Exposing NASA data rods to the world

Motivation and Prior Work

- An ongoing NASA-funded “Data Rods” (time series) 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.
- 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) 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

Data rods 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.

Use Cases Development

- 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 SSI, the other participating (in SSW) centers. The tradeoff is a shorter allowed requested time period. Current benchmark for OTF- processing performance, partially leveraging Giovanni cache: 90 seconds for 10,000 time steps.
- Such drought indicator maps will benefit from the availability of data rods, which will aid in the interpretation of wetness conditions.

Hydrology Portal

- Giovanni Portal
- GLDAS Hourly
- GLDAS - 3 Hourly
- Soil Moisture
- Precipitation

For More Information

- NASA website
- GES DISC
- LDAS Portal
- GSSC Hydrologic Sciences Lab
- Giovanni Portal
- GLDAS Hourly
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- Precipitation

Acknowledgment: This work is supported by NASA ROSES NNH11DA001N-ACCESS and NNH13DA001N-ACCESS. Members comprising both project teams: David Maidment, Bruce Voeller, Christina Peters-Lidard, Matthew Rodell, Huanan Rui, Richard Strub, Tim Whiteaker, David Mocko, David Arctur, Daniel Ames, Dalia Kirschbaum, Edward Seiler.

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