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California Institute of Technology  
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# NPP Sounder PEATE Status

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# Primary Objectives of Sounder PEATE

- **Primary Objective of the Sounder PEATE:**  
*Support the NPP Sounder Science Team evaluating NPP sounder products:*

\* CrIMSS = Cross Track Infrared Microwave Sounding Suite: CrIS + ATMS

- Determine whether these products are climate quality
- Can these products support ongoing and new climate studies?
- **Provide feedback to NASA and NOAA on observations**
- **Primary products to be evaluated are:**

Sensor Data Records (SDRs)	Environmental Data Records (EDRs)
CrIS SDR ATMS SDR ATMS TDR	CrIMSS* Vertical Temperature Profile CrIMSS Vertical Moisture Profile CrIMSS Vertical Pressure Profile – (including surface) CrIMSS Intermediate Products



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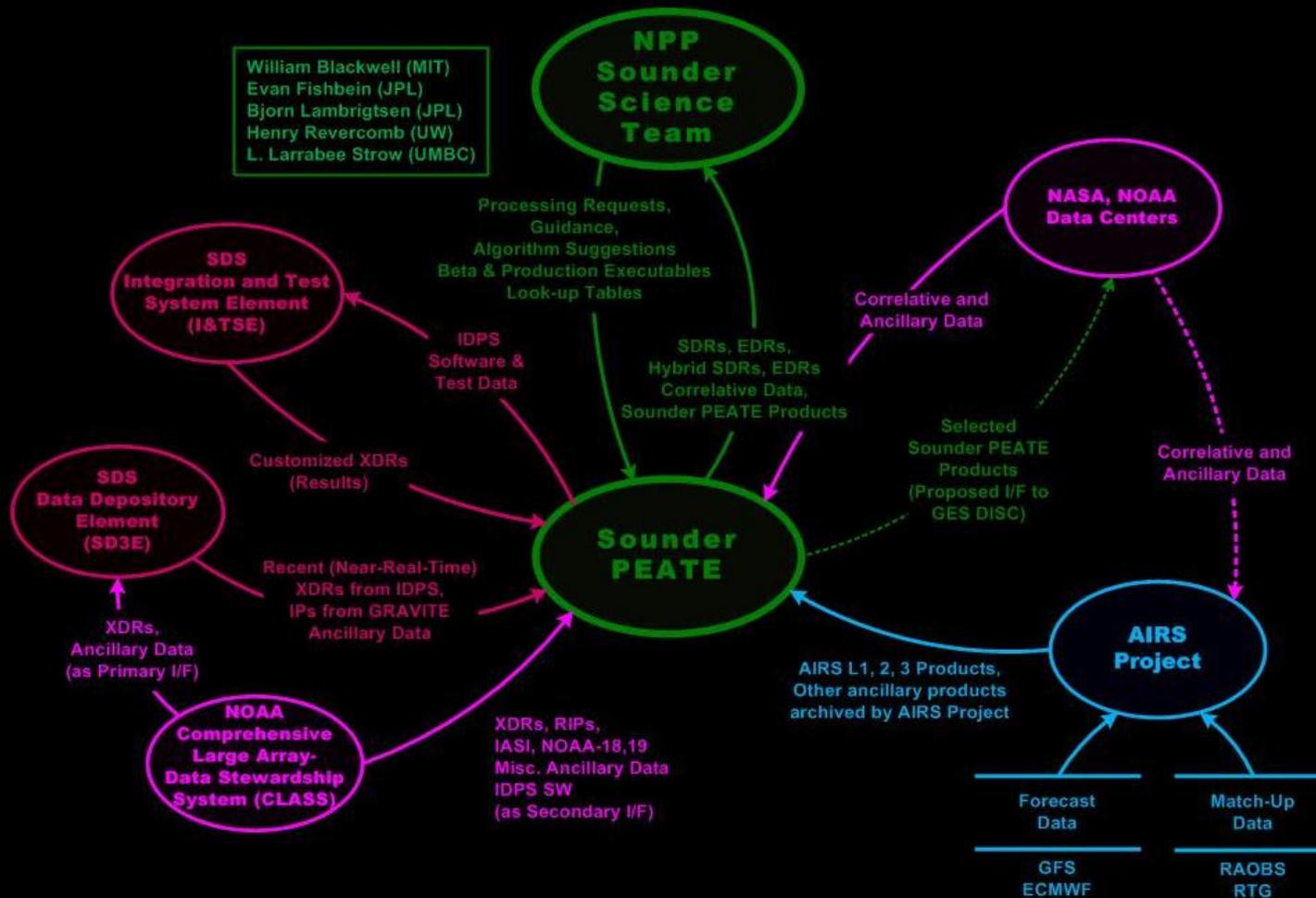
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## Supporting the Science Team

