NOTICE OF INTENT TO AWARD

This Funding Announcement is not a request for applications. This announcement is to provide public notice of the U.S. Geological Survey's intention to fund the following project activities without full and open competition.

ABSTRACT	
Funding Announcement	USGS-19-FA-0176
Project Title	Improved Strategies to Enhance Calibration and Validation of Landsat Thermal Data and Their Associated Higher-Level Products
Recipient	Rochester Institute of Technology
Anticipated Federal Amount	$251,402.00
Cost Share	$0
Total Anticipated Award Amount	1,336,868.00
New Award or Continuation?	New
Anticipated Period of Performance	10/01/2019 – 09/31/2024
Award Instrument	Cooperative Agreement
CFDA # and Title	15.808 – Research and Data Collection
USGS Point of Contact	Cody Anderson (chanderson@usgs.gov); Sara Roser (sroser@usgs.gov)

OVERVIEW

Rochester Institute of Technology (RIT) will work collaboratively with the USGS to improve Landsat data quality and user confidence, with specific emphasis on validating surface temperature products. Landsat is a multispectral imager with reflective and thermal emissive bands. This project will focus on emissive bands and evaluating their response over a global collection of moored buoys. A prototype of thermal radiometers will be developed and enhanced at RIT. Results of this project will improve data quality of both top-of-atmosphere products and surface products related to Landsat. Overall, this project will result in Landsat products that are developed with highly-calibrated and validated sensor data.

RECIPIENT INVOLVEMENT

RIT will:

- Develop, deploy, and make updates to improve performance of thermal radiometers at multiple locations across the U.S. to assess the quality of measurements;
- Develop software to ingest and process raw radiometer data to temperature and emissivity measurements and compare measurement to derived Landsat surface temperature products;
- Incorporate reanalysis data into existing thermal calibration workflows and compare new method to traditional approaches; and
- Identify and incorporate potential global moored buoy thermal measurements into traditional and new reanalysis method.

USGS INVOLVEMENT

Substantial involvement on the part USGS is anticipated for the successful completion of the objectives to be funded by this award. In particular, USGS, will be responsible for the following:

- Assist with organization and coordination of thermal sensor deployment at multiple locations across the US;
- Assist with analysis of data obtained from deployed thermal sensors;
- Assist in review of buoy temperature retrievals and atmospheric propagation performed by RIT; and
- Collaborate with RIT on potential of incorporating updated calibration parameters into Landsat product production.

SINGLE-SOURCE JUSTIFICATION

DEPARTMENT OF THE INTERIOR SINGLE SOURCE POLICY REQUIREMENTS
Department of the Interior Policy (505 DM 2) requires a written justification which explains why competition is not practicable for each single-source award. The justification must address one or more of the following criteria as well as discussion of the program legislative history, unique capabilities of the proposed recipient, and cost-sharing contribution offered by the proposed recipient, as applicable.
For an assistance award to be made without competition, the award must satisfy one or more of the following criteria: (1) Unsolicited Proposal – The proposed award is the result of an unsolicited assistance application which represents a unique or innovative idea, method, or approach which is not the subject of a current or planned contract or assistance award, but which is deemed advantageous to the program objectives;

(2) Continuation – The activity to be funded is necessary to the satisfactory completion of, or is a continuation of an activity presently being funded, and for which competition would have a significant adverse effect on the continuity or completion of the activity;

(3) Legislative intent – The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient of purpose;

(4) Unique Qualifications – The applicant is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, voluntary support capacity, cost-sharing ability if applicable, technical expertise, or other such unique qualifications;

(5) Emergencies – Program/award where there is insufficient time available (due to a compelling and unusual urgency, or substantial danger to health or safety) for adequate competitive procedures to be followed.

(6) Cooperative Agreements - USGS Unique Authority cited at 43 U.S.C. 36d (Federal, State, and academic partners) or DOI Authority cited at 43 U.S.C. 1457b (not-for-profit organizations).

USGS did not solicit full and open competition for this award based the following criteria:

(4) UNIQUE QUALIFICATIONS
(6) COOPERATIVE AGREEMENTS – USGS Unique Authority cited at 43 U.S.C. 36d

Single Source Justification Description:

(4) The Rochester Institute of Technology (RIT) has performed Landsat thermal band validation and calibration work for over 20 years. During this time, they have developed and enhanced current state-of-the-art tools for monitoring and assessing surface temperature measurements from moored ocean buoys. Recently, RIT has also advanced field deployable surface viewing thermal radiometers for the measurement of land surface temperature. Another recent advancement from RIT is the development of the Split Window Method for deriving surface temperature from two thermal emissive responsive bands from an on-orbit sensor. This knowledge of radiative transfer compensation techniques is necessary to connect the top of atmosphere (Level 1) measurements to derived surface (Level 2) products. RIT's knowledge and expertise in the area of thermal emissive band validation and past experience working on Landsat thermal bands make it uniquely qualified to conduct this project.

STATUTORY AUTHORITY

USGS Unique Authority cited at 43 U.S.C. 36d (Federal, State and academic partners).

> § 36d. Cooperative agreements: Notwithstanding the provisions of the Federal Grant and Cooperative Agreement Act of 1977 (31 U.S.C. 6301–6308), the United States Geological Survey is authorized to continue existing, and on and after November 10, 2003, to enter into

new cooperative agreements directed towards a particular cooperator, in support of joint research and data collection activities with Federal, State, and academic partners funded by appropriations herein, including those that provide for space in cooperator facilities.