MODIS-VIIRS Atmosphere Discipline Meeting
16 November 2020

1:00-1:30 PM EST

Part 1: Intro

1. Objectives, Atmosphere Discipline Overview,
   Where We Left Off in Nov. 2019: the Steves [15 min]
2. HQ remarks: Mike Falkowski, Barry Lefer or Hal Maring [5 min]
3. Terra/Aqua Senior Review Status: Lazaros Oreopoulos [10 min]

1:30-3:10 PM EST

Part 2: Production and Products

1. Atmosphere SIPS status and plans: Liam Gumley [20 min]
2. Aerosol Deep Blue: Christina Hsu [10 min]
3. Aerosol Dark Target: Rob Levy [10 min]
4. Clouds products
   a. mask: Rich Frey [10 min]
   b. continuity cloud top properties: Andy Heidinger [10 min]
   c. cloud optical properties: Kerry Meyer [10 min]
5. VIIRS/CrIS fusion: Bryan Baum, given by Eva Borbas [10 min]
6. Volcanic SO2 detection/mapping: Vince Realmuto [10 min]

   General product discussion, user needs, etc. [10 min]

Break

3:30-5:00 PM EST

Part 3: Science Analysis Investigations

1. Zhibo Zhang: *Analysis of MODIS and CALIOP dust climatology and trends* [10 min]
2. Hongbin Yu: *June 2020 "gorilla" dust event analysis: MODIS, CALIOP and GEOS-5* [10 min]
3. Eric Wilcox: *A Study of Atmospheric Heating by Black Carbon Aerosols and its Impacts* [10 min]
4. Jay Mace: *Influence of volcanic sulfate aerosol on cloud properties using MODIS and the A-Train* [10 min]
5. Anthony Davis: *Multi-angle/multi-spectral/multi-pixel remote sensing of 3D convectively-driven clouds with MISR and MODIS: A Progress Report* [10 min]
6. Larry Di Girolamo: *CAMP2Ex campaign overview* **+** *Terra Data Fusion* [20 min]

   Discussion [as needed]

MODIS/VIIRS Atmosphere Team Discipline Team Meeting

Steve Ackerman[1] & Steve Platnick[2]

[1]U. Wisconsin CIMSS/SSEC, [2]NASA GSFC

WebEx
19 November 2020

Topics

- Objectives
  - ‘Plenary’ MODIS/VIIRS WebEx Thursday Nov. 19
  - ROSES 2020 TASNPP addendum forthcoming
- Atmosphere Discipline Overview
- Where we left off (Nov. 2019 STM)

Topics

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MODIS & VIIRS Atmosphere Team Processing Organization

MODIS Terra/Aqua L1B
(MOD/MYD02)

↓

MODAPS processing (GSFC)

Aerosols: MOD04
Water Vapor: MOD05; Profiles: MOD07
Cloud Mask: MOD35
Cloud Top + Optical Properties: MOD06
L2 joint: MODATML2
Team L3: MOD08; Cloud L3: COSP

↓

LAADS (GSFC) archive and distribution
LANCE (GSFC) NRT

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NASA SNPP/NOAA20 VIIRS L1B (SIPS-intermediate)
(VNP/VJ102MOD)

↓

Atmosphere SIPS processing (U. Wisconsin)

Aerosol Deep Blue: AERDB
Aerosol Dark Target: AERDT*
Cloud Mask: CLDMSK
Cloud Top + Optical Properties: CLDPROP
VIIRS-CrIS IR chan
Water Vapor*: W
L3 (for each L2 pr

Naming convention ex.:
AERDB_M3_VIIRS_SNPP
CLDMSK_L2_VIIRS_NOAA20

Cloud continuity products:
CLDPROP_L2_VIIRS_SNPP
CLDPROP_L2_MODIS_Aqua

↓

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LANCE (GSFC) NRT

** not funded via TASNPP 2017*

MODIS & VIIRS Atmosphere Team Processing Organization

MODIS Terra/Aqua L1B
(MOD/MYD02)

NASA SNPP/NOAA20 VIIRS L1B (SIPS-intermediate)
(VNP/VJ102MOD)

Discipline leads: S. Ackerman, S. Platnick

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R. Wolfe

Atmosphere SIPS processing (U. Wisconsin)

Aerosol Deep Blue: AERDB
Aerosol Dark Target: AERDT*
Cloud Mask: CLDMSK
Cloud Top + Optical Properties: CLDPROP
VIIRS-CrIS IR channel fusion: FSNRAD
Water Vapor*: WATVP; Cirrus Reflectance* (TBD)
L3 (for each L2 product): AERDB_L3, etc.

