# Sumplemental Information on Experimental Lake Erie Harmful Algal Bloom Bulletin

National Centers for Coastal Ocean Science and Great Lakes Environmental Research Laboratory
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The MERIS Sensor on ENVISAT stopped sending data on April 8, 2012. As a result we will be unable to use MERIS images for the Lake Erie Cyanobacterial Bloom Forecasts. We have applied an equivalent algorithm from to MODIS. The initial results look acceptable. The data from MODIS uses different wavelengths, butthe algorithm is consistent with MERIS in detecting cyanobacteria in low to moderate concentrations. The bands used in the algorithm tend to fail at high concentrations. We will use a near-infrared/red ratio to quanitfy high concentrations if the need arises. We aim to start producing weekly bulletins in June and will continue to do so until late October. - Tim Wynne
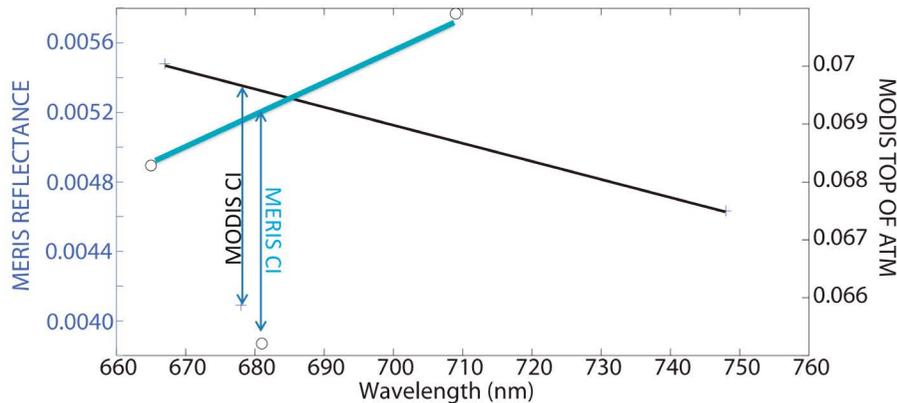

MODIS algorithm shown in black uses three top of atmosphere derived bands.
MERIS algorithm shown in blue uses three reflectance derived bands.
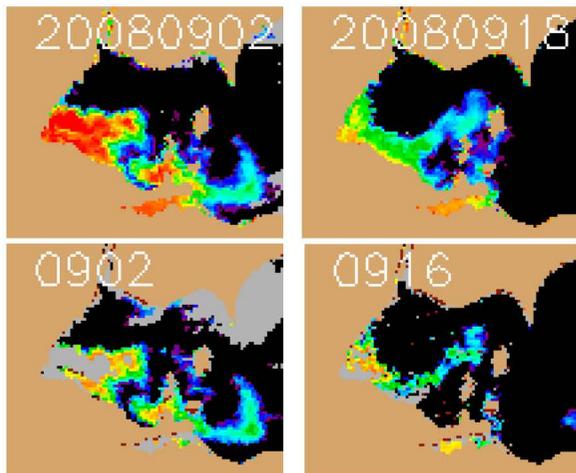
Initial results have been run, and the results from the algorithms seem comparable.
The MODIS images become saturated in high cell concentrations. Basic statistics are shown on Page 2.

MERIS images are on the top row from Sept 2, 2008 and Sept 18, 2008. MODIS images from equivelent dates are on the second row. Data in Maumee Bay from the Sept 2, 2008 MODIS image has become saturated and appears as a cloud.
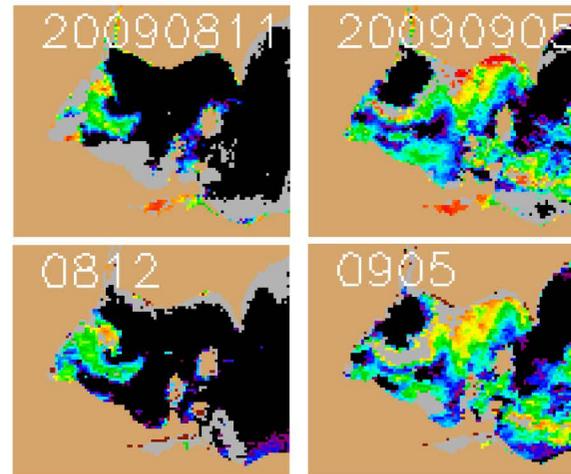
MERIS images on the top row, Aug 11, 2009 and Sep 5, 2009. MODIS images bottom row Aug 12, 2009 and Sept 5, 2009.
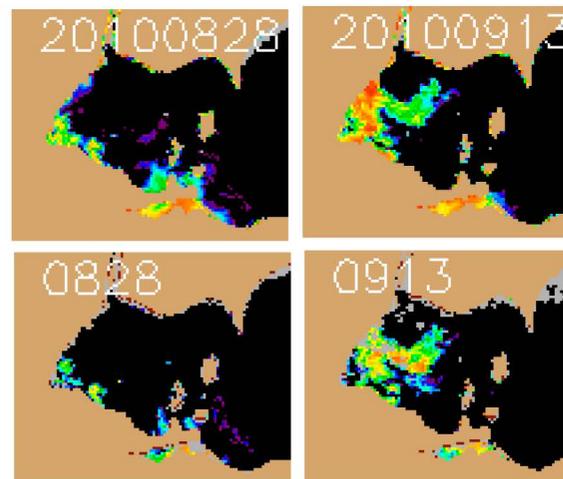
MERIS images on the top row Aug 28, 2010 and Sept 13, 2010 . MODIS images bottom row Aug 28, 2010 and Sept 13, 2010.

Initial Statistical Comparisons between images shown on Page 1.
No attempt was made to remove outliers.

2 Sept 2008
r^2=0.5898
m=1.148
p<<0.0001

16 Sept 2008
r^2=0.2600
m=0.2761
p<<0.0001

11 Aug 2009
r^2=0.2793
m=0.6068
p<<0.0001

5 Sept 2009
r^2=0.3782
m=0.7104
p<<0.0001

28 Aug 2010
r^2=0.1332
m=0.3522
p<<0.0001

18 Aug 2010
r^2=0.0975
m=0.3043
p<<0.0001