



DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

7 January 2014

REQUEST FOR STATEMENTS OF INTEREST

NUMBER W9126G-14-2-SOI-0018

PROJECT TO BE INITIATED IN 2014

Project Title: San Clemente Island LiDAR and Imagery Mapping

Responses to this Request for Statements of Interest will be used to identify potential investigators for a project to be funded by U.S. Navy which provides professional and technical support for an assessment of soil erosion over time resulting from training with tracked vehicles on San Clemente Island (SCI). Approximately \$233K is expected to be available to support this project.

Background: Commander, U.S. Pacific Fleet (USPACFLT) requires high-resolution topographic data for SCI to support the monitoring and assessment of training operations in relation to natural resource management. SCI is the southernmost of California's Channel Islands, it is the primary maritime training area for the Department of the Navy Pacific Fleet, U.S. Navy Sea, Air and Land (SEALS), and supports the U.S. Marine Corps, the U.S. Air Force and other users. It is also home to a variety of unique and rare ecological resources on land, and some of the richest marine communities in the world in adjacent waters.

In order to understand and monitor the interaction of these mission-driven activities with the natural resources of SCI, high-resolution topographic data is essential for tracking changes in erosion patterns and plant cover that may be a precursor to impacts to habitat and associated species on the island. While high-resolution topographic data has been collected along the majority of the California coast through the use of airborne Light Detection and Ranging (LiDAR) mapping, there is currently no LiDAR coverage available to support analysis at SCI. LiDAR surveying is intended to provide both "bare earth" topography and the extent of vegetation cover where it is present from multiple returns. Anthropogenic erosion is expected to be mainly caused by tracked-vehicle traffic along the high-elevation spine along central and southern parts of SCI. Natural erosion likely has four main causes, including geotechnical instability, land surface loss due to rainfall and wind, and short-term coastal cliff and beach loss from waves, and eventual loss from sea level rise.

The work described here targets the collection and initial evaluation of a baseline LiDAR data set for SCI that will provide an accurate geo-referenced baseline topography and vegetation-cover data set using LiDAR supplemented with hyper-spectral and visible range imaging, provide a basis for comparison to historical low-medium resolution mapping data, and serve as a point of comparison for future high-resolution monitoring. Subsequent overflights will then make it possible to detect small changes in elevation related to natural and anthropogenic land

form erosion and accretion, and changes in vegetation. The deliverables will include the LiDAR-based digital elevation model with hyperspectral and visible overlays, and a report evaluating the geospatial topographic characteristics of SCI derived from the data, including an initial comparison to historical data to evaluate change.

Type of Award:

The government anticipates it will provide substantial involvement through the life of the project. The exact nature of the government's involvement will be defined in the statement of work, issued with a request for full proposal, after review of the statements of interest. As a result, it is anticipated that a cooperative agreement will be awarded.

Brief Description of Anticipated Work:

This research focuses on the following objectives:

- **LiDAR/Imagery Planning and Logistics.** The recipient in coordination with SSC PAC shall develop the LiDAR/Imagery mapping work plan and finalize scheduling to conduct the mapping. The workplan input shall include detailed specifications for the data and data quality requirements for the LiDAR and imagery as well as initial post-processing requirements and deliverables. The survey design, data collection, processing, and final products should meet the minimum requirements provided in the USGS LiDAR Guidelines and Base Specification.
- **Wide-Area LiDAR/Imagery Mapping.** The recipient shall conduct a wide-area LiDAR/Imagery mapping survey at SCI with support from SSC-PAC. An initial overflight of San Clemente Island will be conducted to provide an accurate geo-referenced baseline topography and vegetation-cover data set using LiDAR supplemented with hyperspectral and visible range imaging.
- **Coastal-Area Hyperspectral/Imagery Mapping.** The recipient shall conduct the coastal-area LiDAR/Imagery mapping survey at SCI with support from SSC-PAC. This task will be conducted using the same aircraft, instrumentation, personnel and ground-truthing as the wide-area survey and shall be conducted during the same time period.
- **Post-Processing.** The recipient shall conduct the post-processing of the LiDAR/Hyperspectral/Imagery data with support from SSC PAC.
- **Data Analysis.** The recipient shall conduct the analysis and, evaluation of the post-processed LiDAR/Hyperspectral/Imagery data. The main purposes of the proposed survey is to provide an accurate elevation data set that can be used to create a basic quantitative description of the islands geographic characteristics, and to measure changes in the topography, especially erosion, using future surveys.
- **Draft and Final Reporting.** The recipient shall prepare a draft report detailing the collection, analysis and findings of the tasks described above. Following review by SSC-PAC, the recipient shall respond to comments and revisions and provide a final report. The recipient shall provide electronic deliverables for the topographic and imagery data

in the format and meeting the data quality objectives to be determined in the previous tasks.

Period of Performance. The period of performance is expected to be 12 months from the date of award.

Materials Requested for Statement of Interest/Qualifications:

Please provide the following via e-mail attachment to: jack.e.mobley@usace.army.mil
(Maximum length: 2 pages, single-spaced 12 pt. font).

1. Name, Organization and Contact Information
2. Brief Statement of Qualifications (including):
 - a. Biographical Sketch,
 - b. Relevant past projects and clients with brief descriptions of these projects,
 - c. Staff, faculty or students available to work on this project and their areas of expertise,
 - d. Any brief description of capabilities to successfully complete the project you may wish to add (e.g. equipment, laboratory facilities, greenhouse facilities, field facilities, etc.).

Note: A full study proposal and proposed budget are NOT requested at this time.

Review of Statements Received: All statements of interest received will be evaluated by a board comprised of one or more people at the receiving installation or activity, who will determine which statement(s) best meet the program objectives. Based on a review of the Statements of Interest received, an investigator or investigators will be invited to prepare a full study proposal. Statements will be evaluated based on the investigator's specific experience and capabilities in areas related to the study requirements.

Please send responses or direct questions to:

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Timeline for Review of Statements of Interest: Review of Statements of Interest will begin **20 Feb 2014**. This Request for Statements of Interest will remain open until an investigator team is selected.