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Hellenic Integrated Marine and Inland Water Observing, Forecasting and Offshore Technology System, HIMIOFoTS	
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Institute of Oceanography

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Definitions

- ***HIMIOFoTS**:* Hellenic Integrated Marine and Inland Water Observing, Forecasting and Offshore Technology System

- ***Partners:*** The participating Institutions and institutes at HIMIOFoTS, namely:

    1. Institute of Oceanography (IO)- HCMR
    2. School of Civil Engineering- National Technical University of Athens
    3. Department of Marine Sciences- University of the Aegean
    4. Department of Chemistry-National and Kapodistrian University of Athens
    5. Institute for Environmental Research & Sustainable Development- National Observatory of Athens
    6. Department of Agriculture- University of Ioannina
    7. Department of Geography- Harokopio University of Athens
    8. Institute of Communication and Computer Systems
    9. School of Naval Architecture and Marine Engineering- National Technical University of Athens
    10. Institute of Marine Biological Resources and Inland Waters (IMBRIW)- HCMR

- ***User**:* any legal entity from the public or private sector (for example a scientific researcher, student, engineer, technician, etc.) that needs/receives the support of a multidisciplinary infrastructure for: conducting basic, applied or industrial research, testing and calibration of instruments, educational and training purposes, etc. They may be individual users or groups of users. A ***user group*** may consist of members from different organizations and countries. Each user group is led by a unique **principal investigator**, regardless of the number of members and organizations involved.

- ***NTNA:*** National or Transnational Access to HIMIOFoTS Infrastructure

- ***Access Provider:*** is the institution responsible for providing access to the facilities listed in Annex, as represented by its Legal Representative.

- ***Infrastructure**:* is defined as a coherent set of facilities along with related services used by the scientific and research community to conduct research.

- ***Infrastructure Manager:*** is the official manager of the research infrastructure to which access is requested. He is defined by the Access provider institution.

- ***Node**:* a part of an infrastructure that could be used independently of the rest.

Introduction

Accessibility to HIMIOFoTS is provided free of charge (unless stated otherwise in the agreement between the parties) to selected users, who may be individual users or a group of users.

Accessibility to Research Infrastructures (RIs) has as its ultimate goal the attraction of researchers, the interconnection of Greek research potential with national and international research teams per sector, and the use of infrastructures by industry and public bodies.

Accessibility can be requested in any of the research infrastructures or parts thereof as described in Annex I. Accessibility to the research infrastructure include:

- Administrative and logistical support

- Free use of infrastructure facilities (in accordance with any applicable national laws, health and safety regulations or other compliance rules)

- Technical and scientific support

- Access to raw or processed data generated during the operation of the infrastructure

Depending on the specific characteristics of each infrastructure, specific training may be provided for the use of the infrastructure and / or its instruments.

1. Access provision

Users with a positive evaluated proposal, according to the evaluation and selection criteria, will benefit from free access to one or more infrastructures and/or nodes offered by HIMIOFoTS.

The following rules are the basic accessibility framework implemented within HIMIOFoTS:

• provide to selected user groups free of charge access to the infrastructure or the installation(s) managed by it, including the logistical, technological and scientific support as well as specific training, that is necessary for successful use of the infrastructure by external researchers. As research infrastructures can generally accommodate multiple users and simultaneously handle multiple activities, access can be shared at the same time by different users.

• publicize the access widely, including on HIMIOFoTS Web page on the Internet. This includes a description of the infrastructure and its data, as well as scope/means of access.

• ensure that users comply with the terms and conditions set up for the use of the infrastructures, and that access providers fulfill eligibility criteria for access provision.

• Maintain appropriate documentation to support and justify the amount of access reported. This documentation shall include records of the name and nationality of the home institution of users, as well as the nature and quantity of access provided to them.

• The access provider and the user group leader shall inform the other Party of the occurrence of any event which constitutes a force majeure, preventing it from executing its obligations set out under NTNA. Any event which is unforeseeable, and the effects of which are uncontrollable, which prevents one of the Parties from executing its obligations shall be considered to be a case of force majeure. The obligations of the Party impeded shall be suspended for as long as the force majeure subsists. If the work is interrupted by such events, the Parties shall quickly consult each other in order to study the postponement or possible termination of the access or the adaptation of the NTNA.

2. User selection

Only user groups that are entitled to disseminate the foreground they have generated under the project are eligible to benefit from access free of charge to the infrastructure.

Unrestricted dissemination of results to the public should take place in near real time if possible, or upon completion of the access process. The dissemination time of the results after the end of the NTNA project will be defined in the private agreement between the access provider and the user. In exceptional and justified cases when open access to the data produced is not desirable (e.g. development tests of industrial products etc.), a period of 2 years may be given. After this period the data must be freely available.

3. Modality of access

A written contract or agreement between the HIMIOFOTS Coordinator, the "Access Provider" or the "Infrastructure Manager" and the "End User" will delineate the actions to be undertaken, the resources that will need to be allocated, the length of planned user stays (if any), and the period of use. It will also define the rights and obligations of all the Parties involved, including data sharing and eventual provisions for early termination of the conferred access.

Whenever possible, the start and end of an access interval will be set by the access provider to coincide with times scheduled for the ordinary maintenance of the installation in the interests of financial economy (e.g. limiting the costs of vessel-time needed to access the infrastructure, etc.).

It is mandatory that user groups interact directly with the managers of the infrastructures/installations they wish to use during the preparation of proposals:

- to verify the particulars of access to the infrastructure/installation they wish to use, and
- to verify the feasibilities of the proposed projects and address practical concerns.

Modality of access can be of the three following types:

MoA 1 – Remote: the presence of the user or user group is not required at any time during the access period,

MoA 2 – Partially remote: the presence of the user or user group is required at some stage, e.g. for installing and uninstalling an instrument.

MoA 3 – In-person ("hands-on"): the presence of the user or user group is required/ recommended during the whole access period.

4. Support to user

Besides the access approved free-of charge, the user groups will receive logistical, technical and scientific support by the access provider, and any special training required to use the assigned infrastructure. Details of support and special training, if available, will be described in details in the agreement to be signed between the access provider and the user.

When possible depending on the access provider capability, users will receive a financial contribution for travel and subsistence costs for visiting infrastructures, if justified. The final grant assigned to a project will be considered case- by-case depending on the type of access, the types and number of facilities requested, the length of stay, the total costs and the financial capacity of the access provider.

5. Post-access requirements

At the stipulated end of the access project and within 30 days, the user group principal investigator must submit a report describing the resulting technical and preliminary scientific outputs.

The report will be published on the HIMIOFoTS web site, and will be made available to the Program Managing Authority if requested.

The receipt and approval of this report with all scientific results emerged during the implementation of the NTNA project is necessary to finalize and certify termination of user access to the RI as stated in the private agreement.

Any publications or patents resulting from a HIMIOFoTS NTNA project must be reported to the host institution, i.e. the access provider, and the HIMOFoTS NTNA office. Furthermore, all such publications or patents shall acknowledge the support of both HIMIOFoTS and the host institution according to the Communication Guide for the information and publicity of the Operational Programs of the National Strategic Reference Framework (NSRF) 2014-2020.

