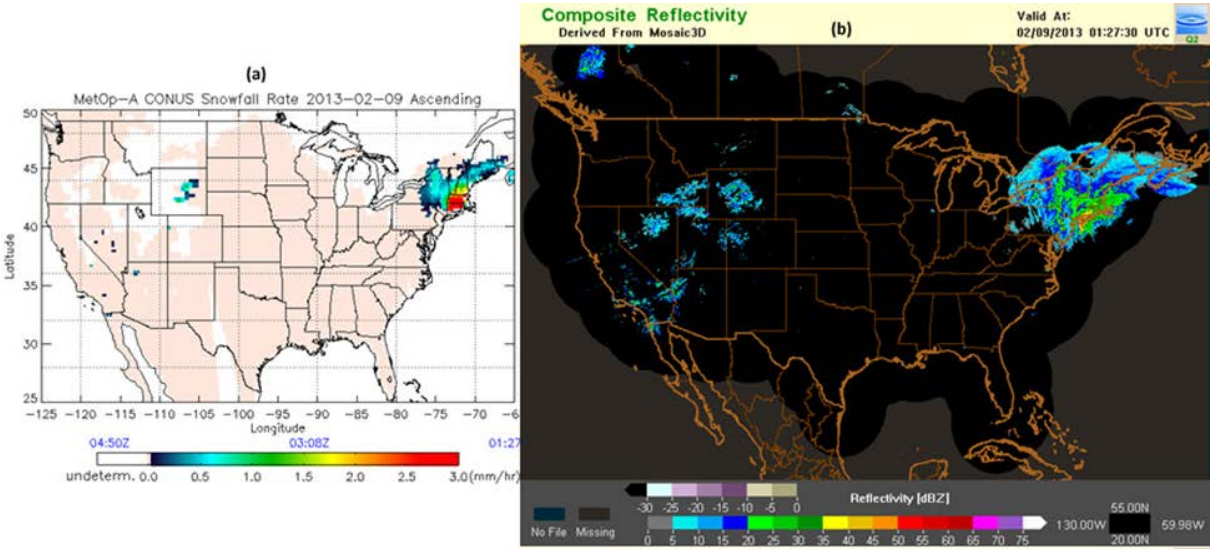
Upcoming Satellite Data Sets of Interest

Ralph Ferraro and Limin Zhao
NOAA/NESDIS –STAR and OSPO
College Park, MD

NOAA POES MW Snowfall Rates (SFR)



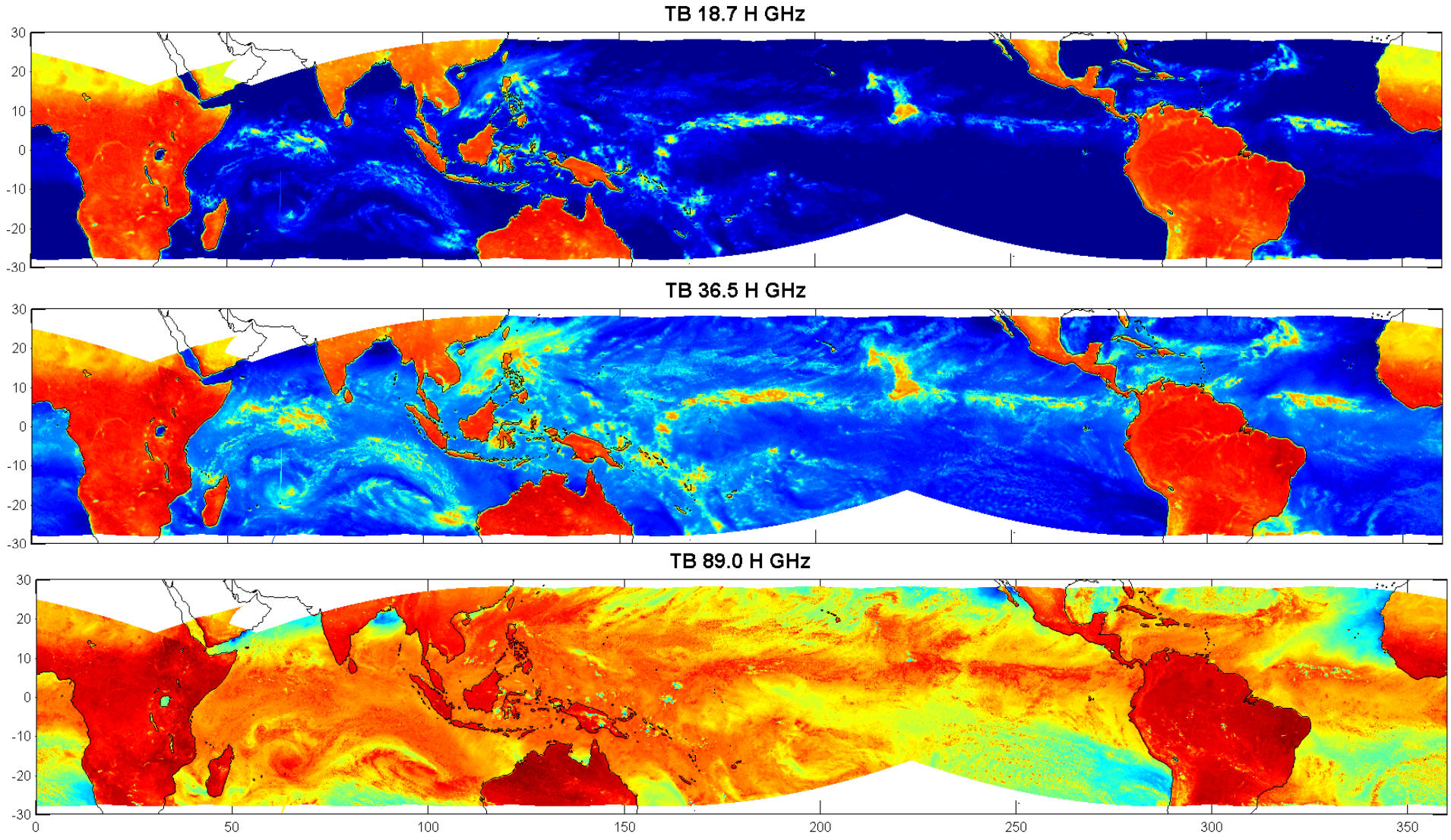
- Went operational in fall 2012
  - MSPPS product system
    - NOAA-18, 19
    - MetOp-A, B
- NASA SPoRT center
  - AWIPS, McIDAS
- Excellent feedback
  - Thanks SAB and NWSFO!

