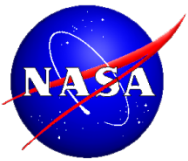


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**PMM Science Team Meeting  
March 18 - 20, 2013  
Annapolis, MD**

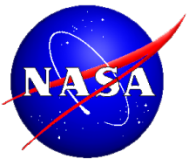
**Erich Franz Stocker  
NASA/GSFC**



# Overview Algorithm Code Status at PPS



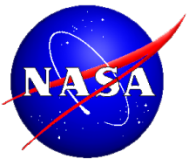
- **PPS currently configuring system for end to end testing**
- **Science algorithm deliveries:**
  - November 30, 2012: At Launch
    - L1A, L1B, Base and L1C for GMI
    - L2: Ku/Ka/DPR, SSMIS GPROF, combined
    - L3: iMerge
  - Additional enhancement deliveries
    - March 30, 2013: End-to-end (ETE) #1B test enhanced version
      - L1A,L1B,Base, L1C GMI
      - L2 GMI GPROF
      - L2 Ku/Ka/DPR radar retrievals
      - L2 combined GMI-DPR
    - September 30: Operational Acceptance Testing (OAT) and ETE #3
      - All L1 and L2
      - All L3 algorithms
  - Toolkit deliveries
    - TKIO end of July 2013 for the OAT and ETE#3 (last formal planned)
    - TKIO as needed based on testing needs, metadata needs, a algorithm code maintenance



# PPS Current Testing Status Highlights



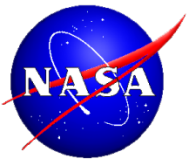
- **Previous to ETE #1 A took part in online testing with MOC and JAXA**
  - A primary purpose was connectivity of NRT and regular processing subsystems
  - Secondary purpose was testing of the dedicated 20Mbps connection to JAXA
  
- **February 13 2012 – ETE #1 A**
  - Used actual spacecraft and TDRSS with MOC receiving data from White Sands.
  - All testing at Sensor Data Processing Segment (SDPS) and Near-realtime subsystem (NRT) at PPS
  - MOC – PPS data flow
  - PPS scanbuilding and flow to JAXA and PPS NRT
  - PPS building of ephemeris and attitude files using spacecraft onboard propagated GPS data
  - PPS production of HDF L1A GMI
  - Testing went very well at PPS



# ETE#1, B



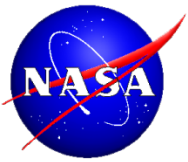
- **April 23, 2013 (planned) –ETE #1 B (currently configuring systems)**
  - Will be using FlatSat (spacecraft simulator)
  - The stream from FlatSat to MOC to PPS will not have science content but will be processed through L1C GMI
  - SDPS will scanbuild the science data and send to PPS NRT and JAXA MOSS
  - Using synthetic and simulated data
    - GMI packet data to GMI L1C
    - JAXA will send synthetic (TRMM based) Ku/Ka L1B (March 31-April 1, 2011)
    - PPS will create synthetic GMI L1C, base and GPROF L2 (March 31-April 1, 2011)
    - PPS will create combined 2B using the GMI 1C and the DPR
    - PPS will create GMI through GPROF using simulated
  - Will create partner 1C data from MHS, AMSR2, SAPHIR, MADRAS
  - Will create through GPROF L2 SSMIS F16 and F17
  - Processing will be done in both the NRT and the production PPS (using both an initial and reprocessing stream)
    - JAXA will send orbital L1B into production
    - JAXA will send ~30min granules to NRT



