

VIIRS (Land SIPS) Processing, Code Delivery and Integration Status

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(NASA/GSFC)

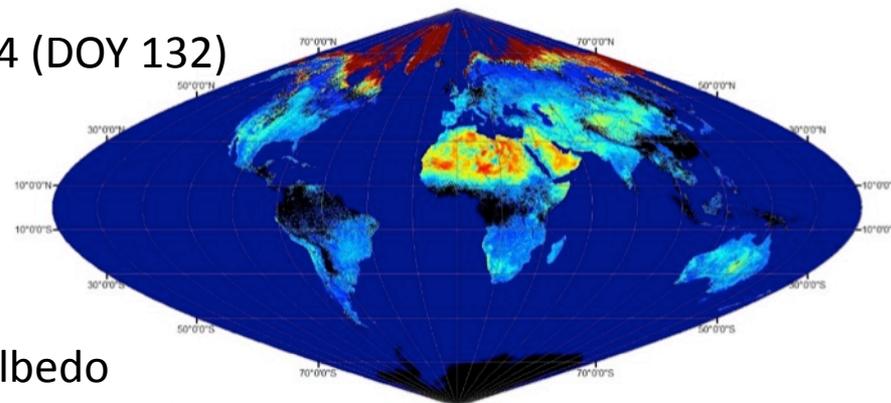
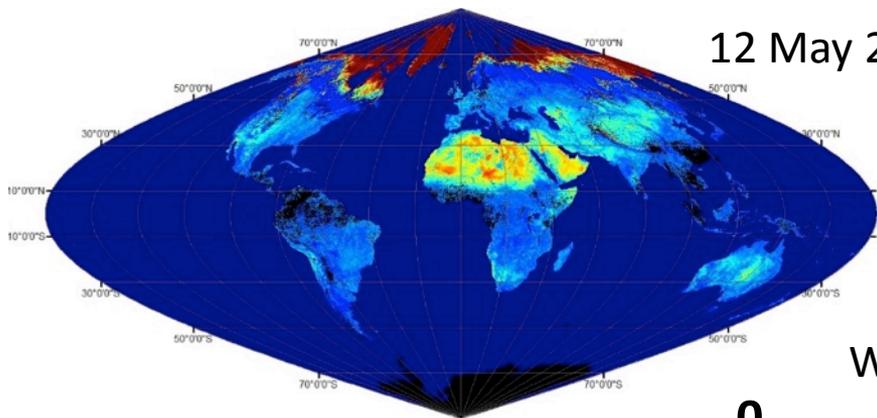


BRDF, ALBEDO, NBAR Continuity

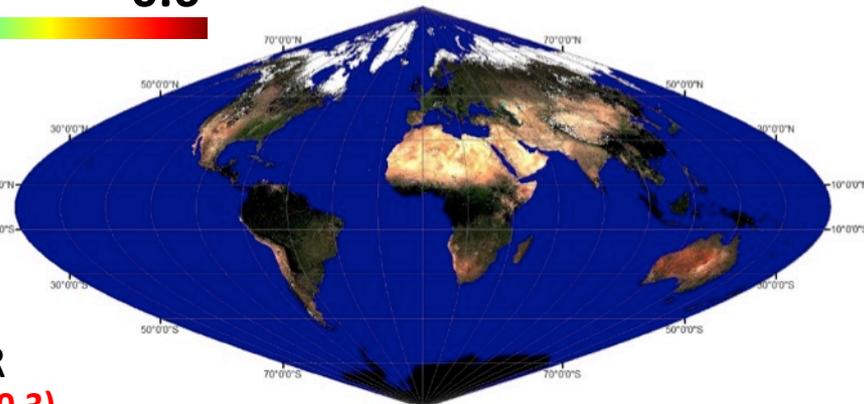
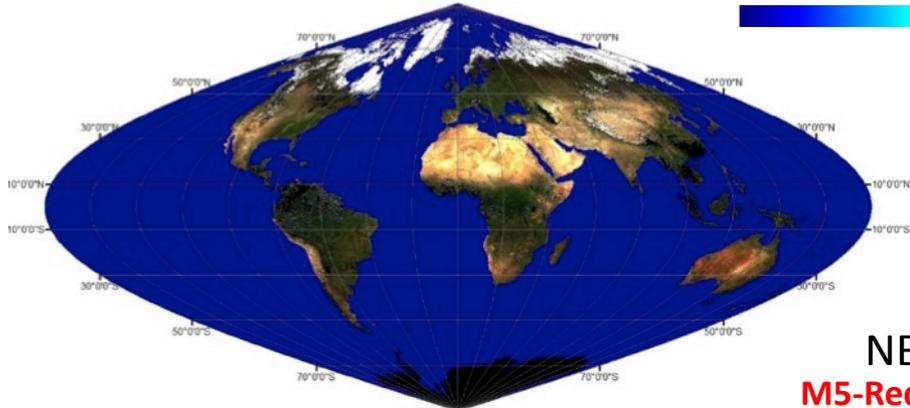
MODIS