- JPSS PGRR
  - Extension to ATMS sensor
- Future product consolidation
  - Include SFR within MiRS
- Focal Points
  - Huan Meng (STAR)
  - Limin Zhao (OSPO)

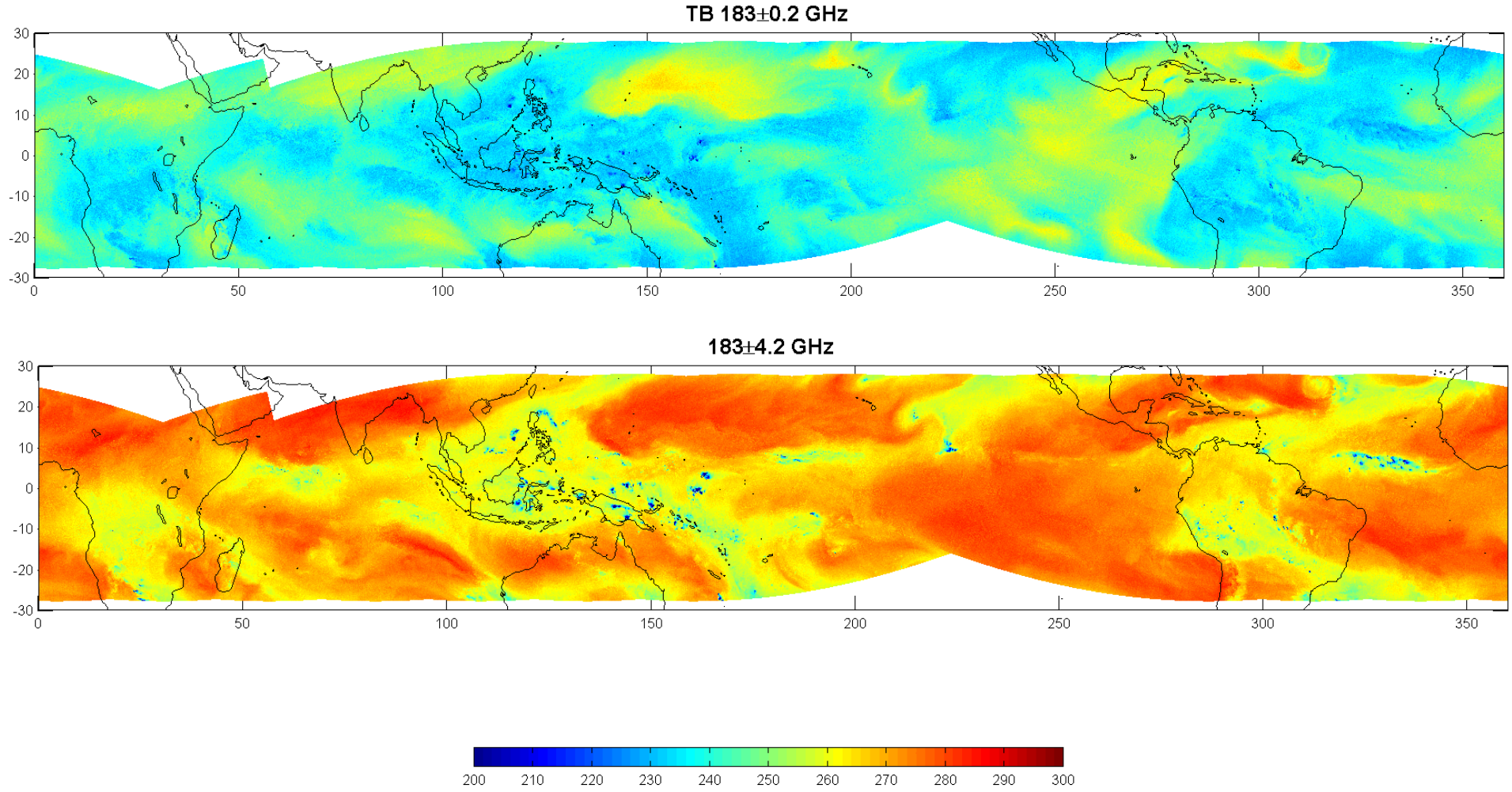
Megha-Tropiques (CNES/ISRO)

- Satellite and Sensor Status:
  - Launched 10/12/11
  - Still undergoing checkout by CNES/ISRO
    - MADRAS (MW Imager – 18 to 157 GHz)
      - sensor reliability and corrections still unclear (apparent lack of coordination between CNES and ISRO….)
    - SAPHIR (MW WV Sounder – 183 GHz)
      - Reliable data flow past few weeks; calibration looks good (comparisons with ATMS)
    - SCARAB (Radiation Budget)
      - First data sets just received
- M-T CDR for TB's being held today
  - Target distribution summer 2013
- MiRS products planned
  - Target distribution late 2013/early 2014

