Comparison of MODIS and VIIRS in detecting a harmful algal bloom in the NE Gulf of Mexico

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NASA MODIS/VIIRS team meeting, May 18 – 22, 2015

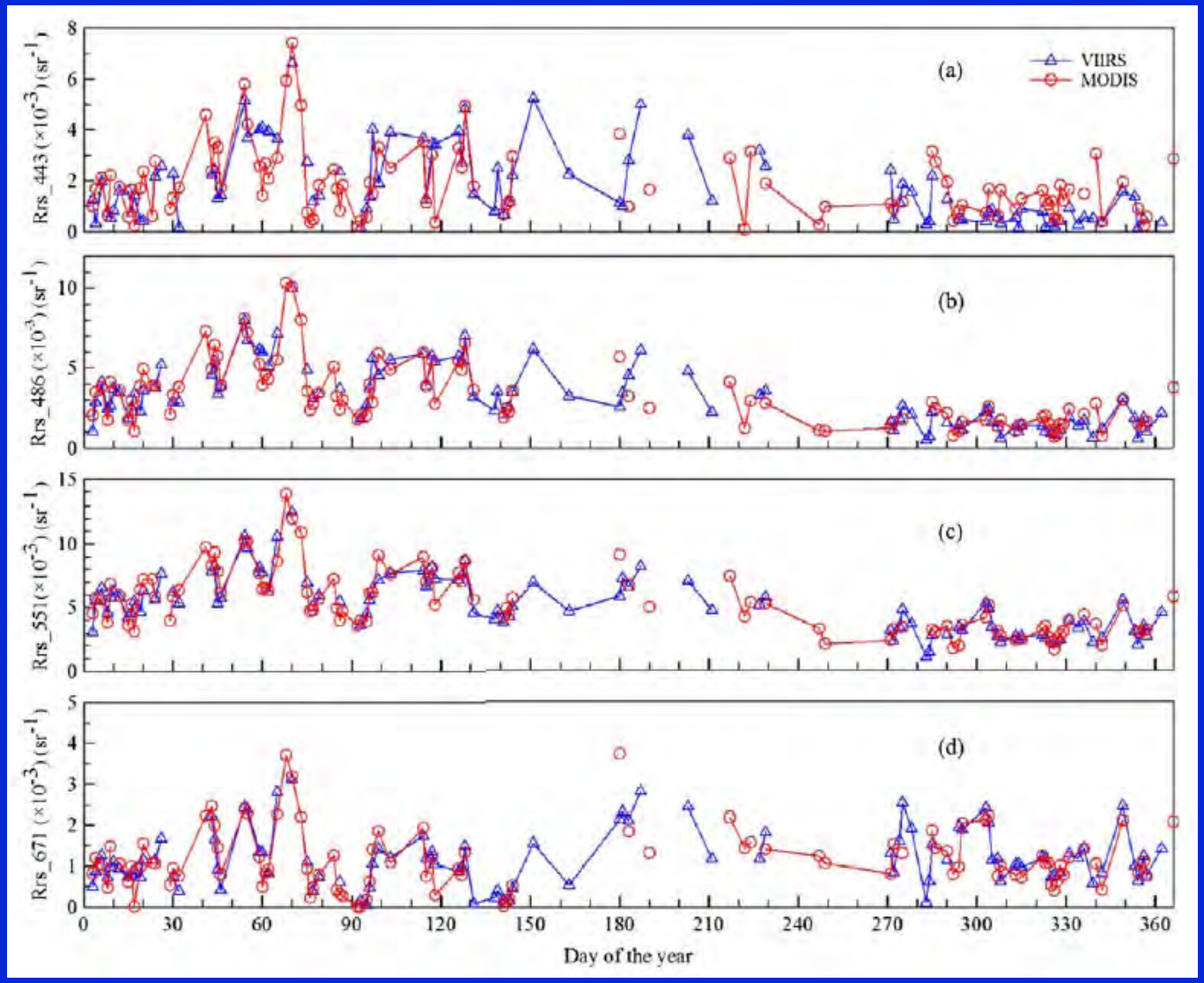
MODIS and VIIRS ocean bands

MODISA has two more bands than VIIRS at 531 and 678 nm

Sensor	Res. (km)	Swath	Revisit	Ocean Bands*	Duration
MODISA	1.1 x 1.1	2330 km	1-2 day	9, 412-869 nm	2002 – now
VIIRS	0.75 x 0.375	3300 km	1 day	7, 410-862 nm	2011 – now

Cross-sensor comparison for Tampa Bay

NASA OBPG reprocessing 2013.0



Cross-sensor comparison for Tampa Bay

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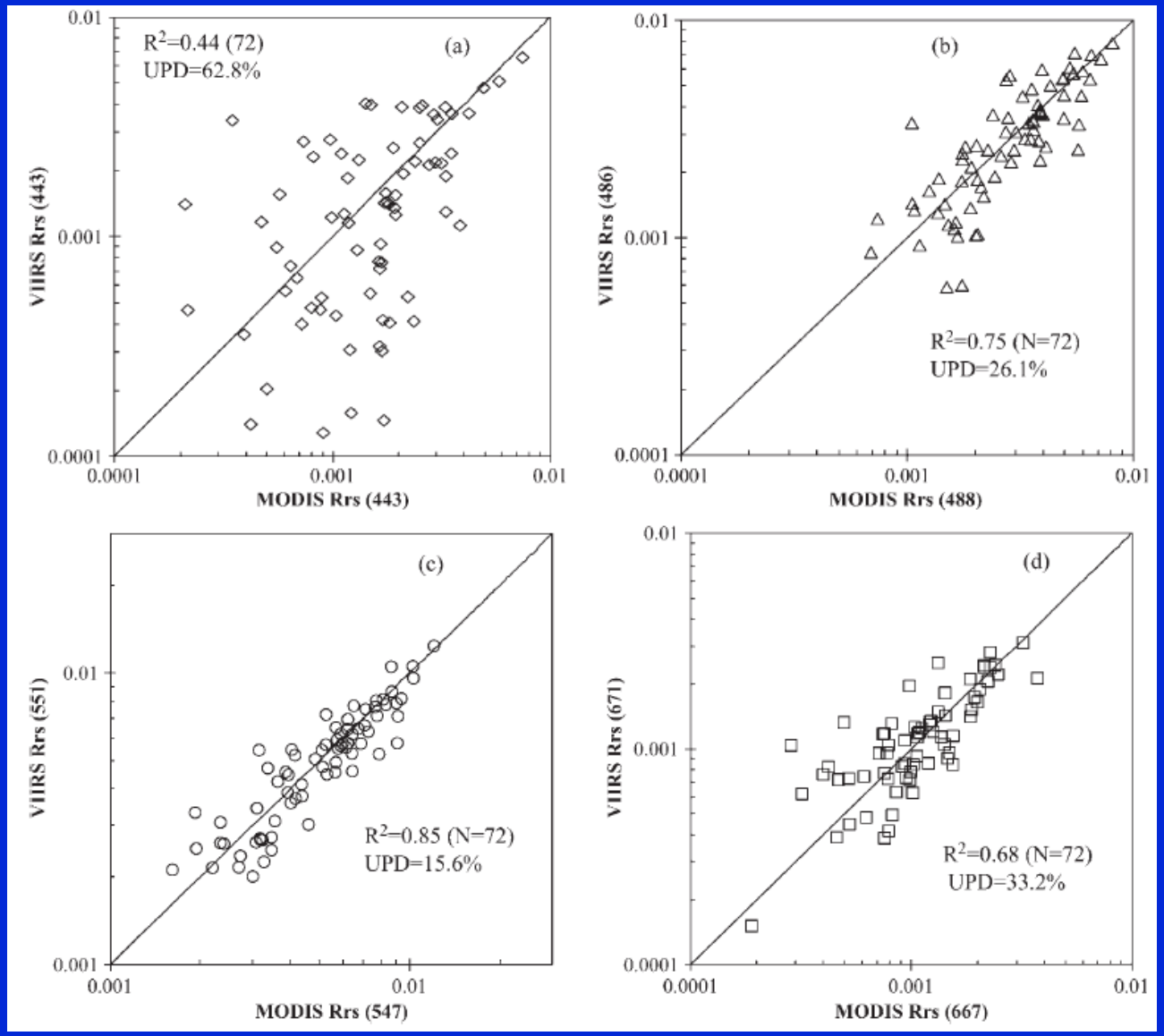