VIIRS

12 May 2014 (DOY 132)



WSAIbedo

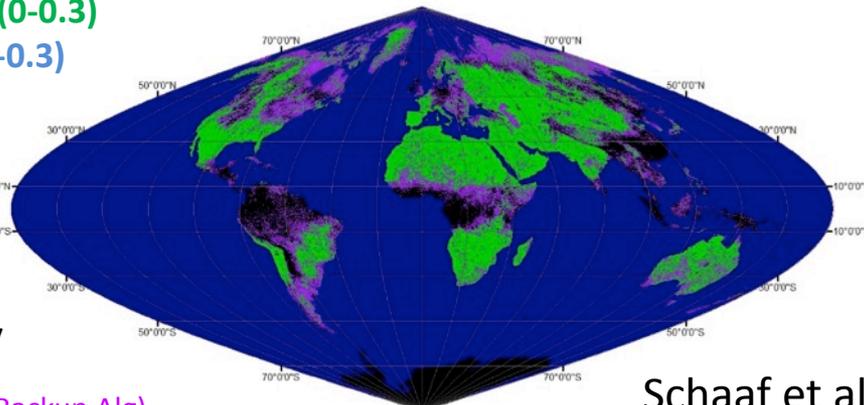
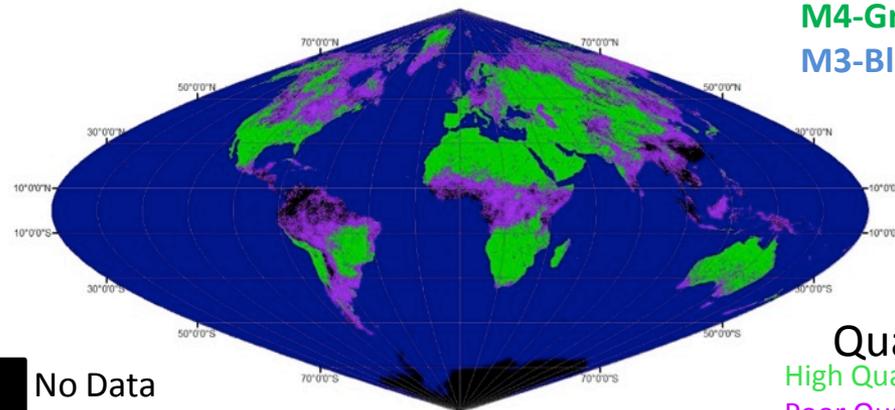


NBAR

M5-Red(0-0.3)

M4-Green(0-0.3)

M3-Blue(0-0.3)



Quality

High Quality

Poor Quality (Backup Alg)

