

# Market Consultation (RFQ)

## Multi-Sensor Multi-Buoy Array for Air–Lake Interaction Research on Lake Victoria

**Request made by;** Delft University of Technology (TU Delft), Faculty of Civil Engineering and Geosciences

**Purpose.** This Request for Information/Quotation (market consultation) verifies which suppliers can deliver a fully integrated multi-sensor buoy platform that meets the minimum (knock-out) requirements for the ERC QUASI research campaign on Lake Victoria. The consultation outcome will inform a subsequent award decision and may be followed by a voluntary ex-ante transparency notice (VEAT).

**Publication.** This market consultation will be published on TenderNed. Known suppliers will be notified to ensure an open and transparent dialogue.

**Important.** The requirements marked as KO are non-negotiable minimum requirements. Suppliers MUST explicitly indicate compliance per requirement. Deviations from KO requirements will be recorded and will lead to non-consideration in any potential follow-up procedure.

### 1. Timeline

Publication on TenderNed	29-01-2026
Deadline for questions	25-02-2026
Deadline for responses (market consultation)	25-02-2026
Optional clarification meetings	TBD
Intended next step	Potential VEAT + direct award if exclusivity demonstrated

### 2. Background & Scope

TU Delft prepares the procurement of six (6) customised moored research buoys for a 12–18 month deployment on Lake Victoria (start Spring 2027). Each buoy combines meteorological, wave and lake sensors, autonomous logging, power and dual telemetry. The supplier delivers equipment, full integration of third-party sensors, documentation, calibration certificates, FAT/SAT, and remote support.

### 3. Minimum (KO) Requirements

1. Fully integrated multi-sensor platform on a single data/logging system (met-station, radiation, rainfall, waves, subsurface temperature chain, PAR, and ADCP).
2. Proven integration of an Acoustic Doppler Current Profiler (e.g., Nortek Signature-class or equivalent) on a surface buoy, including motion compensation and real-time current profiling to ~20 m.
3. Dual telemetry: 4G with 2G fallback AND satellite (Iridium or equivalent) with geofencing/watch-circle alerts and store-and-forward resilience.
4. Built-in vendor portal for real-time data visualisation, device health and data export, with open API (REST/JSON/CSV/NetCDF). No recurring licence fees for core portal functionality over lifetime of the device.
5. Demonstrable deployments of autonomous research buoys in African waters or comparable tropical freshwater environments in the last 5 years, including references.
6. Delivery & implementation capability within project timeline (latest: 2026 completion of build/integration and acceptance) enabling deployment in Spring 2027.
7. Solar power system dimensioned for  $\geq 30$  days autonomy under low-insolation conditions; full power protection (over/under-voltage, charge control).
8. Navigation light compliant with IALA (e.g., 1–2 NM class) with IP68 enclosure.
9. Sensor-agnostic architecture with standard open interfaces; PTM-style plug-and-play integration for third-party sensors (no vendor lock-in).
10. Internal cable routing for underwater instruments (no external cable runs along the float).
11. Scientific-grade accuracy for all sensors (research-quality specifications; navigational/ operational-only systems are insufficient).

### 4. Technical Requirements (functional detail)

#### 4.1 Buoy & Structure

- Freshwater tropical lake deployment  $\geq 12$ –18 months; robust, low-maintenance materials.
- Mast for meteorology at suitable height with minimal flow distortion.
- Watertight electronics housing; transportable & deployable from small vessels.

#### 4.2 Mooring

- Supplier-provided mooring design (line, chain, swivels, anchors) sized for ~40 m depth and local wave/current conditions.

### **4.3 Power**

- Solar + battery;  $\geq 30$  days autonomy (low insolation); protections for safe operations.

### **4.4 Data Logging & Time**

- One integrated logger sampling all sensors; GPS time synchronisation; synchronous sampling across sensors.

### **4.5 Sensors (Primary met & backup met)**

- Primary met: wind (ultrasonic), air temperature (shielded), RH, pressure, rainfall, downwelling SW & LW radiation, surface water temperature.
- Backup met: fully separate integrated met-station delivering wind speed and direction, T/RH, pressure.

### **4.6 Waves**

- Real-time  $H_s/T_p/T_m$  and non-directional spectrum minimum; directional waves desirable.