L. Gumley

R. Wolfe **LAADS** (GSFC) archive and distribution

** not funded via TASNPP 2017*

Collection/Version History

MODIS Atmosphere Team Products (MOD/MYD 04, 05, 06, 07, 35, 08, ATML2)

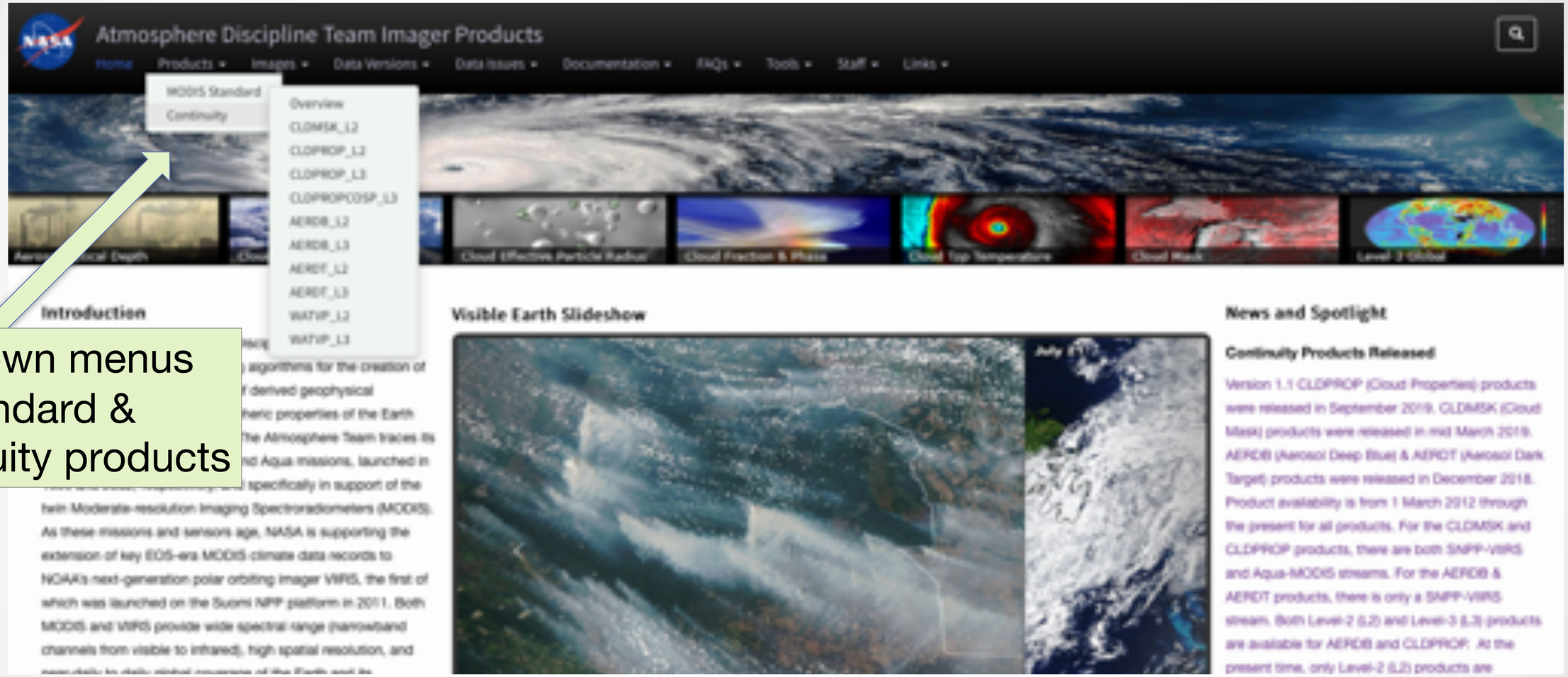
Collection	Start of Reprocessing MODIS Terra	Start of Reprocessing MODIS Aqua
6.1	Sept. 2017 (completed Dec. 2017)	Dec. 2017 (completed March 2018)
6.0	2014	2013
5.1	2008	2008
5.0	2005	2005
4	2002	2002
3	2001	2002
1	2000	–