Cross-sensor comparison for Tampa Bay

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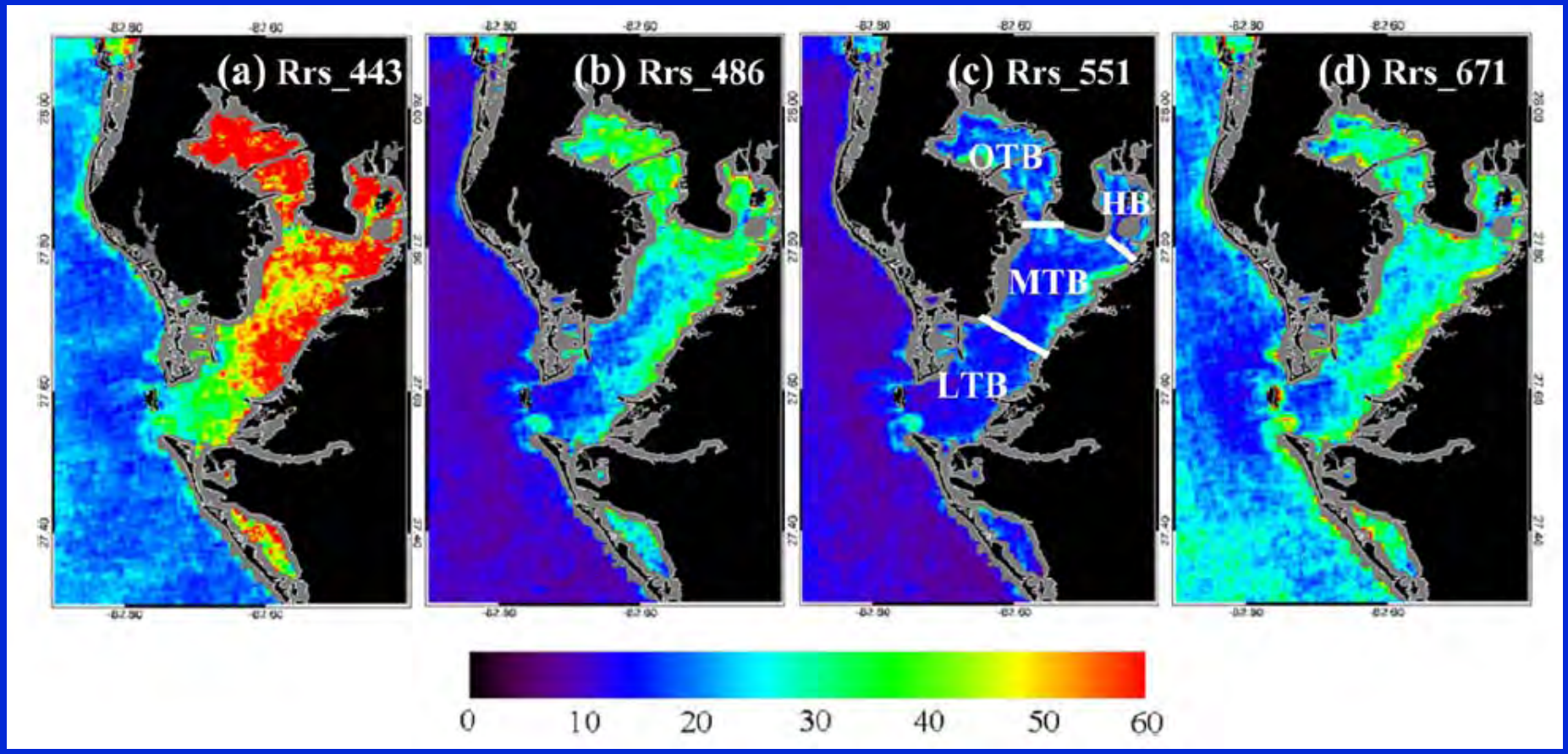
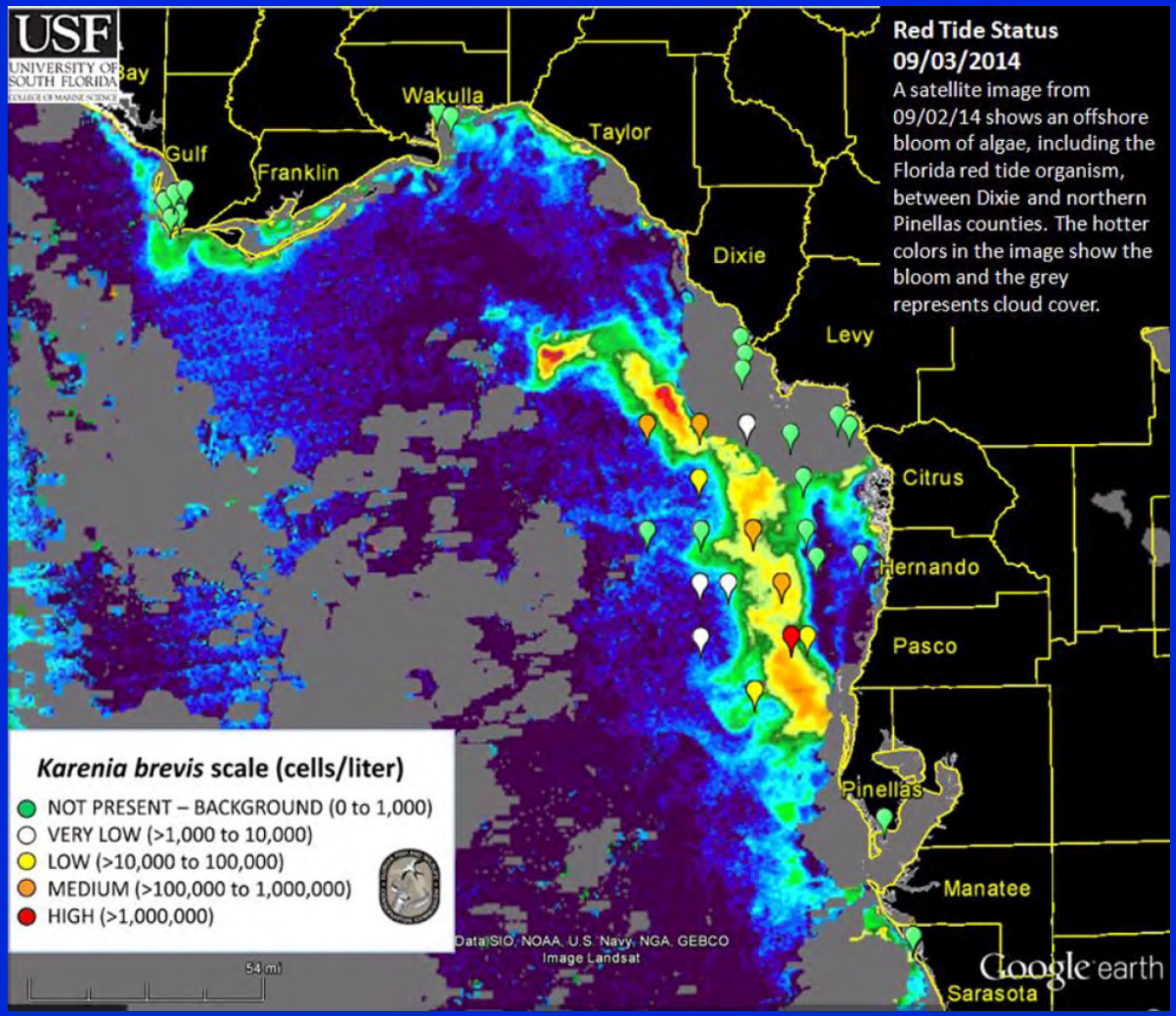


