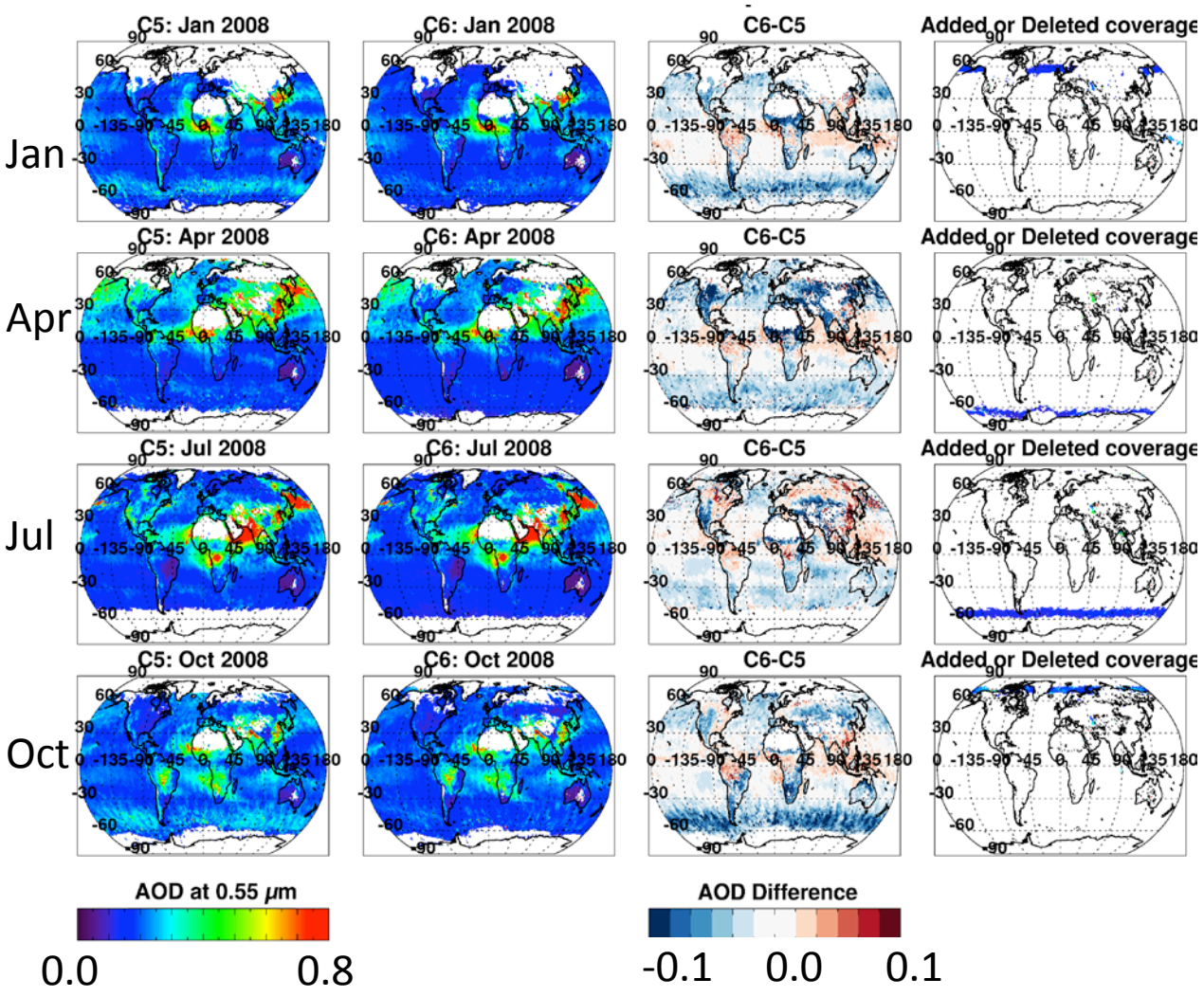
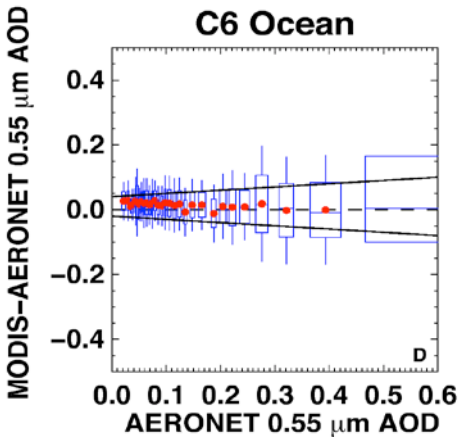
MODIS and AeroSat

