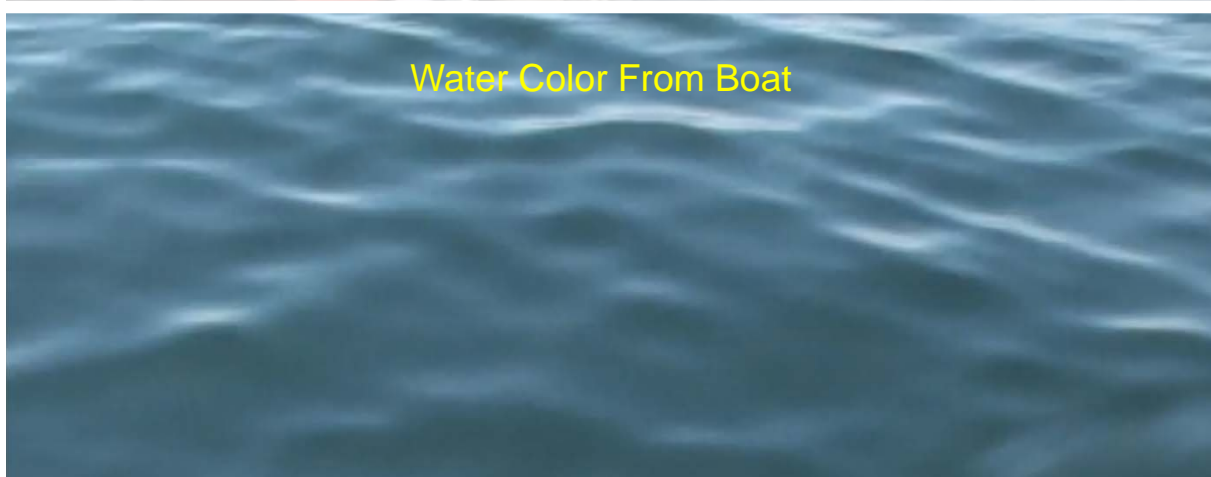
OREGON CRUISES



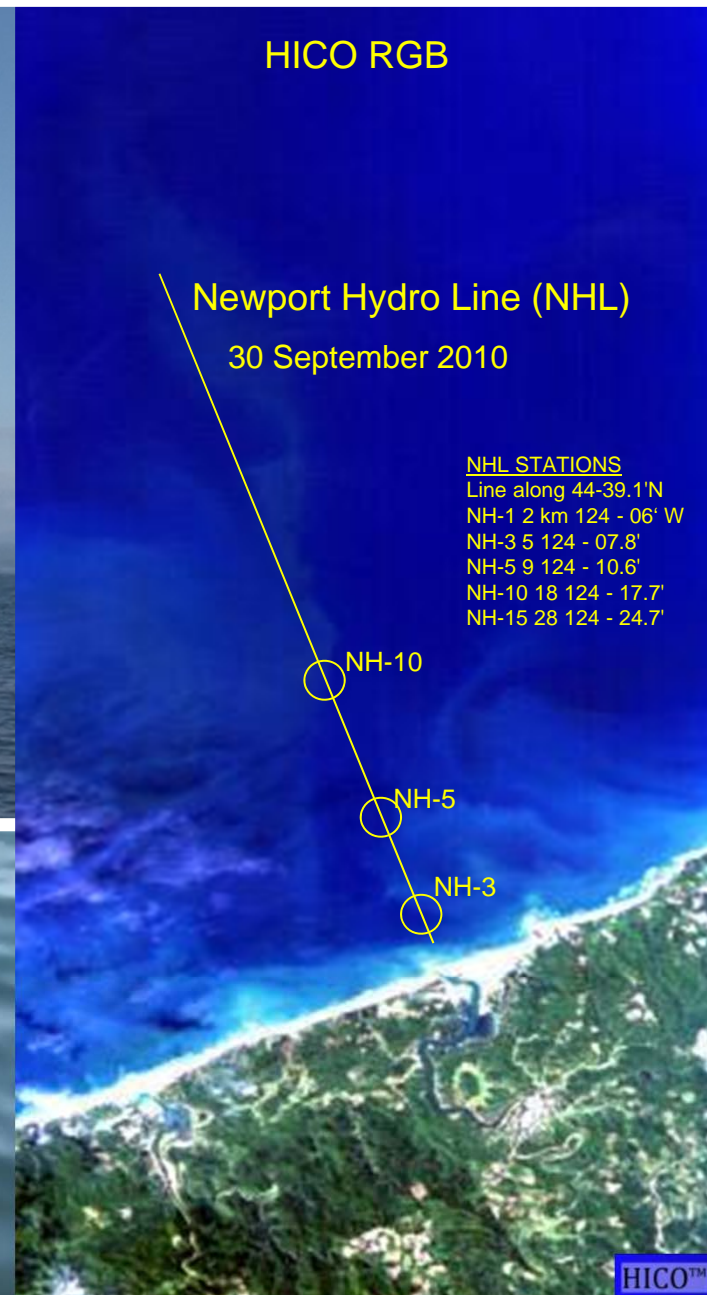
Casting HyperPro

Typical Oregon Day

22 September 2010



Water Color From Boat



HICO RGB

Newport Hydro Line (NHL)