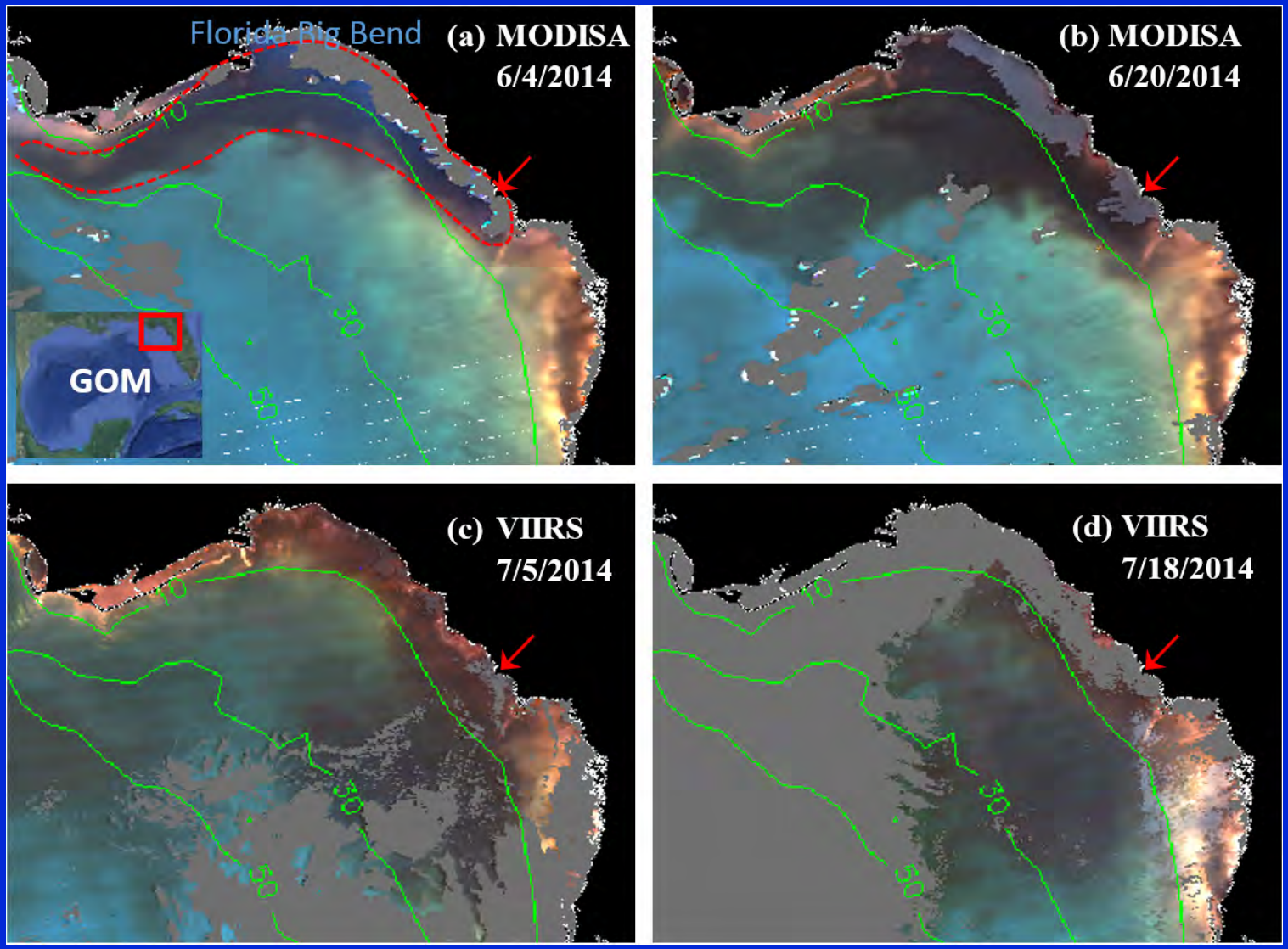
Question: How does VIIRS perform in detecting HABs?