Access beneficiaries, i.e. the users, undertake to reply promptly to all the requests of the HIMIOFoTS coordinator and the NTNA office relating to their access activities, as foreseen in the private agreement.

6. Evaluation and Selection

Properly compiled proposals will undergo a three-step selection process involving:

• First step: the proposal is initially submitted to the Infrastructure access provider to verify technical compatibility. Thus, the user is invited to contact the infrastructure manager in order to confirm the feasibility (quality and efficiency) of the proposed project. Only the proposals that will be accepted during the first stage will be considered in the next stages.

• Second step: User submits the proposal to HIMIOFoTS Coordination and Management NTNA Office. The NTNA Office carries out the preliminary examination of the proposals in order to comply with their accessibility rules and their technical excellence and then coordinates the evaluation process. The Office may ask users for amendments to their proposal. The proposal with the necessary amendments should be resubmitted within a week. Proposals that meet the criteria will be forwarded to the HIMIOFoTS NTNA Selection Panel.

• Third step: The HIMIOFoTS NTNA Selection Panel (SP) evaluates all the proposals received from the NTNA Office based on the selection criteria agreed and will recommend a short-list of proposals who can benefit from access to HIMIOFoTS Research Infrastructures or facilities.

The Selection Panel (SP) includes:

- A HIMIOFoTS representative
- Two external evaluators with expertise on the scientific and technical scope of the NTNA proposal

The submitted projects will be evaluated according to the following criteria:

- Scientific and/or technological excellence of user group
- Scientific and technical value of the project
- Quality of the work plan
- Innovative approach / innovation potential (link with industry)
- Relevance and interest for the scientific community
- Multidisciplinary approach (in terms of methodology, expected results and participating groups)
- Possible training aspects for young or new users

Priority will be given to users who have not previously used the infrastructure (new users). Furthermore, according to EU requirements, special attention will be paid to female participation in order to promote equal opportunities in the implementation of the NTNA activities, to the extent possible.

The results of the selection will be published on the HIMIOFoTS website, and will be communicated directly to the user group principal investigator and access providers by email.

Evaluation criteria

The submitted projects will be evaluated according to the following criteria:

#	Criterion for Evaluation	Max Score
1	Scientific and/or technological excellence of user group	5
2	Scientific and technical value of the project	5
3	Quality of the work plan	5
4	Innovative approach / innovation potential (link with industry)	5
5	Relevance and interest for the scientific community	5
	Total Max Score	25

A proposal will be considered for acceptance if it receives a total score ≥15.

Users with a positive evaluated proposal must contact directly the Research Infrastructure Manager selected for his/her activities to obtain additional information/ instructions. The User will then contact the HIMIOFoTS NTNA Coordination and Management Office to initiate

the process of drafting the Private Agreement between the User, the Access Provider or Infrastructure Manager and the HIMIOFoTS Coordinator.

The following diagram illustrates the HIMIOFoTS NTNA procedure from the start to the implementation of the NTNA project:

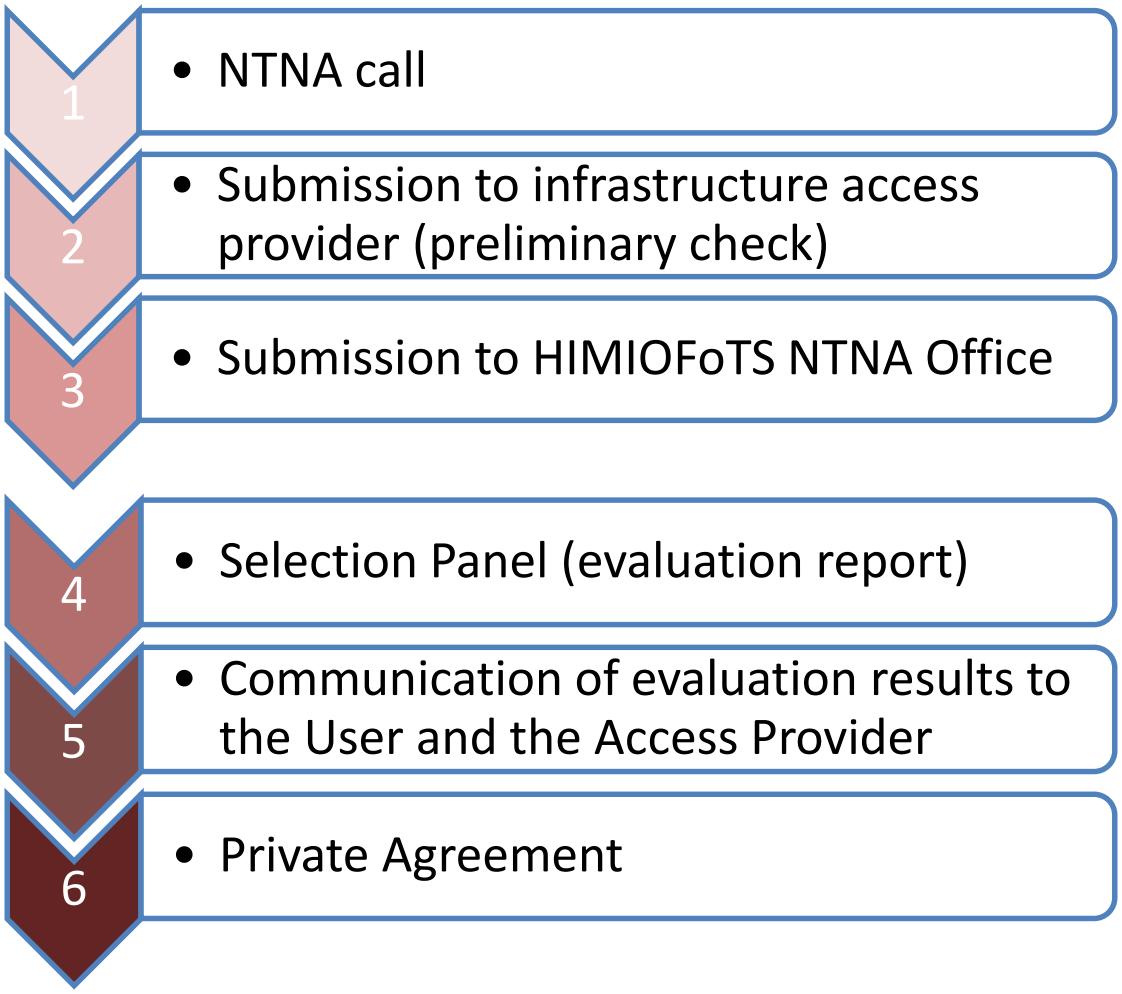

Figure 1. Procedure for free access provision to HIMIOFoTS Research Infrastructures

Annex

Hellenic Integrated Marine-Inland waters Observing Forecasting and offshore Technology System - HIMIOFoTS

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1. Hellenic Centre for Marine Research – Institute of Oceanography

1.1 Saronikos buoy

Infrastructure (short name)	POSEIDON Monitoring, Forecasting and Information System for the Greek Seas (POSEIDON)	
Installation (short name)	Saronikos buoy (SB)	
Location	Saronikos Gulf, Aegean Sea, Mediterranean	
Coordinates	37.611° N - 23.564° E	
Bottom depth	209 m	
Legal name of organization	HCMR	
Country	Greece	
Contact	Leonidas Perivoliotis Hellenic Centre for Marine Research Institute of Oceanography 46km Athens-Sounio Ave. PO Box 712 Anavyssos, Attica GR-190 13, Greece Tel: +30-22910 76400 Fax:+30-22910 76323 E-mail: lperiv@hcmr.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. The observing component is a distributed infrastructure made by three

coastal buoys (Saronikos buoy-SB, Heraklion Coastal Buoy-HCB and Athos buoy-AB) and one Ferrybox (PFB). A calibration laboratory is supporting the observing activities.

