



**THIS IS NOT  
AN ORDER**

**REQUEST FOR BIDS/PROPOSALS COVERSHEET**  
**THE UNIVERSITY OF SOUTHERN MISSISSIPPI**  
**Procurement and Contract Services**  
**118 College Drive #5003, Hattiesburg, Mississippi 39406-0001**

**Date:** April 1<sup>st</sup>, 2022

**Bid No. 22-37**

THE UNIVERSITY OF SOUTHERN MISSISSIPPI is considering the purchase of the following item(s). We ask that you submit your bid and retain one copy for your files. Right is reserved to accept or reject any part of your bid. Your quotation will be given consideration if received in Bond Hall, Room 214 on or before:

2:00 p.m. CST

April 21<sup>st</sup>, 2022

**Buyer:** John Leggett

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

TERMS - Bidder should state terms of sale. Our terms are 2% ten days, net 45 days.

These terms will apply per Mississippi law.

AWARDING CONTRACT - Cash terms will not be used as a basis for awarding contracts; however, the University will accept cash discounts when earned.

**NOTE: If you cannot quote on the exact material shown, please indicate any exception giving brand name and complete specifications of any alternate. If additional space is required, use a separate sheet or letter of transmittal.**

| ITEM | QUANTITY | DESCRIPTION  | UNIT PRICE | TOTAL NET PRICE |
|------|----------|--|------------|-----------------|
|      |          | <p><b>DESCRIPTION</b></p> <p><b>Bid # 22-37</b></p> <p><b>Ocean-Met High-Resolution Measurement Buoy</b></p> <p><b>RFx: 3160005008</b></p> <p>PROPOSAL MUST BE RETURNED TO THE UNIVERSITY IN ACCORDANCE WITH THE SPECIFICATIONS. RFP NUMBER AND DATE OF BID OPENING MUST BE SHOWN ON THE OUTSIDE OF THE ENVELOPE IF USING THAT METHOD.</p> |            |                 |

We quote you as above-F.O.B. The University of Southern Mississippi. Shipment can be made in \_\_\_\_\_ days from receipt of order. DATE \_\_\_\_\_ TERMS \_\_\_\_\_  
Return quotation to Procurement Services at above address.

**Signature Required** \_\_\_\_\_

**THE UNIVERSITY OF SOUTHERN MISSISSIPPI  
PROCUREMENT SERVICES  
118 COLLEGE DRIVE #5003  
HATTIESBURG, MS 39406-0001**

**GENERAL TERMS, CONDITIONS AND INSTRUCTIONS FOR BIDS/PROPOSALS**

- 1.) Failure to examine any drawings, specifications, and instructions will be at bidder' s risk.
- 2.) Samples of items when called for must be furnished free of expense and if not destroyed in testing, will, upon request, be returned at the bidder' s expense. Request for the return of samples must be made within ten (10) days following opening bids. Each individual sample must be labeled with bidder' s name and manufacturer' s brand name and number.
- 3.) Bids must be signed and sealed with bidder' s name and address on the outside of the envelope, and the time and date of the bid opening and the bid file number shown in the lower-left corner of the packages; envelopes, express mailing labels, boxes, etc.
- 4.) In order for your bid to be considered, it must be received and time stamped in our office by 2:00 P.M. of the bid opening date. It is the responsibility of the vendor to ensure their bid is received within the appointed time. If your bid package is not received in Bond Hall, Room 214, by 2:00 P.M. of the bid opening date, it will not be considered.

If you are delivering your bid, you need to hand carry the bid package to:

The University of Southern Mississippi  
Procurement Services  
Bond Hall, Room 214  
Hattiesburg, Mississippi

If you are mailing your bid package via U.S. Postal Service, mail to:

The University of Southern Mississippi  
Procurement Services  
118 College Drive #5003  
Hattiesburg, MS 39406-0001

If you are express mailing your bid package via Federal Express or UPS, or any other delivery service which requires the use of a physical address, deliver to:

The University of Southern Mississippi  
Receiving Department  
2609 West 4<sup>th</sup> Street  
Hattiesburg, MS 39401