One case study in CDOM-rich dark waters

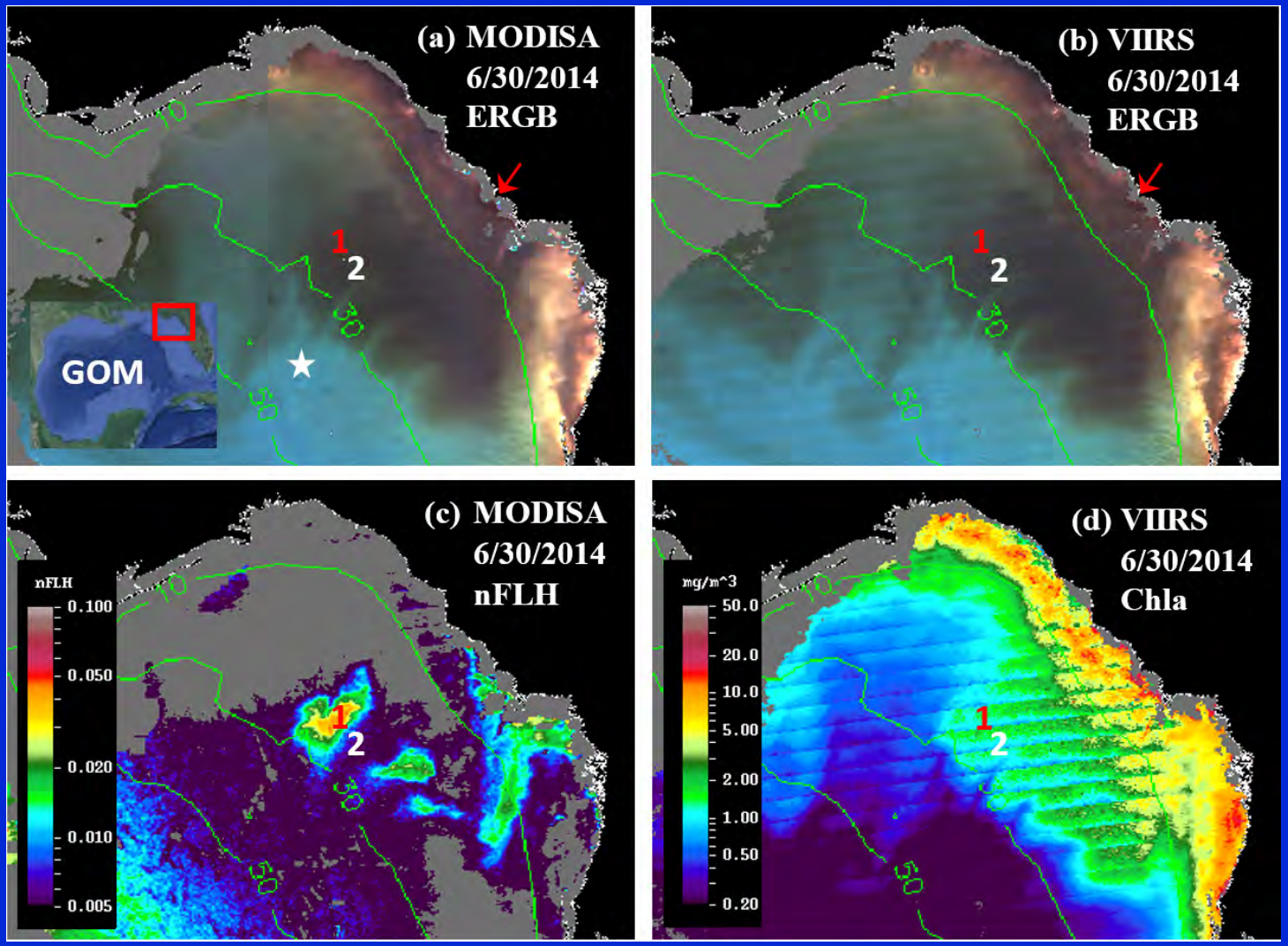
A Karenia brevis bloom in NEGOM



ERGB image series showing dark waters



Similarity and contrast between MODIS and VIIRS



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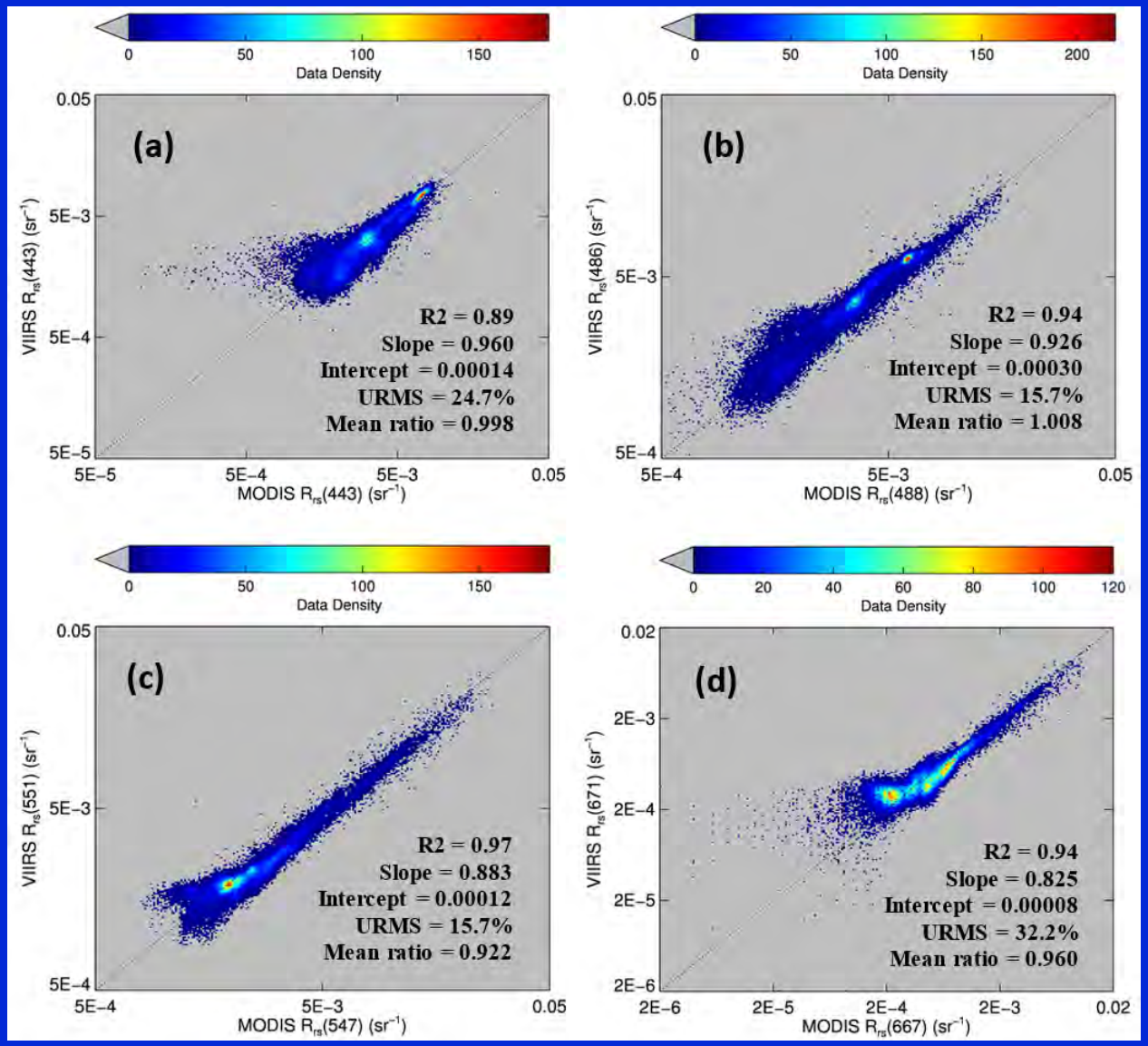