30 September 2010

NHL STATIONS

Line along 44-39.1°N
NH-1 2 km 124 - 06' W
NH-3 5 124 - 07.8'
NH-5 9 124 - 10.6'
NH-10 18 124 - 17.7'
NH-15 28 124 - 24.7'

NH-10

NH-5

NH-3

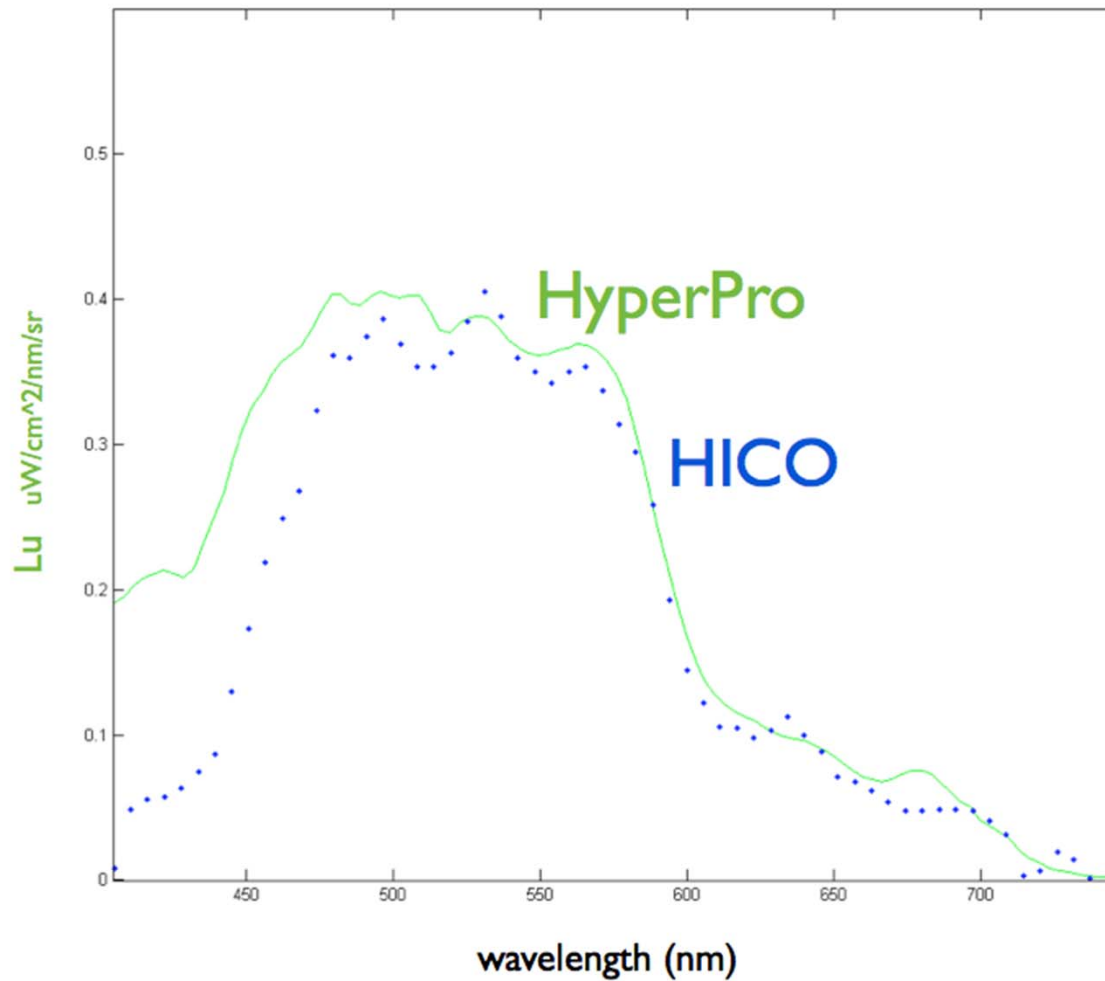
HICO™

Example Newport Match up

HyperPro 22 September 2010

HICO 30 September 2010

Newport Hydro Line Station 3

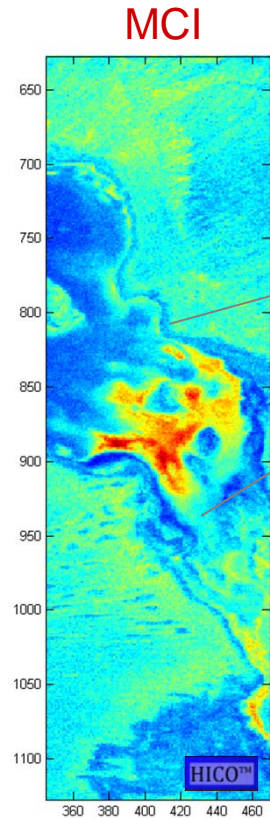


* HICO spectra obtained by dark pixel subtraction and scaling.