SNPP Continuity Products (AERDB[3], AERDT[3], CLDMSK[2], CLDPROP[3], FSNRAD[1])

Version	A-SIPS delivery to LAADS
1.1 (CLDPROP)	Jan. 2020
1.0	Dec. 2018–Feb. 2020 (depending on product)

NOAA 20 availability: [1]Nov. 2019, [2]Nov. 2020, [3]Dec. 2020

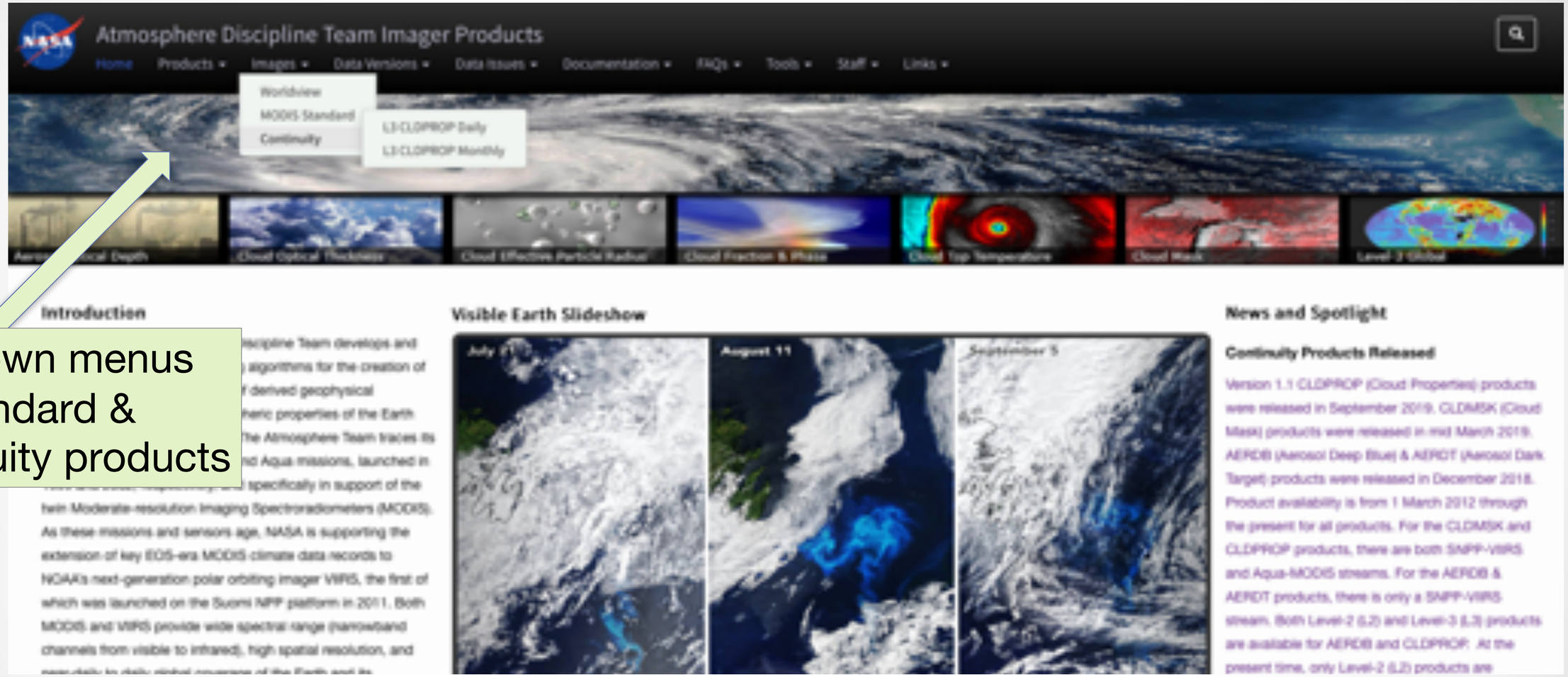
Atmospheres Imager Team Web Site



pull-down menus for standard & continuity products

