

## MATERIAL TERMS OF THE AGREEMENT

### § 1

1. The basis for the conclusion of the Agreement is procedure No. IO/ZN/1 /2018 under art. 30a of the Act of 30 April 2010 on the Principles of Financing Science (Journal of Laws of 2016 item 2045, as amended) and art. 4d paragraph 1 point 1 of the Act of 29 January 2004 the Public Procurement Law (Journal of Laws of 2017, item 1579, as amended).
2. The Agreement is funded from designated subsidy from Horizon 2020 project INTAROS - Integrated Arctic Observation System, awarded under EU call for Blue Growth.

### § 2

1. The purpose of the Agreement is the **“design and delivery of IAOOS (Ice Atmosphere Arctic Ocean Observing System) autonomous platform for continuous ocean/ice/snow/atmosphere measurements from a drifting ice floe for the Contracting Authority – the Institute of Oceanology, Polish Academy of Sciences in Sopot”** (“Purpose”).
2. The platform shall be adjusted for deployment on drifting sea ice in the Arctic region, designed to remain on top of sea ice floes and to float at the ocean surface.
3. The Appendix no 1 to the Agreement contains the required elements of the platform. Within the declared bid price the Contractor will provide all elements of the platform and comply with the requirements stipulated in Appendix no 1 of this Agreement.
4. The platform must be free of claims arising from the enforcement of the intellectual property rights of a third party and must meet all the functional and technical requirements specified by the Contracting Authority in the Appendix no 1. The platform (including its components) is provided “as is” and fully functional at the moment of deployment.
5. The Contractor shall perform functional tests of the platform in presence of the Contracting Authority’s representative/employee within the declared bid price.
6. The platform will be deployed on drifting sea ice in the central region of the Arctic Sea.
7. The Contractor shall transport the platform to the place of execution, deploy it on ice floe in localization chosen and launch it within the bid price.
8. The performance of the Purpose shall take place in two parts:
  - a) Part I – building of the platform and functional tests,
  - b) Part II – delivery of the platform to its place of destination, deployment of the platform on the ice floe and launch of the platform.
9. The Contractor shall provide the Contracting Authority with documentation confirming that the offered platform meets the requirements of Appendix no 1 in English.
10. The Contractor ensures that the Executive Agency for Small and Medium-sized Enterprises (EASME), the European Court of Auditors (ECA) and the European Anti-Fraud Office (OLAF) have the right to carry out checks, reviews, audits and investigations on the Contractor concerning the financing of the agreement.
11. The Contractor ensures that the Executive Agency for Small and Medium-sized Enterprises (EASME) Agency has the right to make an evaluation of the impact of the action INTAROS concerning to this Agreement.

### § 3

1. The execution of the Purpose of the Agreement referred to in § 2 will take place not later than:
  - a) Part I - **April 30<sup>th</sup>, 2018;**
  - b) Part II – **December 31<sup>st</sup>, 2018.**
2. The place of deployment of the platform: **Delivery to the interior Arctic Ocean (Nansen, Amundsen or Makarov Basin), to the region of the latitude higher than 80°N, covered with sea ice with thickness allowing for optimal operational time of the platform.**
3. Due to the fact that the atmospheric conditions have to be taken into consideration during the delivery as well as during selection of the exact place of deployment of the platform, the Contractor should consult with the Contracting Authority prior the delivery the exact place and date of delivery of the platform.

### § 4

1. According to the submitted bid, the Contractor’s remuneration for the performance of the Agreement amounts to total of .....EUR /USD/PLN(.....excluding VAT.



2. The costs of customs duties and VAT (the tax on goods and services) will be settled and paid by the Contracting Authority, provided that the Contractor is an entity with its registered office outside the territory of the Republic of Poland and if it is required pursuant to the relevant tax and customs provisions.
3. The Contracting Authority declares that the platform will be placed on ice floe drifting in the central region of the Arctic Sea during its entire lifetime and will not enter EU customs territory.
4. The amount referred to in Section 1 includes all costs associated with the execution of the Agreement, including cost of designing and constructing of the platform, cost of all elements of the platform, cost of documentation, cost of functional tests, cost of packaging and transport to the place of delivery, cost of transport insurance during delivery to the place of destination, cost of deployment and launch of the platform, as well as cost of travel of the Contractors representatives/employees connected with deployment and launching of the platform.
5. The payment for the execution of the Agreement will take place on the basis of the invoices delivered to the Institute of Oceanology, Polish Academy of Sciences in Sopot in three parts:
  - a) first instalment : at the date of the signature of the Contract: **20% of remuneration**;
  - b) second instalment: **70% of remuneration** – after proper execution of the platform and successful completion of functional tests performed in the lab, confirmed by the protocol received by the Contracting Authority.
  - c) third instalment: **10% of remuneration** - after delivery of the platform to the place of destination, deployment of the platform, successful launch and transfer of testing results of the functional tests at the deployment, confirmed by the protocol received by the Contracting Authority.
6. Payment shall be transferred from the account of the Contracting Authority to the Contractor's account. Payments will be made upon presentation of invoices made out to ....., Name of the Bank:.....Account no.: .....
7. Payment can be also made in PLN/EUR.
8. Payments will be made within thirty (30) calendar days from the date of receipt of the invoice properly issued by the Contractor.
9. The Contractor is entitled to statutory interest for the delay in payment.
10. The payment of part of remuneration for purchase of equipment, not higher than 40% of total remuneration, can be made on the Contractor's request. The payment will be deduced from the first and second instalment milestone. The payment of part of remuneration for purchase of equipment will be transferred from the account of the Contracting Authority to the Contractor's account within fourteen (14) calendar days from the date of receipt of written request and the pro forma invoice properly issued by the Contractor.

