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**JPSS STAR (J-STAR)**

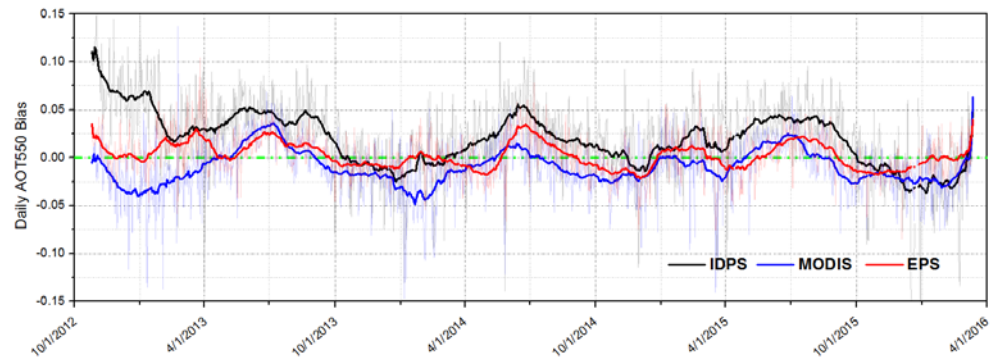
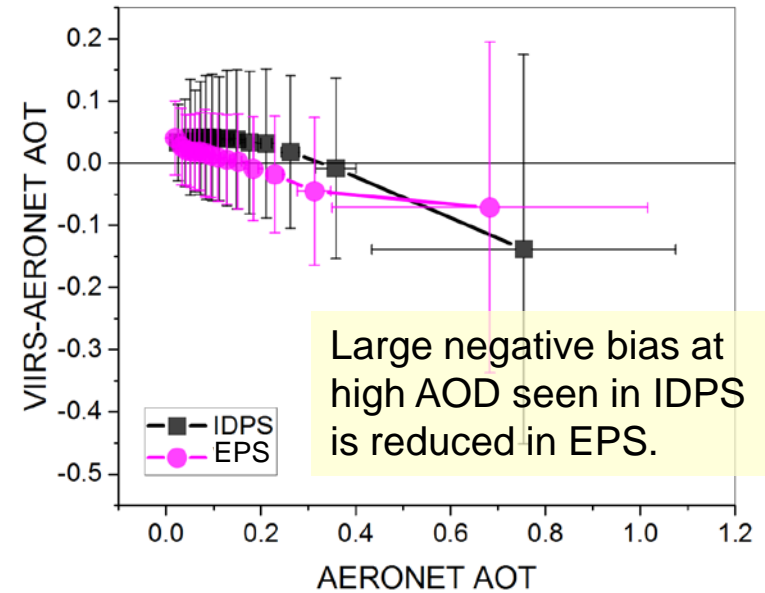
**JPSS-CPO TIM**

VIIRS AEROSOL PRODUCTS SUMMARY FOR NOV. 18TH MEETING  
SHOBHA KONDRAGRUNTA AND ISTVAN LASZLO

# S-NPP AOT Product Overview (1)

AOT - Land	L1RDS	Performance
<b>AOT550 &lt; 0.1</b>		
Accuracy	0.06	0.03
Precision	0.15	0.07
<b>0.1 ≤ AOT550 ≤ 0.8</b>		
Accuracy	0.05	-0.01
Precision	0.25	0.11
<b>AOT550 &gt; 0.8</b>		
Accuracy	0.20	-0.05
Precision	0.45	0.38

AOT - Water	L1RDS	Performance
<b>AOT550 &lt; 0.3</b>		
Accuracy	0.08	0.03
Precision	0.15	0.04
<b>AOT550 ≥ 0.3</b>		
Accuracy	0.15	0.01
Precision	0.35	0.11



IDPS: Interface Data Processing Segment (current operational system)  
 EPS: Enterprise Processing System for NOAA Data Exploitation (NDE) operational system