The Saronikos buoy is equipped with meteo, T, C/S, wave sensors and current meter, is moored in one of the most eutrophic areas in Greece greatly affected by the effluents sewage treatment plant of Psitalia and the Anthropogenic activities in the wider Athens - Piraeus urban environment. HAB's are frequent in some parts of the Gulf while clear trophic gradients are observed.

Web site address : http://www.poseidon.hcmr.gr

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
Meteo package	Wind speed/direction, Air Temperature, Atmospheric pressure	2m	3 hours	3 hours
Oceanor wave sensor	Wave spectrum	surface	3 hours	3 hours
Aanderaa CT sensor	Temperature/Conductivity	-4 m	3 hours	3 hours
Nortek Current meter	Current velocity/direction	-4 m	3 hours	3 hours

Modality of access

- Remote: the measuring system is implemented by the operator of the installation and the presence of the user group is not required,
- Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

POSEIDON is both a geographically and scientifically distributed infrastructure in Greek seas offering end-to-end services both to science and to society. Complementary nodes both in off shore and coastal environments integrated into a unique system. From these nodes, the Coastal platforms, SB, HCB, AB and the FerryBox are open for access to users to host sensors for recording a number of parameters that do not belong to the main POSEIDON portfolio.

The nodes have been designed to support the open access to different types of sensors by providing also their data in real time in most of the cases. The access is offered for one of the nodes of the network or for any combination of different nodes.

Access to SB, HCB and AB will be made during the regular maintenance visits (2-4 per year) on-board the R/V Aegaeo. The duration of these visits is usually 1-2 days and can be extended upon request. Additionally, users can have unlimited access to back up buoys in Athens or Crete for preparatory work prior to deployment of their sensors.

Special owner rules

The scientific and technical personnel of POSEIDON will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the system, the user will have to provide the software and hardware adaptations required.

1.2 Heraklion Coastal buoy

Infrastructure **(short name)**	POSEIDON Monitoring, Forecasting and Information System for the Greek Seas (POSEIDON)	
Installation **(short name)**	Heraklion Coastal Buoy (HCB)	
Location	Heraklion Gulf, Cretan Sea, Aegean Sea, Mediterranean	
Coordinates	35.391° N - 25.226° E	
Bottom depth	175 m	
Legal name of organization	HCMR	
Country	Greece	
Contact	Petihakis George Institute of Oceanography HELLENIC CENTRE FOR MARINE RESEARCH (HCMR) Thalassocosmos Gournes Pediados P.O. Box 2214 HERAKLION CRETE GR 71 003 GREECE Tel: +30 2810 337755 Fax: +30 2810 337822 GSM: +30 6977 916206 E-mail: gpetihakis@hcmr.gr E-mail: gpetihakis@gmail.com http://www.hcmr.gr/	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. The observing component is a distributed infrastructure made by three coastal buoys (Saronikos buoy-SB, Heraklion Coastal Buoy-HCB and Athos buoy-AB) and one Ferrybox (PFB). A calibration laboratory (see Chapter 2) is supporting the observing activities.

The Heraklion Coastal Buoy will be deployed towards the beginning of 2016 between Dia Island and Heraklion city, equipped with meteo, T, C/S, wave sensors and current meter. Furthermore DO, fluorescence and turbidity sensors at various depths in the euphotic zone will be added in the near future. The location is of particular interest as the coastal expression of the very oligotrophic Cretan Sea ecosystem, modulated by the moderate to small riverine inputs and the rural activities in the Northern Crete.

Web site address : http://www.poseidon.hcmr.gr

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
Meteo package	Wind speed/direction, Air Temperature, Atmospheric pressure	2m	3 hours	3 hours
Oceanor wave sensor	Wave spectrum	surface	3 hours	3 hours
Aanderaa CT sensor	Temperature/Conductivity	-4 m	3 hours	3 hours
Nortek Current meter	Current velocity/direction	-4 m	3 hours	3 hours

Modality of access

- Remote: the measuring system is implemented by the operator of the installation and the presence of the user group is not required,
- Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

POSEIDON is both a geographically and scientifically distributed infrastructure in Greek seas offering end-to-end services both to science and to society. Complementary nodes both in off shore and coastal environments integrated into a unique system. From these nodes, the Coastal platforms, SB, HCB, AB and the FerryBox are open for access to users to host sensors for recording a number of parameters that do not belong to the main POSEIDON portfolio.

The nodes have been designed to support the open access to different types of sensors by providing also their data in real time in most of the cases. The access is offered for one of the nodes of the network or for any combination of different nodes.

Access to SB, HCB and AB will be made during the regular maintenance visits (2-4 per year) on-board the R/V Aegaeo. The duration of these visits is usually 1-2 days and can be extended upon request. Additionally, users can have unlimited access to back up buoys in Athens or Crete for preparatory work prior to deployment of their sensors.

Special owner rules

The scientific and technical personnel of POSEIDON will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the system, the user will have to provide the software and hardware adaptations required.

1.3 Athos buoy

Infrastructure **(short name)**	POSEIDON Monitoring, Forecasting and Information System for the Greek Seas (POSEIDON)	
Installation **(short name)**	Athos buoy (AB)	
Location	North Aegean Sea, Mediterranean	
Coordinates	39.963° N - 24.723° E	
Bottom depth	210 m	
Legal name of organization	HCMR	
Country	Greece	
Contact	Leonidas Perivoliotis Hellenic Centre for Marine Research Institute of Oceanography 46km Athens-Sounio Ave. PO Box 712 Anavyssos, Attica GR-190 13, Greece Tel: +30-22910 76400 Fax:+30-22910 76323 E-mail: lperiv@hcmr.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. The observing component is a distributed infrastructure made by three coastal buoys (Saronikos buoy-SB, Heraklion Coastal Buoy-HCB and Athos buoy-AB) and

one Ferrybox (PFB). A calibration laboratory (see Chapter 2) is supporting the observing activities.

The Athos buoy is equipped with meteo sensors and T, C/S, DO, fluorescence and turbidity sensors up to 100m in depth, is located in the coastal area in the Northern Aegean, representative of mesotrophic to oligotrophic conditions affected by circulation. Although coastal the depth of the water column allows deeper observations.

Web site address : http://www.poseidon.hcmr.gr

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
Meteo package	Wind speed/direction, Air Temperature, Atmospheric pressure	2m	3 hours	3 hours
Oceanor wave sensor	Wave spectrum	surface	3 hours	3 hours
Aanderaa CT sensor	Temperature/Conductivity	surface	3 hours	3 hours
Nortek Current meter	Current velocity/direction	surface	3 hours	3 hours
Seabird SBE 37	Temperature/Conductivity	20, 50,75,100m	3 hours	3 hours

Modality of access

- Remote: the measuring system is implemented by the operator of the installation and the presence of the user group is not required,
- Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

POSEIDON is both a geographically and scientifically distributed infrastructure in Greek seas offering end-to-end services both to science and to society. Complementary nodes both in off shore and coastal environments integrated into a unique system. From these nodes, the Coastal platforms, SB, HCB, AB and the FerryBox are open for access to users to host sensors for recording a number of parameters that do not belong to the main POSEIDON portfolio.

