CYBERINFRASTRUCTURE – POSTER #4

Data Observation Network for Earth (DataONE)

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Addressing the Earth's environmental problems requires that we change the ways that we do science; harness the enormity of existing scientific data; develop new methods to combine, analyze, and visualize diverse data resources; and create new, long-lasting cyberinfrastructure. DataONE is a federated data network that improves access to, and preserves data about, life on Earth and the environment that sustains it. DataONE supports science by: (1) engaging the relevant science, library, data, and policy communities; (2) facilitating easy, secure, and persistent storage of data; and (3) disseminating integrated and user-friendly tools for data discovery, analysis, visualization, and decision-making. The DataONE architecture is comprised of three components (1) Member Modes (i.e. data centers/repositories); (2) Coordinating Nodes that support network wide services (e.g., indexing and replication; and (3) an Investigator Toolkit that provides integrated access to tools that can support them in managing all aspects of the data life cycle (e.g., Data Management Planning Tool, R, Excel, and MATLAB). The DataONE architecture and resources (e.g., data preservation services, best practices, and learning modules) can significantly benefit data-intensive and use-inspired science. The poster highlights some of the new and significant accomplishments since DataONE went public in July 2012 (e.g., DMPTool, ONEShare, and DataUp). A research exemplar emerging from DataONE's Exploration, Visualization and Analysis Working Group highlights DataONE's contribution to the Ultrascale Visualization Climate Data Analysis Tool, a tool that is presently being used for analysis and benchmarking of different climate models and data sets. DataONE tools and services are designed to promote data and tool interoperability, data preservation, and other features that underpin the movement towards more open data and reproducibility of science.