# S-NPP AOT Product Overview (2)

- **Enterprise AOT Algorithm Status:**

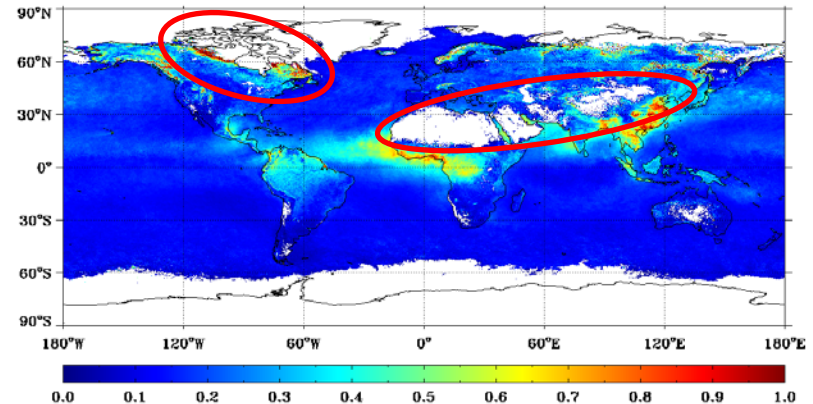
- Algorithm is ready
- Scheduled for operational implementation in Spring 2017

- **Reprocessing:**

- with EPS algorithm
- 2015 completed
- Output Data
  - Pixel-level retrieval and diagnostic outputs in compressed HDF5 format for each granule
  - Total size 7.7T (about 22G per day)
- Provided data to users at
  - NOAA Earth System Research Laboratory (ESRL)
  - NOAA Joint Center for Satellite Data Assimilation (JCSDA);
  - NOAA National Centers for Environmental Prediction (NCEP) Environmental Modeling Center (EMC)
  - University at Albany, State University of New York
  - Naval Research Laboratory (NRL)

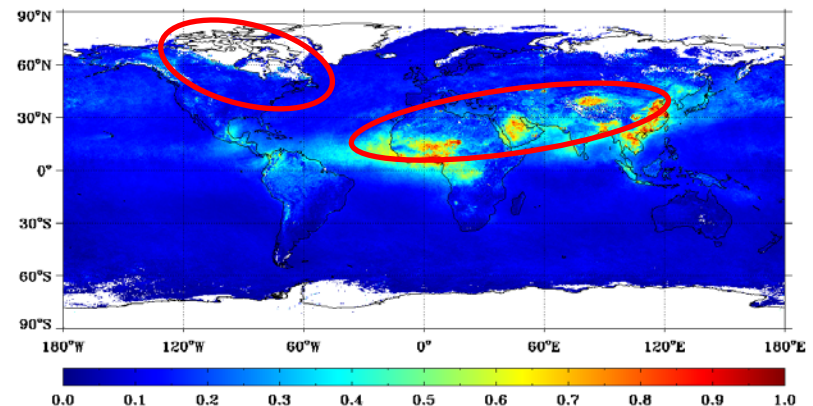
## IDPS

2015 Spring (MAM) VIIRS (IDPS) High Quality AOD550



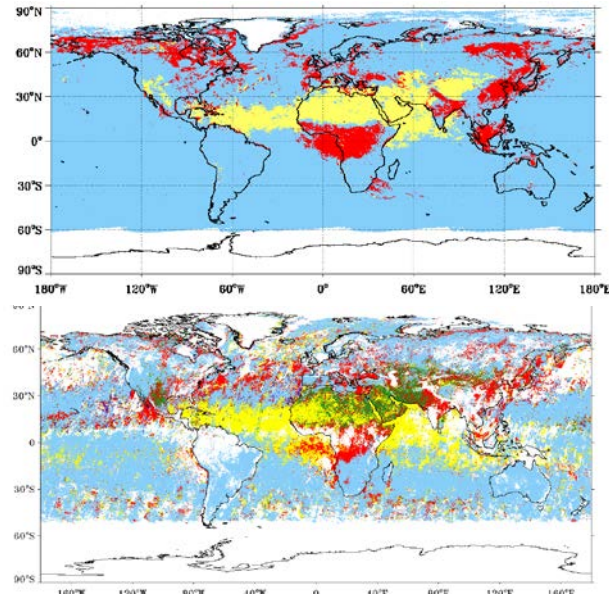
## EPS

2015 Spring (MAM) VIIRS (EPS) High Quality AOD550



Product	L1RDS	Performance	
		Land	Water
<b>Accuracy (%)</b>			
Smoke	70	98	94
Dust	80	84	95
Ash	60		

