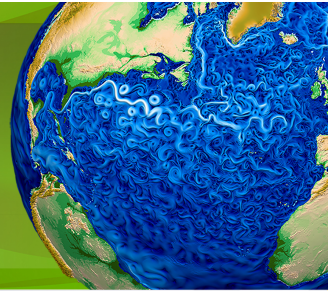


R: Regional Water Cycle diagnostics over Amazon

Jin-Ho Yoon¹, Philip J. Rasch¹, Po-Lun Ma¹, ¹PNNL, Richland, WA



Background and objective

Background

- Amazon is the largest tropical rainforest region.
- It is a remote region lacking dense surface observation network.

Objective

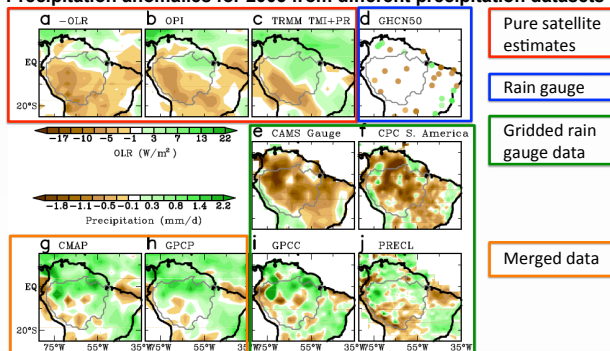
- Develop diagnostic metrics for regional water cycle over Amazon
- Identify reliable observational datasets of precipitation and others
- Produce a list of figures using UVCDAT diagnostics package
- Apply these regional water cycle diagnostics to other region

Diversity in observational datasets

Precipitation is chosen as a first step.

1. Rainfall climatology generally agrees well with different dataset.
2. However, the rainfall anomalies, and more importantly extremes, can be very different from one to another.

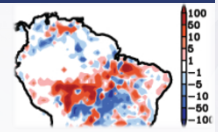
Precipitation anomalies for 2005 from different precipitation datasets



Did we have a drought in 2005?

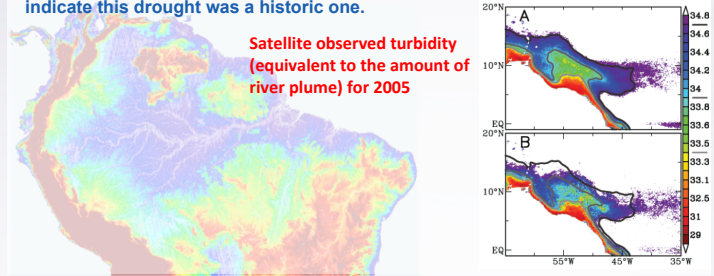
The answer is "Yes".

Satellite observed hot spots anomalies for 2005



Other datasets (such as satellite observed fire counts, river plume, and river levels) and local reports strongly indicate this drought was a historic one.

Satellite observed turbidity (equivalent to the amount of river plume) for 2005



Things to be considered

Things to be considered to choose a good and reliable observational dataset:

1. Source of observation: pure satellite vs. rain gauge base
2. Methods used in generating final product: merged, interpolated, and more...
3. Spatial and temporal resolution
4. Spatial and temporal coverage
5. Number of reports per year and its change in time

There is a need to utilize data from the intense observational period such as GOAMAZON.

Example: number of station reported in operational rainfall product from different sources