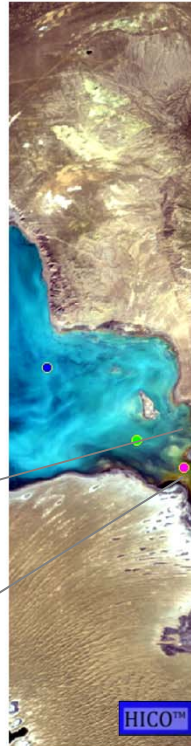
Line Height as Indicator for CHL

SE Caspian Sea

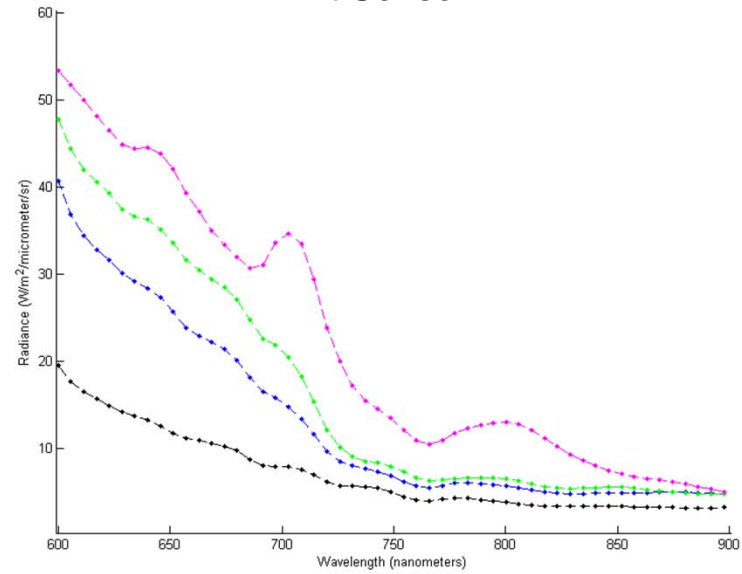
2010-04-15



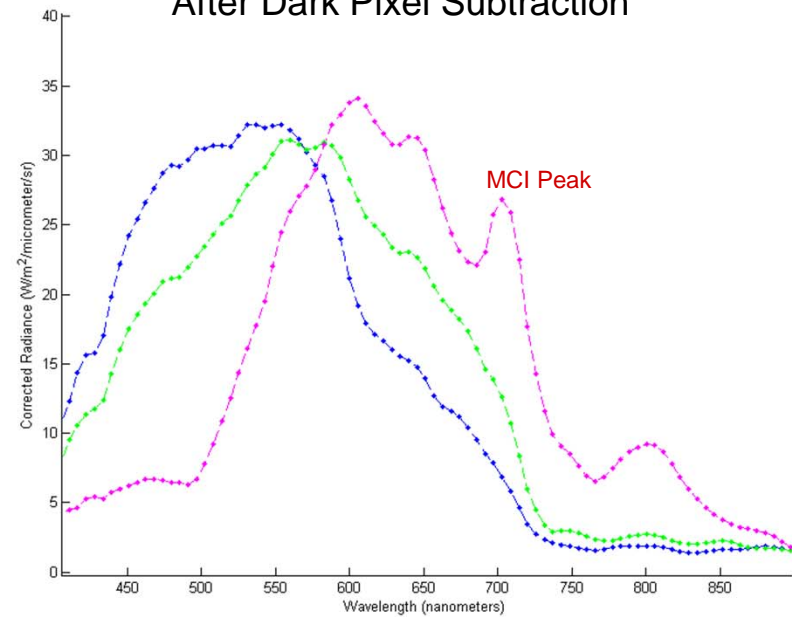
RGB



At Sensor



After Dark Pixel Subtraction

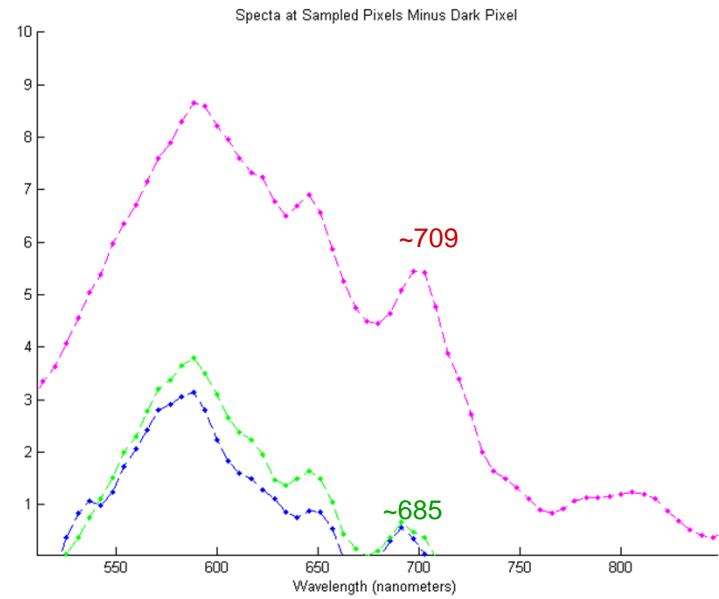
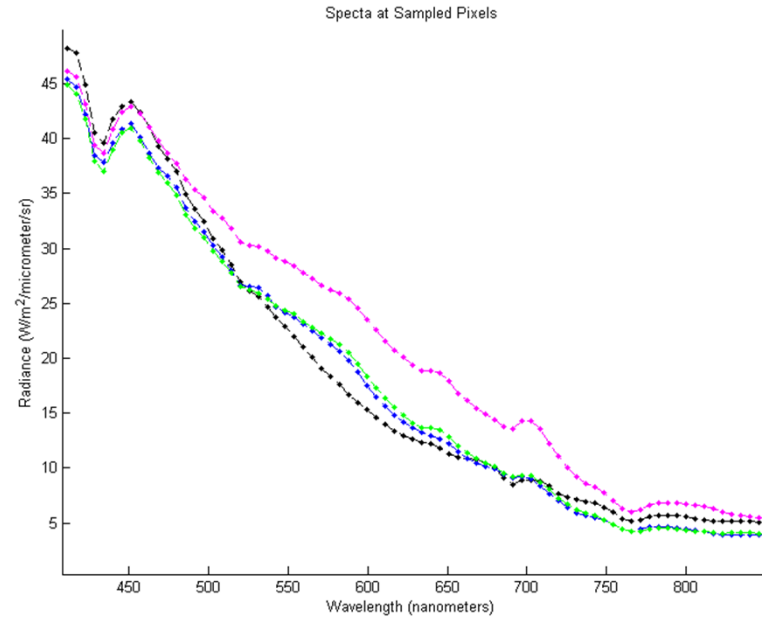
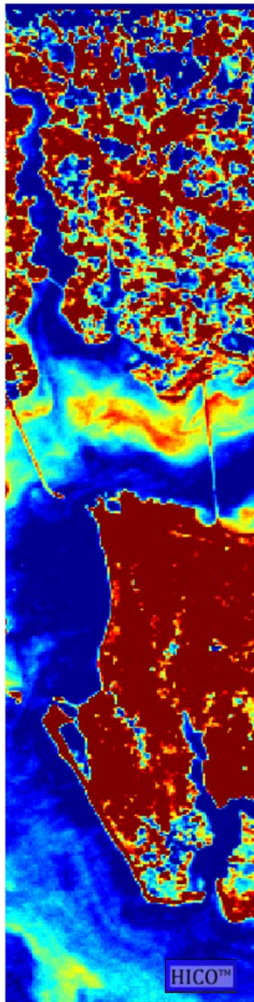