atmosphere-imager.gsfc.nasa.gov

Atmospheres Imager Team Web Site



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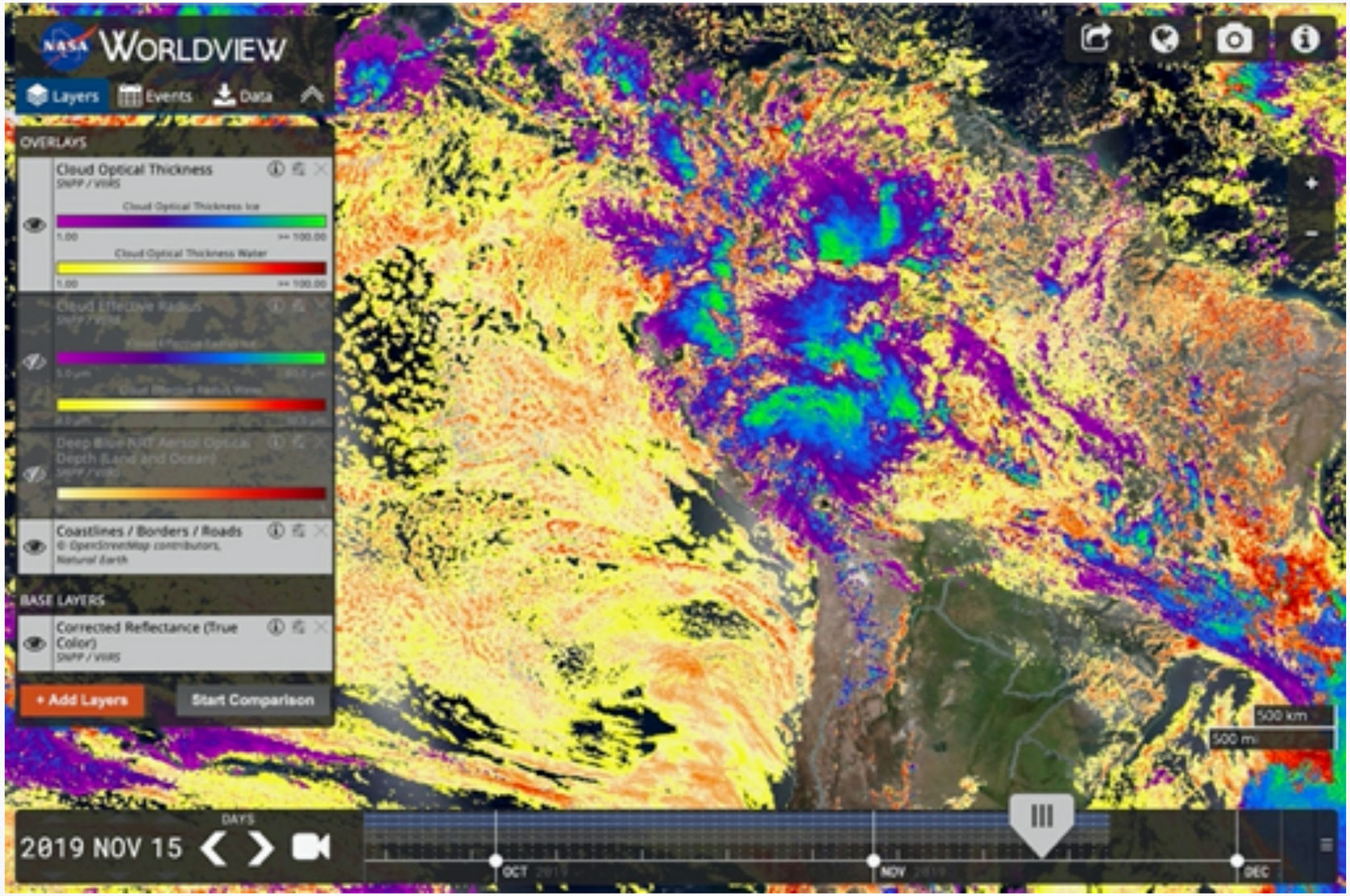