### **4.7 Lake Temperature & Stratification**

- Temperature chain  $\geq 5$  depths (e.g., 0.1 m, 0.5 m, 2 m, 10 m, 20 m) with accuracy for diurnal warm layers.

### **4.8 PAR**

- Subsurface PAR for radiation penetration.

### **4.9 ADCP**

- Real-time multi-cell current profiles to  $\sim 20$  m; integration on buoy; motion compensation.

### **4.10 Telemetry**

- 4G with 2G fallback + satellite; store-and-forward; GPS position; geofencing alerts.

### **4.11 Data Portal & API**

- Web dashboard, device health, downloads; API (REST/JSON/CSV/NetCDF); optional compatibility with Delft-FEWS.

## 5. Evidence Requirements & Non-Conformities

Suppliers MUST provide for each KO requirement:

- (a) a clear statement of compliance (Fully / Partially / Non-compliant) and
- (b) verifiable evidence (datasheets, references, links, deployments, client letters).

Use the following compliance matrix:

KO#	Requirement (summary)	Compliant (Yes/Partial/No)	Evidence / Reference	Comments	Lead-time impact (Y/N)
KO1	Fully integrated multi-sensor platform on a single data/logging system (met, radiation, rainfall, waves, subsurface temperature chain, PAR, and ADCP).				
KO2	Proven integration of an Acoustic Doppler Current Profiler (e.g., Nortek Signature-class or equivalent) on a surface buoy, including motion compensation and real-time current profiling to ~40 m.				
KO3	Dual telemetry: 4G with 2G fallback AND satellite (Iridium or equivalent) with geofencing/watch-circle alerts and store-and-forward resilience.				
KO4	Built-in vendor portal for real-time data visualisation, device health and data export, with open API (REST/JSON/CSV/NetCDF). No recurring licence fees for core portal functionality over lifetime of the device.				

KO5	Demonstrable deployments of autonomous research buoys in African waters or comparable tropical freshwater environments in the last 5 years, including references.				
KO6	Delivery & implementation capability within project timeline (latest: 2026 completion of build/integration and acceptance) enabling deployment in Spring 2027.				
KO7	Solar power system dimensioned for $\geq 30$ days autonomy under low-insolation conditions; full power protection (over/under-voltage, charge control).				
KO8	Navigation light compliant with IALA (e.g., 1–2 NM class) with IP68 enclosure.				
KO09	Sensor-agnostic architecture with standard open interfaces; PTM-style plug-and-play integration for third-party sensors (no vendor lock-in).				
KO10	Internal cable routing for underwater instruments (no external cable runs along the float).				
KO11	Scientific-grade accuracy for all sensors (research-quality specifications;				

	navigational/operational-only systems are insufficient).				
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## 6. Vendor Experience & References

### Please include:

- At least 1 reference (last 5 years) of autonomous research buoy deployments that include ADCP + met + wave and real-time telemetry.
- African (or comparable tropical freshwater) deployments with contactable references.

## 7. Delivery, Warranty & Support

- Lead times for complete system build/integration, FAT, logistics and SAT (latest completion Feb 2027).
- Warranty terms and spares strategy for 18 months field operation.
- African on-site support capability (within 15 days) including training and maintenance visits.

## 8. Questions Suppliers MUST Answer

12. Confirm each KO requirement with evidence. Specify any partial compliance and required engineering.
13. Provide a high-level system architecture diagram showing sensor, logger, power and telemetry integration.
14. Describe store-and-forward and geofencing alert capabilities (cellular + satellite).
15. State portal licence model (confirm no recurring licence fees for core portal features).
16. Indicate expected CAPEX ranges per buoy (non-binding), and OPEX for 18 months (maintenance, data).
17. Indicate operational (EU/African) support structure enabling possible rapid intervention on-site, time in calendar days, during build, FAT and SAT.
18. Indicate local presence in Africa (own entity or formal affiliate) enabling on-site support, in calendar days around Lake Victoria, incl. logistics routes.
19. Indicate possibilities in maintenance(plans), servicing, repairs and pricing.

## 9. Legal & Compliance Notes

- This is a non-binding market consultation; no rights can be derived. TU Delft may proceed to a direct award using a VEAT if exclusivity can be demonstrated in line with Directive 2014/24/EU art. 32(2)(b).

- Suppliers are responsible for the accuracy of information submitted; TU Delft may request additional clarifications or evidence.