GHRC Data Management

Leigh Sinclair - Data Management Team Lead
• 45 Datasets Published
• Averaged ~4 datasets per month
• Dual-published data both on-premise and on cloud
New Data Approved for Publication

- **Investigation of Microphysics and Precipitation for Atlantic Coast-Threatening Snowstorms (IMPACTS)**
  - January-March 2020
  - Will continue January-March 2021-2022
  - Mid-Atlantic and New England states

- **Remote sensing of Electrification, Lightning, And Mesoscale/microscale Processes with Adaptive Ground Observations (RELAMPAGO)**
  - November 2018-April 2019
  - Argentina
New Data Approved for Publication

- **SEA FLUX**
  - Variety of ocean surface variables
  - 31-year period record of the data from January 1988-December 2018

- **Geostationary Lightning Mapper (GLM)**
  - Includes global GLM Level 2 products, early beta GLM data from GOES-R PLT, and science-level reprocessing of GLM Level 2
  - On going dataset

- **GLM Cluster Integrity, Exception Resolution, and Reclustering Algorithm (GLM CIERRA)**
  - On going dataset
  - January 1, 2018 - ongoing

- **Additional GPM Ground Validation datasets**
  - LPVEx
  - ICE POP
  - C3VP
Remaining Datasets to Publish

• ~26 datasets remaining **in-house**
  • Includes IMPACTS, GPM GV, and SEA FLUX
  • Does not include NALMA, GLM data, ISS LIS

• Currently publishing data in both the cloud and on-premise
GHRC Ongoing Datasets

- Data that continue to be collected and made public on GHRC servers
  - ISS LIS data (2), NRT LIS data on LANCE
  - DISCOVER MEaSUREs SSMIS ocean products from F16 and F17 (8)
  - DISCOVER MEaSUREs TPW and Wind Speed climatology (2)
  - AMSU/MSU V6 Temperature Anomalies and Annual Cycle products (4)

- AMSU/MSU Atmospheric Temperatures

- New Ongoing Datasets
  - North Alabama Lightning Mapping Array (NALMA)
  - GLM L2 datasets
  - GLM CIERRA
• What is ARC?
  • ARC = Analysis and Review of CMR (Common Metadata Repository)
  • ARC project consists of a team of metadata checkers confirming quality of
    metadata for DAAC published data
  • ARC report is sent to DAACs with problems/issues to be fixed and
    recommendations of changes to make
• Completed all ARC recommendations this FY
• Completed all ARC re-check recommendations this FY
Data Access Metrics

Top 5 Downloaded Dataset for FY20

- Lightning Imaging Sensor (LIS) on TRMM Science Data: 1244944
- GPM Ground Validation Multi-Radar/Multi-Sensor Precipitation Reanalysis for Satellite Validation Product: 980249
- Non-Quality Controlled Lightning Imaging Sensor (LIS) on International Space Station (ISS) Science Data: 769366
- AMSU/MSU Tropopause Day/Month Temperature Anomalies and Annual Cycle V6: 761470
- NRT Lightning Imaging Sensor (LIS) on International Space Station (ISS) Science Data: 317933

Total Number of Published Datasets at end of FY20: **527**
2021 Publication Plans

- Year 2 IMPACTS Data
- Additional GPM GV Data
- Publishing new, ongoing datasets in the Cloud
- Publishing in the Cloud
  - Dual-publishing until later this FY
  - Earthdata Pub
- We want your ideas on what GHRC can do to obtain more data relevant to our mission
GHRC Outreach

Geoffrey Stano
Community Outreach

• Continued engagement with community
  • Traditional: AGU and AMS annual meetings
  • International Geoscience and Remote Sensing Symposium (IGARSS)
  • Participation with NASA Earthdata and World Data System
  • Science Team meetings
    • Geostationary Lightning Mapper (GLM)
    • New: IPACTS field campaign
    • New: Space Test Program (STPSat-6)

• Continued traditional metrics
  • Micro articles
  • Data recipes
  • Publications