The nodes have been designed to support the open access to different types of sensors by providing also their data in real time in most of the cases. The access is offered for one of the nodes of the network or for any combination of different nodes.

Access to SB, HCB and AB will be made during the regular maintenance visits (2-4 per year) on-board the R/V Aegaeo. The duration of these visits is usually 1-2 days and can be extended upon request. Additionally, users can have unlimited access to back up buoys in Athens or Crete for preparatory work prior to deployment of their sensors.

Special owner rules

The scientific and technical personnel of POSEIDON will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the system, the user will have to provide the software and hardware adaptations required.

1.4 Gliders (GL)

Infrastructure **(short name)**	POSEIDON Monitoring, Forecasting and Information System for the Greek Seas (POSEIDON)	
Installation **(short name)**	Gliders (GL)	
Type	Autonomous Underwater vehicles	
Legal name of organization	HCMR	
Country	Greece	
Contact	Leonidas Perivoliotis Hellenic Centre for Marine Research Institute of Oceanography 46km Athens-Sounio Ave. PO Box 712 Anavyssos, Attica GR-190 13, Greece Tel: +30-22910 76400 Fax:+30-22910 76323 E-mail: lperiv@hcmr.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. The observing component is a distributed infrastructure made by coastal and open sea buoys, one Ferrybox and two gliders. A calibration laboratory (see Chapter 2) is supporting the observing activities.

The two SeaExplorer gliders added to the POSEIDON infrastructure in 2016, while the first operational mission took place in the Cretan Sea in October 2017. Several repeated missions have been realized in the Cretan Sea, while HCMR is aiming to implement an endurance line in the area, as the continuous monitoring is expecting to contribute to the

further knowledge of the seasonal variability of the flow field, collecting also evidences of the intermediate or deep water formation events that are known to occur in the area

Web site address : http://www.poseidon.hcmr.gr

Scientific payload

Instrument	Measured Parameter(s)
CTD SBE	Water temperature, Conductivity, pressure
DO SBE	Dissolved oxygen

Modality of access

- Remote: the measuring system is implemented by the operator of the installation and the presence of the user group is not required,
- Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

POSEIDON is both a geographically and scientifically distributed infrastructure in Greek seas offering end-to-end services both to science and to society. Complementary nodes both in off shore and coastal environments integrated into a unique system. From these nodes, the Coastal platforms, SB, HCB, AB, the FerryBox and the Gliders are open for access to users to host sensors for recording a number of parameters that do not belong to the main POSEIDON portfolio.

The nodes have been designed to support the open access to different types of sensors by providing also their data in real time in most of the cases. The access is offered for one of the nodes of the network or for any combination of different nodes.

Access to SB, HCB and AB will be made during the regular maintenance visits (2-4 per year) on-board the R/V Aegaeo. The duration of these visits is usually 1-2 days and can be extended upon request. Additionally, users can have unlimited access to back up buoys in Athens or Crete for preparatory work prior to deployment of their sensors.

Special owner rules

The scientific and technical personnel of POSEIDON will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the system, the user will have to provide the software and hardware adaptations required.

1.5 Poseidon Ferrybox (PFB)

Infrastructure **(short name)**	POSEIDON Monitoring, Forecasting and Information System for the Greek Seas (POSEIDON)	
Installation **(short name)**	Poseidon Ferrybox (PFB)	
Location	Heraklion, Crete, Mediterranean Sea	
Route	Heraklion - Piraeus	
Legal name of organization	HCMR	
Country	Greece	
Contact	Petihakis George Institute of Oceanography HELLENIC CENTRE FOR MARINE RESEARCH (HCMR) Thalassocosmos Gournes Pediados P.O. Box 2214 HERAKLION CRETE GR 71 003 GREECE Tel: +30 2810 337755 Fax: +30 2810 337822 GSM: +30 6977 916206 E-mail: gpetihakis@hcmr.gr E-mail: gpetihakis@gmail.com http://www.hcmr.gr/	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. The observing component is a distributed infrastructure made by three coastal buoys (Saronikos buoy-SB, Heraklion Coastal Buoy-HCB and Athos buoy-AB) and one Ferrybox (PFB). A calibration laboratory) is supporting the observing activities.

The Ferrybox is installed on board H/S/F "Knossos Palace" and is equipped with sensors measuring T, C/S, DO, pH, fluorescence and turbidity. It is the only Ferry Box in the Mediterranean operating daily along the route Heraklion – Piraeus.

Web site address : http://www.poseidon.hcmr.gr

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
SBE 45 MicroTSG Thermosalinograph	Temperature/Conductivity	Surface	1 min	Daily
Scufa II Turner	Fluorescence /Turbidity	Surface	1 min	Daily
Aandera optode 3835	Dissolved Oxygen	Surface	1 min	Daily
Meinsberg electrode	pH	Surface	1min	Daily

Modality of access

- Remote: the measuring system is implemented by the operator of the installation and the presence of the user group is not required,
- Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

POSEIDON is both a geographically and scientifically distributed infrastructure in Greek seas offering end-to-end services both to science and to society. Complementary nodes both in off shore and coastal environments integrated into a unique system. From these nodes, the Coastal platforms, SB, HCB, AB and the FerryBox are open for access to users to host sensors for recording a number of parameters that do not belong to the main POSEIDON portfolio.

The nodes have been designed to support the open access to different types of sensors by providing also their data in real time in most of the cases. The access is offered for one of the nodes of the network or for any combination of different nodes.

Access to SB, HCB and AB will be made during the regular maintenance visits (2-4 per year) on-board the R/V Aegaeo. The duration of these visits is usually 1-2 days and can be extended upon request. Additionally, users can have unlimited access to back up buoys in Athens or Crete for preparatory work prior to deployment of their sensors.

The Poseidon FerryBox system, PFB, can be accessed daily all year round with only exception the period (1 week) when the hosting ship is under the annual maintenance.

Special owner rules

The scientific and technical personnel of POSEIDON will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the system, the user will have to provide the software and hardware adaptations required.

1.6 Poseidon Calibration LAB (PCL)

Infrastructure **(short name)**	POSEIDON Monitoring, Forecasting and Information System for the Greek Seas (POSEIDON)	
Installation **(short name)**	Poseidon Calibration Lab (PCL)	
Location	Heraklion, Crete, Mediterranean Sea	
Coordinates	35.335° N - 25.281° E	
Legal name of organization	HCMR	
Country	Greece	
Contact	Petihakis George Institute of Oceanography HELLENIC CENTRE FOR MARINE RESEARCH (HCMR) Thalassocosmos Gournes Pediados P.O. Box 2214 HERAKLION CRETE GR 71 003 GREECE Tel: +30 2810 337755 Fax: +30 2810 337822 GSM: +30 6977 916206 E-mail: gpetihakis@hcmr.gr E-mail: gpetihakis@gmail.com http://www.hcmr.gr/	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

The Calibration Laboratory, PCL, is part of POSEIDON, the operational marine monitoring, forecasting and information system for the Greek Seas. It is based at the HCMR

Thalassocosmos complex in Crete and is equipped with a special designed large calibration tank, two smaller glass tanks and a number of reference sensors and equipment for temperature, salinity, chlorophyll-a, turbidity and dissolved oxygen sensors calibration.