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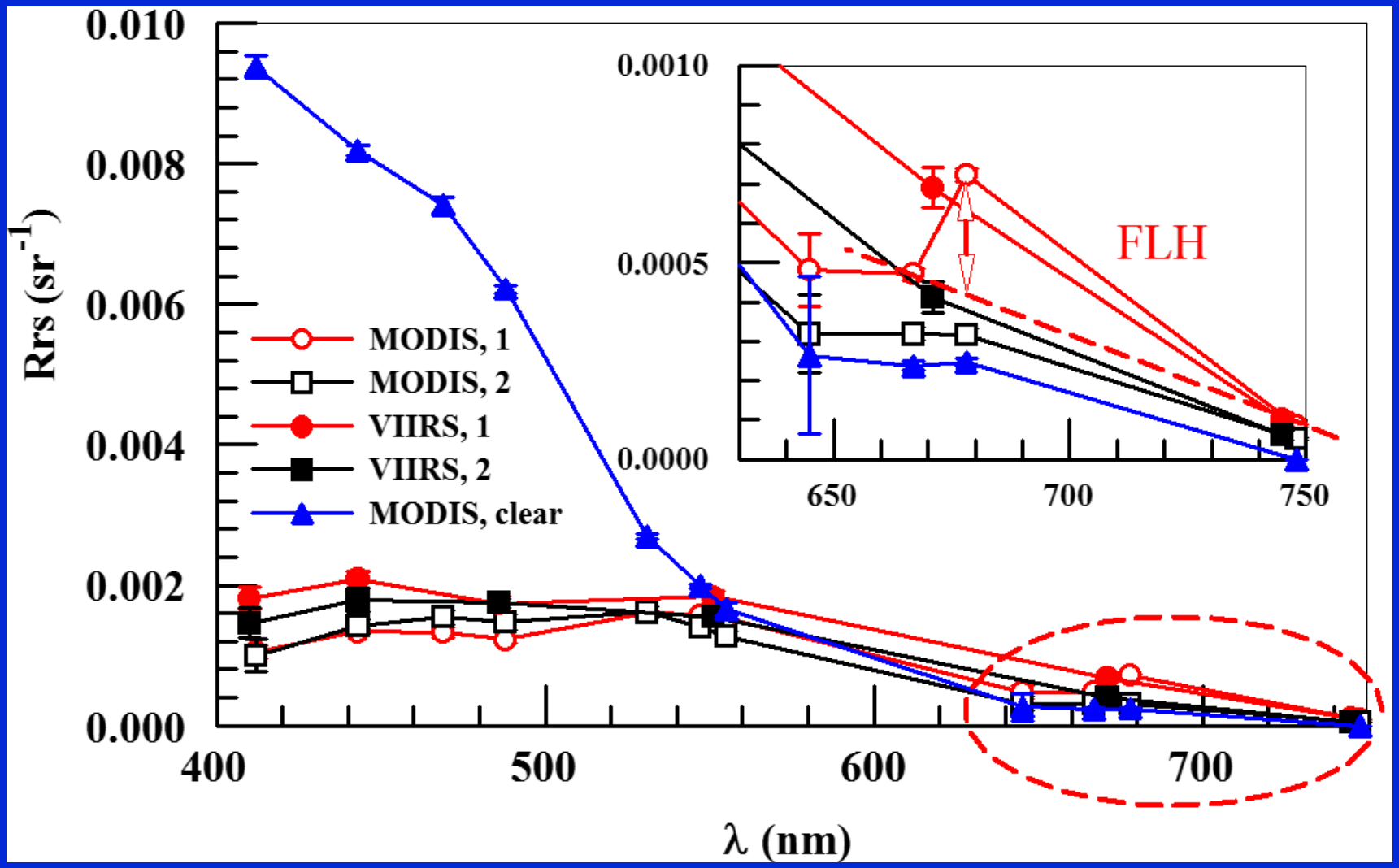
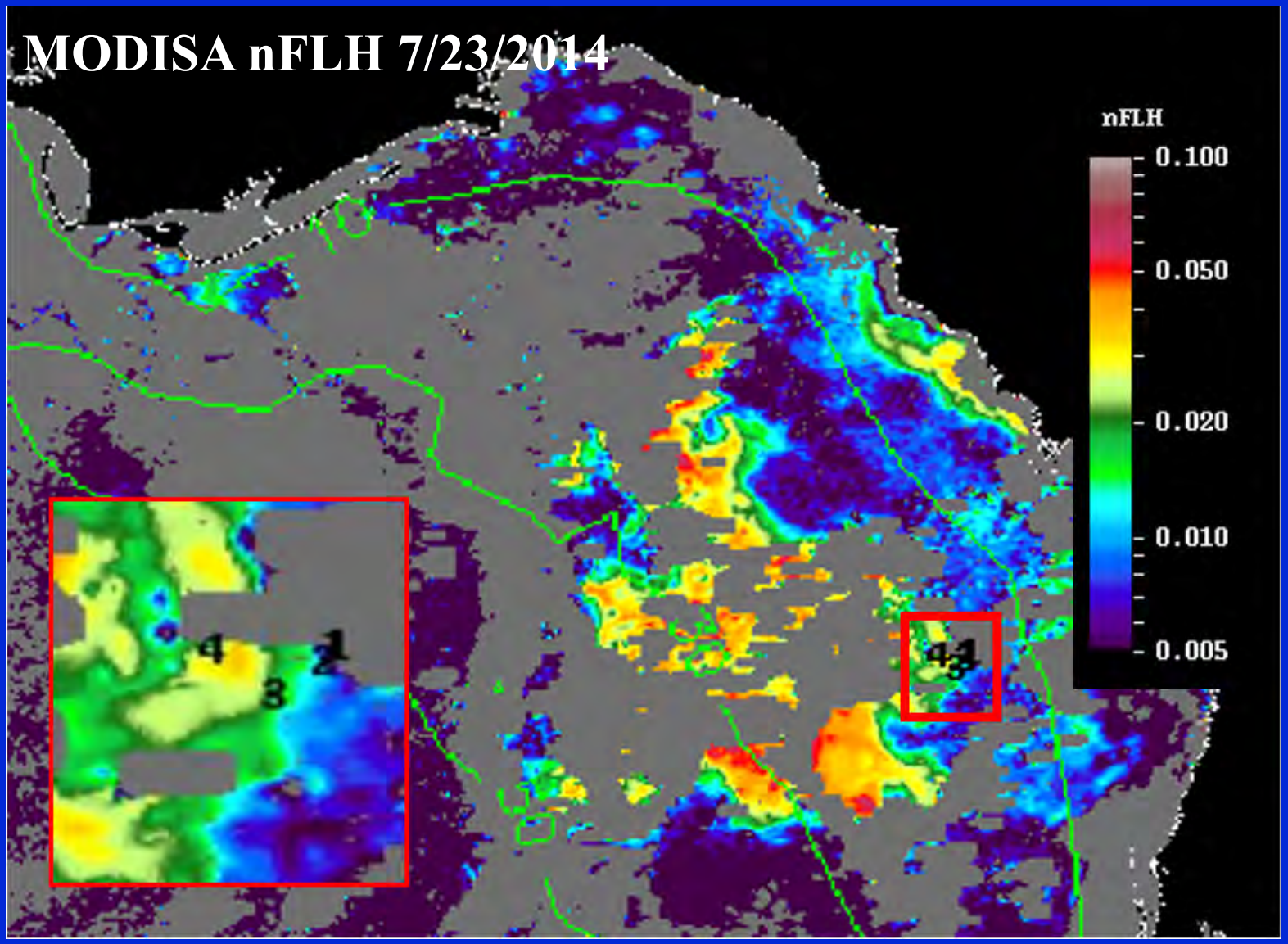


