Precipitation CDR

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1. Examples of climate information from high resolution Sat-QPE product.
2. Designing of Precipitation CDR
3. Requirements/Gaps
4. Desirable production flow of precip CDR in GPM era.

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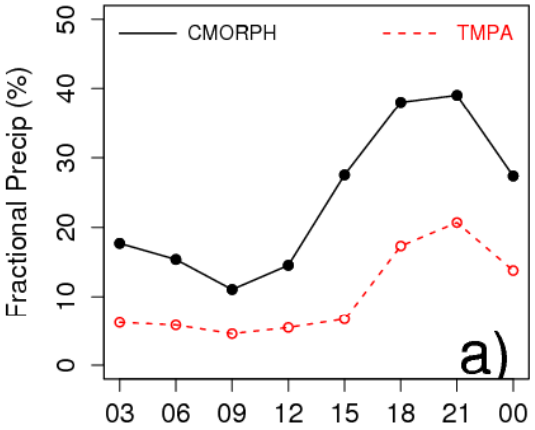
Local Climate Information - I

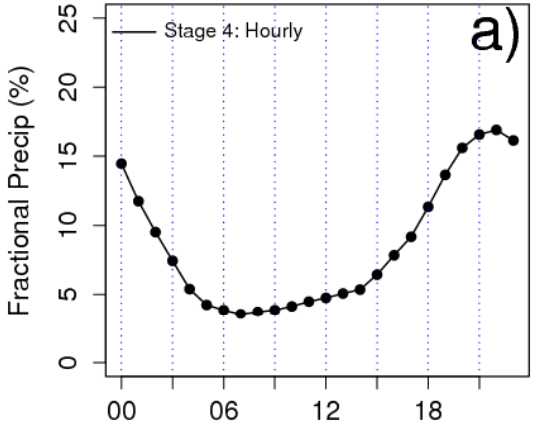
- Diurnal cycles of fractional precip. near Tampa Bay, Florida
- Sat precip. events are in phase with Radar and gauges.

Sat-QPE



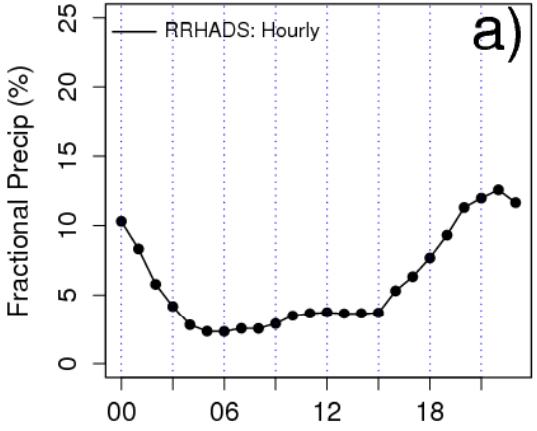
Sample size:
5x5 grids (0.25deg)

Stage 4



Sample size:
51x51 pixels (4km)

Gauges

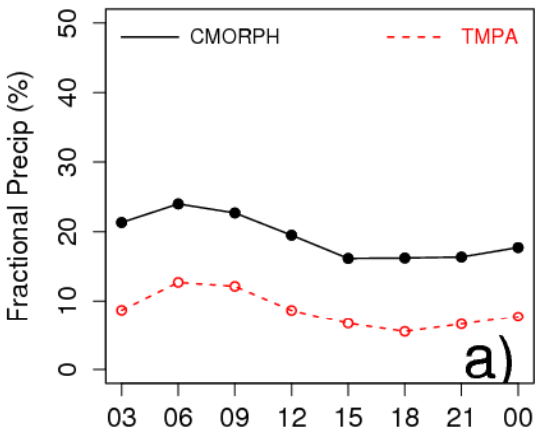


Sample size:
20 stations

Local Climate Information - II

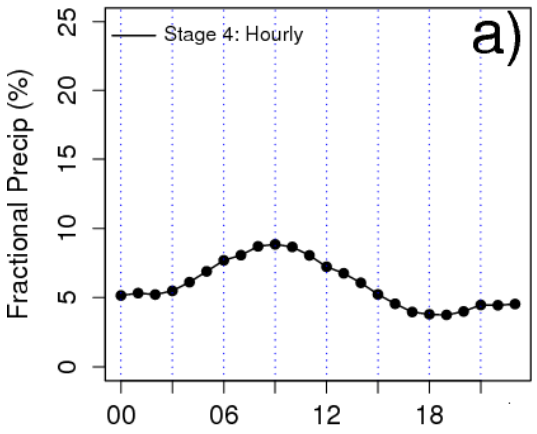
- Diurnal cycles of fractional precip. near Valley Center, Kansas
- The 3-hr phase lag in Sat-QPE is apparent.

Sat-QPE



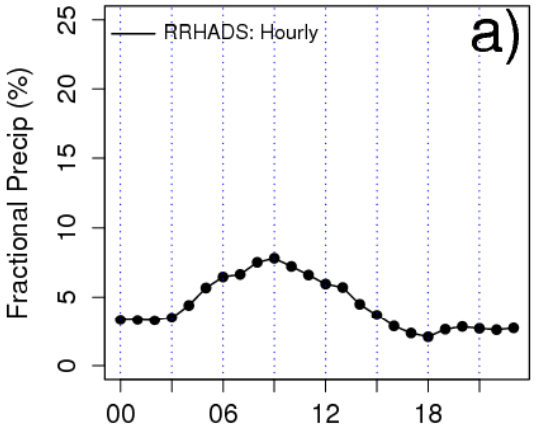
Sample size:
5x5 grids (0.25deg)

Stage 4



Sample size:
51x51 pixels (4km)