The support team consists of the HCMR technicians and scientists who can perform a wide range of sensor calibrations (Temperature, Salinity, Oxygen, Chlorophyll, Turbidity).

Web site address : http://www.poseidon.hcmr.gr

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Range**	**Accuracy**	**Resolution**
2 X Deep Ocean Standards Thermometer SBE 35	Temperature (ITS-90)	-5 to +35 °C	0.001 °C	0.000025 °C
AutoSal 8400B	Conductivity Ratio (Salinity)	0.005 to 42 ppt	0.003 ppt	0.0002 ppt

Furthermore a variety of sensors (Seabird 37 SIP, Aanderaa 3919B, Aanderaa 3975) are used in order to monitor the measurement parameters inside the calibration tanks during the experiments. For the calibration of the DO sensors samples are collected during the experiment and analyzed later using the Winkler methodology. Regarding fluorometer and turbidity sensor the sensors are calibrated against known concentrations and particles dimensions of reference solutions.

Modality of access

In person/hands-on: the presence of the user group is required/recommended during the whole operation period

Access to the Calibration Lab is daily all year round.

The scientific and technical personnel of POSEIDON will carry out all operations, while training courses will be given on both hardware and software.

Unit of access: week (5 days of 8 hours)

Service & support

Applications are solicited for using the calibration laboratory in combination with one or all the other installations open to the TNA program, both by HCMR and other partners.

The access services offered by the POSEIDON system includes:

Calibration laboratory: PCL can support relevant activities for a wide range of sensors (Temperature, Salinity, Oxygen, Chlorophyll, Turbidity) providing state-of-the-art calibration services.

Field experiments: Calibrated sensors can be tested in the field.

The support team consists of the HCMR technicians and scientists, who regularly prepare the instrumentation, perform field experiments, service and maintain the instruments and assist the users during the experiments in the calibration facility.

Special owner rules

Requests for calibration services must be made at least 3 months in advance.

The user should provide the measured parameters range of the area where the sensors will be deployed.

1.7 Insitu and Forecasting Data (PD)

Infrastructure **(short name)**	POSEIDON Monitoring, Forecasting and Information System for the Greek Seas (POSEIDON)	
Installation **(short name)**	POSEIDON Data (PD)	
Type	Insitu and Forecasting Data	
Legal name of organization	HCMR	
Country	Greece	
Contact	Leonidas Perivoliotis Hellenic Centre for Marine Research Institute of Oceanography 46km Athens-Sounio Ave. PO Box 712 Anavyssos, Attica GR-190 13, Greece Tel: +30-22910 76400 Fax:+30-22910 76323 E-mail: lperiv@hcmr.gr	

Description	**Type of Data**	**Modality of access**	**Service & support**	**Special rules**

Description

POSEIDON is an operational marine monitoring, forecasting and information system for the Greek Seas. The observing component is a distributed infrastructure made by coastal and open sea buoys, one Ferrybox and two gliders. A calibration laboratory (see Chapter 2) is supporting the observing activities. The forecasting component consists by a suite of numerical models that provide in daily basis short-term (five days) forecasts for the atmospheric, hudrodynamic and wave conditions in the Aegean, Ionian and the Mediterranean Seas.

The POSEIDON Data Bank contains the recordings from all the system's observing components (buoys, ferrybox, argo floats, gliders) as well as the forecasting model results.

Web site address : http://www.poseidon.hcmr.gr

Modality of access

- Remote: the Data Bank is accessed remotely through the provision of the necessary credentials and the presence of the user group is not required,
- Partially remote: the presence of the user group is required at some stage e.g. process of data in collaboration with the POSEIDON team.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

POSEIDON is both a geographically and scientifically distributed infrastructure in Greek seas offering end-to-end services both to science and to society. Complementary nodes both in off shore and coastal environments integrated into a unique system. From these nodes, the Coastal platforms, SB, HCB, AB, the FerryBox and the Gliders are open for access to users to host sensors for recording a number of parameters that do not belong to the main POSEIDON portfolio.

The nodes have been designed to support the open access to different types of sensors by providing also their data in real time in most of the cases. The access is offered for one of the nodes of the network or for any combination of different nodes.

Access to SB, HCB and AB will be made during the regular maintenance visits (2-4 per year) on-board the R/V Aegaeo. The duration of these visits is usually 1-2 days and can be extended upon request. Additionally, users can have unlimited access to back up buoys in Athens or Crete for preparatory work prior to deployment of their sensors.

Special owner rules

The scientific and technical personnel of POSEIDON will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the system, the user will have to provide the software and hardware adaptations required.

2. National Technical University of Athens - School of Civil Engineering

2.1 OpenHi

Infrastructure **(short name)**	Open Hydrosystem Information Network (OpenHi.net)	
Installation **(short name)**	Platform for management of hydrological information for the surface water resources (OpenHi.net)	
Location	Heroon Polytechneiou 5 15780 Zografou Greece	
Coordinates	37° 58’ 42’’ N - 23° 46’ 32’’ E	
Legal name of organization	NTUA	
Country	Greece	
Contact	Nikos Mamassis Department of Water Resources and Environmental Engineering National Technical University of Athens Heroon Polytechneiou 5 15780 Zografou Greece Tel: +30-210 7722843 E-mail: nikos@itia.ntua.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

OpenHi.net is sub-project of the national research infrastructure “Hellenic Integrated Marine and Inland Water Resources Observing, Forecasting and Offshore Technology Systems” (HIMIOFoTS). Its objective is the design of an integrated e-infrastructure for collection, management and dissemination of hydrological and environmental information for the surface water resources of Greece, and the coordination of sub-projects that are involved in the development and initial operation of the system. The system is designed to incorporate all related infrastructure of the country, in order to provide free access to all hydrological, environmental and geographical data of surface water resources of Greece.

Web site address : https://system.openhi.net/

Modality of access

The Openhi platform provides free access to all hydrological and geographical data of surface water resources of Greece

Service & support

The Openhi platform provides (a) the ability (for third parties) to upload hydrological information and (b) applications for management, visualization and processing of these data, The system provides support to software applications and hydrological data processing

Special owner rules

The scientific and technical personnel of NTUA will carry out training courses

3. University of the Aegean – Department of Marine Sciences

3.1 Coastal Circulation Monitoring HF radar System (DARDANOS)

Infrastructure **(short name)**	Coastal Circulation Monitoring HF radar System DARDANOS - Coastal Environment Observatory AEGIS	
Installation **(short name)**	"DARDANOS" System	
Location	Plaka and Fisini, Lemnos island	
Coordinates	40° 02.070′ N, 025° 26.706′ E (Plaka Station) 39° 48.773′ N, 025° 22.137′ E (Fisini Station)	
Bottom depth		
Legal name of organization	UAegean	
Country	Greece	
Contact	Vasileios (Vassilis) Zervakis University of the Aegean Department of Marine Sciences University Hill GR-81132, Mytilene, Lesvos Greece Tel: +30-22510 36842 Fax:+30-22510 36809 E-mail: zervakis@marine.aegean.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