- **Supportive Activities include:**
  - Providing data for Cal/Val
  - Assessing and validating Calibration xDRs
  - Assessing and validating climate quality of SDRs and EDRs
  - Evaluating the NPP Retrieval Code
    - Evaluate IDPS production and science code
      - develop, demonstrate, test and verify algorithm enhancements
- **Develop inter-instrument data comparison tools:**
  - CrIMSS data compared to other instruments and correlative data
- **Provide data and analysis products to the Science Team**
- **Provide compute resources and analysis tools for Science Team use**



# Sounder PEATE Functional Interfaces





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## Sounder PEATE Products (1 of 2)

- **Calibration Subsets (CrIS and IASI)** in four categories: Clear, Random, Deep-convective Cloud FOVs, Fixed-site
  - Also have access to AIRS Calibration Subsets
- **Simultaneous Nadir Observations (SNO), NPP-CrIS/ATMS with:**
  - Aqua-AIRS/AMSU
  - MetOp A/B-IASI/AMSU/MHS
  - NOAA-18, NOAA-19 AMSU
- **Match-up Products**
  - Analysis Matchup (Calculated radiances from forecast models)
  - Radiosonde Matchup
  - GPS-RO Matchup - *planned for this year*



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## Sounder PEATE Products (2 of 2)

- **Calculated Radiances (SARTA, OSS)**
- **Level 3 Products - for all EDR and IPs**
  - Daily
  - Multi-day
  - Monthly
- **Rain Rate (ATMS) - (beta version - Blackwell)**
- **GPolygon Maps (granule coverage maps)**



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## Data Access for the Masses

- **Sounder Science Team has access to all Sounder PEATE products, NPP products and ancillary products archived at Sounder PEATE**
- **Currently, no public data access is available**
- **Archive and data ordering capability for selected Sounder PEATE Products may be available at GES DISC soon**
  - Agreement established
  - Developing interface specification and support documentation
  - Product List:
    - *SNO*
    - *Calibration Subset*
    - *Level 3*
    - *Other TBD PEATE products (depending on future requests)*
  - **Data archived at GES DISC will be publically available**



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## IDPS Data Product Evaluation

- **We routinely evaluate products from each IDPS build**
- **Our analyses are shared with:**
  - Sounder Science Team
  - Suomi NPP SDS and Suomi NPP Change Control Board
  - NOAA's Cal/Val and EDR teams
- **In addition to utilizing code developed at the Sounder PEATE, other resources are utilized as well to further evaluate data products**
  - The “mini-IDPS”
  - ADL

