



*Promoting Earth science and education by advancing high-precision techniques for the measurement of deformation.*

## **NOTICE OF OPPORTUNITY & REQUEST FOR INFORMATION:**

### **GeoEarthScope Airborne Laser Swath Mapping (Airborne LiDAR) Data Providers**

UNAVCO, Inc. is issuing this Notice of Opportunity and Request for Information (RFI) to identify organizations capable of providing research quality airborne laser swath mapping (airborne LiDAR) data acquisition services to support GeoEarthScope, a component of the EarthScope Facility project funded by the National Science Foundation (NSF). UNAVCO invites organizations interested in this opportunity to submit a response to this RFI for consideration as a potential data provider. The deadline for RFI responses is December 7, 2007.

### **Background**

EarthScope is a national Earth science program funded by NSF to explore the structure and evolution of the North American continent and understand processes controlling earthquakes and volcanoes. EarthScope is being constructed, operated, and maintained as a collaborative effort with UNAVCO, the Incorporated Research Institutions for Seismology, and Stanford University, with contributions from the US Geological Survey, NASA, and several other national and international organizations. GeoEarthScope is a component of EarthScope that includes the acquisition of aerial and satellite imagery and geochronology. GeoEarthScope is managed at UNAVCO. Additional information about EarthScope is available at <http://www.earthscope.org>.

UNAVCO is a non-profit, membership-governed consortium that supports and promotes Earth science by advancing high-precision techniques for the measurement and understanding of deformation. UNAVCO also supports education to meet the needs of the community and the public. UNAVCO is funded by NSF and NASA. UNAVCO is constructing the EarthScope Plate Boundary Observatory (PBO), a geodetic observatory designed to study the three-dimensional strain field resulting from deformation across the active boundary zone between the Pacific and North American plates in the western United States. As part of PBO, UNAVCO is installing GPS receivers and strainmeters and providing data and processed results that will be used to deduce the strain field on timescales of seconds to decades, and UNAVCO is supporting imaging and geochronology investigations to examine the strain field over expanded spatial and temporal scales. Additional information about UNAVCO is available at <http://www.unavco.org>.

This announcement pertains to the acquisition of research quality airborne LiDAR imagery for GeoEarthScope. The overall goals and community recommendations for GeoEarthScope ALSM data acquisition are described in the GeoEarthScope LiDAR Working Group report, available online at: [http://facility.unavco.org/project\\_support/es/geearthscope/reports/GeoES\\_LiDAR\\_Report\\_Final.pdf](http://facility.unavco.org/project_support/es/geearthscope/reports/GeoES_LiDAR_Report_Final.pdf). Please note that not all targets proposed in the Working Group report will be acquired due to budgetary constraints.

### **Scope of Work**

GeoEarthScope LiDAR projects are planned for the following geographic regions:

<u>Geographic Location</u>	<u>Estimated Minimum Area</u>	<u>Estimated Maximum Area</u>	<u>Est. Data Collection Time Window</u>
Southern/Eastern California	1200 sq. km.	2000 sq. km.	Mar-Apr 2008
Utah/Wyoming/Montana	600 sq. km.	1600 sq. km.	Mar-Apr 2008
Pacific Northwest	300 sq. km.	1100 sq. km.	May-Jul 2008
Alaska	300 sq. km.	600 sq. km.	May-Jul 2008

In general, acquisition targets within each geographic region are long, narrow polygons tens of kilometers long and one or more kilometers wide. The total area surveyed will depend on numerous factors including the actual final cost per unit area; the estimated minimum and maximum survey areas provided here are guidelines for planning purposes. Data collection time windows are based on anticipated planning lead times, local weather constraints, snow pack, etc. Projects may take place sooner, but no later than outlined above. Processed data deliverables will be expected 30-90 days following data collection, depending on project size and other factors.

The definition of “research quality” LiDAR data for the purposes of GeoEarthScope includes but is not limited to or constrained by the following characteristics:

- Sufficient LiDAR return measurements to allow the generation of high resolution (e.g. 1-meter grid spacing or better) unfiltered (“full feature”) and filtered (“bare earth”) DEM’s.
- Distribution of all raw data, including XYZ point clouds and return intensities, in a comprehensive format suitable for subsequent re-processing by independent groups.
- High rate (e.g. 1 Hz) GPS ground control data collected at specified locations and densities along flight lines (e.g. minimum 5 CORS/campaign sites at varying elevations).