The DARDANOS system is a WERA (HF radar) coastal radar (manufacturer: Helzel Messtechnik Gmbh), which records in near real time the surface circulation in the marine area east of Lemnos (range under ideal conditions to the exit of the Dardanelles). The system produces hourly maps of surface currents and waves. It emits short waves at a frequency of 16.1 MHz and records electromagnetic radiation Bragg-backscattered by the wave field of the sea. The Doppler shift of the backscattered radiation provides an estimate of the propagation speed of the surface waves of half the wavelength of the emitted electromagnetic waves while the deviation of the thus estimated velocity from the theoretical value of the sea-wave speed of this wavelength provides the velocity of the current on which the waves propagate. Since only the radial component of the current can be calculated in this way, two emission/reception stations are required in order to produce two horizontal current components and therefore a two-dimensional surface current map can be generated. The DARDANOS System consists of a base station at Plaka Lemnos (which belongs to the University of the Aegean) and a base station at Fysini of Lemnos (belonging to HCMR).

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
HF radar	Current Speed and Direction surface wave characteristics (height, period and direction)	Mean vertically integrated current from 0 to 1 m depth	1 hour	1 hour
Meteo Station (only at Plaka)	Wind speed and direction, air temperature, atmospheric pressure, relative humidity	30 m above sea-level	1 hour	1 hour

Modality of access

- Remote: the measuring system is implemented by the operator of the installation and the presence of the user group is not required,
- Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

The installation of the equipment is done by the Laboratory of Physical and Chemical Oceanography of the University of the Aegean in cooperation with the manufacturer. The University of the Aegean is responsible for the equipment's maintenance and support and for data quality control for the whole period of operation of the Infrastructure.
Infrastructure maintenance works are carried out on a seasonal basis by staff of the Physical and Chemical Oceanography Laboratory of the University of the Aegean.
Access to real-time data will be open through the Infrastructure, Oceanography and Marine Life Sciences web sites and the POSEIDON system in the form of current and wave maps.
Access to historical and quality-controlled data is subject to the Accessibility Regulation of the Infrastructure.

Special owner rules

As this facility is located within or around the perimeter of militery installations, access is relatively limited. The addition of new equipment and instruments, especially in the event of electromagnetic transmission, requires the approval of military authorities. Any request for the installation of additional equipment should be initiated in consultation with the Leader of the Access Provider (University of the Aegean) at least six months before the desired date of installation.

4. National & Kapodistrian University of Athens – Department of Chemistry

4.1 Database of the Coastal Zone

4.1.1 Variational Analysis Gridded Data

Infrastructure (short name)	Database of the Coastal Zone	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Gridded Data by variational analysis (Gridded Database)**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Sofianos Sarantis, Assist. Professor Department of Physics, National and Kapodistrian University of Athens Division of Environmental Physics, University Campus, Building PHYS-5Athens 15784, Greece Phone: +30 210 7276932 Fax: +30 210 7276791 e-mail: sofianos@oc.phys.uoa.gr	

Description	Instruments/Sensors	Modality of access	Service & support	Special owner rules

Description

The Database of the Coastal Zone includes both gridded data and a wide network of available coastal information in several areas of the Greek Seas.

The first category of the gridded data includes data obtained by analyzing in-situ observations. It is a reconstructed high resolution gridded interannual dataset of the dissolved oxygen, temperature and salinity by means of variational analysis. The target of the analysis is defined as the smoothest fields that respects the consistency with the observations and a priori knowledge of the background field (climatology) over the domain of interest. The spatial resolution which is used through the analysis for deriving the reconstructed fields is 1/8o x 1/8o and the results are projected on standard depths. The database provides monthly climatological fields as well as annual averaged fields covered the period 1960-2017 for the physical parameters of the coastal zone of the Greek Seas. All outputs are created in NetCDF (Network Common Data Format) files for easier post-processing using broadly available tools and also could be compared with other corresponding databases that follow the same format.

Instruments/Sensors

Instrument	Measured Parameter(s)	Height/ Depth	Range	Frequency	Resolution
	Temperature	Steady vertical levels at specific depths (0, 5, 10, 20, 30, 50, 75, 100, 125, 150)	1960-2017	annual	$1/8^{O}$ x $1/8^{O}$
	Salinity	Steady vertical levels at specific depths (0, 5, 10, 20, 30, 50, 75, 100, 125, 150)	1960-2017	annual	$1/8^{O}$ x $1/8^{O}$
	Dissolved Oxygen	Steady vertical levels at specific depths (0, 5, 10, 20, 30, 50, 75, 100, 125, 150)	1960-2007	annual	$1/8^{O}$ x $1/8^{O}$

Modality of access

Remote: the analysis is implemented by the operator of the installation and the presence of the user group is not required.

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information Training workshops/ seminars will be provided.

Special owner rules

Access will be provided upon request of the user and special password will be offered by the administrator of the node.

4.1.2 Model Gridded Data

Infrastructure (short name)	Database of the Coastal Zone	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Gridded Data by Model (Interannual Model)**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Sofianos Sarantis, Assist. Professor Department of Physics, National and Kapodistrian University of Athens Division of Environmental Physics, University Campus, Building PHYS-5Athens 15784, Greece Phone: +30 210 7276932 Fax: +30 210 7276791 e-mail: sofianos@oc.phys.uoa.gr	

Description	Instruments/Sensors	Modality of access	Service & support	Special owner rules

Description

The Database of the Coastal Zone includes both gridded data and a wide network of available coastal information in several areas of the Greek Seas.

Data obtained by model. NEMO community model (Nucleus for European Modelling of the Ocean) in its version 3.6 was selected. A regional configuration has been set up, covering the Mediterranean Sea. The computational grid had a horizontal resolution of 1/36°×1/36° (~2,5 Km) and a vertical grid of 75 geopotential levels applying a step-like representation of bottom topography (z-coordinate with partial step). The model results are organized in 5-days outputs for all oceanic parameters (temperature, salinity, current velocities etc.) which supply the database of the coastal zone for the period 1958-2013.

Instruments/Sensors

Instrument	Measured Parameter(s)	Height/ Depth	Range	Frequency	Resolution
	Temperature	Steady vertical levels at specific depths	1958-2013	5-days	$1/36^{O}$ x $1/36^{O}$
	Salinity	Steady vertical levels at specific depths	1958-2013	5-days	$1/36^{O}$ x $1/36^{O}$