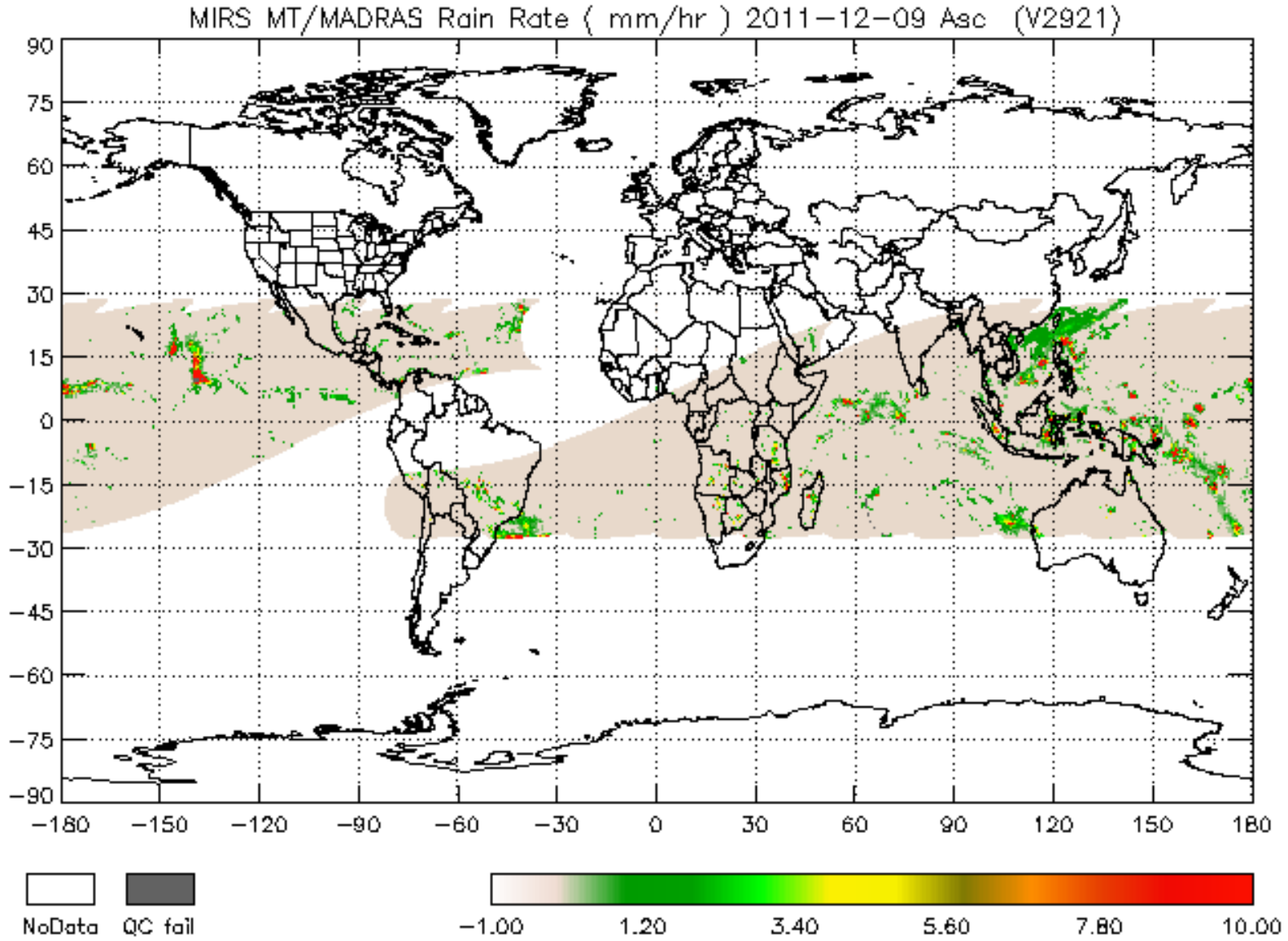
Sample MADRAS Data



Sample SAPHIR Data

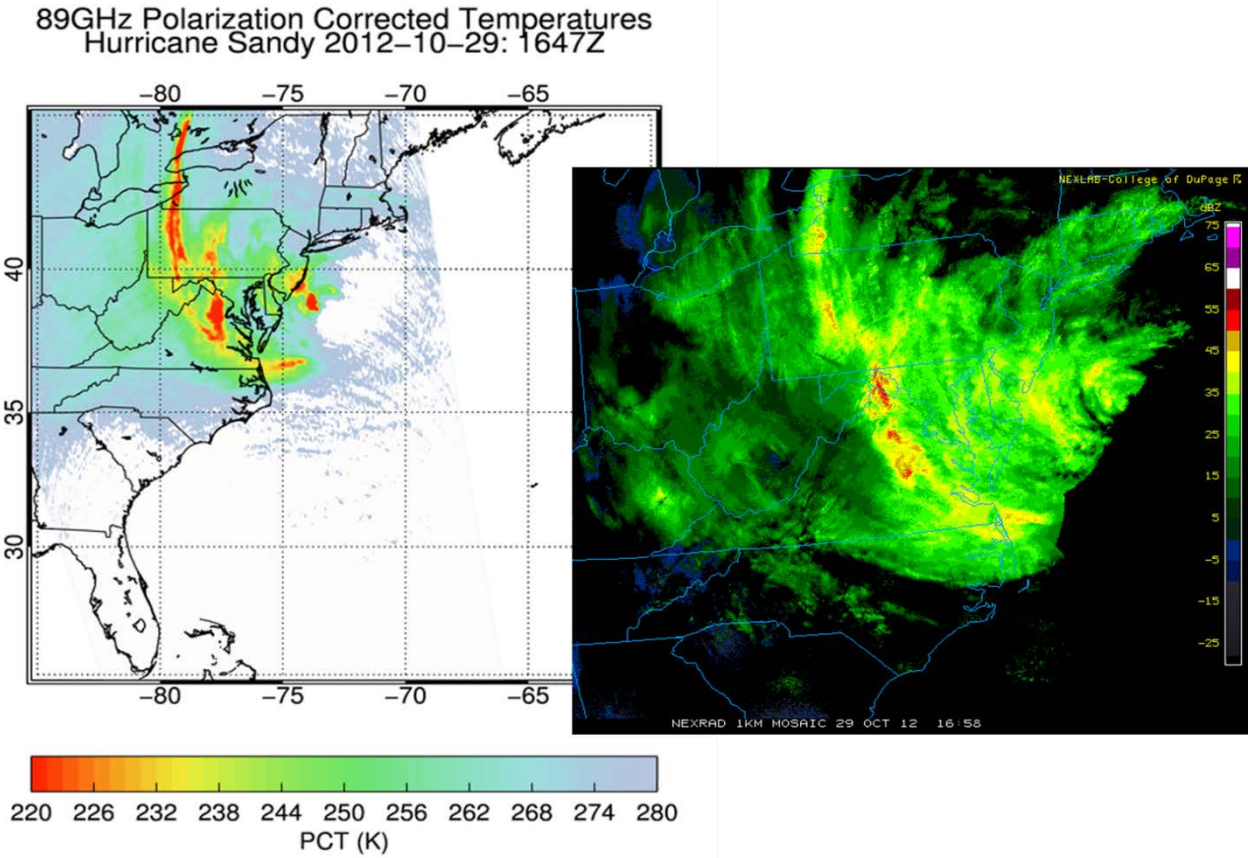


Preliminary MiRS Retrievals



GCOM-W AMSR-2 (Japan) Status

- Part of JPSS, launched in May 2012
- AMSR-2 → AMSR-E legacy
- OSD/STAR/OSPO effort to develop EDR's
  - Legacy/in-house algorithms
- CDR in April 2013; operational "Phase I" products by fall 2013



