Global Precipitation Measurement (GPM) mission

GPM V05 Gridded Text Products

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What are the GPM Gridded Text Products

- **GPM core and constellation satellite precipitation retrievals stored as in hourly .25º x .25º grids packaged as daily files.**
- **All data in ASCII text. Each line terminated with a new-line character.**
  - Each data item is separated from the next with white space
  - Easy format to read using any tool that allows white space separated fields (e.g., spreadsheets, database, GIS, etc.)
- **All lines are complete so even lines where some data missing have the same number of fields. No special data-oriented compression is applied**
  - Makes the file larger for download
  - Makes the file easier to read as all the data lines are always the same
  - Files are gzipped to make them easier to download

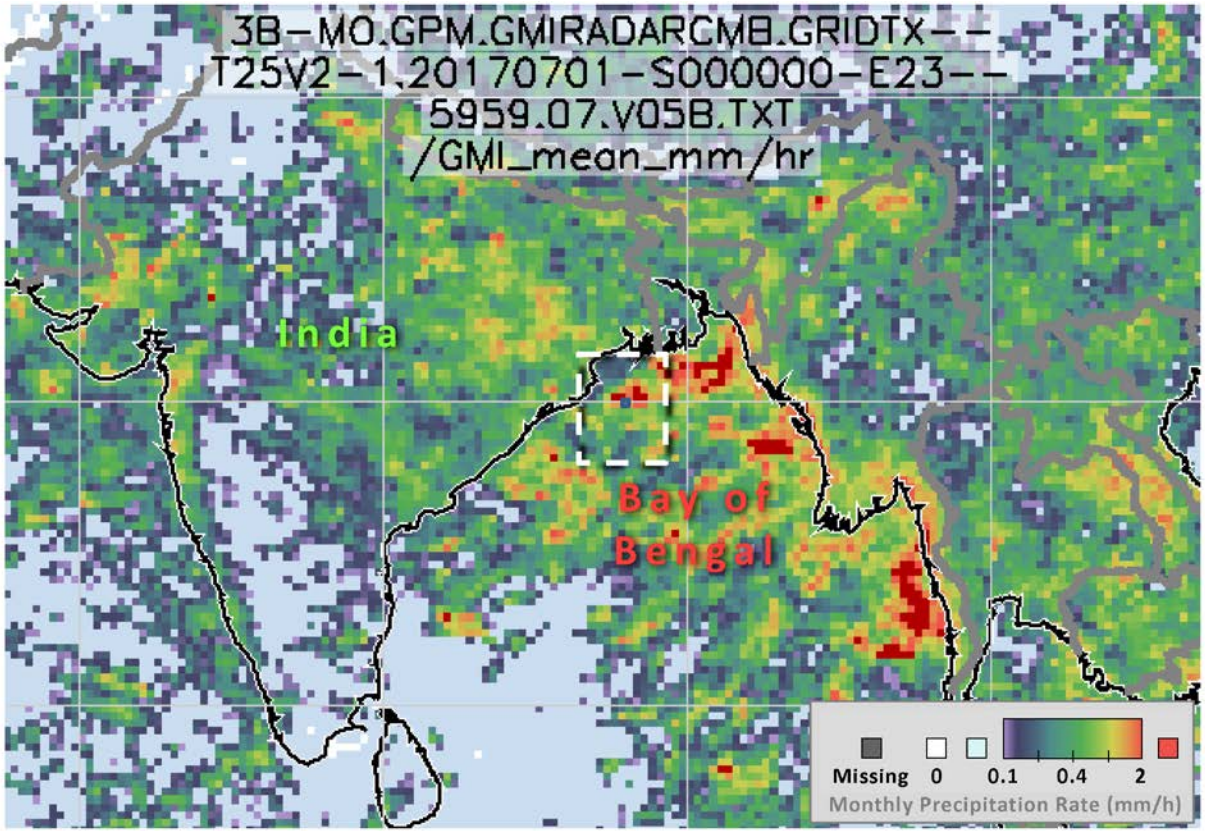
Types of Gridded Products

- **Base product is the one for the GPM core satellite that includes precipitation retrievals from:**
  - **GMI**
  - **KU**
  - **KU/KA MATCHED**
  - **COMBINED: GMI/KU/KA MATCHED**
- **Additional product for the constellation conically scanning radiometers that includes precipitation retrievals from:**
  - GMI
  - SSMIS: F16, F17, F18, F19
  - AMSR2
- **Third product for the constellation cross-track radiometers retrievals from:**
  - MHS: MetopA, MetopB, NOAA18, NOAA19
  - ATMS