Validation using field measurements



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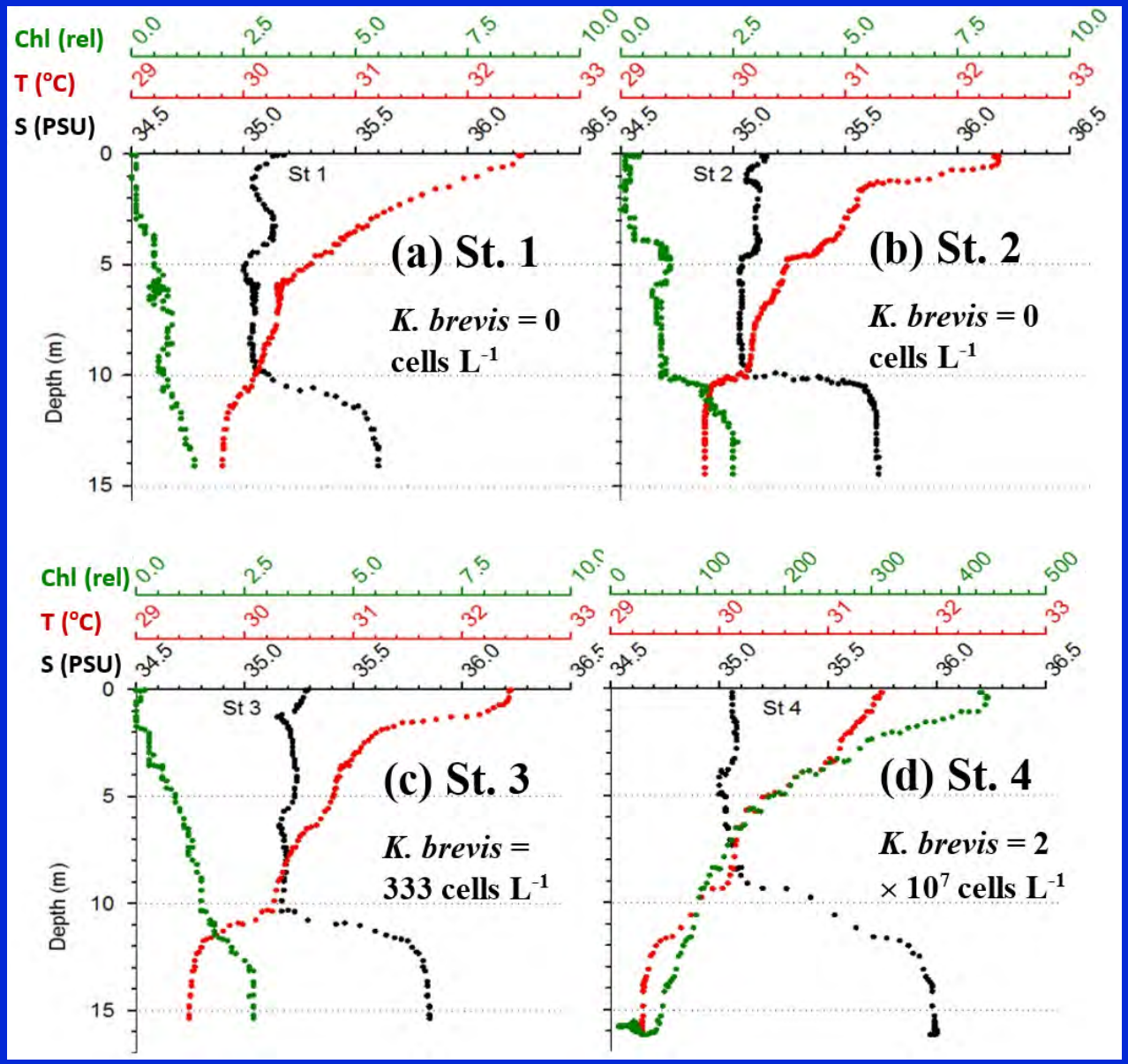
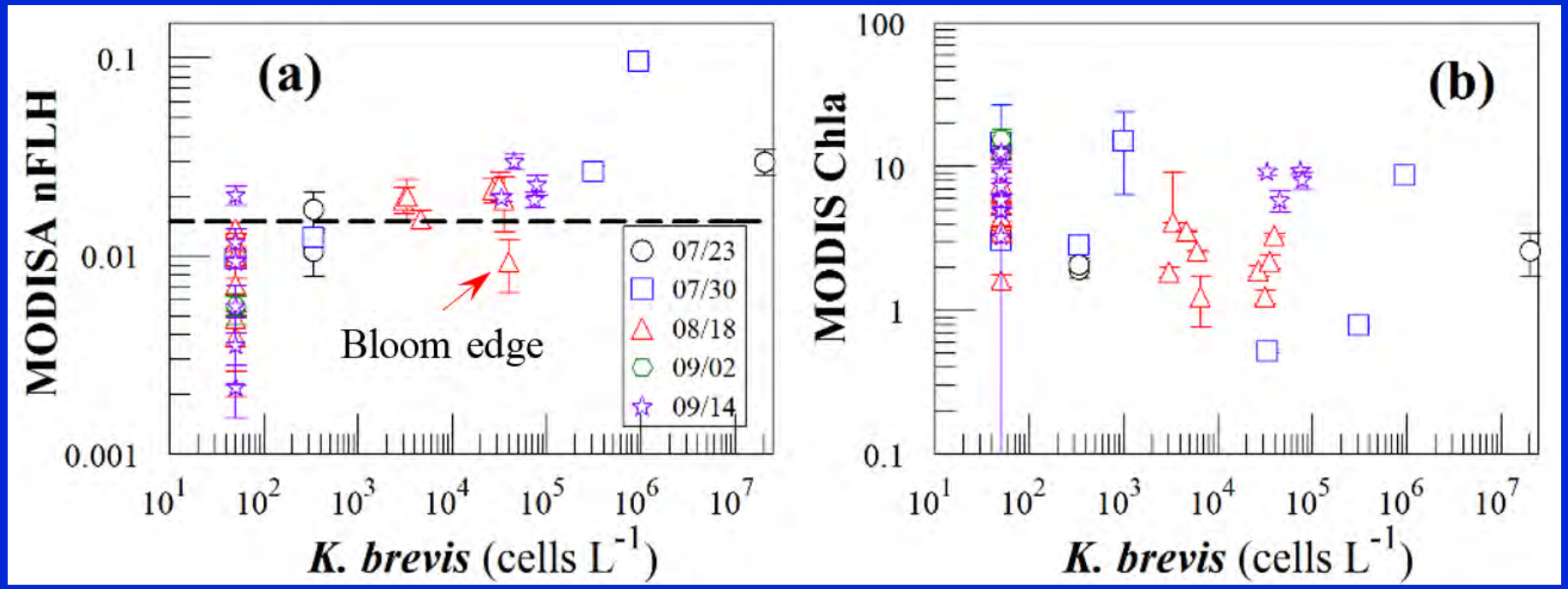


Validation using water sample analysis



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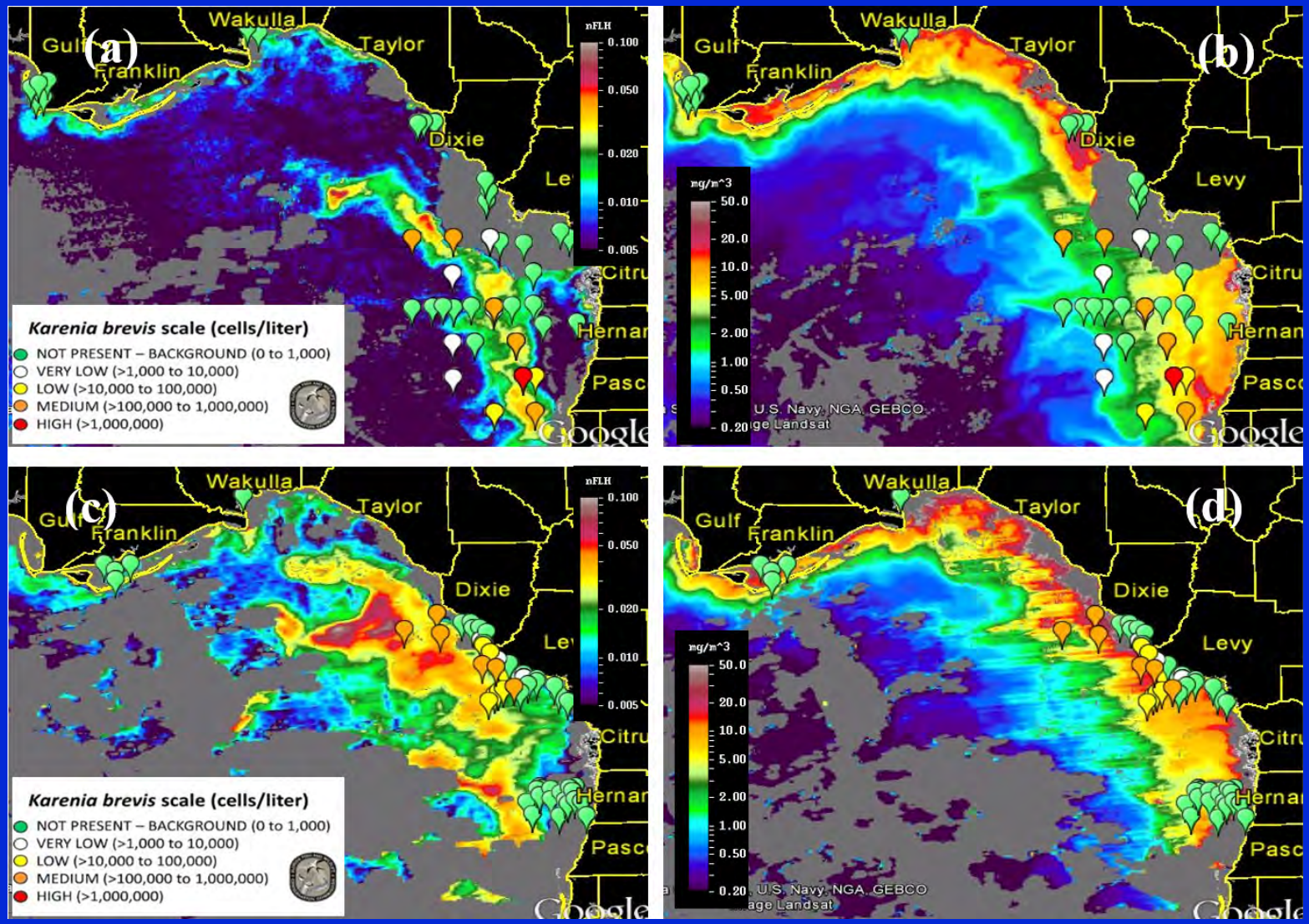