- 5.) Bids or proposals shall not be modified, corrected, altered, or amended after the specified closing time and the opening of such bids, unless otherwise noted in the request for bids or proposals.
- 6.) The University of Southern Mississippi reserves the right to reject any and all bids, to waive any informality in bids, and unless otherwise specified by the bidders, to accept any items on the bid. If the bidder fails to state the time within which bids must be accepted, it is understood and agreed that The University of Southern Mississippi shall have 60 days to accept. The University of Southern Mississippi reserves the right to make an award to this bid on an all or none basis, or on a line by line basis, whichever serves the best interest of The University of Southern Mississippi.
- 7.) Contracts and purchases will be made or entered into with the lowest, responsible bidder meeting specifications.
- 8.) A written purchase order or contract award mailed or otherwise furnished to the successful bidder within the time of acceptance specified in the Invitation for Bid results in a binding contract without further action by either party. The contract shall not be assignable by the vendor in whole or in part without the written consent of The University of Southern Mississippi.
- 9.) Bid files may be examined during normal working hours by bid participants. Non-participants will be prohibited from obtaining any information relative to the bid until the official award has been made.
- 10.) If purchase orders or contracts are canceled because of the awarded vendor's failure to perform or request for price increase, that vendor shall be removed from our bidders' list for a period of 24 months.
- 11.) No addendum will be issued within a period of two (2) working days prior to the time and date set for the bid opening. Should it become necessary to issue an addendum within the two-day period prior to the bid opening, the bid date will be reset giving bidders ample time to answer the addendum.
- 12.) Alternate bids, unless specifically requested or allowed, will not be considered.
- 13.) Bid openings will be conducted open to the public. However, they will serve only to open the bids. No discussion will be entered into with any vendor as to the quality or provisions of the specifications, and no award will be made either stated or implied at the bid opening. After the close of the bid opening meeting, the bids will be considered to be in the evaluation process and will not be available for review by bidders. Proposal openings are not required to be open to the public; however, the resulting award is open for public inspection.
- 14.) Prices quoted shall be firm for the term of the contract or for the stated time of

acceptance.

- 15.) The bidder understands that The University of Southern Mississippi is an equal opportunity employer and, therefore, maintains a policy which prohibits unlawful discrimination based on race, color, creed, sex, age, national origin, physical handicap, disability, or any other such discrimination; and the bidder, by signing this bid, agrees during the term of agreement that the bidder will strictly adhere to this policy in its employment practices and provision of products or services.
- 16.) Bidders must upon request of The University of Southern Mississippi furnish satisfactory evidence of their ability to furnish products or services in accordance with the terms and conditions of these specifications. The University of Southern Mississippi reserves the right to make the final determination as to the bidder's ability.
- 17.) Questions or problems arising from bid procedures should be directed to the Buyer listed on the solicitation at:

The University of Southern Mississippi  
118 College Drive #5003  
Hattiesburg, MS 39406-0001  
Phone: (601) 266-4131
- 18.) All items must equal or exceed the specifications listed. The absence of detail specifications or the omission of detail description shall be recognized as meaning that only the best commercial practices are to prevail and that only first quality materials and workmanship are to be used.
- 19.) It is the intent of the specifications to obtain a product that will adequately meet the needs of the user while promoting the greatest extent of competition that is practicable. It is the responsibility of the prospective bidder to review the entire Invitation to Bid packet and to notify The University of Southern Mississippi if the Specifications, Instructions, General, or Special Conditions are formulated in a manner which would unnecessarily restrict competition.
- 20.) It shall be incumbent upon the bidders to understand the specifications. Any requests for clarifications shall be in writing and shall be submitted to our Procurement Services office at least five (5) days prior to the time and date set for the bid opening, unless otherwise noted in the bid or proposal specifications.
- 21.) The minimum specifications are used to set a standard and in no case are used with the intention to discriminate against any manufacturer. Bidders should note the name and the manufacturer and model number of the product they propose to furnish and submit descriptive literature.
- 22.) Trade names, brand names, and/or manufacturer's information used in these specifications are for the purpose of establishing quality, unless otherwise noted. Bids on

products of other qualified manufacturers are acceptable, provided they are demonstrated as equal to those specified in construction, design and suitability. Each bidder shall submit with his bid a complete brochure with pictures on each item and shall point out specifically any deviations from the specified items. Failure to do so may disqualify any bid. Please bid as specified or an approved equal.