Gauges



Sample size:
18 stations

Design of Precipitation CDR

- **The scope: Gridded Global, 1/4 deg, 3-hourly, 10+ years record**
- **The requirements**
  - **Used routinely (either real-time or delayed)**
  - **Deliverable package written in portable computer language**
  - **Deliverable implementation instruction**
  - **Publishable performance of products**
- **The core modules**
  - **(Data Ingest) The sensor-specific rain rate retrieval techniques must be engaged with calibration community.**
  - **(Analysis) All satellite-QPE from all platforms must be inter-compared to generate statistical metrics.**
  - **(Assessment) Routine assessment against in situ, radar-QPE must be made and available to climate community.**

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Precip CDR Requirements

Parameter

Observation Requirement	T/O	Geographic Coverage	Vertical Resolution		Horizontal Resolution		Measurement Accuracy		Measurement Precision		Sampling Interval		Data Latency	
Global Precip. Rate	T	Global	NA		25	km	1	mm/h	1	mm/h	3	hr	24	hr
	O	Global	NA		5	km	0.2	mm/h	0.2	mm/h	1	hr	24	hr
	T													
	O													
	T													
	O													
	T													
	O													

Comments:

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Gaps in current satellite product suite

- Spatial (coverage) gaps: Too coarse for regional variability, trend and extremes study.
- Temporal gaps: Source of representativeness error in the sample.
- Latency gaps: NA
- Accuracy shortcomings: More concerns on dis-continuity of data records for long-term study.
- How GPM era products might help: Reduction of sampling error.

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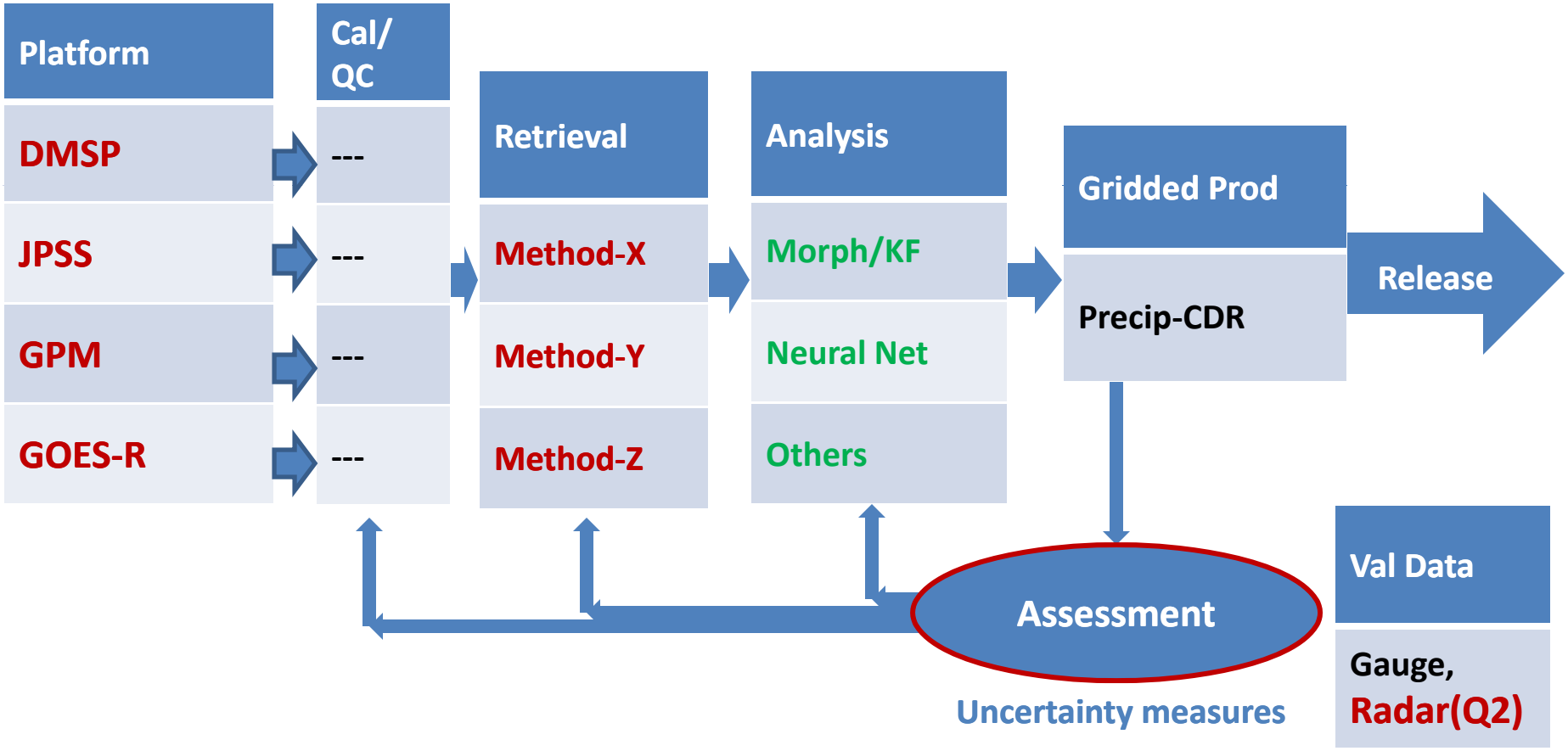
Precip CDR in 5-10 years

(Framework for sustainable development)



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Next Steps for GPM-era data & products

- What are funded activities within your program/project over the next five years?
  - See list of CDR PI's slide
- What are your funding gaps & limitations?
  - Base
- What are your plans to work with other elements of NOAA?
  - QPE sensitivity of hydrologic forecasting (OHD); Hydromet Testbed-SE.
- What are your plans to work with NASA? - NCDC is the operational archival site