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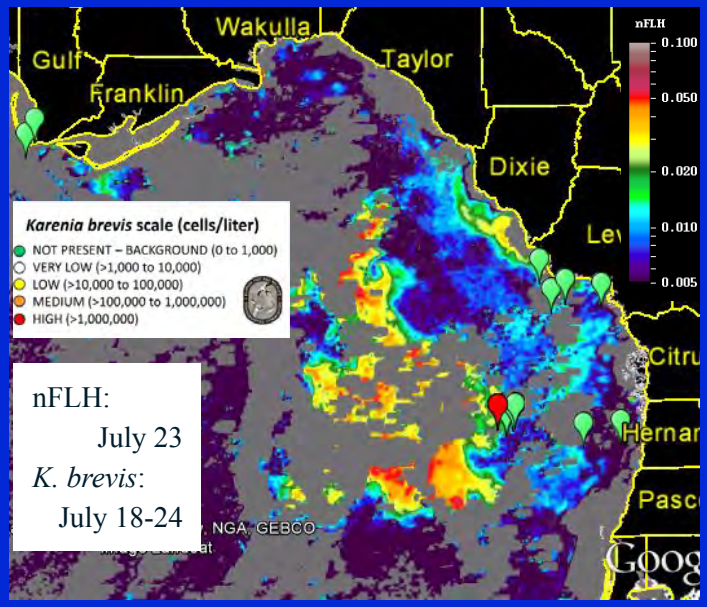