STAR GCOM-W1 Product Development and Validation Project

Paul Chang (STAR Project Lead)

Ralph Ferraro (STAR Project Deputy)

SDR Validation and Monitoring

Fuzhong Weng (Lead)

Hu “Tiger” Yang – Science Support

Ninghai Sun – Science Support

EDR Development and Validation

Zorana Jelenak (EDR Lead)

Jun Park – EDR Science Support

Patrick Meyers – EDR/Precipitation Science Support

Suleiman Alsweiss – EDR Science Support

Seubson “Golf” Soisuvarn EDR Science Support

Qi Zhu – Scientific Programming Support

Micah Baker – IT Support

Jeff Key – Science support (Ice/Snow lead)

Yong-Keun Lee – Science support (Snow)

Walt Meier – Science support (Sea ice)

Cezar Kongoli – Science Support (Snow)

Eileen Maturi/Andy Harris – Science Support (SST)

Xiwu “Jerry” Zhan – Science Support (Soil Moisture Lead)

Jicheng Liu – Science support (Soil Moisture)

GAASP Development

Walter Wolf (Lead)

Tom King – Development lead

Letitia Soulliard – Development

Elizabeth McMichael – Algorithm Integration

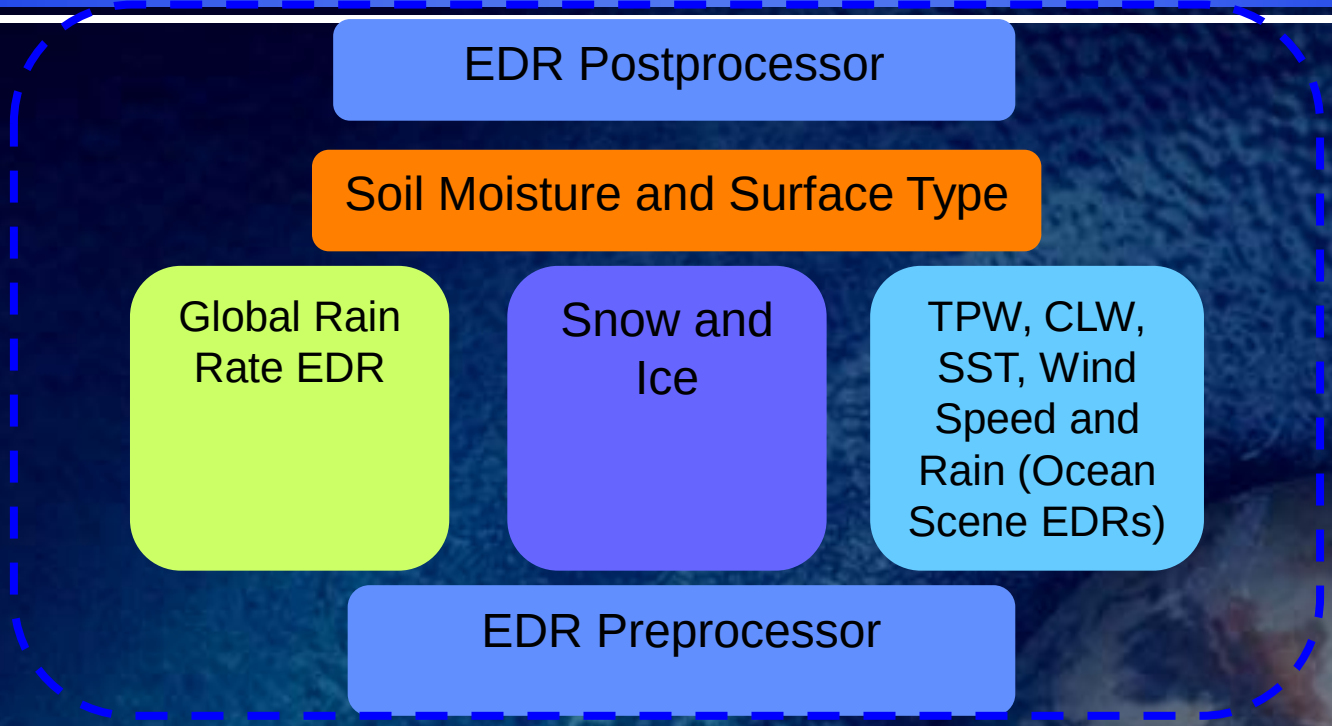
Yunhui Zhao – Configuration Management

Larisa Koval – Documentation

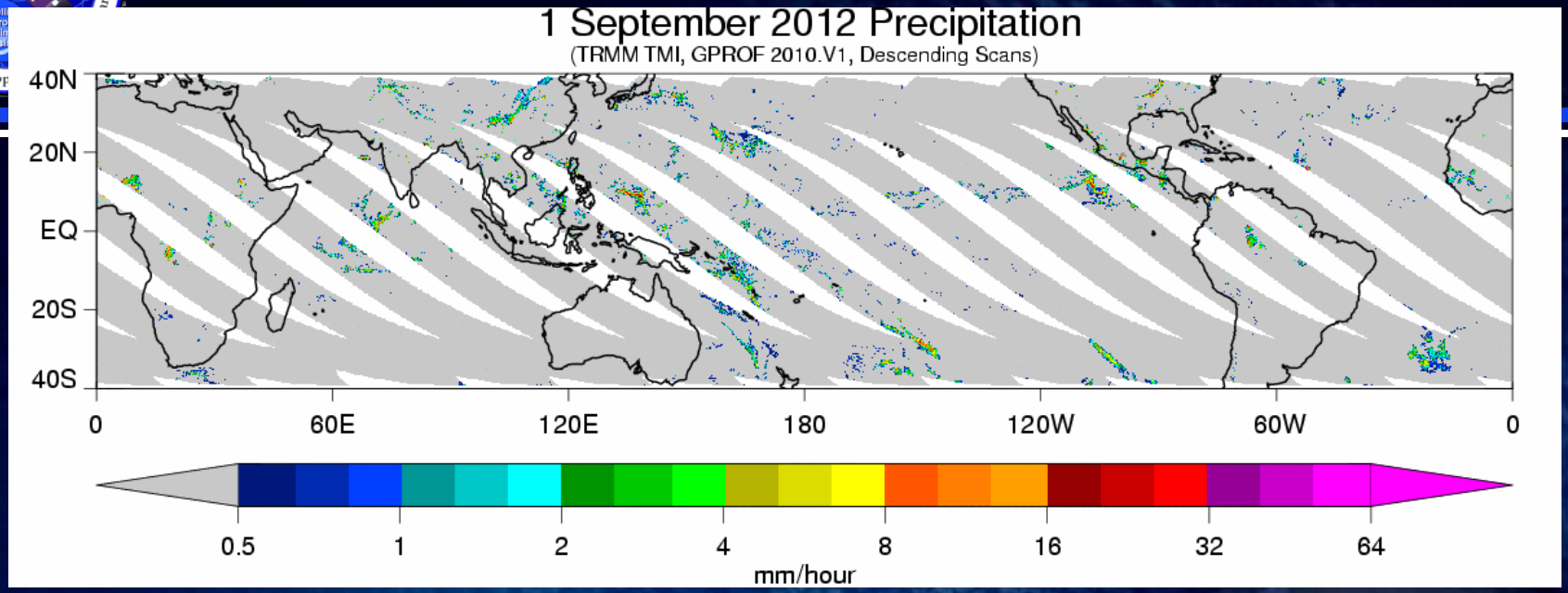
NOAA AMSR-2 Products

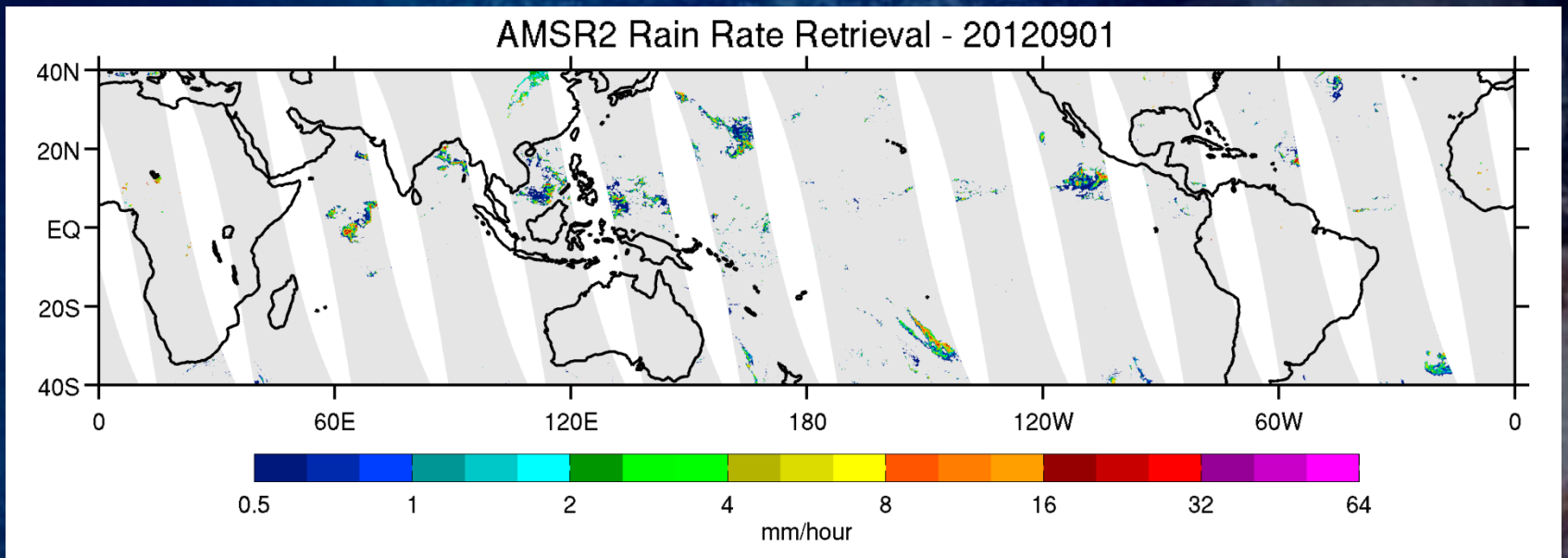
- Day 1 Product Capability
  - Microwave Brightness Temperature (MBT)
  - Total Precipitable Water (TPW)
  - Cloud Liquid Water (CLW)
  - Precipitation Type/Rate (PT/R)
  - Sea Surface Temperature (SST)
  - Sea Surface Wind Speed (SSW)
- Day 2 Product Capability
  - Soil Moisture (SM)
  - Sea Ice Characterization (SIC)
  - Snow Cover/Depth (SC/D)
  - Snow Water Equivalent (SWE)
  - Surface Type (ST)