Interpretation of the 685 nm peak in water-leaving radiance spectra in terms of fluorescence, absorption and scattering, and its observation by MERIS
 J. F. R. Gower, R. Doerffer, G. A. Borstad, *Int. J. Remote Sensing*, 1999, vol. 20, no. 9, 1771-1786

Lower Chesapeake Bay

Chesapeak Lower Bay

2011-01-09



Lake Erie

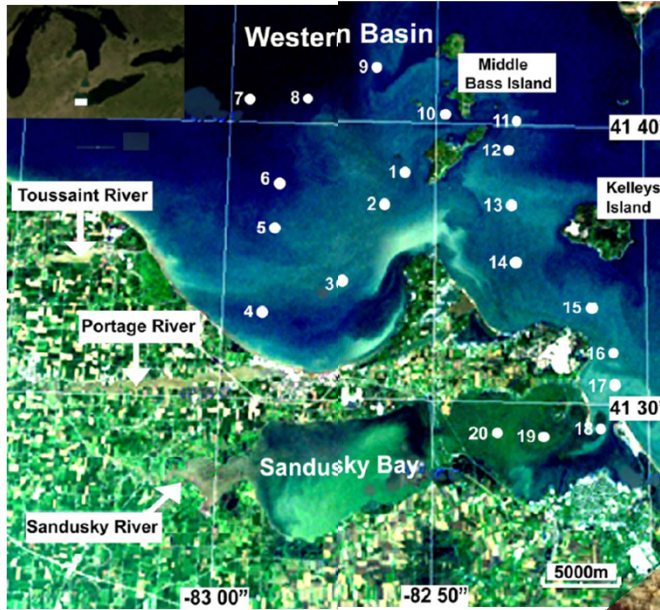
The influence of multiple color producing agents on chlorophyll a estimation in Sandusky Bay and Lake Erie's Western Basin

