Motivation

- One component of a potential GEOSS-AI system, in the continuum between observations and end point research, applications, and decision making, would be one that enables transparent data discovery and access by users. Such a component might be effected via the system’s “data agents.”
- Presumably, some kind of data cataloging has already been implemented, e.g., in the GEOSS Common Infrastructure (GCI).
- Both the agents and cataloging could also leverage existing resources external to the system.
- The system would have some means to accept and integrate user-contributed agents.
- Another component would be one that facilitates browsing/visualization of the data, as well as some basic analyses, i.e., “visualization agents.”

Three ongoing projects at the NASA Goddard Earth Sciences Data and Information Services Center (GES DISC) provide possible proto-examples of potential data access and visualization components of a cloud-based GEOSS-AI system.

Proto-examples of GEOSS-AI Components

**Data Rods Project**
- Original Data Archive
- Reorganized Data Rods, pre-generated and on-the-fly (OTF)
- Data rods Web services
- Leveraging GEOSS and as part of GEOSS Water Services Project, to help provide access to data rods for non-NASA users.

**Data Rods via GEOSS Project**
- Data Rods Web services
- Data rods Web map for time series
- Removed 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.

**Federated Giovanni Project**
- Giovanni provides data access, Quick-Start Exploratory Data Analysis, no coding necessary, downloads necessary
- Giovanni currently provides Web-based exploratory analysis for GES DISC data.
- Federated Giovanni extends this to 4 other EOSDIS Data Centers.

Notional Configuration of GEOSS-AI Components

- Various data stores (pre-generated archives or virtual), optimally organized for specific uses and user communities
- Data requests via Data Agents familiar with user/client needs
- Requests “smarterly” processed (e.g., pre-generated vs. on-the-fly)
- Data downloaded or remain in the cloud for one-click visualization and for analysis

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