Exposing NASA data rods to the world

Motivation and Prior Work

- An ongoing NASA-funded “Data Rods” project has demonstrated the removal of a longstanding barrier to accessing NASA data (i.e., accessing archived time-step array data as point-time series) for selected variables of the North American and Global Land Data Assimilation Systems (NLDAS and GLDAS, respectively) and other NASA data sets.
- Data rods are pre-generated or generated on-the-fly (OTF), leveraging the NASA Simple Subset Wizard (SSW), a gateway to NASA data centers.

NASA Hydrological Data via GEOSS

- Services are accessible through the CUAHSI Hydrologic Information System (HIS) and the Goddard Earth Sciences Data and Information Services Center (GES DISC) but are not easily discoverable by users of other non-NASA data systems.
- An ongoing “GEOSS Water Services” project aims to develop a distributed, global registry of water data, map, and modeling services cataloged using the standards and procedures of the Open Geospatial Consortium and the World Meteorological Organization.
- Preliminary work has shown GEOSS can be leveraged to help provide access to data rods. Another ongoing NASA-funded project is extending this prior work.

Removing Barrier to Accessing NASA Data

Bidirectional process flow of data and services between NASA and non-NASA data systems

Data rods Web services are accessible through the CUAHSI Hydrologic Information System (HIS) and the Goddard Earth Sciences Data and Information Services Center (GES DISC).

Time series (for selected variables of the North American Land Data Assimilation System, NLDAS) for OTF processing of data rods avails users many more variables than are currently available as pre-generated data rods, from both the GES DISC and, via SWF, the other participating (in SWF) data centers. The tradeoff is a shorter allowable requested time period. Current benchmark for OTF processing performance, partially leveraging Giovanni cache: 90 seconds for 10,000 time steps.

For More Information

NASA Goddard Space Flight Center

- NASA Hydrological Data via GEOSS
  - Use Cases Development
  - Bidirectional process flow of data and services between NASA and non-NASA data systems
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- Data rods are accessible via a Web interface, providing a probability description at each grid cell and for each day. Current values can be seen in the context of a probability distribution of past values, for that location and time.