Joseph D. Ortiz, Donna L. Witter, Khalid Adem Ali, Nathan Fela, Michael Duff, and Lonnie Mills

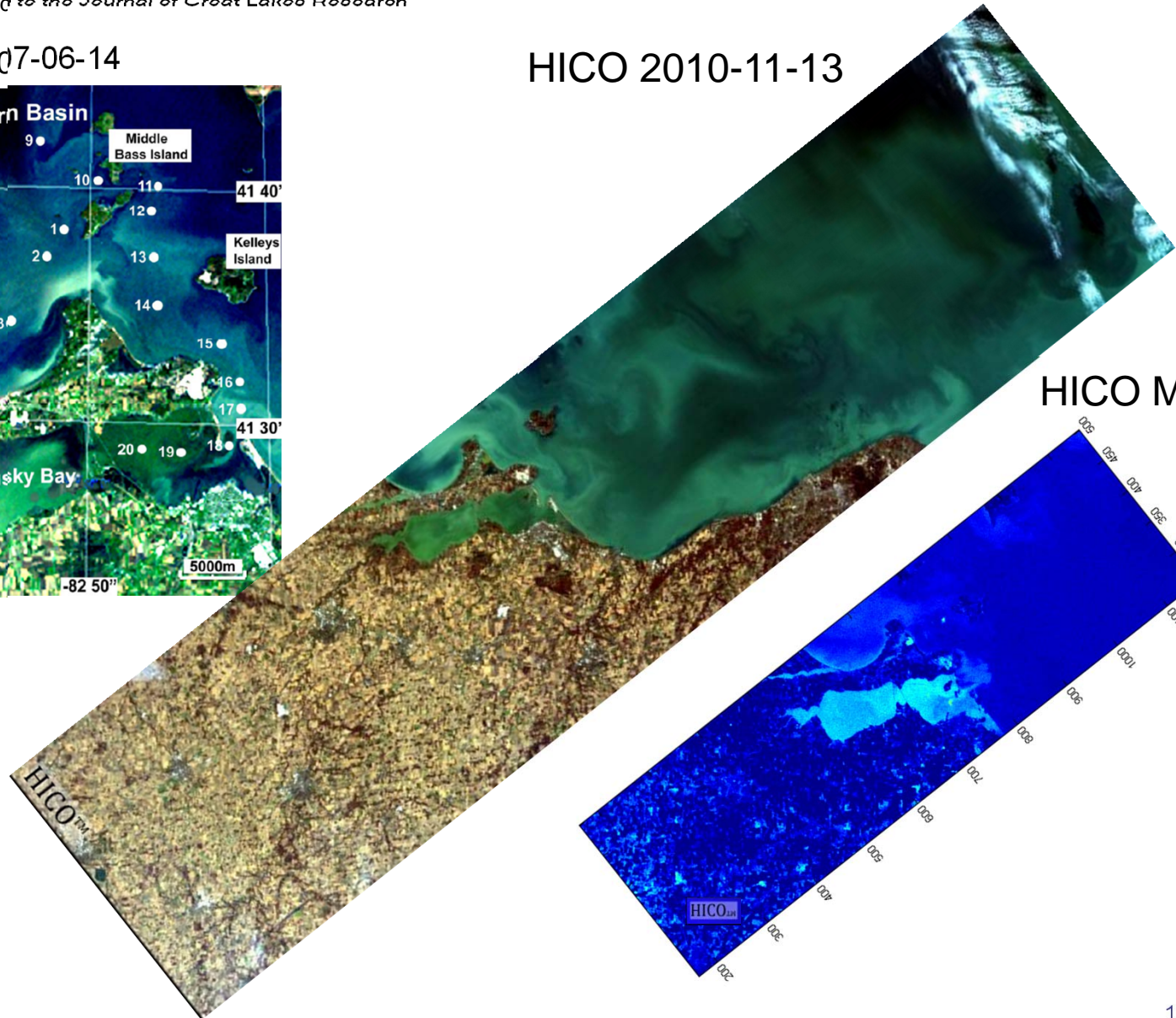
Kent State University, Department of Geology, Kent OH, 44242