• Web page update
  • New landing pages for field campaigns at request of the Airborne Data Management Group

GPM Ground Validation OLYMPEX Field Campaign Data Collection

The Global Precipitation Measurement (GPM) mission Ground Validation campaign used a variety of methods for validation of GPM satellite precipitation measurements prior to and after launch of the GPM Core Satellite, which launched on February 27, 2014. The instrument validation effort included numerous GPM-specific and joint-agency international field campaigns, using a variety of the in situ and precipitation-observation infrastructure (radiances and radar, profilers, raingauges, and disdrometers). Surface rainfall was measured by very dense gap-free and distributed networks of analogical field campaign sites. These field campaigns accounted for the majority of the effort and resources expended by GPM. More information about the GPM mission is available at https://www.nasa.gov/gpm.

The Olympic Mountains Experiment (OLYMPEX) was one of the GPM Ground Validation field campaigns held in the Pacific Northwest during the winter 2015–2016. The goal of OLYMPEX was to validate rain and snow measurements in variable frontal systems as they move from coast to coast in mountainous and to determine how remotely sensed measurements of precipitation by GPM can be applied to a range of hydrologic, weather forecasting, and climate data. The OLYMPEX campaign consisted of a wide variety of ground instrumentation, several radars, and airborne instrumented research aircraft (very high-altitude systems as they approached and traveled the Olympic Mountains). The OLYMPEX campaign was part of the development, evolution, and optimization of GPM remote sensing precipitation algorithms. More information is available from the NASA-GPM Ground Validation website: http://gpm.nasa.gov/olympex

To cite the entire collection, please use the following:


For more information on GHRC DAAC citations, see these instructions for citing GHRC data.

General Characteristics

- Collection: GPM Ground Validation Products
- Projects: NASA/GPM/Ground Validation/OLYMPEX
- Platforms: GPM, GMI
- Sensors/Instruments: CERES, ARM, SGP, ISCCP, MODIS, GPS, HIRS, SSMI, CDPR, CPR, DPR, Geostationary Lightning Mapper (GLM)
- Parameters: Rainfall, Evapotranspiration, pixel size distribution, atmospheric pressure, atmospheric temperature, winds, depositions, liquid precipitation, liquid water equivalent, brightness temperature, microphysical radar: aerosols, layer optical depth, clouds, Doppler radar, Doppler velocity, radar reflectivity, radar backscatter, differential reflectivity
- Processing Level: 4

OLYMPEX Field Campaign landing page
Focus on IMPACTS Field Campaign

- Efforts started in 2018 have had direct results
  - GHRC backlog cleared
  - Enabled focus on new data
- FY2020 has focused on micro articles
  - Over a dozen created
  - Emphasis on data in IMPACTS and previous, GHRC archived campaigns
- Began addressing data recipes
  - New emphasis
  - Enable recipes to work on all data from an instrument
- Maintain close ties with science team
Utilizing the Field Campaign Explorer

- Data recipes offer another outreach opportunity
- Intended to show users how to:
  - Ingest data
  - Conduct basic manipulation
  - Visualize
- FCX is a visualization tool
  - Utilize work in FCX to create data recipes
  - Aim for more than one-off versions
  - Focus on recipes to visualize instruments from each deployment
- Utilize as training for cloud analysis
Community Impact and Future Work

Community Impact
- Four graduate students supported
  - 2 directly with GHRC
  - 2 at NASA SPoRT (Short-term Prediction Research and Transition)
- One journal published
  - Editor’s choice cover article for EOS in August
  - Second article in review
- ~11 journals using data that is or will be published at GHRC

Future Outreach Activities
- Further expand on UWG recommendations
- Coordinate outreach and cloud activities
  - How will this affect micro articles and data recipies
- Update methods to obtain metrics to capture “community impact”
- Identify activities to support diversity in science
  - Improvements GHRC can do locally
  - Activities outside GHRC – Likely collaborations with UAH
THANK YOU!

QUESTIONS?