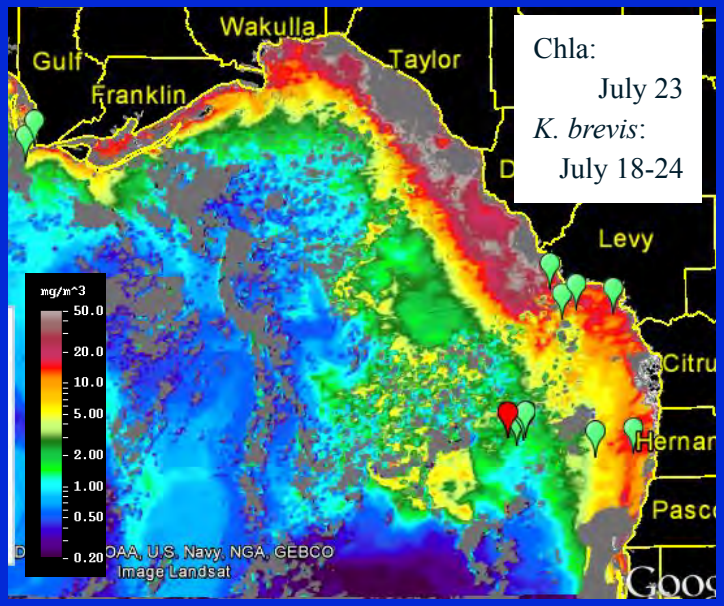

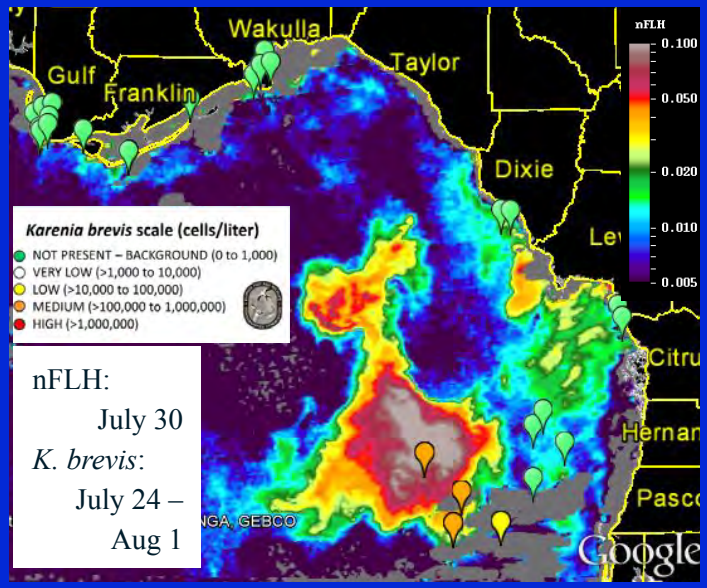

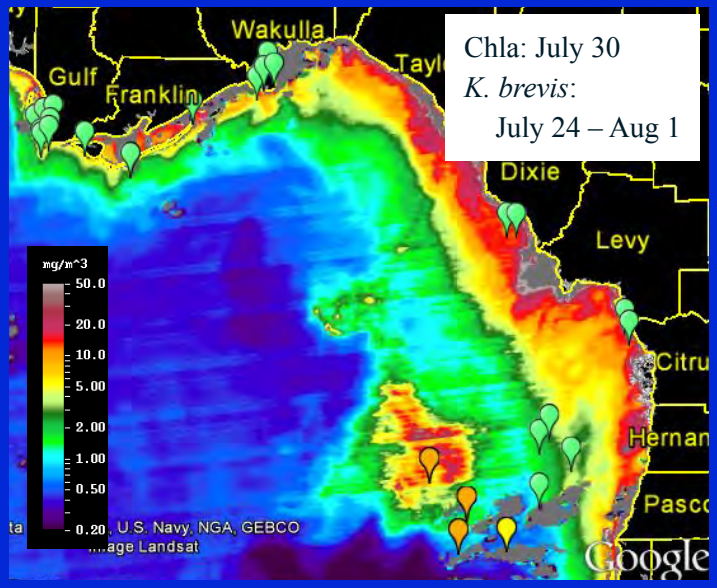

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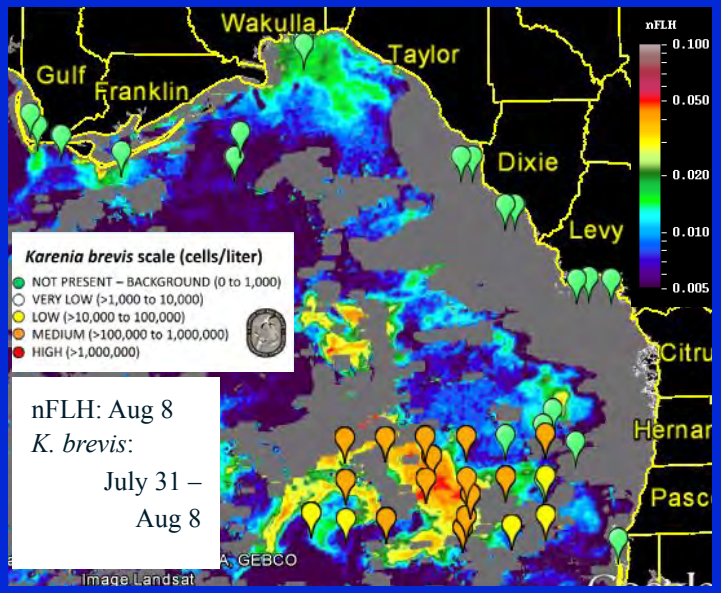
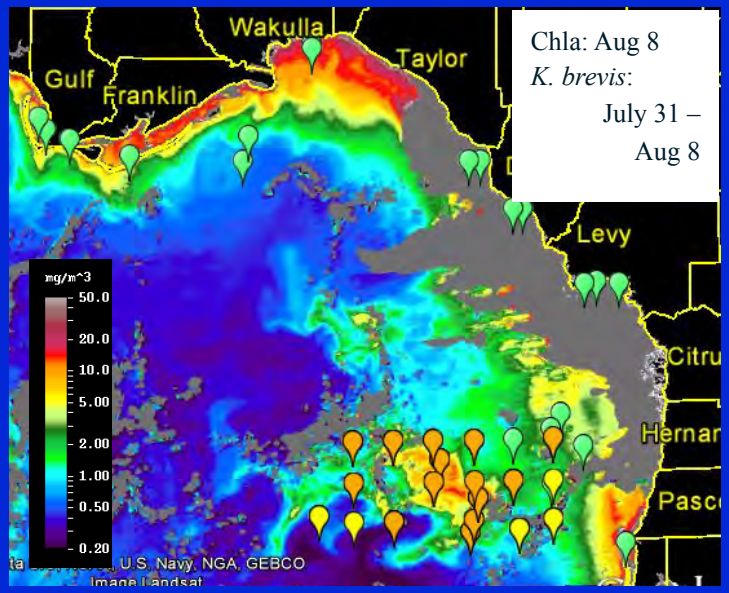
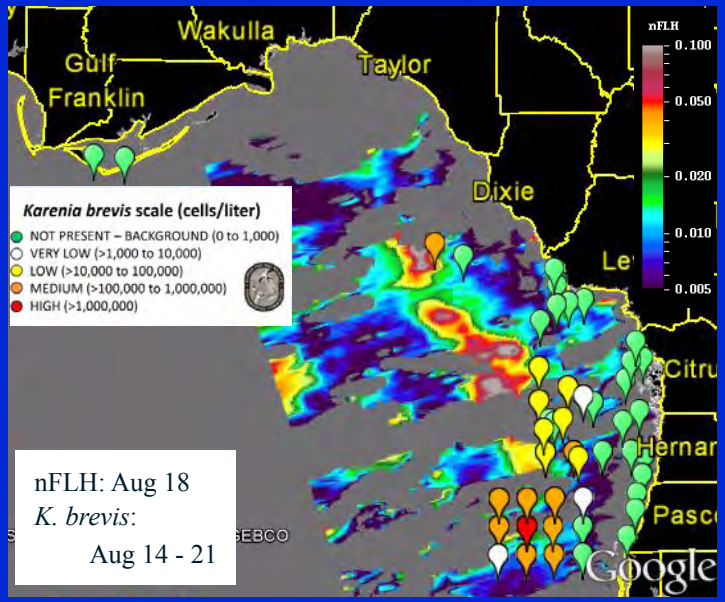
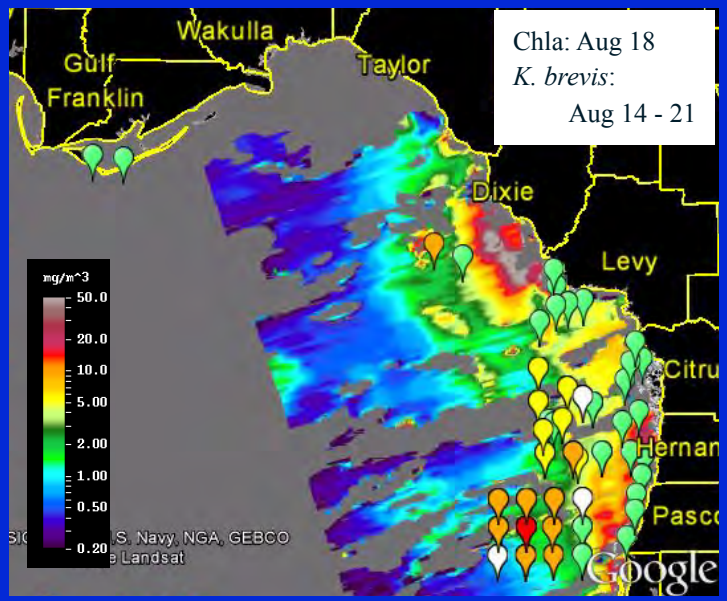






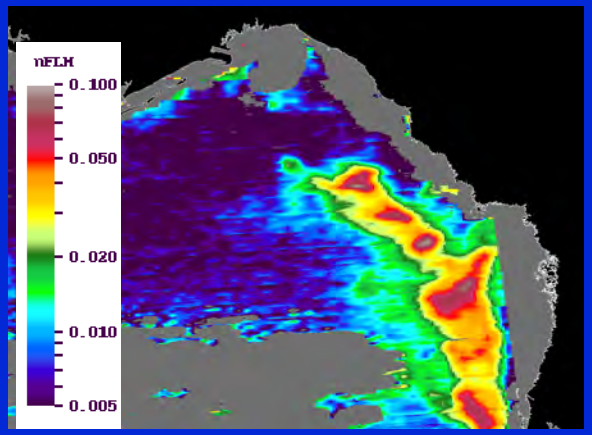


Conclusions

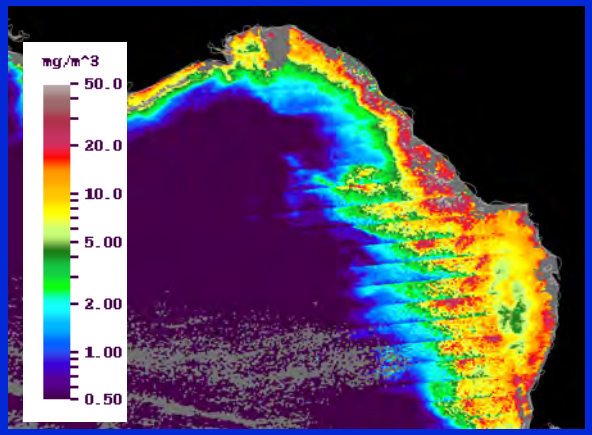
- **VIIRS and MODISA show consistent Rrs retrievals in Tampa Bay and NEGOM**
- **However, VIIRS shows some deficiency in detecting *Karenia brevis* HABs in dark waters due to its lack of a fluorescence band**
- **New approaches need to be developed to overcome such a deficiency for HAB detection**

To be continued…

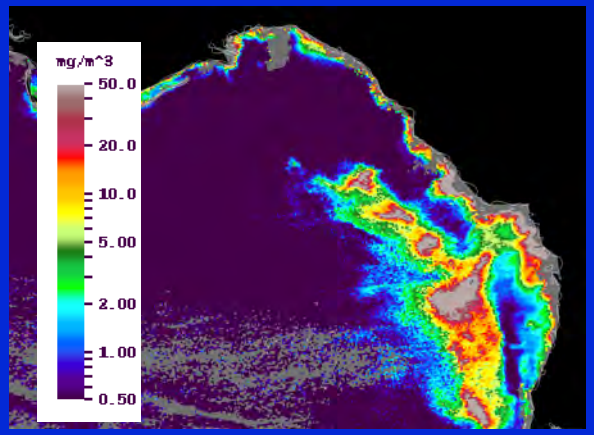
MODIS nFLH



VIIRS Chl_OC3



VIIRS HAB index



All images taken on 8/27/2014