Manuscript submitted to the *Journal of Great Lakes Research*

MERIS 2007-06-14

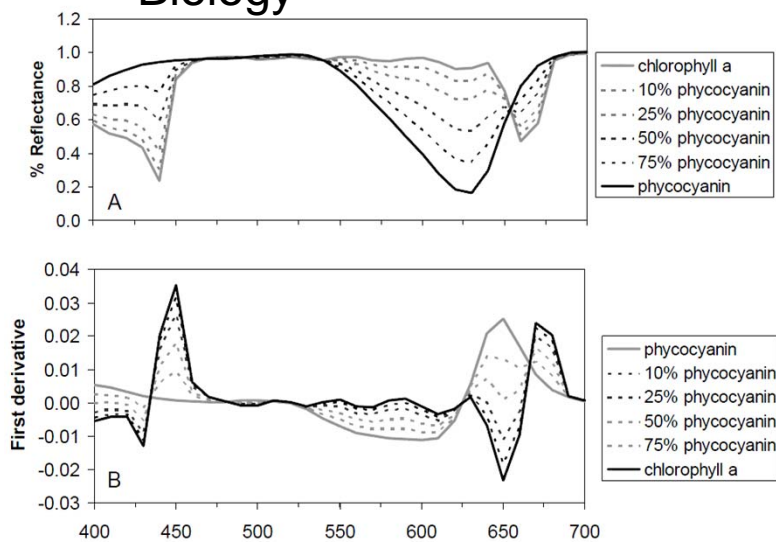


HICO 2010-11-13

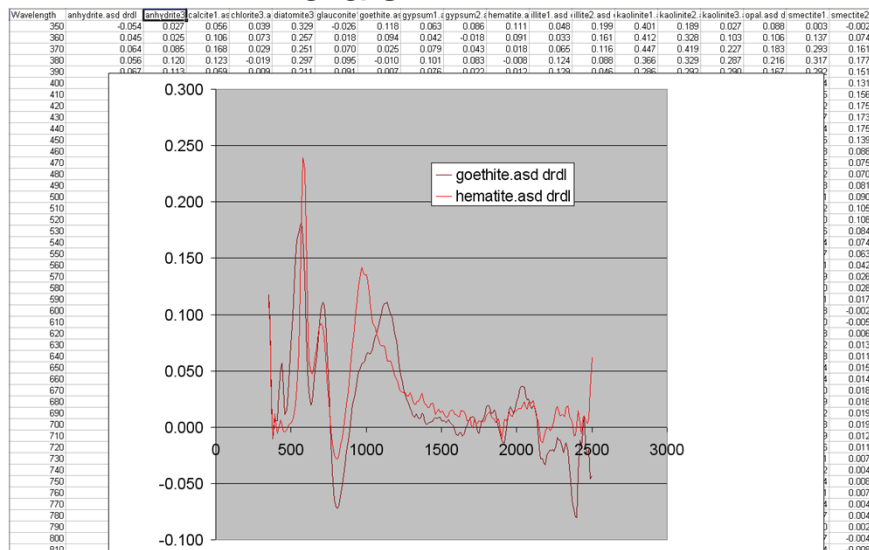


Derivative Spectroscopy

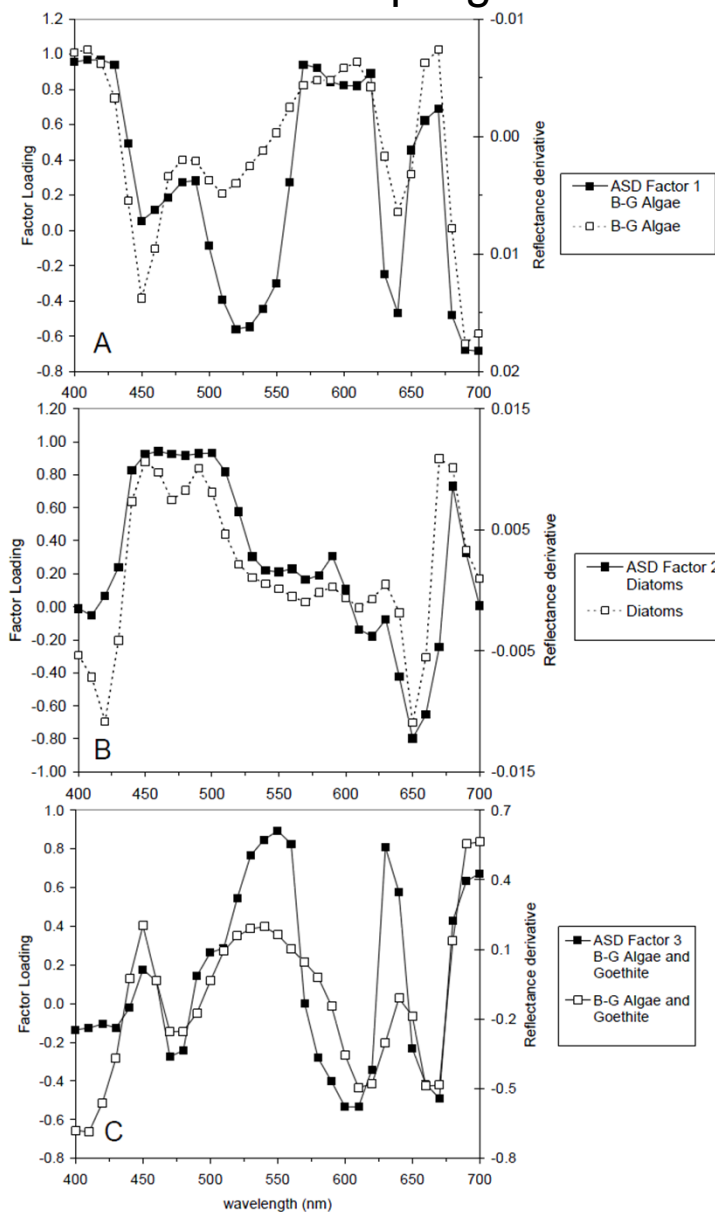