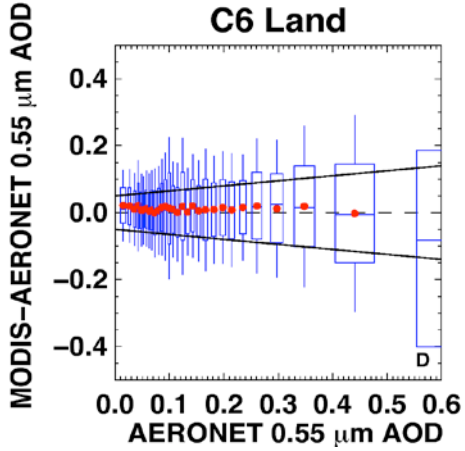
Robert Levy (NASA-GSFC)

- 4 slides (sorry) on current activities
- Then 3 slides you want

Evaluating and validating MODIS C6 products

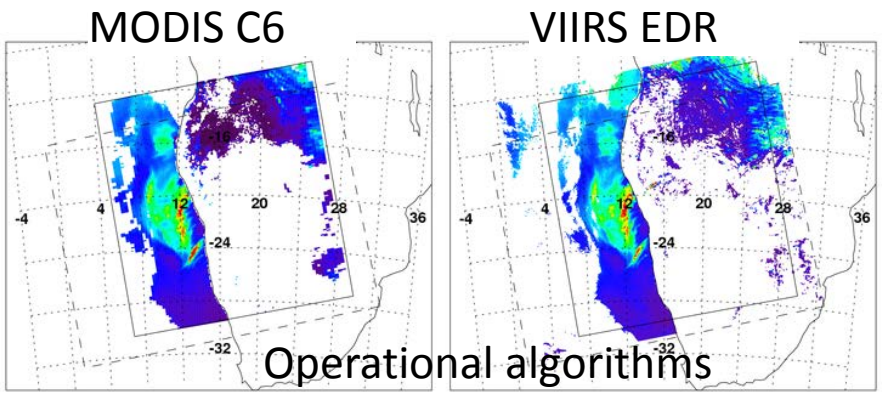


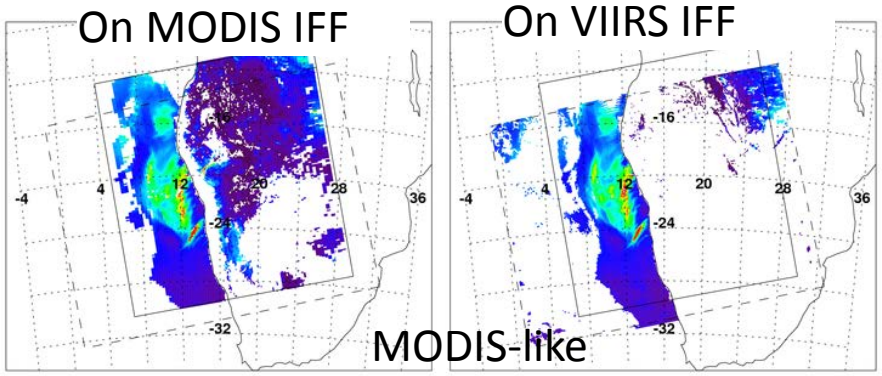


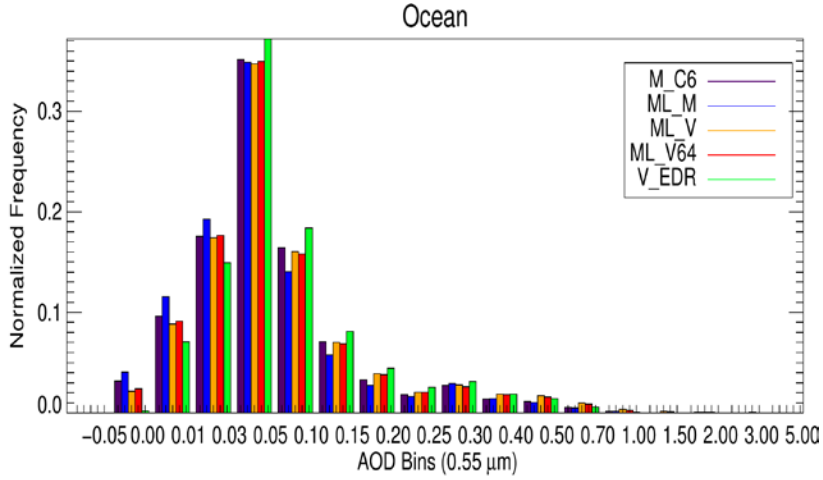


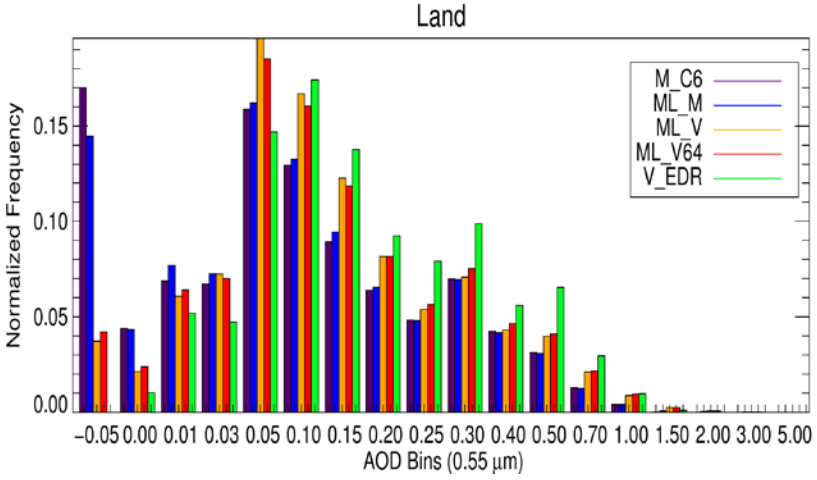
Paper just accepted to AMT

Implement dark-target algorithm on VIIRS and other datasets





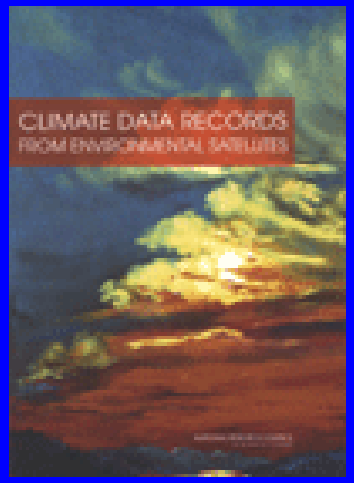




- Working on adapting MODIS dark-target algorithm to VIIRS data (as well as other satellite and air borne remote sensing data).
- Accounting for different wavelengths, resolutions, time sampling, etc.

MODIS->VIIRS: Climate Data Records (CDRs)?

"A time series of measurements of sufficient length, consistency, and continuity to determine climate variability and change."



From: Climate Data Records from Environmental Satellites: Interim Report (2004)