Advantages of the Product

- **Packages the retrievals for a day by hour from core and partner constellation radiometers into simple, similar formats easy to read and use**
- **To obtain the same amount of precipitation data using the standard daily HDF5 products one would have to retrieve a separate HDF5 file for each separate passive microwave radiometer as well as two radar level 3 HDF5 products.**
- **The hour of observation is not maintained in the standard .25^{o} x .25^{o} gridded daily HDF5 products**
- **The daily gridded text products can be very quickly combined into longer time periods**
  - Monthly aggregations of the gridded text products are available for download
  - PPS C software can aggregate, either maintaining the hourly structure or combining all the hours into an aggregate accumulation
  - Format of the combined files is exactly the same as the format of the daily files so any software that can read the daily can read the aggregations.
- **Easy access to all core precipitation data**
- **By maintaining the hours even in aggregations (unlike standard products) can look at diurnal features**

Precipitation over India

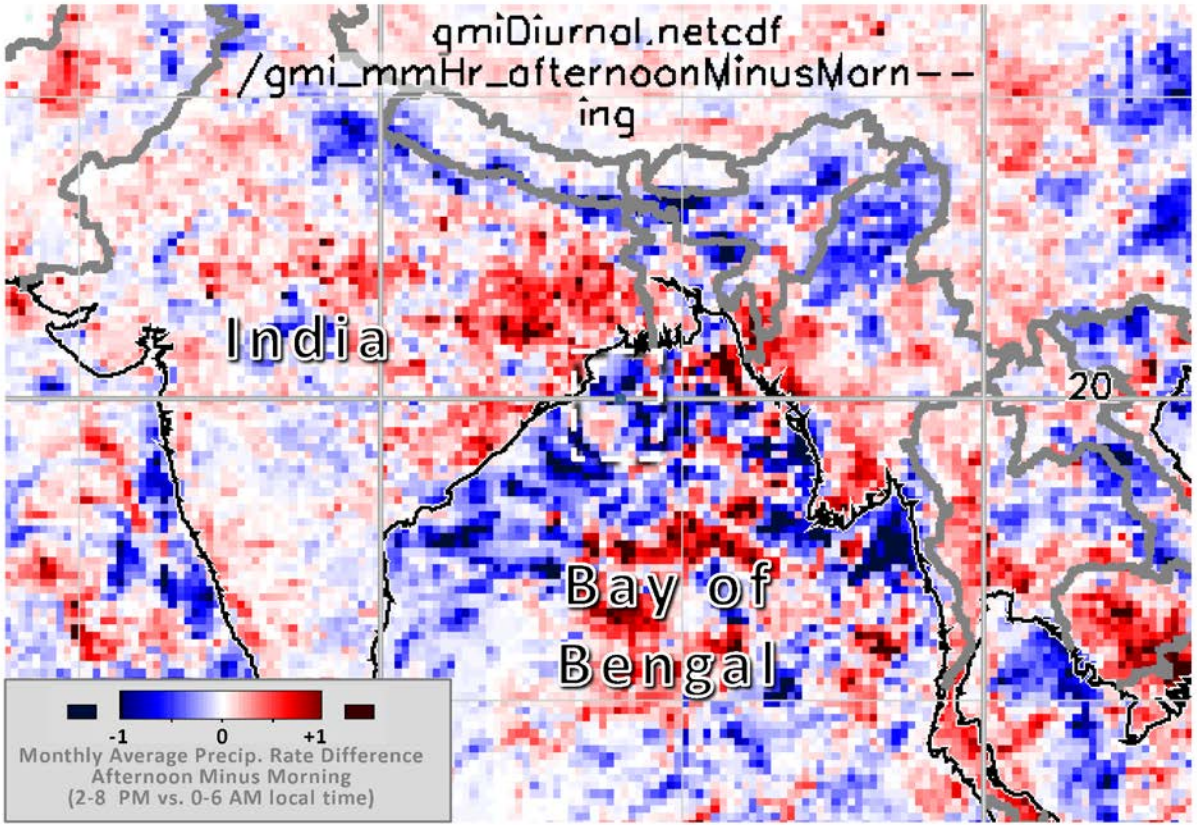


1 month duration

Precipitation accumulation for GMI

July 2017

Diurnal Features over India

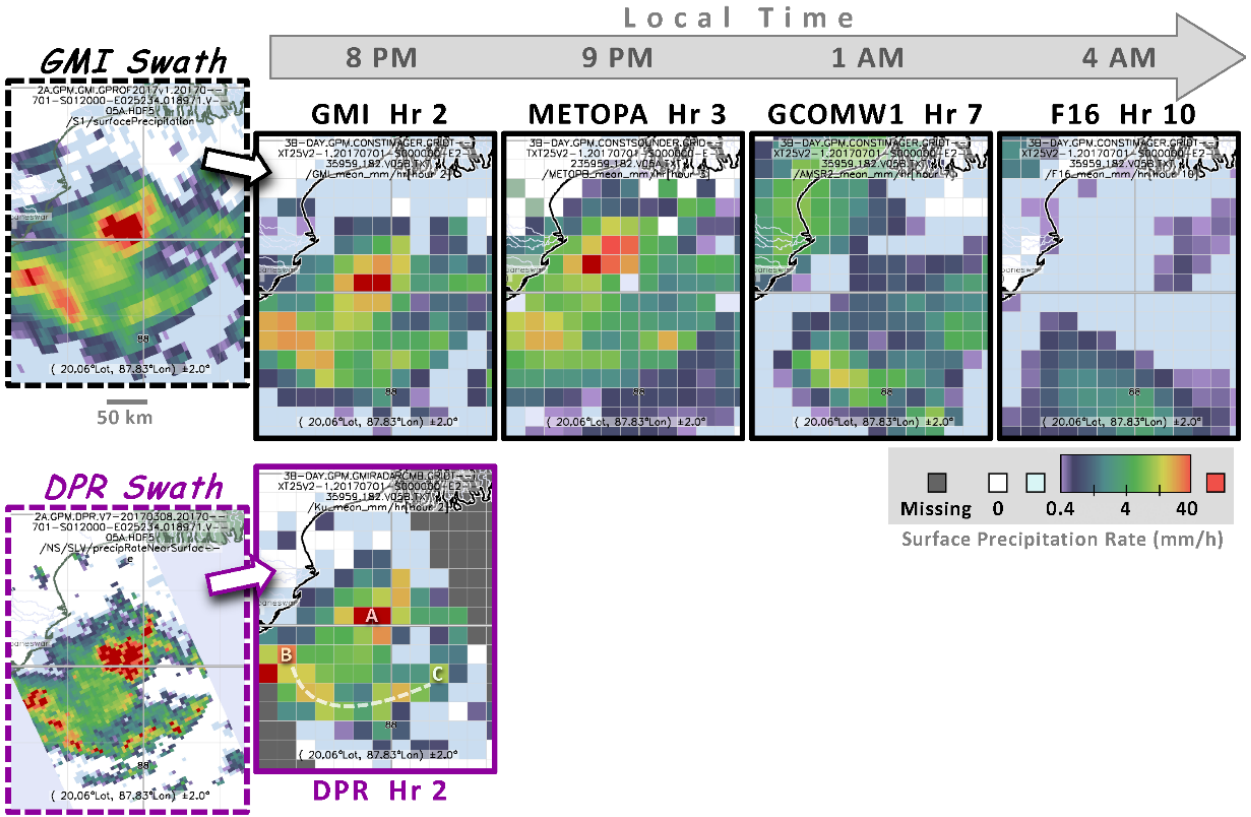


4 years June/July
in 2014-2017

afternoon precip (red)

morning precip (blue)

Comparisons among Sensor Retrievals



V05 Content for Each Sensor Group

- **Total pixels in grid cell**