- 23.) A copy of the manufacturer's standard guarantee/warranty shall accompany and become a part of this bid.
- 24.) There are no federal or state laws that prohibit bidders from submitting a bid lower than a price or bid given to the U.S. Government. Bidders may bid lower than U.S. Government contract price without any liability as The University of Southern Mississippi is exempt from the provisions of the Robinson-Patman Act and other related laws. In addition, the U.S. Government has no provisions in any of its purchasing arrangements with bidders whereby a lower price to The University of Southern Mississippi must automatically be given to the U.S. Government.
- 25.) All invoices, unless noted otherwise, are to be billed to:
- The University of Southern Mississippi  
Accounts Payable  
118 College Drive #5104  
Hattiesburg, MS 39406-0001
- 26.) All equipment bid shall be of current production and of the latest design and construction.
- 27.) Where all, or part(s), of the bid is requested on a unit price basis, both the unit prices and the extension of the unit prices constitute a basis of determining the lowest responsible and responsive bidder. In cases of error in the extension of price, the unit price will govern.
- 28.) All bidders/respondents are on notice that USM is a public agency of the State of Mississippi and is subject to the Mississippi Public Records Act, Miss. Code Ann. § 25-6-1, *et seq.* If a public records request is made for any information provided to the USM pursuant to this solicitation, USM shall promptly notify the Disclosing Party of such request. The Disclosing Party shall promptly institute appropriate legal proceedings to protect its information. No party to this agreement shall be liable to the other party for disclosures of information required by court order or required by law. For clarity, documents are not considered public record unless and until an award is made from such solicitation.
- 29.) Should the University of Southern Mississippi close due to inclement weather conditions, or any other unforeseen events on the bid opening date, sealed bids will open the following business day at the same time and location.

- 30.) As an alternative to traditional sealed bids in envelopes, the University of Southern Mississippi is capable of receiving electronic bid responses. While this option is available, it is not required and we ask that all potential respondents keep in mind that with any electronic system there could be delays or glitches with the submission process; therefore the University highly encourages traditional sealed bids which are either mailed or submitted in person. Should a vendor choose to submit their response electronically, please follow the instructions below using the following website: [https://www.ms.gov/dfa/contract\\_bid\\_search/Home/Sell](https://www.ms.gov/dfa/contract_bid_search/Home/Sell). On this site you will find helpful links to procurement opportunities, as well as a link to supplier registration. If not already registered in this system, potential bidders will first need to click on 'Supplier Registration' and follow the steps outlined (a one-time process). Once registered, they can return to the original website and click on 'Procurement Opportunities' where they can either search by keyword for the bid they desire to respond to or leave the search box blank and click 'Search' for a listing of all current bids and proposals for the various State of Mississippi offices.

With regard to construction bids, there is one additional step required during the bid submission process. Along with the bid response and other attachments, contractors will also need to attach their Certificate of Responsibility (COR), or a statement that the bid enclosed does not exceed Fifty Thousand Dollars (\$ 50,000.00). If their COR or such statement is not attached, the bid will be invalid and not considered.

**AA/EOE/ADA**



THE UNIVERSITY OF  
**SOUTHERN**  
**MISSISSIPPI**

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**SYSTEM DESIGN SPECIFICATIONS FOR AN OCEAN-MET HIGH-  
RESOLUTION MEASUREMENT BUOY**

**Bid # 22-37**

**The University of Southern Mississippi**

*Prepared by Steve Stanic and Landry Bernard*

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# **SPECIFICATIONS FOR AN OCEAN-MET MEASUREMENT BUOY**

## **I. Background**

Over the next several decades there will be an increase in the development and use of unmanned maritime technologies by the Navy, NOAA, and other commercial and educational and entities. Thus, there is a need for cost effective methods and instrumentation systems that can support the demonstration and evaluation of these emerging unmanned maritime systems and their supporting advanced technologies.

The University of Southern Mississippi (USM) has received funding to purchase a COTS (commercial off the shelf) integrated ocean-met buoy system (OMBS). Data from this measurement system will be used to develop and manage a comprehensive understanding of the water space environment in areas off the Mississippi coast. This water space cube is be used for training, testing, and evaluating (TT&E) the performance of numerous unmanned maritime systems.

