NASA SBIR 2005 Phase I Solicitation

S7.01 Geospatial Data Analysis Processing and Visualization Technologies

Lead Center: SSC

Participating Center(s): GSFC

Proposals are sought for the development of advanced technologies in support of scientific, commercial, and educational applications of Earth Science and other remote sensing data. Focus areas are to provide tools for processing, analysis, interpretation, and visualization of remotely sensed data sets. Earth Science data needs to be benchmarked for practical use of NASA-sponsored observations from remote sensing systems and predictions from scientific research and modeling. Specific interest exists in the development of technologies contributing to decision support systems, and model development and operation. For more information on decision support models under evaluation, please visit http://science.hq.nasa.gov/strategy/index.html. Areas of specific interest include the following:

- Unique, innovative data reduction, rapid analysis, and data exploitation methodologies and algorithms of information from remotely sensed data sets, e.g., automated feature extraction, data mining, etc.;
- Algorithms and approaches to enable the efficient production of data products from active imaging systems, e.g., multipoint data resampling, digital elevation model creation, etc.;
- Data merge and fusion software for efficient production and real-time delivery of digital products of ESE Mission and other remote sensing data sets, e.g., weather observation and land use and land cover data sets;
- Innovative approaches for incorporation of GPS data into \textit{in situ} data collection operations with dynamic links to spatial databases including environmental models;
- Image enhancement algorithms for improving spatial, spectral, and geometric image attributes;
- Innovative approaches for the querying and assimilation of application-specific datasets from disparate and distributed databases from government, academic, and commercial sources into a common framework for data analysis;
- Innovative approaches for querying of application-specific data sets from disparate, distributed databases in government, academic, and commercial data warehouses into a common framework for data analysis; and
- Innovative visualization technologies contributing to the analysis of data through the display and
visualization of some or all of the above data types including providing the linkages and user interface between the cartographic model and attribute database.