Both dust and smoke products meet requirements

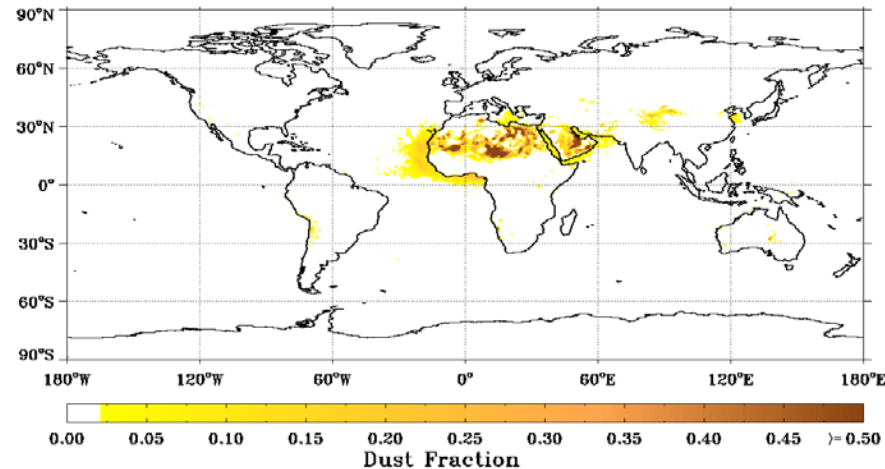


VIIRS aerosol detection product (top) is in good agreement with MISR (bottom) with respect to location of dust and smoke.



## SNPP VIIRS Dust Climatology 2013 - 2015

January

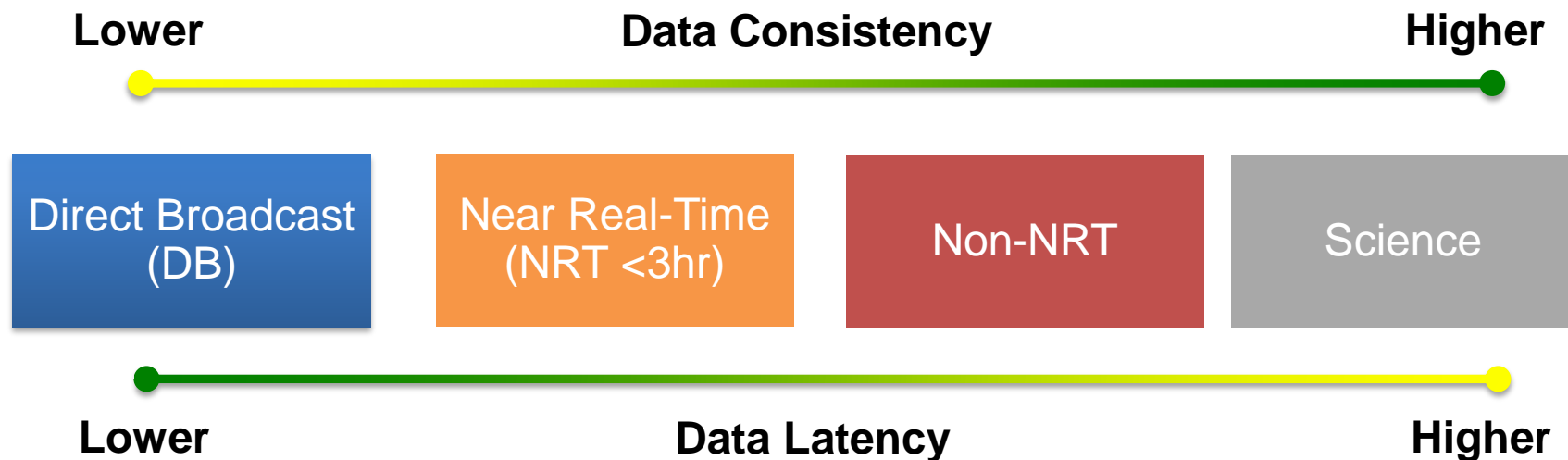


- **Enterprise ADP Algorithm Status:**
  - Algorithm is ready
  - Scheduled for implementation in NDE in Spring 2017
- **Reprocessing:**
  - with EPS algorithm
  - 2015 completed; other years ongoing