## **II. Purpose**

The University of Southern Mississippi (USM) in has developed the environmental measurement framework, data processing, visualization products, and ocean measurement systems required for the testing and performance evaluation of these new and emerging unmanned maritime systems.

This document contains the minimum requirements for the design of an advanced integrated OMBS. This system with installed sensors will conduct autonomous environmental measurements including meteorological, oceanographic, and climate measurements at a measurement accuracy, range, resolution, and sampling regimens as determined by the applicable USM program.

These observed parameters from the Ocean/Met buoy will be transmitted to shore via satellite communications. USM will decoded these data and send it to GCOOS for their Quality Assurance (QA) and Quality Control (QC) checking. Once these QA/QC checks are completed these data will be sent to the NDBC and then to the Global Telecommunication System (GTS) for further dissemination to our numerical modeling partners at USM as well as partners within the Navy and NOAA.

## **III. General Performance Specifications**

The OMBS shall obtain environmental data from both the atmosphere and underwater environments in both the coastal and the offshore deeper waters. The OMBS sensors shall continuously map these two environments and transmit the data to shore via Iridium (RUDICS) satellite connections.

This OMBS shall have a customizable payload section and carry a buoy controller system that will interface with the data transmission systems. This data logger and its computer system shall



provide full control of all buoy functions, profiling measurements, and sensor data in near real time. These include measurement system configurations, measurement parameters, data processing, data transmission, and scheduling.

To conduct this mission the OMBS shall also incorporate a single integrated water column profiling system that shall measure the temperature, conductivity, turbidity, dissolved oxygen, and chlorophyll as a function of depth and time. The OMBS shall also incorporate a downward looking ADCP to measure current profiles as a function of time and depth. Systems to continuously measure atmospheric temperature, pressure, wind vectors, and GPS coordinates shall also be fitted to the top of the OMBS. These data outputs and measurement frequencies shall be managed by the intelligent buoy controller system. The OMBS shall have the capability to transmit all the data using a satellite communication systems and protocols.

On board batteries shall use solar panels and a wind turbine for continuous charging. Radar reflectors, flashing light, and optical retroreflectors shall be part of the buoy's security systems. These security systems shall meet USCG specifications.

The OMBS shall use a single point mooring system and be sufficiently robust to be operated and maintained in the field with minimal technical support. The buoy system shall have a modular and open design as to be customizable by USM for future use.

To meet program requirements the OMBS shall be delivered to USM within 4-months after contract award.

The delivery arrangements and transportation costs shall be the vendor's responsibility. The OMBS shall be delivered to USM's Marine Research Center, 1030 30th Ave Gulfport, MS 39501

The following minimum specifications shall ensure that the OMBS will perform the tasks necessary to satisfy the project's objectives.

#### **IV. Required Specifications**

##### **A. Buoy Design and Specifications**

1. The wet section shall be constructed of 316 stainless steel and titanium. The air section shall be constructed of painted aluminum and the buoyancy shall be provided by medium density UV- stabilized virgin polyethylene.
2. The diameter of the OMBS shall be 2.2 m (7.2 ft.) and the weight of the OMBS shall be approx. 1080 kg, (2400 lbs.)
3. The OMBS shall have at a 4-leg lower support stand.
4. The OMBS shall have instrumental support super structure that is 3.5m to 4.5m above the water line.

5. A weather station shall be mounted atop this structure.
6. The buoy shall have a high-resolution compass that will be synced to all other sensor systems.
7. The OMBS shall have at least 2-certified lifting points.
8. The OMBS shall have at least 4-open center wells where a profiling winch and ADCP will be mounted. The additional open wells will be used for future in water sensor deployments by USM.
9. OMBS shall have radar reflectors, flashing light, and optical retroreflectors. These systems shall meet current USCG standards.
10. The OMBS shall use a single point mooring configuration.
11. The OMBS shall have an automatic profiling winch system that shall use a single multichannel logging system that will include CTD, turbidity, dissolved oxygen, and chlorophyll sensors to measure the temperature, conductivity, turbidity, dissolved oxygen, and chlorophyll as a function of depth and time.
  1. The winch shall have at least a 200m (660ft) long cable and be fully automated.
  2. The winch will be made of 316 stainless steel.
  3. Power requirements shall be 12 VDC and use 150 watt max.
  4. The profiling speed shall be approximately 1 ft. /sec.
  5. The winch shall have the capability to conduct (controlled by the data logger) different programmable missions, an insert delays between profiles.
  6. The winch system shall pause for several seconds after the sensors enter the water. This will allow the sensors to come up to the surrounding equilibrium values before profiling.
12. A method that inhibits biofouling shall be incorporated into the instrumentation wells.
13. The vendor shall provide a mooring diagram for OMBS deployments in 76m (100ft) to 46m (250ft) of water depth.

