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

**3D Virtual Reality Environments**

- 3D virtual reality environments for scientific data visualization that make use of novel 3D presentation techniques that minimize or eliminate the need for special user devices such as goggles or helmets; and
- Software tools that will enable users to ‘fly’ through the data space to locate specific areas of interest.

**Distributed Scientific Collaboration**

- Tools that enable high bandwidth scientific collaboration in a wide area distributed environment; and
- Novel tools for data viewing, real-time data browsing, 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.

**Distributed Data Management**

- Metadata catalog environments to locate very large and diverse science data sets that are distributed over large geographic areas; and
- 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.

**Distributed Data Access**

- Dynamically configurable, high-speed access to data stored in Storage Area Networks (SAN) distributed...
over wide area environments; and

- Technologies for sharing data over newly developed, high-speed, wide area networks such as the National Lambda Rail (NLR).