- **Precipitating pixels in grid cell**
- **Unconditional precipitation, average rate (mm/hr)**
- **Convective precipitation, average rate (mm/hr)**
- **Frozen precipitation, average rate (mm/hr)**
- **Worse case data quality (lowest data quality flag of pixels included)**

What Changed in V05

- **In V04 gridded text products, the convective information was the fraction of the precipitation rate that was convective**
- **In V05 gridded text products, the convective information is the convective rate in mm/hr**
- **In V04 gridded text products, the frozen information was the liquid fraction of the mean precipitation rate**
- **In V05 gridded text products, the frozen information is the frozen rate in mm/hr**
- **Because V05 has rates for convective and frozen those fields maintain 4 decimal place accuracy rather than 3 as in V04.**
- **All gridded text products at V05B. V05A had errors in calculation of convective and frozen rates**

Obtaining the Products

- **Currently, the documentation is under revision for V05.**
  - Will be publically available by the end of October 2017
  - Can be obtained at the PPS homepage: pps.gsfc.nasa.gov
- **Must be a registered user of GPM. Registration can be done instantly online at the website:**
  - registration.pps.eosdis.nasa.gov
- **After registration, all data can be downloaded via FTP from**
  - /gpmdata/YYYY/MM/DD/textgrid
  - All data always maintained online in gzipped format
- **Questions about products:**
  - Erich.F.Stocker@nasa.gov
  - helpdesk@mail.pps.eosdis.nasa.gov