**B. Sensor systems**

1. Mounted atop the OMBS buoy shall be a weather system that will monitor the atmospheric conditions at and around OMBS. The following tables outline the minimum measurements specifications for this weather station and its sensor systems.

| <b>General Whether System Specifications</b> |                          |
|--|--------------------------|
| <b>Property</b>                              | <b>Description/Value</b> |
| Housing protection class                     | IP65/IP66                |

|                            |  |
|----------------------------|--|
| Operating temperature      | -30 <sup>0</sup> C to 60 <sup>0</sup> C              |
| Storage temperature        | -30 <sup>0</sup> C to 70 <sup>0</sup> C              |
| Self-diagnostic            | Separate messages to validate measurement status     |
| Start-up                   | Automatic, < 5 seconds from power up to first output |
| Operating voltage          | 6 to 24 VDC  |
| Maximum current            | 15 mA @ 5 VDC  |
| Digital outputs            | SDI-12, RS-232, RS-485, RS-422                       |
| Communication Protocols    | SDI-12 v1.3, ASCII and NMEA 0183 v3.0                |
| <b>Barometric Pressure</b> |  |
| <b>Property</b>            | <b>Specifications</b>                                |
| Range                      | 800 ... 1100 hPa                                     |
| Accuracy                   | +/- 1 hPa  |
| Output resolution          | 0.1 hPa, 10 Pa, .001 bar, 0.1 mmHg, 0.01Hg           |

|                        |   |
|------------------------|---|
| <b>Air Temperature</b> |   |
| <b>Property</b>        | <b>Specifications</b>                   |
| Range                  | -40 <sup>0</sup> C to 60 <sup>0</sup> C |
| Accuracy               | +/- 2 <sup>0</sup> C                    |
| Output resolution      | 0.1 <sup>0</sup> C                      |

|                   |                         |
|-------------------|-------------------------|
| <b>Wind Speed</b> |                         |
| <b>Property</b>   | <b>Specifications</b>   |
| Range             | 0 to 62 m/s             |
| Accuracy          | +/- 3 m/s or 3%         |
| Output resolution | 0.1 m/s                 |
| Response time     | .30 s                   |
| Available outputs | Average, Max., and Min. |

|                       |                         |
|-----------------------|-------------------------|
| <b>Wind Direction</b> |                         |
| <b>Property</b>       | <b>Specifications</b>   |
| Azimuthal range       | 0 to 359 <sup>0</sup>   |
| Accuracy              | +/- 5 <sup>0</sup>      |
| Output resolution     | 1 <sup>0</sup>          |
| Available outputs     | Average, Max., and Min. |
| Response time         | 0.30s                   |

2. The following tables outlines the minimum required specifications for the integrated single measurement sensor system that is fitted to the profiling winch system and is controlled by the OMBS's computer system. This CTD, turbidity, dissolved oxygen and chlorophyll profiling system shall simultaneously measure the temperature, conductivity, turbidity, dissolved oxygen, and chlorophyll as a function of time and water depth.

|                                   |                          |
|-----------------------------------|--------------------------|
| <b>General CTD Specifications</b> |                          |
| <b>Physical</b>                   | <b>Description/Value</b> |
| Storage                           | 240M readings            |
| Communications                    | USB-C or RS -232/485     |