NOAA AMSR-2 Processor Modular Approach

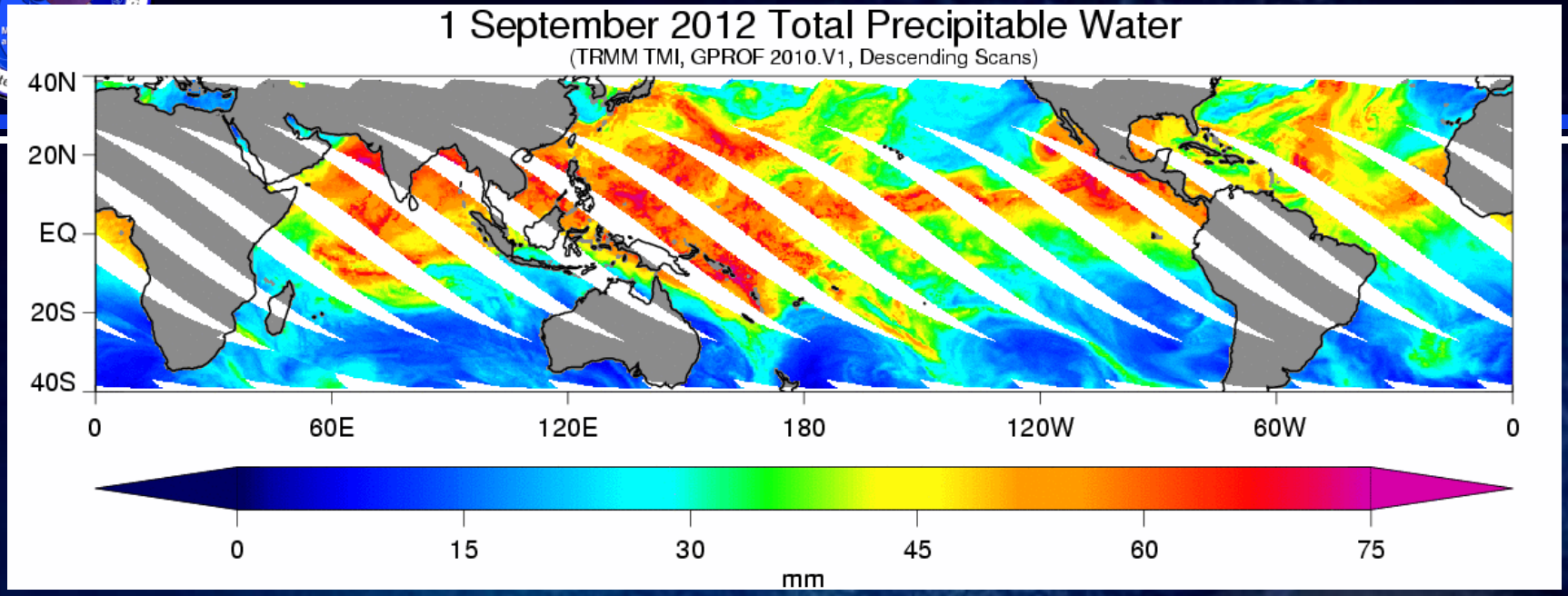


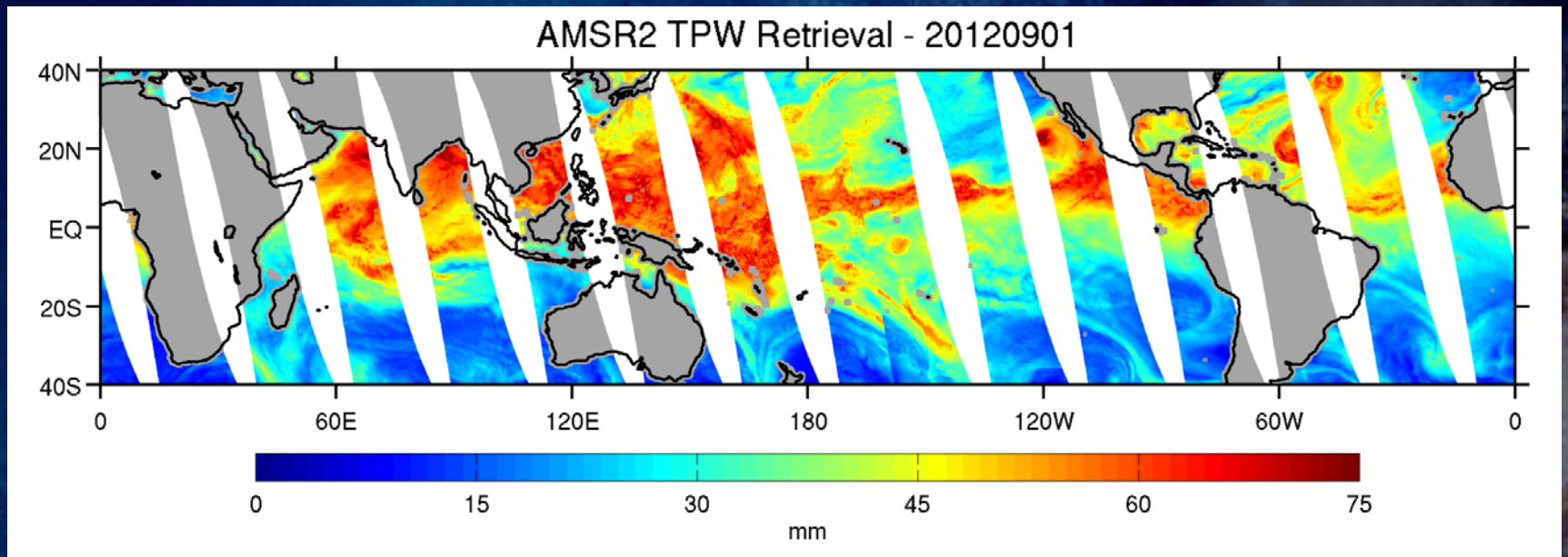
Initial Rain Rate Retrievals