## § 5

In case of late performance of the Agreement resulting from the root cause of the Contractor, the Contracting Authority shall have the right to recover from the Contractor by way of liquidated damages, as sole penalty regarding the Agreement, the sum of zero point two per cent (0,2%) of the total amount of the Agreement per day up to a maximum of ten per cent (10%) of the total amount of the Agreement. The Parties agree that this Section 5 does not apply in case of any event of Force Majeure.

## § 6

In the event of any material default by either Party in performance of any of its obligations under the Agreement, the non-defaulting Party may when such default is capable of remedy give the defaulting Party a written notice to rectify such default within the time specified therein, or by default, within thirty (30) calendar days after receiving from the non-defaulting Party such written notice. If the defaulting Party fails to comply with the requirements of the said notice, or in the event that the defaulting Party's default be incapable of remedy, the non-defaulting Party shall be entitled to terminate the Agreement in whole or in part immediately by serving notice in writing on the defaulting Party to such effect.

## § 7

Any changes or additions to the Agreement shall be writing agreed by the Parties under pain of nullity.

## § 8

The Contractor may not assign claims arising from the Agreement to a third party without the written consent of the Contracting Authority.

## § 9

Any disputes arising in connection with the execution of the Agreement shall be settled by negotiation and in the case of failure to reach an agreement, disputes shall be settled in court by the court having jurisdiction over the Contracting Authority's registered office.



#### **§ 10**

The Parties agree that Polish law shall apply to the execution of the Agreement.  
In matters not covered by the provisions of the Agreement the Polish Civil Code shall apply.

#### **§ 11**

1. The Agreement was drawn up in three (3) counterparts, two (2) hardcopies for the Contracting Authority and one (1) hardcopy for the Contractor.
2. In the case of the preparation and signing of the Polish and English versions of the Agreement, the Polish version is the basis for the interpretation of the Agreement.

## REQUIRED ELEMENTS OF THE PLATFORM

Platform should be equipped with following sensor packages:

### A. Atmospheric package:

- Weather mast equipped with temperature sensor and atmospheric pressure sensor capable to work at low temperatures ranges.
- Microlidar: autonomous lidar system with a high efficiency laser diode based system (central wavelength around 800 nm, bandwidth < 0.6 nm and low energy emission around 2 microjules per pulse); diameter emission/reception lens of ~70 mm; emission/reception full FOV of ~650  $\mu$ rad; detection filter bandwidth of ~0.6 nm; overlap range (90%) of around 300 m; detection sampling frequency (at a 15 m vertical resolution before averaging) of 10 MHz; vertical resolution (after on board averaging) of 15 m (0-1 km), 30 m (1-3 km), 60 m (3-15 km) and 120 m (15-25 km); background noise (average and standard deviation) of 25 to 30 km; small sensitivity to water absorption; a low temperature operation capability; optical design based on a bi-axial structure; optical fiber based system, satellite modem (for satellites in polar orbits, e.g. Iridium) for data transmission.
- GPS for positioning.
- Accelerometers implemented in the platform to detect the tilt angles.

### B. Ice/snow package:

Ice mass balance instrument equipped with:

- thermistor chain of 5 m, hanging through air, snow, sea ice and ocean,
- comprising solid-state sensors measuring temperature profiles with 2 cm resolution;
- thermistor measurement chain incorporating temperature sensor device with resolution of 0.0625°C and accuracy of  $\pm 0.5^\circ\text{C}$  in an operating range of 85°C down to -10°C;
- heater elements for heating cycle mode (hot-wire anemometry mode/ a needle-probe thermal conductivity mode) to provide a proxy for thermal diffusivity;
- a single-chip microcontroller (e.g. Microchip PIC) and satellite modem (for satellites in polar orbits, e.g. Iridium) for data transmission.

### C. Ocean package:

#### 1) Components of the ocean package:

- a surface buoy unit containing a GPS, a processor and the lithium battery which guarantee a supply in energy for 2 years;
- a 800-m long cable attached to the buoy underneath carrying a profiler based on Argo float technology, with inductive NRT data transmission, capable to work in polar environment, equipped with CTD sensors, scanning up and down from surface to 800m depth and up, taking vertical profiles of temperature and salinity once or twice a day (autonomy up to 600 profiles);
- a cable loaded with a 50 kg deadweight at the very end in order to keep the cable as vertical as possible, even during strong sea-ice drift entraining the surface buoy and the 800m-long cable.

#### 2) Sensors specification:

- Ice-tethered profiler based on Argo-float technology, with inductive NRT data transmission, capable to work in polar environment, equipped with conductivity, temperature, pressure and dissolved oxygen sensors;
- CTD system with anti-foul protection, anti-foulant devices, a U-shaped flow path, and a pump delivering 10 ml/sec flow continuously during the profile;
- Temperature sensor initial accuracy of  $\pm 0.002^\circ\text{C}$ , stability 0.0002/year;
- Conductivity sensor initial accuracy of  $\pm 0.002$ , stability 0.001/year;
- Pressure sensor initial accuracy of  $\pm 2$  dbar, stability 0.8/year;
- Optical sensor for measuring the O<sub>2</sub>-concentration using lifetime-based luminescence quenching principle, measurement range of 0-500  $\mu\text{M}$ , resolution < 1  $\mu\text{M}$ , accuracy < 8  $\mu\text{M}$  or 5 %, response time (with standard foil) < 25 sec;
- Inductive data transmission along the cable, inductive cable length 800 m;
- Satellite modem (for satellites in polar orbits, e.g. Iridium) for data transmission and two-way remote control.



**D. Power supply and data transmission:**

- Satellite modem (for satellites in polar orbits, e.g. Iridium modem and antenna) for data transmission; (if not included separately in any of sensor packages).
- Power supply system.