

ITEM OPPORTUNITY SYNOPSIS

Scouting Number:	2024-240
Name of the item to be scouted:	Radiosondes
State item to be used in:	None

Describe the Item:

<p>Please describe the item application/the end use of the item.</p>	<p>The National Oceanic and Atmospheric Administration (NOAA), Oceanic and Atmospheric Research (OAR), Earth Systems Research Laboratories (ESRL), Global Monitoring Laboratory (GML) conducts launches of balloon borne ozonesonde and water vapor/aerosol instruments from up to nine (9) sites around the world, launching three to four ozonesondes per month. A necessary component of the ozonesonde instrument is the meteorological radiosonde that interfaces with the unique ozonesonde electronics board to merge and transmit data during flight to the receiving station running SkySonde telemetry software. A radiosonde system equivalent in form fit and function to the InterMet Systems IMET-54 radiosonde, interfaced with the ozonesonde, water vapor, and aerosol instruments, is the only method for obtaining high-resolution vertical profile measurements with necessary meteorological data from surface through the stratospheric ozone layer to eventual balloon-burst at approximately 20 miles altitude.</p>
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Supplier Information:

Type of Supplier Being Sought (select from the list below):

Manufacturer	x
Contract Manufacturer	
Distributor	
Other (Please Specify)	

Reason for Scouting Submission (select from the list below)

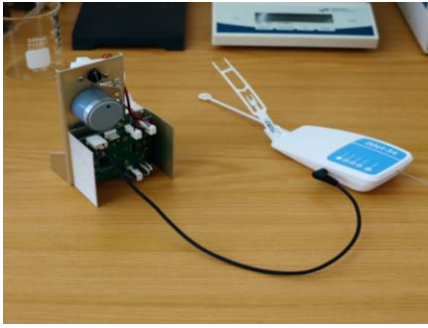
2nd Supplier	
Price	
Re-Shore	
Past supplier no longer available	
New Product Startup	
BABA	x
Other (Please Specify)	

Summary of Technical Specifications and Performance Requirements:

Describe the manufacturing processes (elaborate to provide as much detail as possible)	Unknown except as provided in attached specs sheet.
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<p>Provide dimensions / size / tolerances / performance specifications of the item</p>	<p>A radiosonde system equivalent in form fit and function to the InterMet Systems IMET-54 radiosonde is needed. The InterMet Systems IMET-54 radiosonde measures air temperature with a small glass bead thermistor. Its small size minimizes effects caused by long and short-wave radiation and ensures fast response times. The humidity sensor is a thin-film capacitive polymer that responds directly to relative humidity. Radiosonde height is provided by the integrated GNSS receiver, and pressure is derived from the reported altitude, combined with the temperature and humidity readings. Wind speed and direction reporting during the sounding is derived from the GNSS position information, with processing algorithms ensuring that wind vectors are not affected by swinging of the radiosonde beneath the balloon. Packet transmission uses error correction techniques to ensure reliable, accurate data reception for all expected link conditions. Measurements: Measurement cycle: 1 Hz Temperature Sensor: Glass bead Measurement range: +60°C to -100°C Resolution: 0.01°C Response time: still air / 6 m/s (1000 hPa): < 2 / < 1 sec Repeatability in Calibration: < 0.1°C Combined Uncertainty/Reproducibility: > 100 hPa, 0.3°C / 0.1°C; < 100 hPa, 0.5°C / 0.25°C Humidity Sensor: Capacitive polymer Measurement range: 0 to 100% RH Resolution: 0.01% Response time: @ 20°C, < 0.4 sec; @ 0°C, < 1 sec; @ -20°C, < 3.2 sec; @ -40°C, < 20 sec Repeatability in Calibration: < 2% Uncertainty: < 4% Reproducibility: < 3% Pressure: GNSS derived Measurement range: SFC to 3 hPa Resolution: 0.01 hPa Uncertainty/Reproducibility: 1100 - 400 hPa, < 1.0 / 0.6 hPa; 400 - 100 hPa, < 0.4 / 0.3 hPa; 100 - 3 hPa, < 0.2 / 0.2 hPa Geopotential Height: GNSS derived Measurement range: SFC to 50 km Resolution: 0.1 m Uncertainty: < 8 m Reproducibility: < 5 m Wind: GNSS derived Wind speed range: 0 to 180 m/s Wind speed resolution: 0.1 m/s Wind speed uncertainty: < 0.15 m/s Wind speed reproducibility: < 0.10 m/s Wind direction range: 0 to 360° Wind direction resolution: 0.01° Wind direction uncertainty: < 1° Wind direction reproducibility: < 1° Telemetry: Transmission type: Synthesized Maximum range: > 250 km Frequency band: 400.15 - 406 MHz Frequency stability: +/- 1 kHz Deviation, peak to peak: 4.8 kHz Output power: 150 mW Modulation: GFSK Data rate: 480 bit/s Operational Data: Battery: Lithium Operating time: > 180 minutes Weight: 80 grams Dimensions (L x H): 235 x 70 x 30 mm Calibration Stability: 2 years Power / control: Wireless or push button GNSS Receiver: Number of channels: 99 GNSS systems used: GPS + GLONASS + Galileo Cold start acquisition time: 35 sec (nominal) Reacquisition time: 1 s (nominal) Horizontal position accuracy: 2.5 m (CEP)</p>
<p>List required materials needed to make the product, including materials of product components, if applicable</p>	<p>Unknown except as provided in attached specs sheet.</p>
<p>Are there applicable certification requirements?</p>	
<p>Yes</p>	
<p>No</p>	<p style="text-align: center;">x</p>
<p>Please explain:</p>	
<p>Are there any applicable regulations that apply to the production of this item?</p>	
<p>Yes</p>	
<p>No</p>	<p style="text-align: center;">x</p>
<p>Please explain:</p>	
<p>Are there any other standards / requirements?</p>	
<p>Yes</p>	
<p>No</p>	<p style="text-align: center;">x</p>
<p>Please explain:</p>	
<p>NAICS CODES:</p>	
<p>NAICS 1</p>	<p>334519 Other Measuring and Controlling Device Manufacturing</p>
<p>NAICS 2</p>	
<p>Additional Comments:</p>	
<p>Additional technical comments:</p>	<p>Any offered product must be completely compatible (form, fit, and function) with the existing system, without the need for modification to the product or system.</p>
<p>Volume and Pricing:</p>	
<p>Estimated Potential Business Volume (i.e. #units per day, month, year):</p>	<p>One-time purchase</p>
<p>Estimated Target Price/Unit Cost Information:</p>	<p>Quantity of 100 IMET-54 radiosondes \$254.50 each</p>
<p>Delivery Requirements:</p>	
<p>When is it needed by? (Immediate, 30 days, 6 months, etc.)</p>	<p>Anticipate contract award by end of the current fiscal year (09/20/2024), with delivery by 90 days after date of award.</p>
<p>Describe packaging requirements (i.e. individually/group packaging, etc.)</p>	<p>N/A</p>
<p>Where will this item be shipped?</p>	<p>Boulder, CO</p>
<p>Additional Comments:</p>	

<p>Is there other information you would like to include?</p>	<p>This is a Simplified Acquisition, which has a shorter lead time to completion than an action over \$250,000.00. It is expected that this requirement will be awarded within the next 30-60 days, and any timely scouting (requested completed within 15 days from submission) would be appreciated to align with Simplified Acquisition requirements for posting and the Buy American Act Waiver process. Department of Commerce Point of Contact information for questions including BABA/Buy American compliance: Marcelle Loveday Director, Acquisition Policy & Workforce Office of Acquisition Management MLoveday@doc.gov Please copy scouting@nist.gov on all correspondence.</p>
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iMet-54-AS

403 MHz GPS Research Radiosonde Technical Data Sheet

This document serves to outline some key components, features and concepts used in the iMet-54 radiosonde - a leader in next-generation instrumentation for upper-air meteorology.

The iMet-54 research radiosonde offers all of the features of standard radiosondes plus an additional external data interface. This external interface allows third party intelligent sensors and research equipment (e.g. ECC ozonesondes) to interface to the radiosonde.

Temperature and Humidity

The iMet-54-AS measures air temperature with a small glass bead thermistor. Its small size minimizes effects caused by long and short-wave radiation and ensures fast response times. A super-hydrophobic coating minimizes wet-bulb effects.