- **The current operational (IDPS) AOT product meets requirements for operational user applications/needs**
- **The new Enterprise AOT product also meets requirements with additional benefits:**
  - Expanded measurement range (-0.05 to 5)
  - Coverage over bright surfaces
  - Coverage over inland water bodies
- **The current operational (IDPS) aerosol detection product does not meet requirements**
- **The new Enterprise aerosol detection product meets requirements**

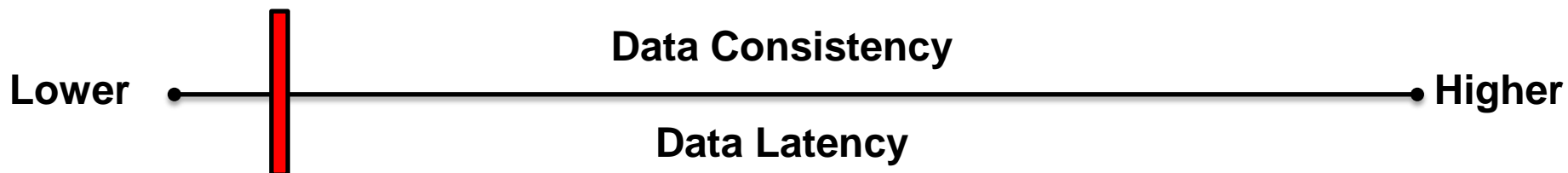
# VIIRS Aerosol Product Options

- Trade-off between latency and consistency of data products
- Need to know what general type of product you need (4 categories)
- Many places to find data! (details on following slides)



# VIIRS Aerosol Products

## Sources: DB



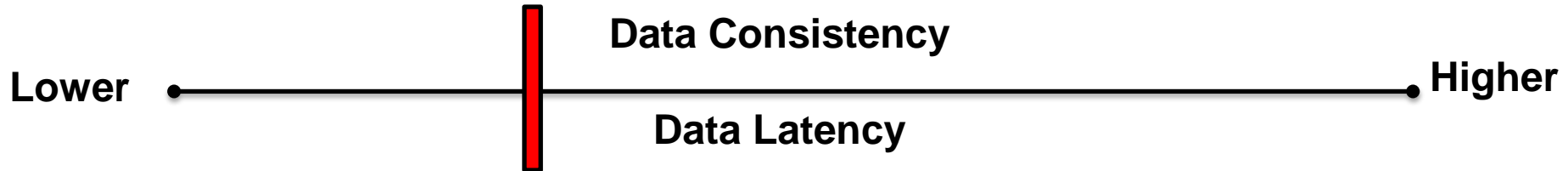
Direct Broadcast  
(DB)

Direct Broadcast (DB) is the real-time transmission of satellite data to the ground. As the Earth is being observed by satellite instruments the data are formatted and transmitted to any users who have compatible ground receiving equipment and are in direct line of sight to the satellite. DB can provide end-users with VIIRS data in less than 1 hour.

For CONUS and Alaska, data can be obtained from:

[ftp://ftp.star.nesdis.noaa.gov/pub/smcd/hzhang/VIIRS\\_NRT/](ftp://ftp.star.nesdis.noaa.gov/pub/smcd/hzhang/VIIRS_NRT/)

# VIIRS Aerosol Product Sources: NRT



Near Real-Time  
(NRT <3hr)

Near Real-Time (NRT) data and imagery from VIIRS instrument are available much quicker than routine processing allows. Most data products are available within 3 hours from satellite while imagery are generally available 3-5 hours after observation.

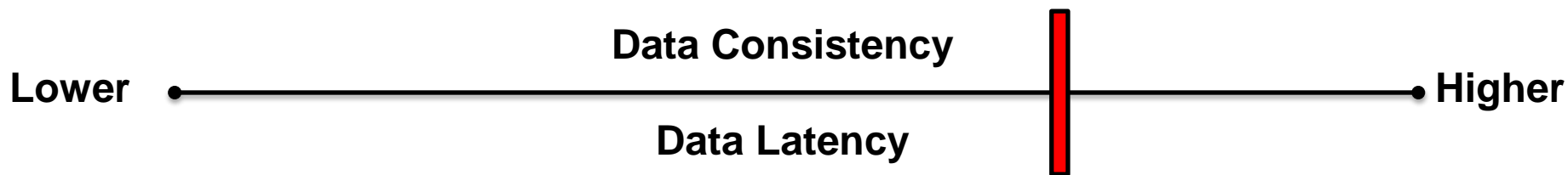
Must fill out the Data Access Request Form to NOAA-NESDIS to get a subscription