|                             |                |
|-----------------------------|----------------|
| Minimum sensor depth rating | 200m           |
| Sampling period             | 1 s to 24 hr.  |
| <b>Conductivity</b>         |                |
| Range                       | 0-90mScm       |
| Resolution                  | 0.002 mS/cm    |
| Response Time               | ~25 ms         |
| Accuracy/Precision          | .004mS/cm      |
| <b>Temperature</b>          |                |
| Range                       | -5 °C to 35 °C |
| Accuracy                    | +/- 0.005 °C   |
| Resolution                  | +/- 0.001 °C   |
| Time constant               | ~ 100 ms       |
| <b>Dissolve Oxygen</b>      |                |
| Range                       | 0-425 µmol/L   |
| Response Time               | <1 s           |
| Resolution                  | 0.02 µmol/L    |
| Accuracy                    | +/- 2.0 µmol/L |
| <b>Turbidity</b>            |                |
| Range                       | 0-1600 NTU     |
| Response Time               | < 0.8 s        |
| Resolution                  | 0.02NTU        |
| Accuracy                    | 0.3 NTU        |
| <b>Chlorophyll</b>          |                |
| Range                       | 0-500 µg/L     |
| Precision                   | +/- 0.05 FS    |
| Resolution                  | 0.015 µg/L     |
| Response Time               | ~200 ms        |

3. The following table outlines the minimum required specifications for an ADCP profiling sensor system. This ADCP shall be mounted in one of the instrument wells and measure the water current profiles as a function of time and water depth.

| <b>ADCP</b>         |  |
|---------------------|--|
| <b>Property</b>     | <b>Specifications</b>                        |
| Range               | 150m   |
| Accuracy            | 0.5% of water velocity relative to ADCP      |
| Resolution          | 0.2 cm/sec                                   |
| Ping rate           | 6 Hz to 16 Hz                                |
| Available outputs   | Average, Max., and Min.                      |
| Vertical resolution | 1 m  |
| Dynamic range       | 60 dB  |
| Precision           | +/- 1.5 dB                                   |
| Beam angle          | 25°  |
| Configuration       | 4-beam convex, 5 <sup>th</sup> beam vertical |
| Depth rating        | 200m   |

|                       |  |
|-----------------------|--|
| Compass               | Accuracy 2 <sup>0</sup> RMS, resolution 0.1 <sup>0</sup> max |
| Pressure sensor range | 200m, accuracy 0.1% FS                                       |

### C. Intelligent controller and processing system specifications

1. The buoy operating and control system shall work on a Linux platforms and have a flexible architectural configuration and modular architecture that easily allows the use of new instrument types or models.
2. The operating system shall provide a modular-driver based control system for monitoring all of the buoy's instruments, its sub-components, and electrical consumption. This shall include all weather station and in water measurement systems.
3. The intelligent control system shall have the capability to control all buoy and instrument sensors functions from shore.
4. Each instrument port shall be individually configured and controlled by the control system's independent sampling regimes.
5. The buoy shall have sufficient battery power to efficiently run all the systems that will be part of the OMBS for 1 year.
6. The buoy shall have both solar and wind charging systems.
7. The control system shall configure all weather and in water data files to be transmitted over satellite data links.
8. The controller shall provide intelligent controlling of the profiling winch to avoid profiler tangling with the mooring or other lines.
9. The buoy controller and data ports shall be individually configurable to allow the addition of any new instrumentation types.
10. The sampling schedule or duty cycle of any attached instrument shall have the capability to be modified through a browser independent web interface.
11. The operating system shall have individual instrument on/off, individual instrument power consumption monitoring, and leak detection.
12. The buoy data storage shall have a SQL database configuration.
13. The controller shall have the capability to integrate third party processes.
14. The buoy's control system shall use Iridium's RUDICS service.

15. The vendor shall provide mission planning software packages that initialize the sensors and data logging systems.
16. In order to control power consumption the control system shall be designed around very low power systems.
17. The control system shall configure all weather and in water data files to be transmitted over satellite data links.

**D. Sensor Option1:** The following specifications are for an optional buoy security camera system.

- The camera system shall have a 360<sup>0</sup> field of view
- The camera shall be powered by batteries and charged by integrated solar panels
- The camera system shall have its own iridium data connection
- Camera shall have the capability to be event triggered from shore
- The camera shall transmit a 360<sup>0</sup> panoramic image to shore at a predetermined frequency or when triggered from shore.
- The cameras a shall have the capability to store images
- The camera shall have the capability to transmit its stored images using a WiFi connection.