The humidity sensor is a thin-film capacitive polymer that responds directly to relative humidity. An integrated temperature sensor minimizes errors caused by solar heating.

Pressure and Height

Radiosonde height is provided by the integrated GNSS receiver. Multi-constellation operation ensures a quick position fix during preparation and accurate altitude reporting during the sounding. Pressure is derived from the reported altitude, combined with the temperature and humidity readings.

Winds

Wind speed and direction reporting during the sounding is derived from the GNSS position information. Processing algorithms ensure that wind vectors are not affected by swinging of the radiosonde beneath the balloon.

Data Transmission

Packet transmission uses error correction techniques to ensure reliable, accurate data reception for all expected link conditions.

Data is transferred using an XData protocol, this data is then packaged together with the standard iMet-54 telemetry data and transmitted to the ground receiver system every second. The iMet54 research radiosonde offers a XData capacity of up to 316 bytes, which is over 6 times larger than the current typical industry offerings (50 bytes). The iMet-54 also supports the extended XData1 protocol which allows individual packet sizes in excess of 256 bytes to be received from attached instrumentation. Reception and processing by the ground system and D-Met software offers a range of output formats for analysis and further processing of the research data.

** Subject to ground station, balloon size and atmospheric conditions*

¹ All uncertainties expressed at a 95% confidence level

² For wind speeds > 3 m/s

Specifications subject to change without notice

Document 205400.1000-10



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MEASUREMENTS		WIND	GNSS derived
Measurement cycle	1 Hz	Wind speed range	0 to 180 m/s
		Wind speed resolution	0.1 m/s
TEMPERATURE SENSOR	Glass Bead	Wind speed uncertainty ¹	< 0.15 m/s
Measurement range	+60°C to -100°C	Wind speed reproducibility ¹	< 0.10 m/s
Resolution	0.01°C	Wind direction range	0 to 360°
Response time: still air/ 6 m/s (1000 hPa)	< 2 / < 1 sec	Wind direction resolution	0.01°
Repeatability in Calibration	< 0.1°C	Wind direction uncertainty ^{1,2}	< 1°
Combined Uncertainty/Reproducibility ¹		Wind direction reproducibility ¹	< 1°
> 100 hPa	0.3°C / 0.1°C		
< 100 hPa	0.5°C / 0.25°C		
		TELEMETRY	
HUMIDITY SENSOR	Capacitive Polymer	Transmission type	Synthesized
Measurement range	0 to 100% RH	Maximum range*	> 250 km
Resolution	0.01%	Frequency band	400.15 – 406 MHz
Response time		Frequency stability	+/- 1 kHz
@ 20°C	< 0.4 sec	Deviation, peak to peak	4.8 kHz
@ 0°C	< 1 sec	Output power	150 mW
@ -20°C	< 3.2 sec	Modulation	GFSK
@ -40°C	< 20 sec	Data rate	480 bit/s
Repeatability in Calibration	< 2%	OPERATIONAL DATA	
Uncertainty ¹	< 4%	Battery	Lithium
Reproducibility ¹	< 3%	Operating time	> 180 minutes
		Weight	80 grams
PRESSURE	GNSS derived	Dimensions (L x W x H)	235 x 70 x 30 mm
Measurement range	SFC to 3 hPa	Calibration Stability	2 years
Resolution	0.01 hPa	Power / control	Wireless or push button
Uncertainty/Reproducibility ¹		GNSS RECEIVER	
1100 - 400 hPa	< 1.0 / 0.6 hPa	Number of channels	99
400 - 100 hPa	< 0.4 / 0.3 hPa	GNSS systems used	GPS + GLONASS + Galileo
100 – 3 hPa	< 0.2 / 0.2 hPa	Cold start acquisition time	35 sec (nominal)
		Reacquisition time	1 s (nominal)
GEOPOTENTIAL HEIGHT	GNSS derived	Horizontal position accuracy	2.5 m (CEP)
Measurement range	SFC to 50 km		
Resolution	0.1 m		
Uncertainty ¹	< 8 m		
Reproducibility ¹	< 5 m		

* Subject to ground station, balloon size and atmospheric conditions

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² For wind speeds > 3 m/s

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