<http://www.ospo.noaa.gov/Organization/About/access.html>



# VIIRS Aerosol Products

## Sources: Non-NRT



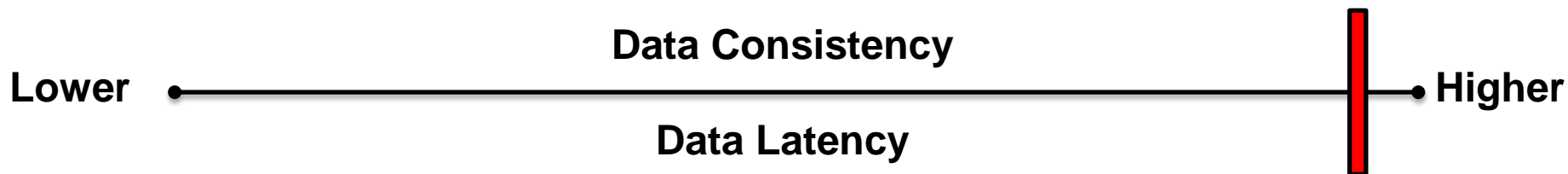
Non-NRT

This is the standard processing stream for SNPP and VIIRS products. Latency is around 6 hours.

<http://www.nsof.class.noaa.gov/saa/products/welcome>

# VIIRS Aerosol Products

## Product Sources: Science



Science

Science quality data have undergone quality checks and been scrutinized before being archived. The data are periodically reprocessed to include algorithm updates. Latency is months to years depending on versions of reprocessing.

Data access by sending a request to  
[Shobha.Kondragunta@noaa.gov](mailto:Shobha.Kondragunta@noaa.gov) or  
[Istvan.Laszlo@noaa.gov](mailto:Istvan.Laszlo@noaa.gov)

- Gridded Data on STAR Aerosol Cal/Val website:

[http://www.star.nesdis.noaa.gov/smcd/emb/viirs\\_aerosol/products\\_gridded.php](http://www.star.nesdis.noaa.gov/smcd/emb/viirs_aerosol/products_gridded.php)

The screenshot shows the STAR website interface. On the left is a navigation menu with categories like Algorithm, Products, Evaluation, Documents, Known Issues, Publications, Software, Team, and Links. The main content area is titled "STAR / SMCD / VIIRS Aerosol Calibration and Validation" and has tabs for "DATA DESCRIPTION", "IMAGE", and "GRIDDING PROCESS". The "DATA DESCRIPTION" tab is active, showing information about "SNPP/VIIRS Aerosol Products - Gridded Data". A red box highlights a specific paragraph: "Daily files of gridded data can be downloaded from the STAR. - FTP site [icon]. Note, for each day, new granules could be added and current granules could be modified at a later time. Users are encourage to check the processing date of desired binary data again at a later time. The waiting time is at least two days. (For example, it is recommended to download data for 06/01/2016 on 06/03/2016.)". Below this is a "Date Selector" with dropdowns for Year (2016), Month (Sep), and Day (11), and a "Submit" button. To the right, a table lists files and directories:

Name	Size	Date Modified
[parent directory]		
0.25/		8/23/16, 5:56:00 PM
1README.txt	6.7 kB	9/27/13, 12:00:00 AM
2012/		9/27/13, 12:00:00 AM
2013/		1/2/14, 12:00:00 AM
2014/		1/1/15, 12:00:00 AM
2015/		1/2/16, 12:00:00 AM
2016/		9/12/16, 9:20:00 AM
monthly/		8/23/16, 5:25:00 PM

At the bottom of the page, there is a section titled "0.25x0.25-degree Gridded Aerosol Optical Thickness at 550 nm" with a "Data Access" dropdown set to "- FTP site [icon]".

- Daily gridded EPS AOT from 2015 also available via ftp site