NASA SBIR 2008 Phase I Solicitation

S6.04   Data Management - Storage, Mining and Visualization

Lead Center: GSFC

Participating Center(s): JPL, LaRC

This subtopic focuses on supporting science analysis through innovative approaches for managing and visualizing collections of science data which are extremely large, complicated, and are highly distributed in a networked environment that encompasses large geographic areas. There are specific areas for which proposals are being sought:

Distributed Scientific Collaboration

- Social networking tools that enable high bandwidth scientific collaboration among scientists distributed worldwide in a large number of different organization. These tools should allow scientists to share data and computational resources, allow collaborative visualization of data, promote the development of online communities for sharing thoughts and ideas, and address issues of data and system security.
- Novel software tools for data viewing, real-time data browse that will enable users to 'fly' through the data space to locate specific areas of interest, and general purpose rendering of multivariate geospatial scientific data sets that use geo-rectification, data overlays, data reduction, and data encoding across widely differing data types and formats.
- Novel 3D hardware virtual reality environments for scientific data visualization that make use of 3D presentation techniques that minimize or eliminate the need for special user devices like goggles or helmets.

Distributed Data Management and Access

- Metadata catalog environments to locate very large and diverse science data sets that are distributed over large geographic areas.
- Dynamically configurable high speed access to data distributed and shared over wide area high speed network environments.
- Object based storage systems, file systems, and data management systems that promote the long term preservation of data in a distributed online (i.e. disk based) storage environment, and provide for recovery from system and user errors.

Research should be conducted to demonstrate technical feasibility during Phase 1 and show a path toward a Phase 2 hardware/software demonstration, and when possible, deliver a demonstration unit for functional and environmental testing at the completion of the Phase 2 contract.

Proposals should show an understanding of one or more relevant science needs, and present a feasible plan to

fully develop a technology and infuse it into a NASA program.Â