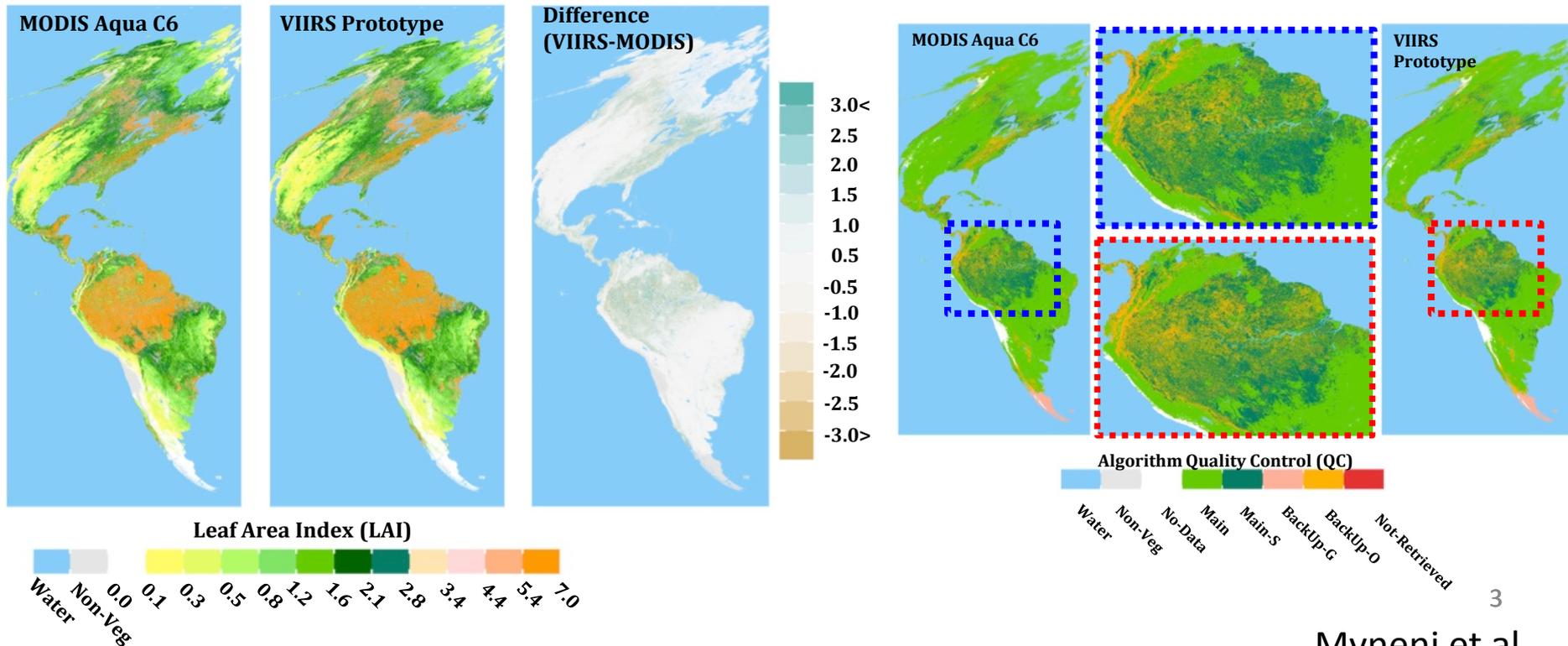
No Data

Schaaf et al

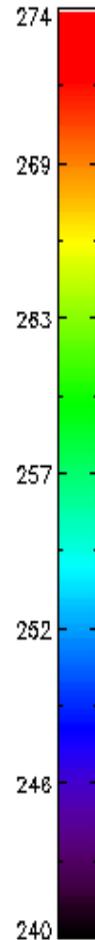
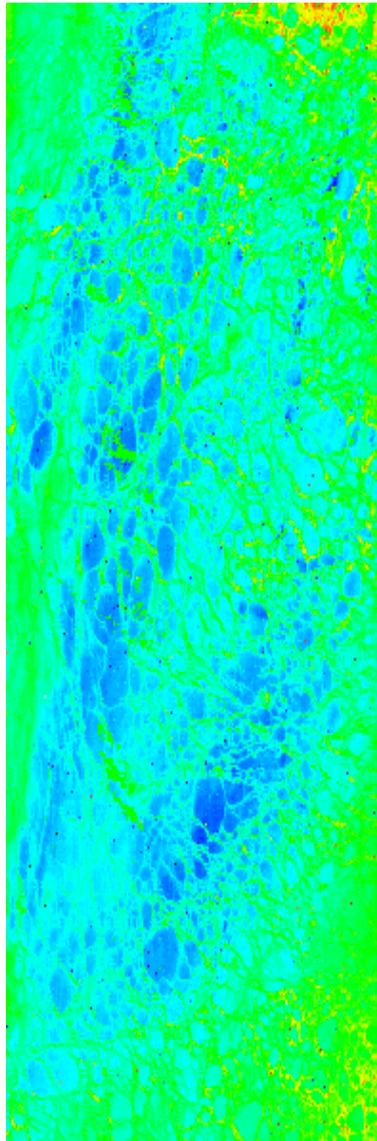


✓ Global scale LAI/FPAR comparison between optimized VIIRS & MODIS C6

- Overall, comparable spatial distribution of LAI/FPAR & spatial coverage
- Larger discrepancies are mostly induced by algorithm path mismatch (i.e., Main vs. Backup)
- Relatively higher uncertainty in dense forest can be another causal factor (i.e., saturation)



Ice Surface Temp



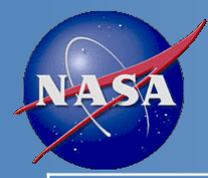
- Initial code generated from MODIS code by NASA's Land Science Investigator-led Processing System (LSIPS)
- Code being updated for VIIRS (calibration coefficients, etc.)
- New Quality Flags to be added
- Inter-comparison: MODIS, NCEP
- Validation: IceBridge, buoys
- First draft of ATBD delivered Jan. 2016

*Left: VIIRS IST (K) from the NASA VIIRS IST product
uses new calibration coefficients from J. Key
Sept 12, 2014, 21:10 UTC
Beaufort Sea, AK*

VIIRS Land Cover Issue

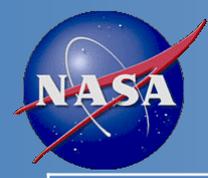
- NASA LC Product missing from the current VIIRS product suite
- Some higher level land products are dependent on land cover
- Current Approach:
 - Use MODIS Land Cover Product
 - Work with NOAA Annual Surface Type team to evaluate whether the product is sufficient