Modality of access

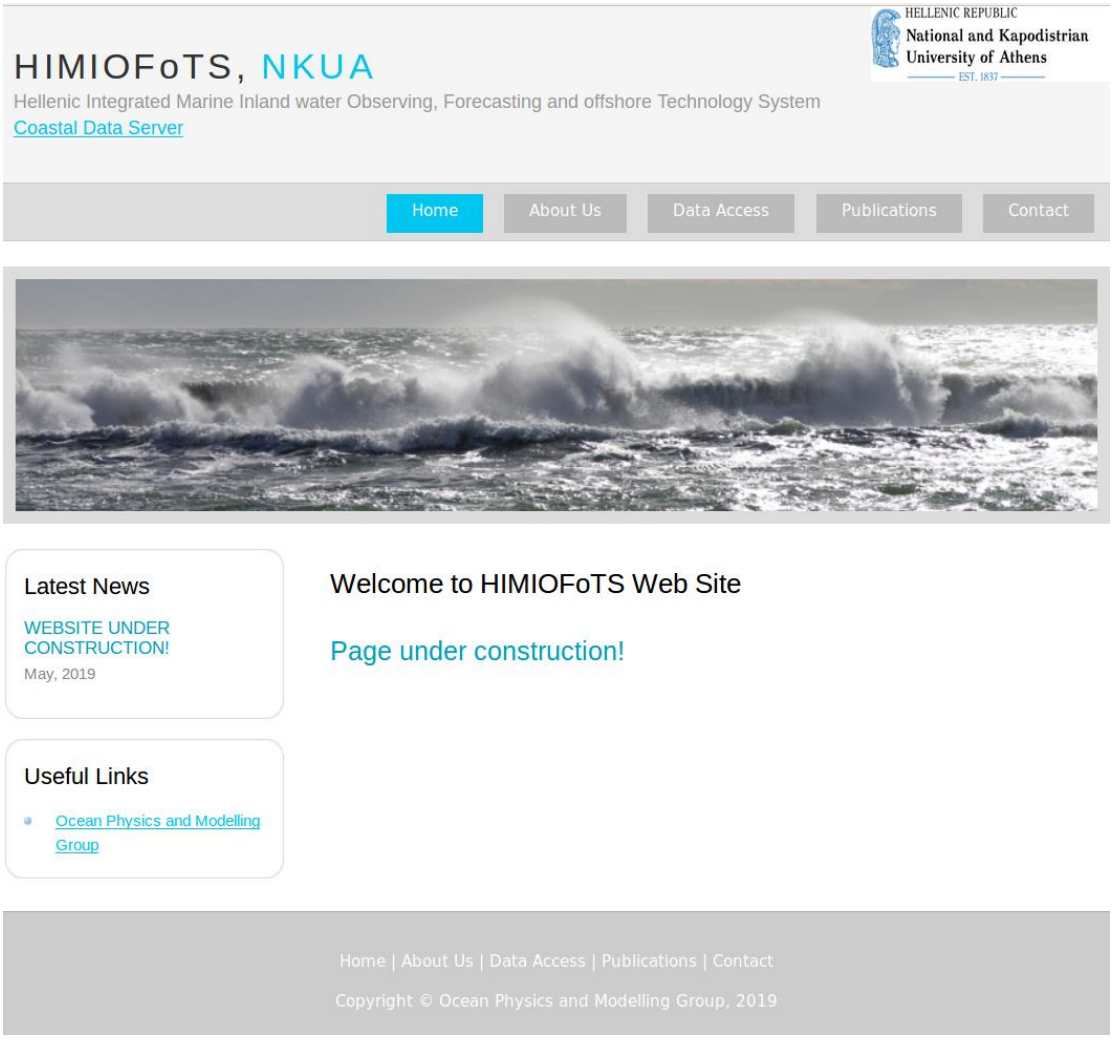
Remote: the model is implemented by the operator of the installation and the presence of the user group is not required Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided upon request of user and special password will be offered by the administrator of the node.



4.2 Image Analysis System

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Image Analysis System**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Persefoni Megalofonou Department of Biology, Section of Zoology-Marine Biology National and Kapodistrian University of Athens University Campus, Athens 15784, Greece Phone: +30 210 7274620 e-mail: pmegalo@biol.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

Image Pro Plus is a powerful image analysis software for enriching and editing 2D and 3D images. Facilitates counting, measuring (e.g. length, width, perimeter, area, density) and classifies organisms with high accuracy. By tracing an object of interest, this can be easily classified according to size or other measurement parameters. There is a possibility to trace-monitor a cell or organism as it moves. It is also used for age estimation by counting the growth bands in calcified structures (e.g. scales, otoliths, spine sections) and for observation of histological sections. Using a variety of measurement options, quantified data can be extracted from images. The software also provides a variety of enhancement and edge filters to improve image and tools for macros development.

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Range**	**Frequency**	**Resolution**
Image Analysis Pro Plus	Length of organisms/objects etc.	It depends on the size of organism/object being studied (μm-mm)		Degree of accuracy: 4 decimal places

	Width of organisms/objects etc.	It depends on the size of organism/object being studied (µm-mm)		Degree of accuracy: 4 decimal places
	Perimeter of organisms/objects etc.	It depends on the size of organism/object being studied (µm-mm)		Degree of accuracy: 4 decimal places
	Area of organisms/objects etc.	It depends on the size of organism/object being studied (µm-mm)		Degree of accuracy: 4 decimal places
	Density of organisms/objects etc.	It depends on the size of organism/object being studied (µm-mm)		Degree of accuracy: 4 decimal places

Modality of access

Presence: the system is implemented by the operator of the installation and the presence of the user group is required. Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or in his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.3 Microtome, water bath and instrument for embedding the tissues in paraffin and cooling

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Microtome, water bath and instrument for embedding the tissues in paraffin and cooling**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Persefoni Megalofonou Department of Biology, National and Kapodistrian University of Athens Section of Zoology-Marine Biology University Campus, Athens 15784, Greece Phone: +30 210 7274620 e-mail: pmegalo@biol.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

The Leica RM2235 is a manually operated microtome for creating thin sections (6-8 µm) of specimens of varying hardness for use in routine and research laboratories in the fields of biology, medicine and industry. It is designed for sectioning soft paraffin specimens as well as harder specimens, as long as they are suitable for being cut manually.
The Leica HI1210 is a paraffin flotation bath for flattening and drying cut tissue samples used in different fields (e.g. biological and medical research).
The Leica EG1150H is a modern paraffin embedding station with microprocessor control system. It is designed for embedding histological tissue specimens in molten paraffin for use in pathology laboratories and only for the following tasks:

- Melt solid paraffin for sample embedding and maintain the molten paraffin at the required temperature.
- Pour paraffin into embedding molds where the specimens are placed.
- Heat and maintain the temperatures of embedding cassettes with specimens and molds as well as the required forceps.

Instruments/Sensors

Modality of access

Presence: the system is implemented by the operator of the installation and the presence of the user group is required for the operation Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.4 Drones

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Drones**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Persefoni Megalofonou Department of Biology, National and Kapodistrian University of Athens Section of Zoology-Marine Biology University Campus, Athens 15784, Greece Phone: +30 210 7274620 e-mail: pmegalo@biol.uoa.gr	

Description	Instruments/Sensors	Modality of access	Service & support	Special owner rules

Description

The **Underwater Gladius Mini ROV, 200m** is used for monitoring and recording the marine environment and its organisms. It has sensors for measuring different parameters (e.g. water temperature, depth). The main advantage of this underwater drone is to record undersea regions (200 m deep) that are difficult to investigate and provide reliable scientific results. Its main features are:

- Maximum depth: 200 m
- Maximum speed: 4 Kn (2 m/ sec)
- ± 45° AdjustableTilt-Lock
- Lighting: 2.400 lumen (LED)
- Camera/Video: Ultra HD camera that delivers 12 M photos and 4K videos
- Virtual Reality
- Live Stream Online
- Battery life: 2 hours

