

# VIIRS “Aerosol Assimilation” Breakout Session Report

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Price

Thursday May 15 10:30 – 2:30

# Participants

Product developers: Ciren, Huang, Huang Kondragunta, Laszlo, Liu, Remer, Superczynski, Zhang

User Leads: Da Silva, Hyer, Liuz, Lee, Lu, Pagowski, Pierce, Stajner, McQueen, Zhang

PEATE: Oo

NCDC: Zhao

# Overarching goal

- We want SNPP/JPSS data , combined with other data if needed, to improve NOAA /Partner services.
  - Yes for monitoring and forecasting applications
  - Global (NGAC, GEOS5, NAAPS, RAQMS) and regional model applications (CMAQ, WRF, HARR, HYSPLIT)
- We need you the user of SNPP/JPSS data to demonstrate the value of SNPP/JPSS data and if there are issues we want to know and we want to help.
  - All users who participated in the session are willing to demonstrate the value of SNPP/JPSS data and work with product developers

# Thread Analysis

NWS/NCEP global model applications: **Thick**

NWS/NCEP regional model applications: **Light but thick when the system moves towards operational data assimilation that currently has developmental constraints due to budget**

NOAA/ESRL global and regional model applications: **Thick**

NOAA/NESDIS global and regional model applications: **Thick**

NRL: **Thick**

**AFWA & NCAR: Thick**

EPA: **Light**

NASA/GMAO: **Thick**

# Basic questions (1)

- Are the SNPP/JPSS product continuity for products that you get now from POES, METOP, DMSP, EOS?
  - NWS/NCEP global model applications: **EOS MODIS**
  - NWS/NCEP regional model applications: **EOS MODIS**
  - NOAA/ESRL global and regional model applications: **EOS MODIS**
  - NOAA/NESDIS global and regional model applications: **EOS MODIS**
  - WFOs
  - NRL: **EOS MODIS, MISR, CALIPSO**
  - AFWA & NCAR: **EOS MODIS**
  - EPA: **EOS MODIS, MISR, CALIPSO**
  - NASA/GMAO: **EOS MODIS**
  - Others: **EOS MODIS**

# Basic questions (2)

- If yes,
  - NRL: ASAP but waiting to finish software development. Also product improvements.
  - NASA: on the list. Need complete dataset (product and metadata) so careful bias correction can be made w.r.t MODIS. Current output format is an issue.
  - NWS: new capability and will be high impact but need funding to develop
  - AFWA/NCAR: testing the assimilation in a regional model (WRF\_Chem)
  - NESDIS: re-analysis and real time forecasting using a global model (RAQMS)
  - ARL: re-analysis using regional model
  - What improvements do you expect from SNPP/JPSS?
    - NRL: data coverage issues
    - NASA: need aggregated data (radiances) etc. that needs offline discussion
    - NESDIS: better understanding of cloud mask effects on AOT, snow mask improvements
    - NCAR/AFWA: better understanding of quality flags, especially compared to MODIS
  - Are the current products (MODIS?) well utilized?
    - NRL: yes
    - NASA: yes
    - NWS: no
    - NESDIS: yes
  - Is the SNPP/JPSS product part of a blended product?
    - Yes along with MODIS for NRL, yes for NASA and **no for NWS**
    - Yes along with MODIS for NESDIS

# Basic questions

- If yes,
  - Will the SNPP/JPSS product be well utilized?
    - Is there a plan?
      - Yes for all users
    - Is it funded?
      - Yes for all users except NWS global and regional model applications. NWS regional air quality forecasting program wants to assimilate but needs support. They want to leverage from research development (GSI) at ARL, ESRL, NCAR and implementation will require funding.
    - What is the priority?
      - High for all users

# Are enhancements needed for:

- Accessibility (data flow, latency, format)
  - Only issue is format/data content & parameters for NASA/GMAO applications
  - HDF5 output need for NASA and other applications. BUFR good only for NWS.
  - **Reprocessing needed for re-analysis of global and regional models**
- Product performance (accuracy, precision)
  - Reduce over land bias
  - snow/ice flag, coverage over bright surface, cloud mask, increase measurement range
- User applications (modifications to modeling , decision tools, visualization to use the new products)
  - Visualization tools developed for MODIS EOS-HDF format do not work.
  - CRTM support to the aerosol assimilation community is critical (e.g., CMAQ speciation). CRTM lead work with us to make the LUT computation flexible (user provided optical properties)

# Miscellaneous Questions

- How do you envision using suspended matter (dust, smoke, volcanic ash)
  - NWS smoke and dust forecasting currently uses MODIS dust and smoke products for verification and want to transition to VIIRS
  - Global and regional modelers are interested in knowing the composition to help with the assimilation system. But this is a research topic because the SM product is not a legacy product for many users and need to assess the quality of the product.
- Any interest in Angstrom Exponent (aerosol particle size parameter)?
  - No by most users. NRL and NCAR expressed interest but this is also a research topic and product not mature for operational applications
- Is there a need for RGB? Where to get it from?
  - Yes for looking at historical case studies and need access to archived imagery products. Where are the global images available other than PEATE?
- If product updates happen, do you want to be informed via email or once a year through a workshop?
  - Yes. Web page updates and email notifications