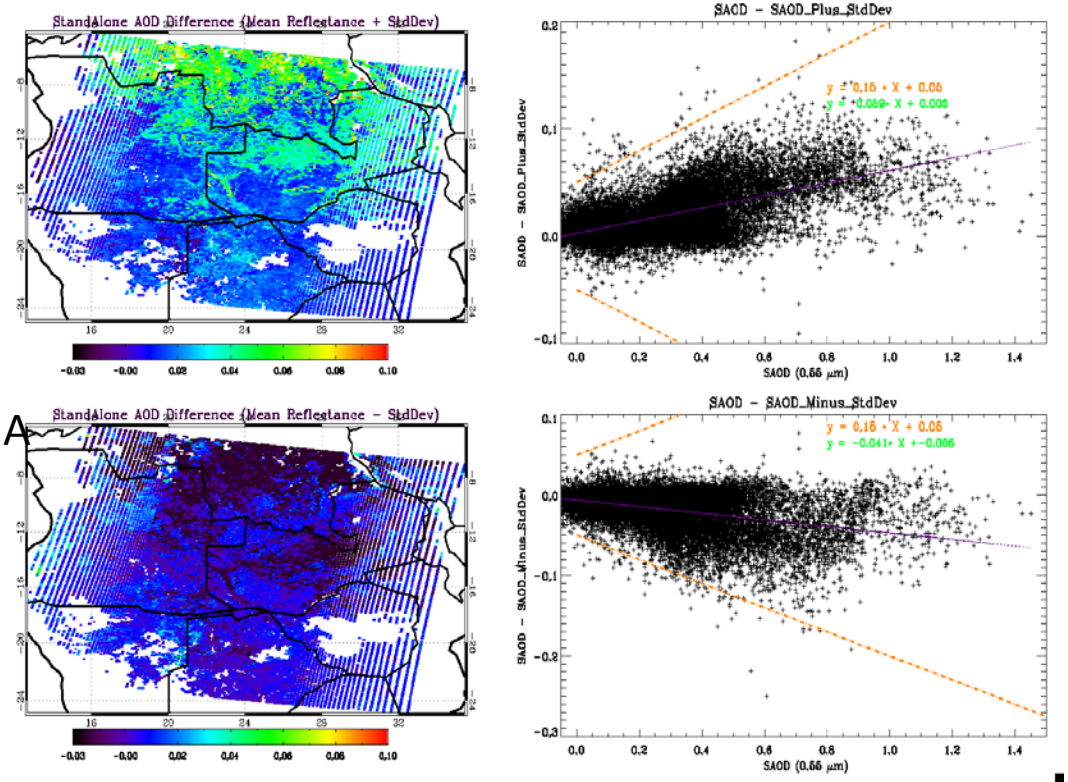
Some requirements

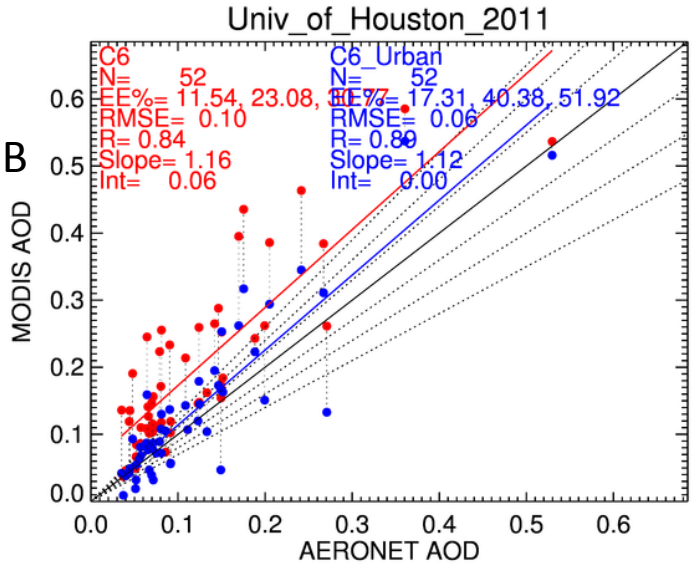
- Measurements sustained over decades
- Measurement of measurement performance (e.g. calibration, stability)
- Acquired from multiple sensors / datasets

Have we sufficiently characterized the dark-target aerosol algorithms and products?

Defining improvements (“collection 7”?)

A. Introducing “per pixel” uncertainty product
B. Improving retrieval over urban regions
C. Studying higher resolution product for understanding aerosol variability and aerosol near clouds





D. Also, new instrument / algorithm development

Collaboration through AeroSat

- Not really sure what is wanted by this slide
- But for scientific purposes and for societal purposes it really makes sense to collaborate.
- One size does not fit all, and every satellite/retrieval combination has strengths and weaknesses, and is probably “most appropriate” for particular situations
- AeroSat should (as best as possible) try to determine these strengths and weaknesses honestly.
- Maybe AeroSat can even make recommendations (independent of country/agency) what should be the “next thing”.

interest/expectations/opportunities/suggestions

- I am interested in combining everything we know about our tools (instruments) and retrievals (products) to provide better recommendations for the people that use our data (modelers, forecasters, regulators)
- My only suggestion is we come up with common tools for evaluating our inputs/assumptions and products.
  - I think of the Bréon paper of 2011.
  - I also think of Kokhanovsky type experiments, although they need to be designed more appropriately.
- Apart from AERONET, find common databases (the ACTRIS?) to evaluate products.
- Also determine use of products (e.g. AOD) for other studies (e.g. air quality? Aerosols and clouds?)

My view on initial draft of ToRs

- ToRs seem reasonable to me.
- If it is unfunded, I guess we need to find structure to get us (and keep us) together. A paid "person" to do some of the busy work and collecting experiment data (for all satellites) would be very helpful.
- Not sure what this means, "Involvement of instrument engineers, represented by space agencies, is an important aspect to benefit from the latest technological advances. Furthermore, standardization of data formats, data"
- This sounds promising, "Encouraging the open exchange of satellite, model and *in-situ* aerosol data streams and associated information, and establishing an interoperable global data access network for aerosol data streams and archives from different producers "
- Obviously, since most of our work is government funded, we need to make sure that AeroSat works under acceptable practices.
- The steering committee idea sounds reasonable. Sticking with AeroCom is a good idea, but we may want a presence at other meetings (e.g. AGU/EGU?)