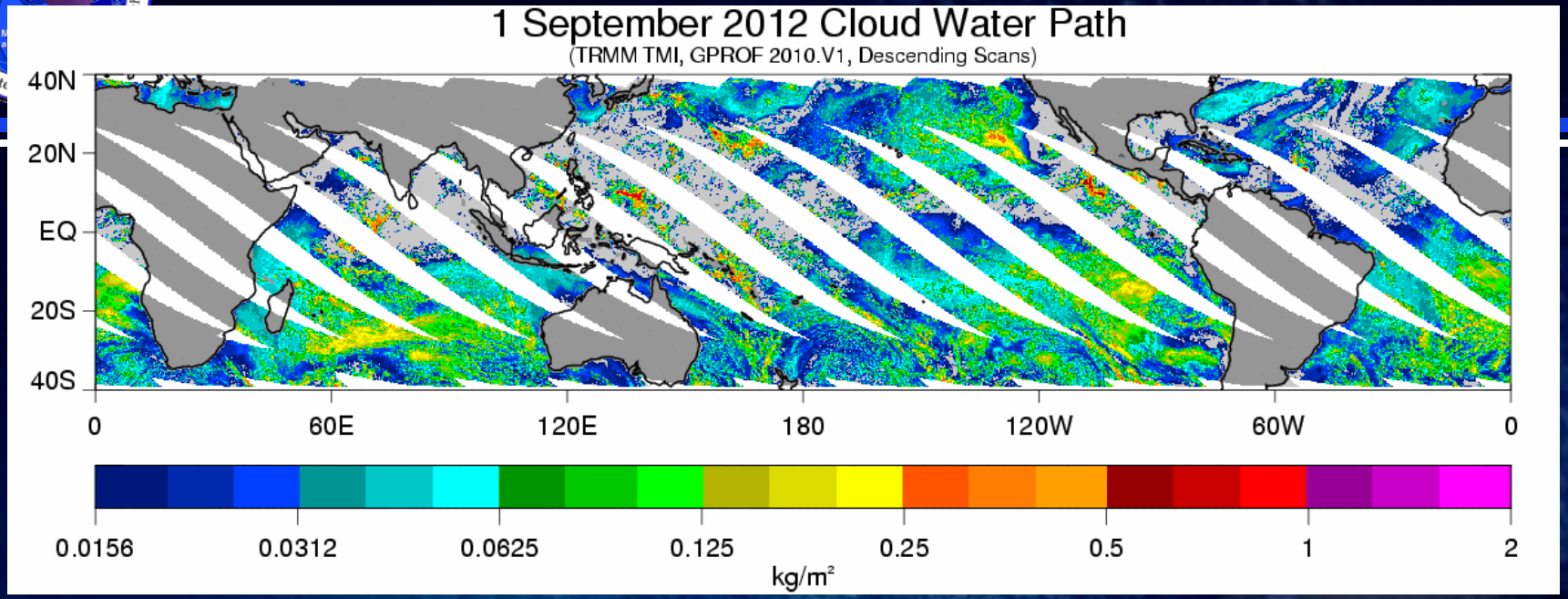


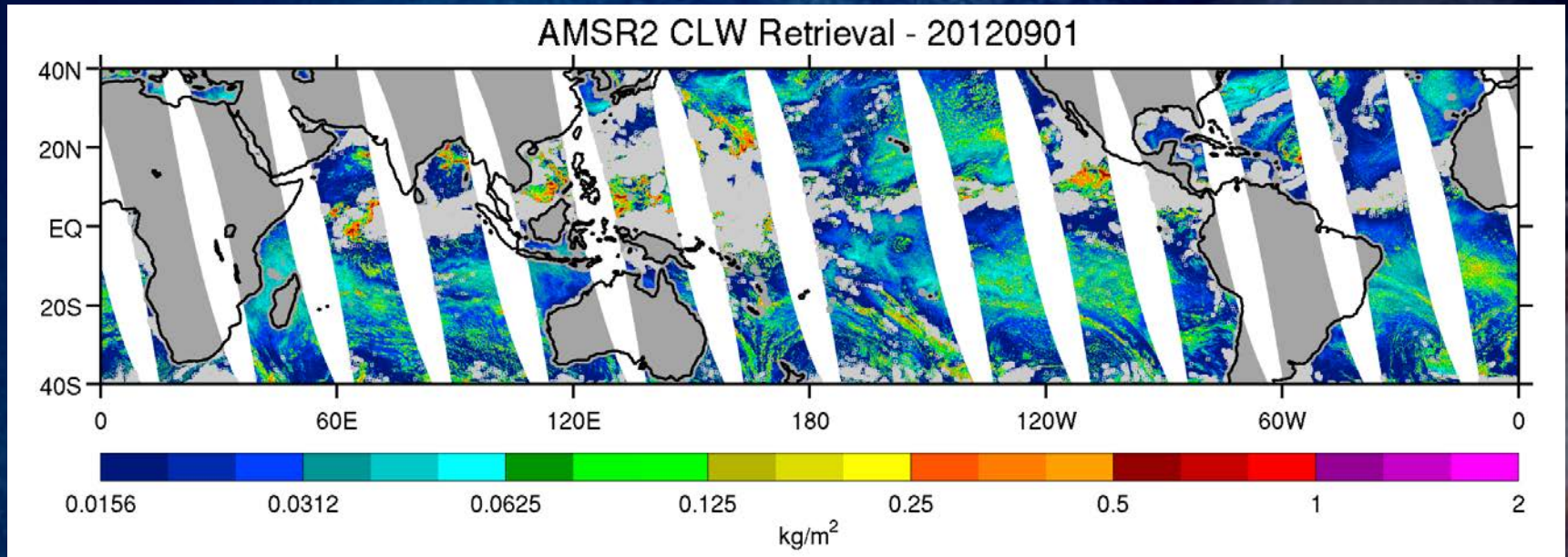
Initial Total Precipitable Water Retrievals



