

**Request for Proposals**  
**Federal Government and International Members of the Landsat Science Team**  
**April 28, 2006**

**Summary**

The United States Geological Survey (USGS), with National Aeronautics and Space Administration (NASA), is requesting non-monetary proposals from qualified Federal government and international scientists and engineers interested in serving as members of the Landsat Data Continuity Mission (LDCM) Landsat Science Team. Up to eight Federal and international scientists will be selected through a competitive process to serve on the Landsat Science Team for a five year period and contribute advice based on pertinent research and experience. Those selected must demonstrate financial support from their home agency or organization since USGS contracting policies preclude funding salaries for Federal government and international expert scientists. Those selected will join eight additional scientists and engineers from academia, non-governmental organizations, and industry that are being selected through a separate solicitation. The Landsat Science Team appointments are expected to be five years in duration. This will ensure science team continuity from the pre-launch planning period through the first operational year of the LDCM mission.

**Background**

In August 2004, the United States Geological Survey (USGS) and the National Aeronautics and Space Administration (NASA) were directed by the White House Office of Science and Technology Policy (OSTP) to establish a partnership to implement a Landsat Data Continuity Mission (LDCM). The specific form of the LDCM mission and agency roles was clarified in a December 22, 2005 memorandum from John H. Marburger, III, OSTP director. The memorandum calls for NASA and the Department of the Interior through the USGS to collaborate in formulating a free-flyer mission. NASA is responsible for procuring an instrument and the satellite bus, and the USGS is responsible for developing the ground stations and operational ground system components. Together, NASA and the USGS are laying out an end-to-end path for a free-flying spacecraft, appropriate instrumentation, and ground systems for collecting, archiving, and distributing Landsat data to U.S. Government and other users. The specific intricacies and details related to the mission are in final stages of preparation.

The LDCM mission is intended to ensure that Landsat-like data will be provided to the USGS National Satellite Land Remote Sensing Data Archive (NSLRSDA) for the duration of the mission. The Landsat record, beginning in July 1972, is already the longest and most comprehensive unbroken global record in existence. Worldwide, there is no on-orbit or planned system that duplicates Landsat data or collects and archives global land data sets. With LDCM data acquisitions planned further into the 21st century, the Landsat legacy will become a 50-year global land record. The uniqueness and value of this record for applications ranging from resource management to national security places considerable emphasis on ensuring a proper LDCM design. The ultimate measure of success of the LDCM mission will be the complete integration of LDCM data with past, present, and future remotely sensed data for the purpose of observing and monitoring national and global environmental systems.

To ensure that LDCM goals are met, a Landsat Science team is being convened for the purpose of conducting scientific research on technical issues critical to the success of LDCM, including topics related to data acquisition, product access and formats, practical applications, and science opportunities for new- and past-generation Landsat data. Recognizing the operational value and nature of Landsat, the USGS, with NASA endorsement, is assuming the responsibility for funding and supporting the Landsat Science Team. The overall Landsat Science Team member responsibility is to focus their research and experience on issues pertinent to the LDCM mission so that the results of their research can be considered by the USGS and NASA when addressing development and implementation topics that will affect the overall success of the LDCM mission.

Because the capital investment in the Landsat program is so large and because the scope of the LDCM mission is so complex, the expanded and independent expertise of the Landsat Science Team will also play a critical role in reducing mission risks and ensuring that critical design and functionality issues are addressed. The Landsat Science Team members must provide fresh and independent perspectives that may be valuable for identifying mission design issues that could cause long-term problems.

The Landsat Science Team will conduct scientific research and share the results of their research with the USGS, NASA, and the broader user community. Examples of scientific research that are relevant to Landsat and LDCM include the following topics:

#### Applications

- Development of new methods or strategies for large-area land change assessments
- Monitoring trends in ecosystem functioning
- Demonstration of new applications of Landsat archive and LDCM data sets

#### Instrument Functions

- Improvements in radiometric and geometric characteristics of LDCM datasets
- Assessing expected radiometric performance of the LDCM sensor
- Methods for validating instrument radiometric or geometric performance

#### Data Issues

- Enhancing the LDCM global acquisition strategy
- Defining new innovative Landsat standard and derived products
- Advanced data querying and analysis, including data mining

This is an illustrative rather than exhaustive list and many other topics are relevant to Landsat and LDCM.