**Both tools provide additional capabilities**

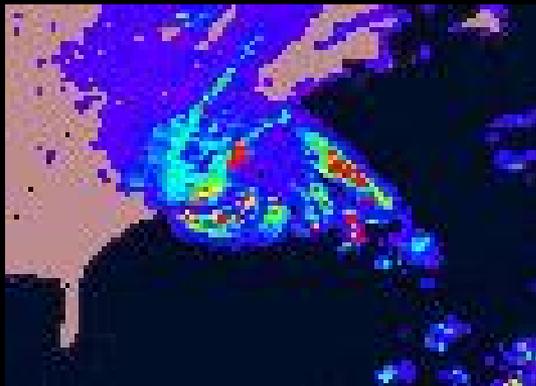


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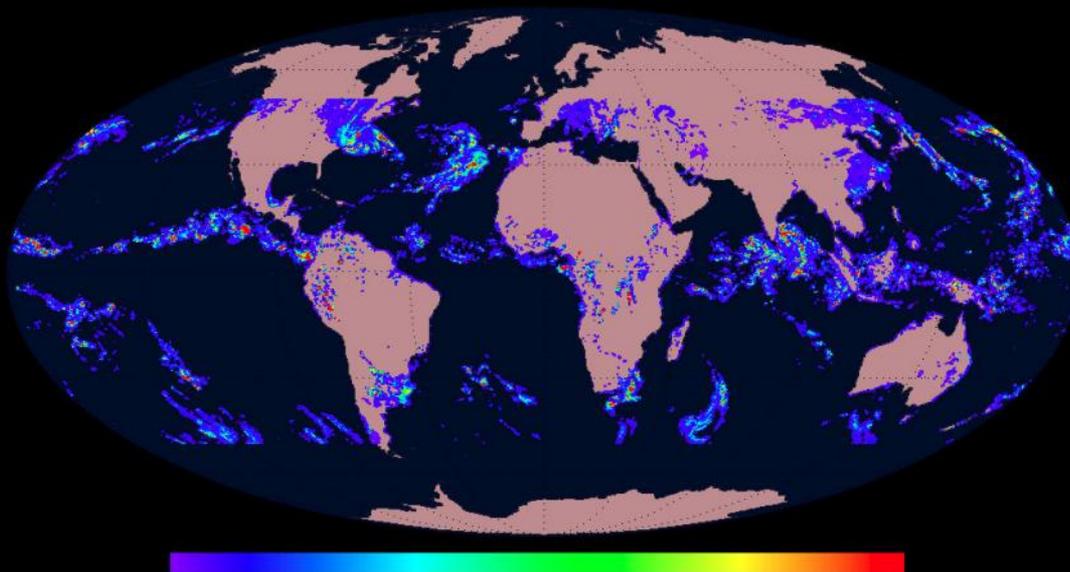
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## Data Product Evaluation: Supporting the Sounder Science Team

- **Microwave Rain Rate (NPP ATMS)**
  - Daily product
  - Currently pre-beta version (early development)
  - Supporting research by William Blackwell



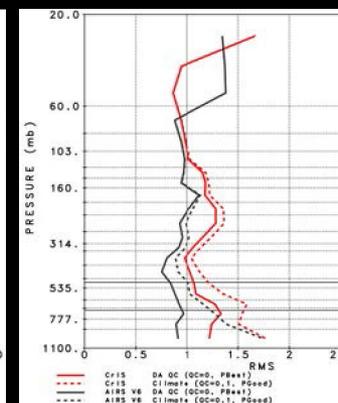
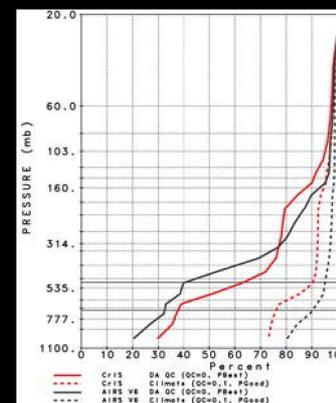
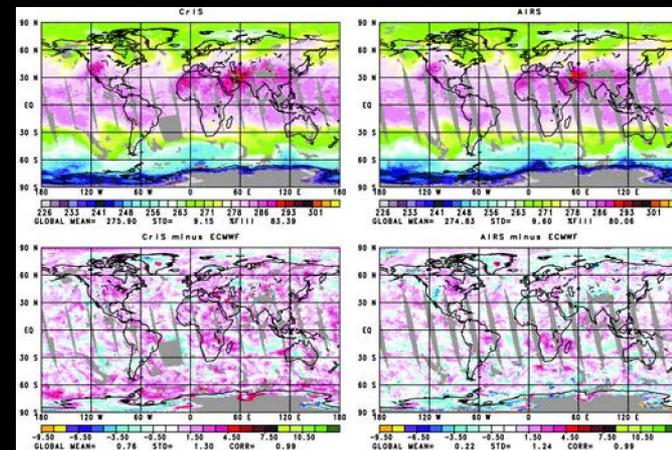
**Rain Rate (mm/hr)**  
**October 29, 2012**  
**(Super-storm Sandy)**





# Data Product Evaluation: Supporting the Sounder Science Team

- Supporting Alternative Retrieval Algorithms (example)
  - Developing NPP retrievals based on AIRS Version 6 algorithm
  - Evaluating hybrid-CrIMSS retrievals in comparison to AIRS standard Level 2 standard products and ECMWF forecasts.
  - Comparing retrieval yields and RMS differences with respect to ECMWF forecast





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## Level 3 Products

- **Level 3 Products (NPP, MetOP, AIRS\*)**
  - Daily, Multi-day, Monthly
  - Currently beta version
  - Will be useful for characterization global patterns of temperature, water vapor and key atmospheric constituents.
  - Will support cross-comparisons between NPP, MetOP and AQUA sounder products

\*AIRS data from AIRS Project