Land SIPS: Code Delivery and Integration Status

| Land SIPS Products | Algorithms Delivered to Land SIPS | Product Integration and Testing | Draft ATBD Delivery | Delivery of User's Guide | Products Delivered to assigned DAAC |
|---------------------|-----------------------------------|---------------------------------|---------------------|--------------------------|-------------------------------------|
| Surface Reflectance | ✓ | ✓ | ✓ | ✓ | Summer, 2016 |
| LAI/FPAR | Underway | Underway | Summer, 2016 | Summer, 2016 | Fall, 2016 |
| Snow Products | Underway | Underway | ✓ | Fall, 2016 | Fall, 2016 |
| MAIAC | Summer, 2016 | Pending | Fall, 2016 | Fall, 2016 | Fall, 2016 |
| BRDF/Albedo | Underway | Underway | ✓ | Summer, 2016 | Fall, 2016 |
| Burned Area | Fall, 2016 | Pending | Spring, 2017 | Spring, 2017 | Spring, 2017 |
| Active Fires | Underway | Underway | Spring, 2016 | Fall, 2016 | Fall, 2016 |
| Vegetation Index | ✓ | Pending | Summer, 2016 | Summer, 2016 | Fall, 2016 |
| LST&E | Underway | Pending | ✓ | Fall, 2016 | Fall, 2016 |
| Ice Products | Fall, 2016 | Pending | ✓ | Fall, 2016 | Fall, 2016 |
| Phenology | Fall, 2016 | Pending | Fall, 2016 | Fall, 2016 | Spring, 2017 |
| Day/Night Band | ✓ | Underway | Fall, 2016 | Fall, 2016 | Spring, 2017 |

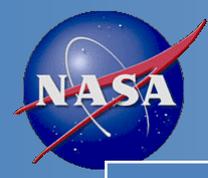


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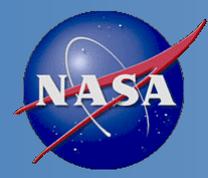
Takeaway: Most products still in HDF 4
 Need to transition to HDF 5 - Conversion may cause c. 6 week delay in BRDF Suite and LAI /FPAR – land team working together through the conversion issues

Land DAAC provided guide to convert to HDF 5 compatible tools to minimize user impact



Land SIPS: Production Status

| Processing stream and LAADS AS | C11 Reprocessing AS 3110 | Forward Processing AS 3002 | V1 Forward processing and Reprocessing AS 5000 |
|------------------------------------|--|--|---|
| Data day being processed? | Not operational. Last data day processed Jan 31, 2016. | Not operational. Last data day processed Jul 13, 2016 (day 195) | Forward processing started on day 188, now at leading edge a day behind current data day. Reprocessing year 2015. |
| Mission period the data available? | Jan 19, 2012 – Jan 31, 2016 | L2: last 30 days L3: most available for the mission period. | Expected to be available for the mission period |
| Are products available from DAACs | No | No | Yes |
| L1B Calibration Algorithm version? | IDPS L1B SDR Mx7.2 + L1B LUT from NASA VCST | IDPS L1B SDR Mx8.11 + IDPS SDR Melded LUT (IDPS uses RSB Auto Cal) | NASA L1B V2.0 + L1B LUT from NASA VCST |
| L1B/L2 Granule size? | Aggregated ~5min from IDPS verified RDR | 5 min from NASA L1A/L0 | 6 min from NASA L1A/L0 |
| L2/L3 Algorithm versions? | IDPS Mx7.2 + LPA | IDPS Mx8.11 + LPA | NASA V1 / V2 algorithms |
| File format | HDF4/HDF4-EOS | HDF4/HDF4-EOS | HDF5/HDF5-EOS (if distributed from DAACs) |



VIIRS Land PGEs: Code Delivery and Integration

- VIIRS Land SIPS proposed same approach as MODIS Land and Atmosphere SIPS (MODAPS) for science software delivery and integration of the VIIRS Land software by the NASA VIIRS Land Science Team.
- Land SIPS expects same level (MODIS pre-C6) of commitment as MODIS science team from the VIIRS science teams for science code development and delivery.
- Factors impacting the delivery schedule and resource at Land SIPS.
 - Delay in delivery of NASA L1B/Geo until NASA version available from NASA VCST/Geo team
 - Update all upstream processes, and libraries to HDF5, the new format adopted for VIIRS product from Land SIPS. MODIS C6 product are still being generated in HDF4.
 - Many of the deliveries from the science team are in HDF4 format or science team expected the Land SIPS to transition the DDR process (MODIS C6 PGE remapped to VIIRS) from Land PEATE
 - Transitioning even the MODIS C6 algorithm to HDF5 is significant effort and Land SIPS is not resourced for this effort.