### **Landsat Science Team Duties**

The primary responsibility of the Landsat Science Team is to conduct scientific research and share the results of their research with the USGS and other partners on topics that will affect the

overall success of the LDCM mission and the long-term success of the Landsat program. In addition, science team members should be prepared to provide informed ideas based on their expertise. In this way, Landsat Science Team members will contribute to many specific LDCM objectives:

- Represent the breadth of user perspectives and their requirements on product formats and product generation issues.
- Provide feedback on critical design and implementation issues, including instrument and data systems that affect Landsat data users.
- Contribute to the specification and design of the data acquisition strategy and data access systems.
- Consider interoperability of Landsat with other systems currently in orbit or planned for launch within the LDCM operational timeframe.
- Conduct studies on science and applications elements of program; each PI should be involved in research that relates to the capabilities of the LDCM mission, including synergy with archived data.
- Provide insights on long-term issues (e.g., future missions).
- Represent LDCM plans in appropriate forums, including scientific meetings.

The Landsat Science Team will hold full team meetings with the USGS and NASA LDCM development group at least twice per year, or more frequently if issues arise that require direct dialog. During these meetings, Landsat Science Team members will be briefed on mission status and will present their research that is relevant to the meeting topics. Quarterly teleconferences will be scheduled between the Landsat Science Team and the LDCM development and leadership groups to exchange news and discuss topics in which team input is required. In addition, Landsat Science Team members should organize sessions at appropriate professional meetings so that they can share results of their LDCM research and facilitate technical exchange with the Landsat user community. The USGS will provide each team member with a modest number of Landsat and other related datasets from the Earth Resources Observation and Science (EROS) archive. All data products, information, algorithms, and publications produced by each team member will be made available to the public via a Landsat Science Team web site. Science Team service will be for five years.

### **Landsat Science Team Measures of Success**

The measure of success of the overall LDCM mission is the complete integration of LDCM data with past, present, and future remotely sensed data for the purpose of observing and monitoring problems of global environmental systems. The more specific Landsat Science Team measures of success include:

- Clarity and innovativeness of scientific research conducted on topics relevant to the LDCM project.
- Productivity and originality of the sponsored science as measured through publications, cited works, and new applications.
- Enhanced science, applications, and engineering capabilities.

- Community acceptance of LDCM plans.
- Visibility brought to the LDCM mission in a wide range of science and applications forums.

These measures will provide direct benefits to the USGS and NASA as they implement the LDCM mission. In addition, the Landsat Science Team will contribute to the overall reduction of risks and help improve the effectiveness of the complex LDCM mission. All data products, information, algorithms, and publications will be made available to the public via a Landsat Science Team web site.

## **Eligibility**

The Landsat Science Team is being formulated using a two-phase process. One phase involves selecting and funding up to eight science team members through a competitive process (see <http://ideasec.nbc.gov>). Because USGS contracting policies restrict payment of government and international salaries, a second and parallel non-monetary competition is being used to add up to eight additional members of the Federal government and international community to the Landsat Science Team. Interested parties must demonstrate the support of their home agency or organization through a letter specifying a willingness to cover the cost associated with Landsat Science Team service.

## **Proposals**

Selection of the government and international scientists and engineers will be based on the merits of a brief proposal that outlines the topical focus and credentials of the proposed Landsat Science Team member. Those sending in proposals are urged to review the evaluation factors listed later in this document. Technical proposals must address each of these factors since these are the standards against which your technical proposal will be evaluated. Because funding will not be provided, the proposal length is streamlined. The proposal length must not exceed five (5) pages, not including the title page. The proposal format requirements also include one-inch margins with 12-point font. The title page should include the project name, key personnel (including addresses), and the name of the proposing government agency or international organization. The five-page proposal must address the following topics:

**Planned Contribution:** This section addresses the LDCM and Landsat research interests of the proposal Principle Investigator and includes a summary of planned objectives that will support the overall Landsat Science Team effort.

**Technical Approach:** This section should provide a brief summary of the technical details and methods related to the planned technical contributions.

**Relevancy:** Explain the specific LDCM mission benefits associated with your contribution on the Landsat Science Team.

Qualifications: Summary role and appropriate credentials of the Principle Investigator and other team members. Include 2 page resumes (please note, resumes do not count against the five page limit).

Letter of Support: A statement of support from an appropriate agency or organization official (e.g., center chief, program head, etc.) expressing a willingness to cover the cost of your participation on the Landsat Science Team (please note, the letter of support does not count against the five page limit).

### **Proposal Evaluation Factors**

The selection of government and international proposals will be based on the following evaluation factors.

- Relevance of the proposed contribution to the goals of the Landsat Program and LDCM, and to the overall balance of the Landsat Science Team.
- Creativity and feasibility of the overall research strategy for accomplishing the scientific and technical.
- Likelihood that science team participation will lead to new Landsat applications or new scientific capabilities and understanding.
- Credentials of the proposal team.
- Verification of agency or organizational support.

### **Proposal Submission**

Proposals are due by close of business on June 9, 2006. Seven copies of the proposal should be sent to:

Landsat Science Team Proposals  
U.S. Geological Survey  
Center for Earth Resources Observation and Science (EROS)  
47914 252nd Street  
Sioux Falls, SD 57198-0001

For questions, please contact:

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