

**JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION (JOFOC)**  
**(In accordance with Federal Acquisition Regulation (FAR) 6.3 – Other than Full and Open Competition)**

**1. This document is a justification for other than full and open competition prepared by NASA's Goddard Space Flight Center (NASA's GSFC):**

NASA's GSFC proposes to enter into a contract with the Lamont-Doherty Earth Observatory of Columbia University (LDEO) to provide NASA with their unique expertise in glaciological gravity data acquisition and interpretations of glaciological gravity data over dynamic area of the ice sheets for the Operation Ice Bridge Greenland 2010 campaign (March-April, 2010). LDEO provided gravity data and interpretation in previous campaigns making the Greenland campaign a follow-on to the Antarctic campaign of 2009. Using the AIRgrav system, operated by Sander Geophysics Limited (SGL), the drupe flying that is necessary for the Ice Bridge campaign to support collection of LiDAR and radar measurements is achieved. The AIRGrav system is the only gravimeter worldwide than can collect data in draped flight mode, where the aircraft follows the surface terrain providing the highest resolution gravity over short wavelengths that are critical for the glaciological analysis done by LDEO. LDEO is the only known source providing gravity data at the resolution needed to conduct glaciological studies. This is used to determine the thickness of the water layer beneath floating ice tongues that cannot be achieved with ice-penetrating radar systems. This data from ice sheets is essential to enable NASA to understand ocean-ice interactions and the expected future rise in the sea level from ice sheets. This document justifies the determination for using other than full and open competition.

**2. The nature and/or description of the action being approved:**

This procurement action will require LDEO to coordinate with SGL, deploy, and operate the AIRgrav system for the Operation Ice Bridge Greenland 2010 aircraft campaign, which will begin in March 2010. The Greenland campaign is a series of flights designed to monitor the dynamic areas of the arctic sea ice and Greenland ice sheet during the data gap between the ICESat-1 and ICESat-2 Missions. The Cryosphere, including land ice and sea ice, is an essential area to monitor in a warming climate. The Greenland campaign will also measure the gravity field in order to estimate the thickness of the water layer beneath the floating ice tongues that are critical for the stability of ice sheets. This requirement also includes the processing of the gravity data by LDEO with their custom processing algorithms and release of Level 2 data, geolocated geophysical parameters, in this case geolocated gravity measurements to the Ice Bridge Science Team 3 months after the completion of the campaign.

**3. Description of the supplies or services required, including an estimated value:**

This procurement action will require the LDEO/SGL team to measure gravity data on approximately 175 hours of flight time during Operation Ice Bridge in Greenland 2010 using the only gravimeter that can fly on the NASA aircraft in draped flight mode with the resolution necessary to monitor the thickness of the water layer beneath floating ice tongues.

[REDACTED]

**4. Statutory authority permitting other than full and open competition:**

The statutory authority for this is 10 U.S.C. 2304 (c) (1), only one responsible source.

**5. A demonstration that the proposed contractor's unique qualifications or the nature of the acquisition requires use of the authority cited:**

LDEO has already gathered data for Operation Ice Bridge in Antarctica during the Fall 2009 campaign making the Greenland 2010 a follow-on campaign. The AIRGrav system was capable of imaging a sill beneath Pine Island Glacier that has been previously discovered by a British AutoSub, yet had never been mapped fully until the use of the AIRGrav system during the Antarctica campaign. The AIRgrav system is the only airborne gravimeter worldwide that is capable of producing accurate short wavelength gravity data under these flying conditions. No other sources can provide the instrumentation and scientist trained to interpret this data. Additionally, during 2007 a comprehensive series of tests was done during a National Science Foundation (NSF) funded project which demonstrated the unique capability of the AIRgrav system. The AIRgrav system was installed side by side with another gravimeter on a single aircraft and flown in test flights over the the Rocky Mountains where it produced better data than the competing system. This data was necessary for the detailed glaciological studies performed by LDEO and required by Operation Ice Bridge. After that the aircraft and gravimeter systems where flown in high latitude over the North Pole. The AIRGrav system was the only system capable of measuring gravity data North of 70° latitude. This is an additional requirement of Operation Ice Bridge [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Not using the LDEO team could result in the loss of a full year's worth of data monitoring in Greenland, which is an unacceptable delay for Operation Ice Bridge, especially at this critical time where in a warming climate the ice sheets are experiencing rapid dynamic changes that must be monitored and understood to predict global sea level rise in the coming century. No other source exists to conduct these highly accurate gravity measurements over ice shelves as well as ice sheets, [REDACTED]

[REDACTED]

**6. Description of the efforts made to ensure that offers are solicited from as many potential sources as practicable, including whether a notice was or will be publicized as required by (FAR) 5.202:**

A notice of GSFC's intent to enter into this new sole source agreement with LDEO was publicized on the NASA Acquisition Internet Service (NAIS) and in the Government-wide Point of Entry in accordance with FAR Part 5.201 on December 19, 2009. The 15 day response period has expired and no inquiries were made by other interested parties.

Currently, there are no other potential sources for this effort for Operation Ice Bridge, a high priority science data gap filler between the ICESat I Mission and the ICESat II Mission.

**7. A determination by the contracting officer that the anticipated cost to the Government will be fair and reasonable:**

A thorough analysis of the proposal will be conducted to ensure the resultant estimated cost is fair and reasonable. The analysis will include a thorough cost evaluation of all direct and indirect rates, materials, travel and other direct costs. A technical evaluation will be performed to validate their technical approach, skill mix and schedule.

**8. Description of the market research conducted, and the results, or a statement of the reasons market research was not conducted:**

No formal market research was conducted because the AIRGrav System used by LDEO is the only system gravimeter worldwide than can collect data in draped flight mode. These items cannot be purchased commercially.

As previously stated in Item 6 above, a Notice of Intent Synopsis was posted soliciting information about NASA'sGSFC intent to negotiate with LDEO for this requirement with an opportunity for potential sources to respond. No inquiries were received in response to the synopsis.

**9. Other facts supporting the use of other than full and open competition:**

Not Applicable

**10. Sources, if any, that expressed an interest, in writing, in the acquisition:**

A Notice of Intent to award a contract to LDEO was posted to the NAIS and Point of Entry on December 19, 2009. The synopsis was posted for 15 days and to date no responses have been received.

**11. The actions the Agency may take to remove or overcome any barriers to competition before any subsequent acquisition for the supplies or services required:**

The existing barrier to competition, which reflects unique knowledge and prior experience that is vital to the proposed effort, cannot be removed at this time. LDEO has years of experience in this area and utilizing another source would be a duplication of effort that would result in excessive schedule impacts [REDACTED]. This sole source is crucial to bridging the gap for ice data between ICESat I and ICESat II. Further support may be needed on a sole source basis prior to the launch of ICESat II. [REDACTED]