**E. Automatic Identification and Tracking System (AIS)**

An Automatic identification and tracking system (AIS) shall be installed on the buoy. The AIS system shall have following minimum specifications:

- AIS Transponder shall have a NMEA0183 GPS input port
- AIS output shall be in NMEA0183
- Power consumption shall be below 2W

The transponder shall transmit continuously to its surroundings as an autonomous device. The AIS receiving system shall record inbound messages every 5-15 minutes and then transmit this data on the hour. This system shall be an integral part of the buoy's operating system.

**F. Satellite Telemetry System**

The OMBS shall support telemetry using a satellite modem. The data logger shall report environmental measurements and system status through this satellite modem connection. The modem power shall be controlled by a solid state relay in the buoy controller to turn off the modem when they are not transmitting.

## **G. System Management**

All OMBS equipment, sonars, and communication equipment shall be managed to avoid interference between systems.

## **H. Software**

The vendor shall provide windows based on shore side data display software in both a tabular and graphical format.

## **V. Training**

The vendor shall provide 3-days of training on the operation, software, maintenance and troubleshooting of the OMBS. This must include mission planning and basic mission data analysis and display. This training will take place at the USM facility located at Stennis Space Center MS.

## **VI. Proof of Performance**

The vendor shall provide a proven record of the OMBS's measurements and operating system performance. The vendor needs to provide references where this OMBS and its operating system in a substantially similar configuration as specified above has operated successfully within the last 3 years. The above requested information will assist USM in determining the bidder's capability of meeting these requirements.

## **VII. Warranty Services**

At a minimum, the Contractor shall provide software/hardware warranty support for one year from acceptance. Longer warranty periods are preferred. The Vendor shall agree to repair, adjust, and/or replace (as determined by the University to be in its best interest) any defective materials at the Vendor and/or manufacturers' sole cost. The University will incur no costs for service or replacement of materials during the warranty period. The Vendor will be the sole point of contact for warranty issues.

## **VIII. Documentation**

The Contractor shall provide Operations and Maintenance manuals to USM. Documentation provided shall include, but not be limited to the following:

- A. Theory of operation
- B. Operating procedures
- C. Interfacing instructions with connector pin outs
- D. Troubleshooting and maintenance procedures
- E. IPB (Isometric Parts Breakout) drawings showing how all parts, especially mechanical parts, relate to one another.
- F. Documentation of the various software packages.
- G. All sensor documentation and manuals.

## IX. Copies

Bid responses should be submitted on the cover sheet provided. At least one (1) signed original copy of the bid response MUST be provided. The University requires a portable electronic virus/malware free copy (thumb drive) of the bid response from the responding Vendor to be included in the bid response package. If an electronic copy is not included, the University reserves the right to request an electronic copy of the exact bid response prior to review of the bid.

## X. Mandatory Legal Provisions

- Any provisions disclaiming implied warranties **shall** be null and void. See Mississippi Code Annotated Sections 11-7-18 and 75-2-719(4). The Vendor **shall not** disclaim the implied warranties of merchantability and fitness for a particular purpose.
- The Vendor **shall not** limit liability for claims related to the following items:
  - Infringement issues;
  - Bodily injury;
  - Death;
  - Physical damage to tangible personal and/or real property; and/or
  - The intentional and willful misconduct or negligent acts of the Vendor and/or Vendor's employees or subcontractors.
- All requirements that the University pay interest (other than in connection with payments later than 45 day) are deleted.
- Should any of the terms and conditions in the purchase contract conflict with the laws of the State of Mississippi, the laws of the State of Mississippi **shall** supersede and govern. A revision of the terms and conditions will be required to ensure compliance with Mississippi state law.
- The University **shall not** pay any attorney's fees, prejudgment interest or the cost of legal action to or for the Vendor.

## XI. Payment

The currency used for payment of costs will be in United States dollars.

State law requires that the University receive an **original invoice** from the Vendor and that payment of the invoice is processed **within 45 days of receipt** (Miss Code 31-7-305). This State law authorizes the issuance of payment after receipt of the invoice and receipt, inspection, and approval of the goods and/or services. The intent is that goods and services must be received, inspected, and accepted prior to payment.

The invoice should be on the Vendor's official stationary.



## **XII. USM Terms and Conditions**

Unless written exception is provided in the Bid, the winning Vendor agrees to be bound by the USM Terms and Conditions, which are incorporated herein, and may be found at <https://www.usm.edu/procurement-contract-services/usm-terms-and-conditions>