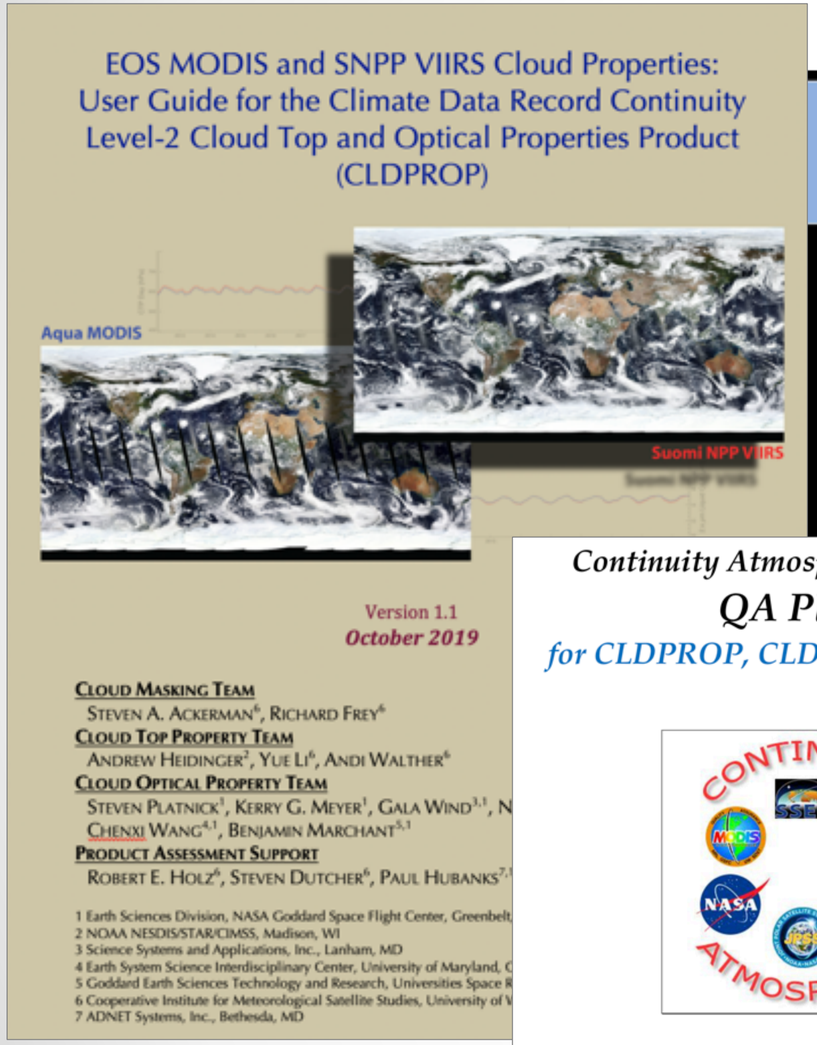
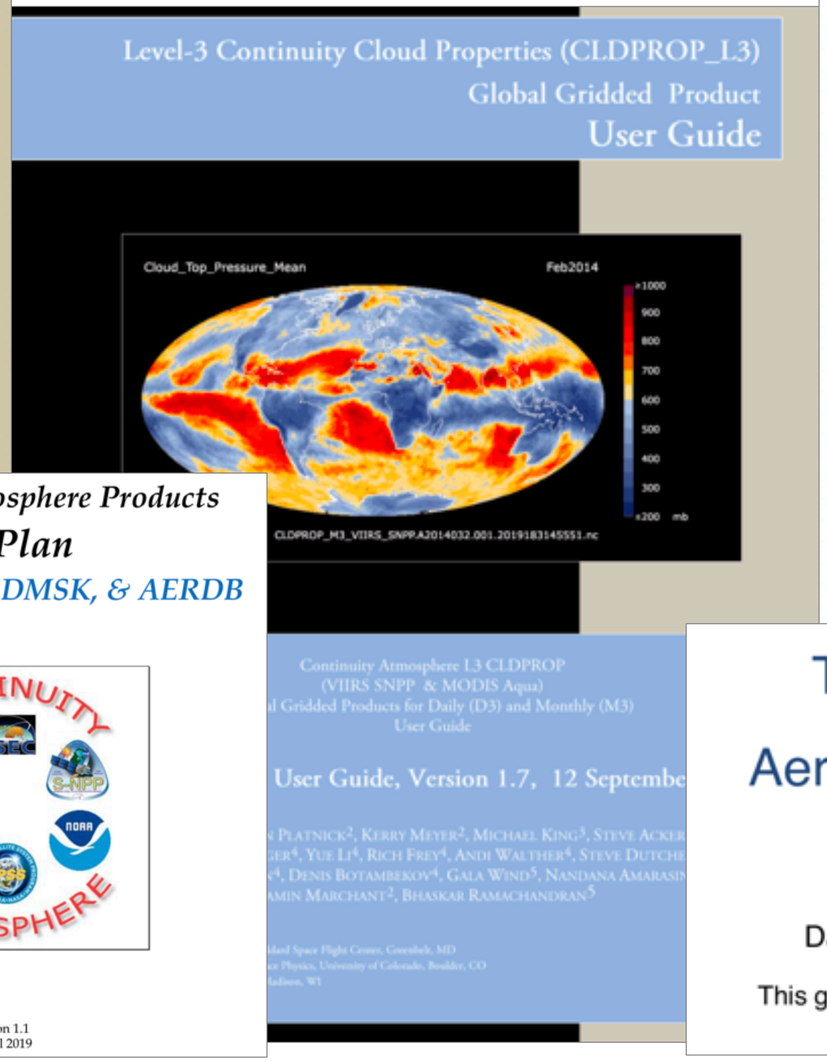
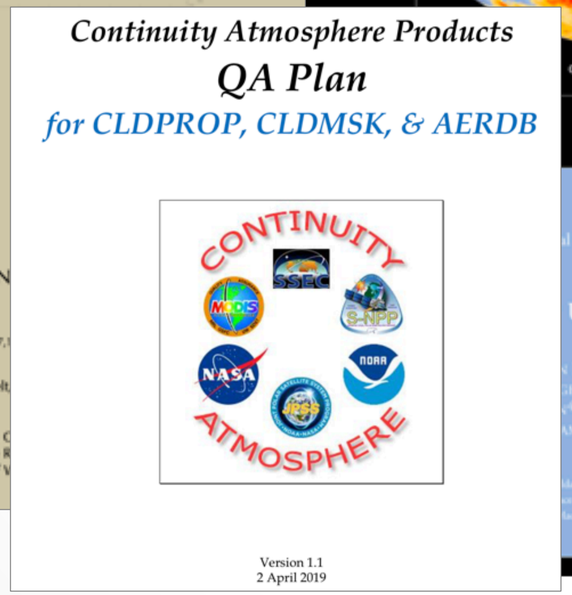
CLDPROP in Worldview Example (VIIRS COT)