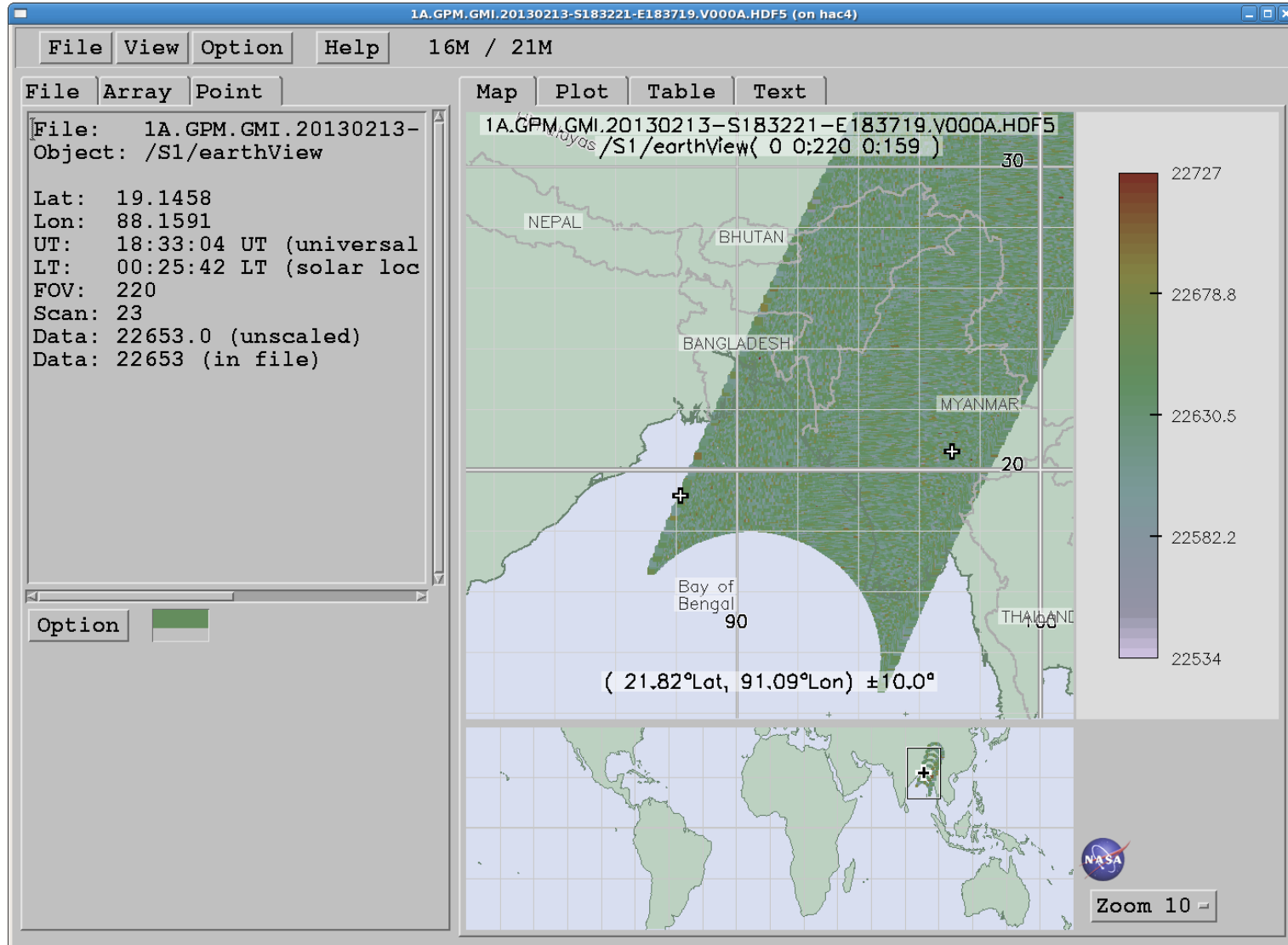
# Swath Product Characteristics

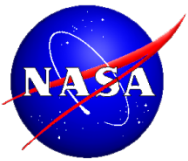


- **NRT subsystem**
  - GMI 1C and GPROF are 5min granules
  - Partner 1C and GPROF are whatever granularization was adopted by providing data system
  - Ku/Ka L1B are 30 min granules
  - Ku/Ka/DPR L2 are 30 min granules
  - Combined L2 are 30 min granules
  - iMERGE half-hour granules (two or three times from fast latency to more completeness)—obviously not swath
  
- **Standard Processing and Climate product**
  - Orbital based on a south to south orbit
  - Partner Base and 1C data are re-orbitized to the south to south orbit
  - GPROF GMI will have two versions
    - One like current 2A12 available within 48 hours of data collection
    - A climate one with a 2 month or so lag based on required ancillary data
  - iMERGE (not swath) will have two products
    - One available day after data collection using the NRT algorithm
    - One available with 2/3 month lag – gauge adjusted



# ETE #1A, GMI L1A HDF Granule

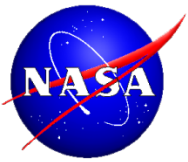




# GPM At Launch Data Products



- **Level 1 Products (HDF)**
  - Ku/Ka L1B (radar powers) provided by JAXA/MOSS
  - GMI L1A (counts)
  - GMI L1B (Tb)
  - GMI Base (Ta)
  - GMI L1C (Tc)
  - Partner radiometer 1C (SSMIS F16-F18, MADRAS, AMSR2, MHS, SAPHIR, ATMS)
  
- **Level 2 Products (HDF)**
  - GMI GPROF (precip retrievals) GMI and Partner Sensors
  - Ku/Ka/DPR Level 2 (reflectivities/vertical profile retrievals)
  - Combined GMI/DPR (combined precip retrievals) (initially at Ku swath)
  
- **Level 3 Gridded Products (HDF)**
  - iMERGE merged radiometer/IR products
    - Half-hour .1 deg x .1 deg grid
    - Final version using the realtime algorithm and longer latency rain-gauge adjusted products
  - Daily and Monthly Radar .25 deg x .25 deg
  - Daily and Monthly Radiometer .25 deg x .25 deg (one for each radiometer-GMI at launch)
  - Daily and Monthly Combined .25 deg x .25 deg

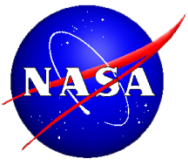


# PPS Work on 1C and with X-Cal Working Group



- **Currently retrieving Ta or Tb products**
  - MADRAS and SAPHIR from M-T
  - AMSR2 from GCOM-W1
  - MHS from NOAA and Eumetsat
- **Producing Base files**
  - For sounders
  - For imagers
- **Producing 1C files**
  - For sounders
  - For imagers
- **All are reorbitized to a south to south orbit using TLE**
- **Made available to X-cal for their intercalibration analysis and intercalibration table determination**
- **Working with CSU on Base and 1C products for AMSRE and SSMI**





# Period Before Launch



- **1 October 2013 PPS starts OAT**
  - Using synthetic and simulated data continuously run until 30 days before launch in both processing and reprocessing stream
  - Purpose is to verify all PPS requirements including ordering, calibration monitoring tools, x-cal support and GV overflight subset support
  - During part of OAT, PPS will participate in ETE #3 which will verify latency requirements in SDPS and NRT
  - During this test as algorithm code encounters problems, fixes will be inserted and algorithm test will be restarted
  - Final changes/updates to data product configuration as a result of testing
- **30 days after start of the OAT, PPS Review team will hold Operational Readiness Review (ORR) at GSFC**
- **PPS will start sending partner data to JAXA MOSS using GPM protocols before the actual GPM launch**
- **PPS will make available to partners all approved data from other partners as per specified agreements and MOU requirements**
- **PPS will run in parallel - NRT TRMM TMPA, v7 and iMERGE v1**