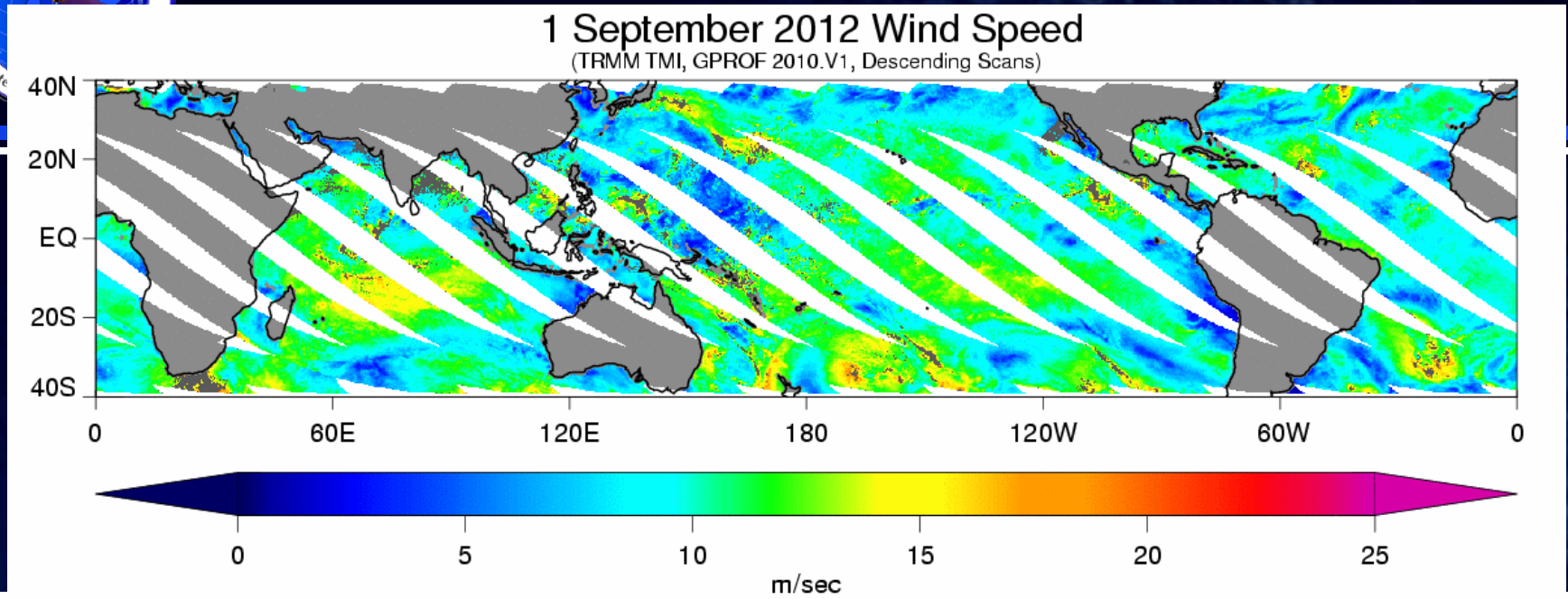


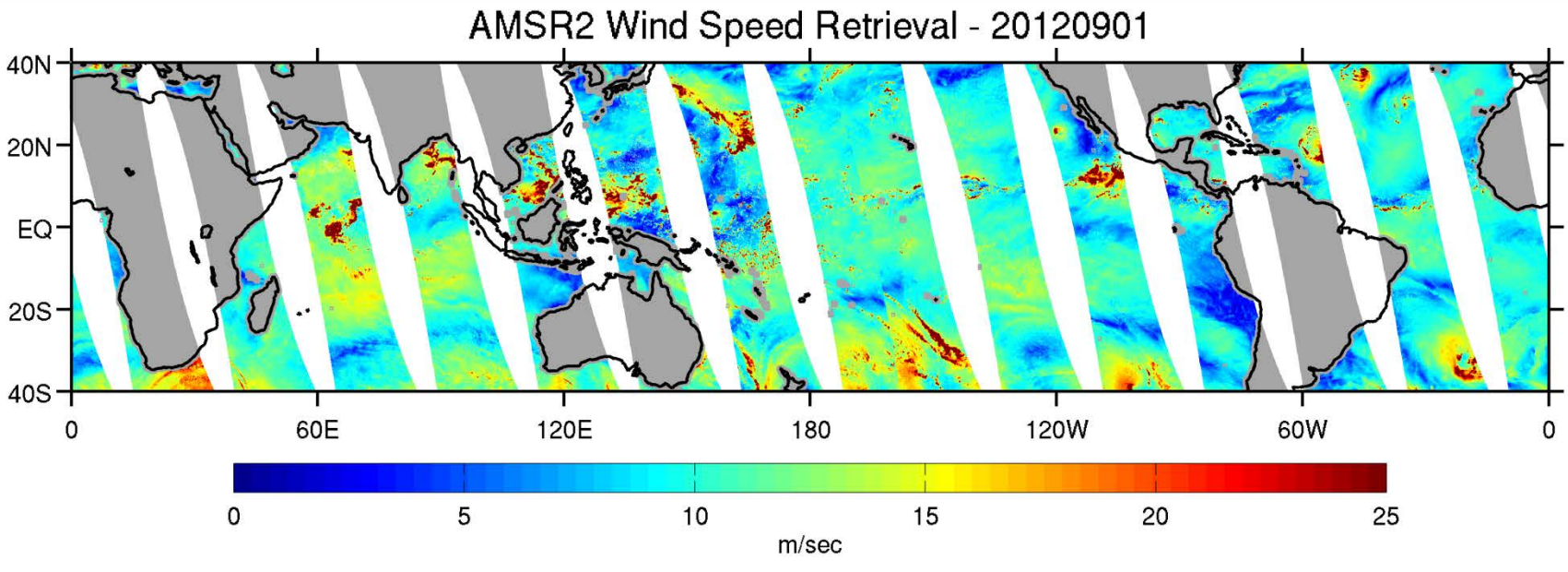
Initial Cloud Liquid Water Retrievals





Initial Wind Speed Retrievals





GPM (NASA/JAXA) Status

- Satellite and Sensor Status:
  - GPM Core – scheduled Feb. 2014 (by JAXA)
  - Primary sensors
    - GMI (NASA) – 13 channel (10-183 GHz) conically scanning radiometer (successor to TRMM TMI)
      - Enhancement for cold season precipitation over land
    - DPR (JAXA) – Ka/Ku band radar (successor to TRMM PR)
      - Dual frequency helps improve vertical structure of precipitation
      - Dual frequency improves sensitivity to lighter precipitation
  - Spacecraft status
    - Being integrated at GSFC
    - Undergoing thermal vacuum testing (began 11/13/12)

GPM – Other Items & Activities (1/2)

- GPM is "ripe" for R2O; why?
  - Precipitation Processing System (PPS)
    - NASA- Precip. Research Focus
    - NOAA – 24 x 7 Operations Focus
      - NOAA Unique products – TPW, OWS, AWIPS, …
    - Prototype system to reduce stove pipes
    - Further attractiveness as JPSS gap mitigation
  - L1C (Inter-calibrated radiances)
  - NESDIS is leading R2O Transition Plan for PPS
    - Completed L1RD, CONOPS (led by NESDIS/OSD)
- GPM MOU being developed (led by NESDIS/IA)
  - Signing summer of 2013?
- A lot of potential work at NOAA is still unfunded….

GPM – Other Items & Activities (2/2)

- Enhance NOAA's participation on NASA's PMM Science team for FY13-15
  - Proper culture to foster cooperation/collaboration
  - Ongoing for past 6 years (see backup slides)
  - Science team up for renewal (2013-2015)
    - NOAA submitted unified, NOAA funded proposal in 6/2012 comprising of 9 NOAA PI's
      - Received formal approval from NASA in 12/26/13
- Initiate GPM Proving Ground and define its role and organization through the 3rd NOAA User Workshop on GPM (Apr 2-4)
  - Focal points – Chandra Kondragunta (OSD) and Yu Zhang (NWS/OHD)

GPM- era Precipitation Processing (Draft)

Courtesy of C. Kondragunta, NESDIS/OSD