Biology



Minerals

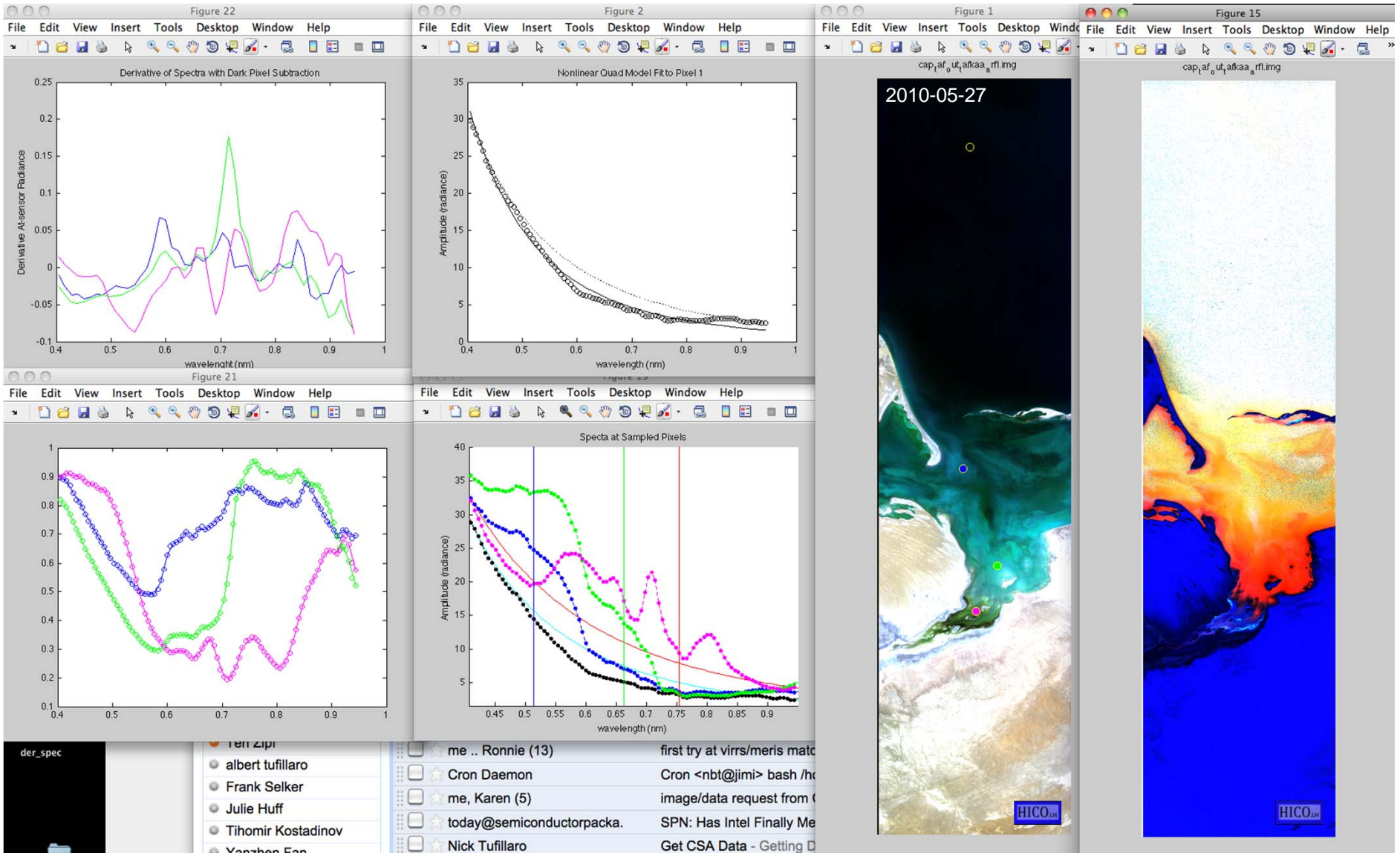


PCA to develop signatures



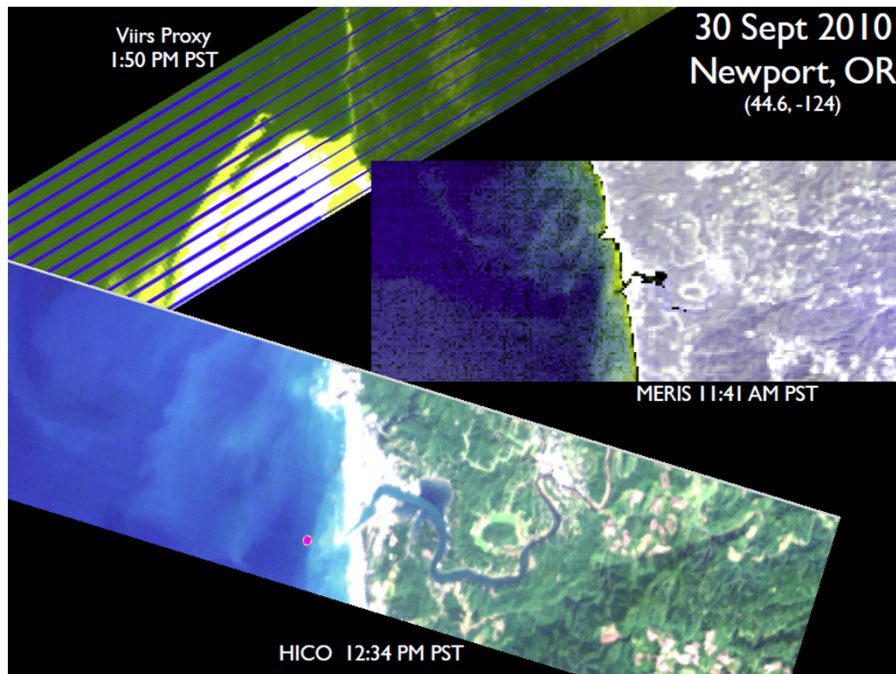
Data from Joe Ortiz

Derivative Spectroscopy: SE Caspian Sea

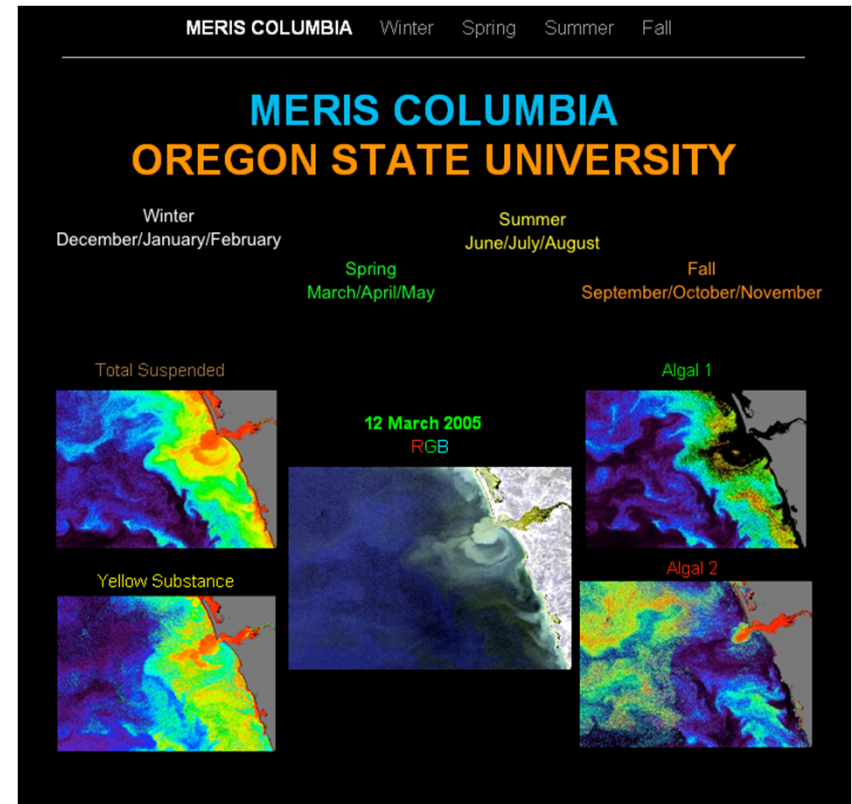


Related Work

CAL/VAL Automating Match up following NRL's procedures for VIIRS, generating larger statistical sets.



Developing cross calibration of products and testing new products with MERIS & HICO



<http://meris.coas.oregonstate.edu/columbia>