Our projects are research oriented and are conducted in the spirit of open collaboration. Data providers will be expected and required to work collaboratively with UNAVCO and UNAVCO affiliates during all phases of each project. This includes but is not limited to the following:

- Data provider will work with UNAVCO to develop and implement all survey plans including flight lines, data collection parameters, GPS deployments, etc..
- Data provider may be requested to accommodate the deployment of GPS campaign stations by UNAVCO field crews in addition to or in place of the data provider’s typical GPS deployments.
- Data provider may be requested to allow UNAVCO to process GPS data and produce flight trajectories prior to final point cloud and DEM generation by the data provider.
- Time is of the essence in completing the planned work. Data providers will be expected and required to meet all timeline requirements identified at the beginning of the project by UNAVCO.

As with other data acquired for EarthScope, all GeoEarthScope LiDAR data will be made freely available to the community by UNAVCO.

## **RFI Purpose**

The purpose of this RFI is to help UNAVCO identify and gather essential information about organizations capable of providing ASLM services and products that meet our requirements. Information provided in response to this RFI may be used by UNAVCO to develop specifications and evaluation criteria for the work to be performed.

This RFI may be followed by a competitive bidding process, or request for proposals (RFP). A response to this RFI will be a prerequisite to any subsequent proposal requests by UNAVCO for GeoEarthScope LiDAR imagery. Responders to this RFI will be considered for inclusion in any subsequent proposal requests. UNAVCO reserves the right to award multiple awards or to not award any awards in response to this RFI or subsequent proposal requests.

## **RFI Response Content Guidelines**

Completion of the RFI cover sheet provided is mandatory. RFI responses should be concise and at a minimum include the following requested information.

1. Organization information. The information requested in the RFI cover sheet is sufficient but may be augmented if desired.
2. Experience in providing ALSM data acquisition services. Please include:
  - a. Previous project size(s) (e.g. square kilometers).
  - b. Previous project duration(s) (i.e. data collection start date to final product delivery date).
  - c. Previous project purpose(s), such as research, FEMA related, etc.
  - d. Previous project client(s) if permissible.
  - e. Other information demonstrating ability to complete work.
3. Data collection equipment and procedures. Please provide an overview of your ALSM data collection equipment, procedures, and capabilities. Please include the following specific information:
  - a. Scanning system details such as make, model, etc.
  - b. Platform flown and type (airplane, helicopter)
  - c. Average number of points collected per square meter and how this is achieved (e.g. pulse rate frequencies, swath overlap, flying height, etc.).
  - d. GPS ground control (make/model of GPS receivers and antennas on aircraft and on ground, how many GPS systems are typically deployed, etc.).
  - e. Data processing (software, methods, etc.)
  - f. Data verification (e.g. solution statistical analyses, physical ground truthing, etc.).
4. Additional comments & recommendations. Please provide any additional comments, recommendations or information you feel is appropriate for UNAVCO to consider. Feel free to expand upon your organization's unique qualifications or make recommendations on how UNAVCO can best accomplish the work described. If interested in servicing more than one region, please discuss any cost or logistical advantages this may provide.

## **Submission Instructions & Contact Information**

The deadline for submitting a response to this RFI is 5:00 PM Mountain Time on December 7, 2007.

Electronic submittals (e.g. PDF files by email) are preferred. Responses should be submitted to David Wilson, UNAVCO Contracts and Sponsored Agreements Director, by email at [Wilson@unavco.org](mailto:Wilson@unavco.org).

For additional information about the project goals or work planned, please contact Dr. David Phillips, GeoEarthScope Project Manager, by email at [phillips@unavco.org](mailto:phillips@unavco.org) or by telephone at 303-381-7471.

Nothing in this RFI should be construed as UNAVCO offering to pay for or reimburse RFI response cost or to imply that an award will be made by UNAVCO. UNAVCO reserves the right to award multiple awards or to not award any awards in response to this announcement. Advantageous late proposals may be considered by UNAVCO.

## UNAVCO GeoEarthscope Airborne Laser Swath Mapping (Airborne LiDAR) Data Provider RFI Response Cover Sheet

Organization Information				
	Name:			
	Address:			
	Website:			
Organization Point of Contact				
	Name:			
	Telephone:			
	Email:			
Organization Profile				
	<input type="checkbox"/> Commercial <input type="checkbox"/> Nonprofit <input type="checkbox"/> University <input type="checkbox"/> Government <input type="checkbox"/> Other			
	DUNS #:	Other information:		
	Years in business/operation:			
	Number of employees:			
Region(s) of Interest for Servicing and Approximate Cost Summary				
<p>Please provide approximate costs for each region that your organization is interested in servicing. Approximate costs are for planning purposes only. It is understood that these costs are non-binding and subject to refinement if a formal quote is subsequently requested.</p>				
REGION	UNIT	EST. QTY.	UNIT PRICE	TOTAL COST
Southern California	Sq. Km.	1200		
		2000		
Utah/Wyoming/Montana	Sq. Km.	600		
		1600		
Pacific Northwest	Sq. Km.	300		
		1100		
Alaska	Sq. Km.	300		
		600		
Comments				