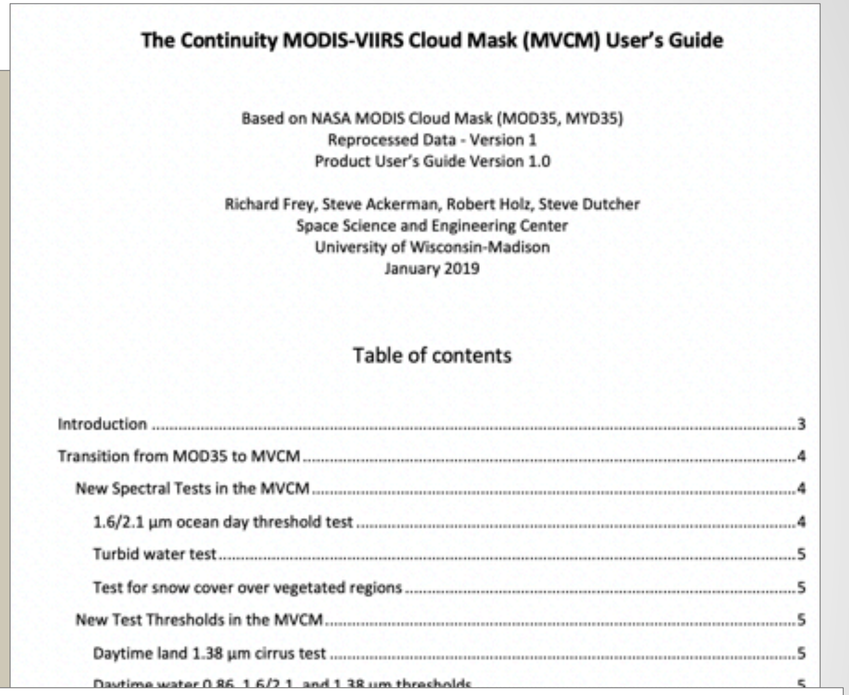


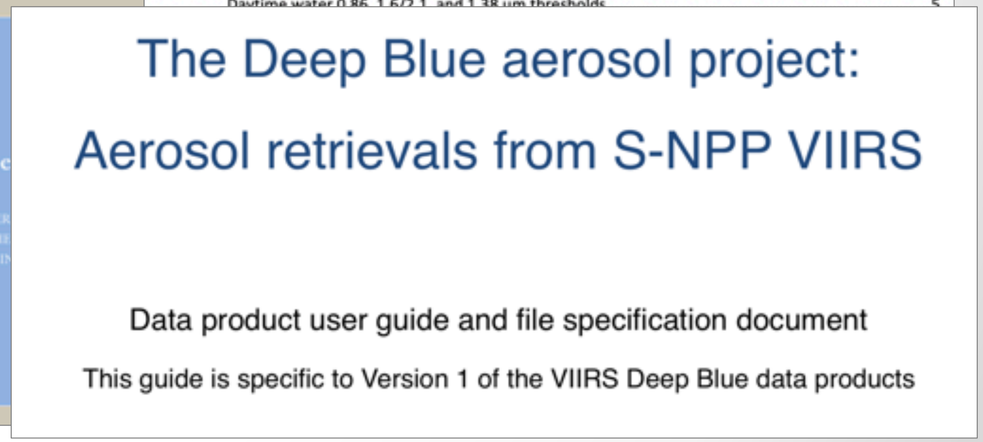
Continuity Product User Guides











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Where We Left Off: Nov. 2019 Report Out [1]

A-SIPS has been a wonderful partner in developing products

- Science team fully responsible for science code, enabling efficient product development and delivery, and clear line of responsibilities. Flexibility in science team code development and implementation is a strength of A-SIPS (and MODAPS).
- A-SIPS developed critical tools to support colocation, aggregation, and assessment and validation using multi-instrument datasets (A-Train, etc.). Extensive A-SIPS data holdings (MODIS, CALIOP, VIIRS, CrIS, GEO, ancillary, etc.).
- A-SIPS investments should be leveraged for future atmosphere algorithm efforts (such as combined geostationary and next generation LEO instruments).

Processing/resources for products from non-NASA assets

- A-SIPS fully capable of processing NOAA-20 (fusion implemented, other projects in spring 2020) and ABI.
- NASA R&A program has always made use of non-NASA and international operational assets (imager examples include AVHRR, ISCCP, ERBE/CERES radiation budget team, but examples included other sensor types). SNPP/JPPS is the (partial) EOS follow-on; stewardship of NASA data records into the new observational assets is in NASA's strategic interest.
- Beyond EOS continuity, ROSES 2019 GEO solicitation and ACCP study plan assumes JPSS/GEO continuity for PoR, etc.

Where We Left Off: Nov. 2019 Report Out [2]

Product Documentation and Publications (ATBD/User Guide discussion)

- Agreed at last meeting to combine ATBD/User Guide to focus documentation on science investigators. Documents for standard and continuity products posted to new Atmosphere Imager web site.

Level-3

- Yori developed by A-SIPS (so science determines aggregation). Used for cloud product aggregations.
- Atmosphere Imager web site providing browse imagery

Reflective Band Calibration between instruments

- Aerosol and Cloud adjusting sensor differences similarly. Adjustment factors are archived in the L2 cloud products, aerosol will do that in their next release.
- How to leverage other efforts, such as GSICS, other discipline teams, etc.
- How to handle 3-satellites not yet determined (MODIS Aqua is the current reference).

Presentations/Posters by Science PIs mostly using MODIS products

- Quality products, easy access.
- Satellite observations support field programs

WorldView a valuable resource, adding more satellite observations valued

Transition of MODIS products from HDF4 to NetCDF problematic for user community?