Instruments/Sensors

Instrument	Measured Parameter(s)	Range	Frequency	Resolution

Underwater Drone	Monitoring and recording the presence, abundance and distribution of marine organisms	Horizontal/vertical movements (up to 200m/100 m)		Camera resolution: 12 MP (JPEG/RAW) Video resolution: UHD 4K
	Water Temperature	-10 to 45 °C		
	Depth	0 to 100 m		

Description

The **aerial Drone Mavic 2 Pro is** used for monitoring and recording the coastal and marine environments and their organisms (e.g. jellyfish, marine mammals). The aerial drone provides an easier, faster and cheaper method for collecting data. Its main features are: • Camera resolution: 5472x3648 pixels (JPEG/RAW) • Video resolution: 3840x2160 (4K)/Dlog-M Color Profile/10-bit HDR • Sensor: 1`` CMOS • Range: 8 km • Maximum flight time: 31 min • Maximum Speed: 72 km/h

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Range**	**Frequency**	**Resolution**
Aerial Drone Mavic 2 Pro	Monitoring and recording the presence, abundance and distribution of coastal and marine organisms (e.g. jellyfish, marine mammals).	Max Flight Distance: 18 km (at a consistent 50 kph) Hovering Accuracy Range: a) vertical /±0.1 m and b) horizontal/±0.3m		Camera resolution: 5472x3648 pixels (JPEG/RAW) Video resolution: 4K/Dlog-M Color Profile/10-bit HDR
	GPS+GLONASS			

Modality of access

Presence: the system is implemented by the operator of the installation and the presence of the user group is required for the operation Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or in his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.5 Single Beam Echo-Sounder, Sidescan Sonar

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Single Beam Echo-Sounder, Sidescan Sonar**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Serafim Poulos Department of Geology & Geoenvironment, National and Kapodistrian University of Athens Laboratory of Physical Geography University Campus, Athens 15784, Greece Phone: +30 210 7274143 e-mail: poulos@geol.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

Single beam echosounder coupled with Sidescan Sonar. The system is used for the recording of an area's bathymetry and sea-bottom habitat classification through backscattering. Maximum depth recording: ~300 m. Triple sounding frequency (455, 800 and 1200 kHZ), for bottom scanning in depths up to 120, 40 and 60 m, respectively and

scanning swath of about 300 m, depending on the depth. The system comes with a GNSS receiver (10Hz with EGNOS & GLONASS) and preinstalled nautical charts, whereas the mounting is adaptive to all types of boats.

Instruments/Sensors

Instrument	Measured Parameter(s)	Range	Frequency	Resolution
Single beam echosounder coupled with Sidescan Sonar	Bathymetry sea-bottom habitat mapping	Maximum depth recording: ~300 m	455, 800 and 1200 kHZ	swath of about 300 m

Modality of access

Presence: the presence of the user is required for the operation of the equipment

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.6 Portable CTD

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Portable CTD**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Serafim Poulos Department of Geology & Geoenvironment, National and Kapodistrian University of Athens Laboratory of Physical Geography University Campus, Athens 15784, Greece Phone: +30 210 7274143 e-mail: poulos@geo.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

Portable Device for Temperature, Salinity and Conductivity measurements on-site. Cable length: 25 m, for use in salt and fresh water.
Conductivity measure range: 0-499.9 µS/cm, 0-49.99 mS/cm, 0-200 mS/cm
Salinity measure range: 0-80 ppt,
Temperature measure range: -5 – 95°C

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Range**	**Frequency**	**Resolution**
Portable CTD	Conductivity	0-499.9 µS/cm		resolution 0.1 µS/cm, accuracy ±0.5%
		0-4999 µS/cm		resolution 1 µS/cm, accuracy ±0.5%
		0-49.99 mS/cm		resolution ανά 0.01 µS/cm, accuracy ±0.5%

		0-200 mS/cm		resolution 0.1 μS/cm, accuracy ±0.5%
	Salinity	0-80 ppt		resolution 0.1 ppt, accuracy ±2% ή ±0.1 ppt
	Temperature	-5 – 95°C		resolution 0.1°C, accuracy ±0.1 °C

Modality of access

Presence: the presence of the user is required for the operation of the equipment.

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.7 Portable Tide Logger

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Portable Tide Logger**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Serafim Poulos Department of Geology & Geoenvironment, National and Kapodistrian University of Athens Laboratory of Physical Geography University Campus, Athens 15784, Greece Phone: +30 210 7274143 e-mail: poulos@geo.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

Data logger for recording water levels and temperatures in the sea, shallow wells, streams and lakes.
Operation range: 0 to 9 m
Pressure and water level range: 0 to 145 kP,
Temperature range: -20° to 50°C,
Logging intervals: from 1 second to 18 hours

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Range**	**Frequency**	**Resolution**
Portable Tide Logger	Pressure and water level	0 to 145 kP	1 sec to 18 h	resolution: <0.02 kPa and 0.21 cm, accuracy ±0.05%
	Temperature	-20° to 50°C		resolution 0.10°C at 25°C, accuracy ±0.44°C

Modality of access

Presence: the presence of the user is required for the operation of the equipment

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.8 Portable Wave Logger

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Portable Wave Logger**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Serafim Poulos Department of Geology & Geoenvironment, National and Kapodistrian University of Athens Laboratory of Physical Geography University Campus, Athens 15784, Greece Phone: +30 210 7274143 e-mail: poulos@geo.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

High-frequency wave-temperature logger
Pressure range: 20/50,
time constant 0.01s
Temperature range: -5° to 35°C
Logging intervals: 24hr to 1s and 2, 4, 8, or 16Hz

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Range**	**Frequency**	**Resolution**
Portable Wave Logger	Pressure	20/50	24hr to 1s and 2, 4, 8, or 16Hz	resolution 0.001%, accuracy ±0.05%,
	Temperature	-5° to 35°C		resolution 0.00005˚C, accuracy ±0.002°C

Modality of access

Presence: the presence of the user is required for the operation of the equipment

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.9 Dry sieving system (>63µm)

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Dry sieving system (>63µm)**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Serafim Poulos Department of Geology & Geoenvironment, National and Kapodistrian University of Athens Laboratory of Physical Geography University Campus, Athens 15784, Greece Phone: +30 210 7274143 e-mail: poulos@geo.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

Complete system for dry sieving of coarse-grained sediments (≥63µm). Includes two series of sieves from 63µm to 16cm, per ½ ϕ, drying oven, vibrating device, splitter and distilled water supply system.

Instruments/Sensors

Modality of access

Presence: the presence of the user is required for the operation of the equipment

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.10 Weather Station

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Weather Station**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Prof Serafim Poulos Department of Geology & Geoenvironment, National and Kapodistrian University of Athens Laboratory of Physical Geography University Campus, Athens 15784, Greece Phone: +30 210 7274143 e-mail: poulos@geo.uoa.gr	

Description	Instruments/Sensors	Modality of access	Service & support	Special owner rules

Description

Wireless autonomous Weather station and logger with sensors of temperature, wind speed and direction, humidity and rain. Solar Power Panel 0.5 Watts Operating Temperature: -40° to +65°C Barometric Range: Temperature Range: 0° to +60°C Heat Index Range: -40° to +74°C Humidity Range: 1 to 100% RH Rainfall Range: 0 to 6553 mm

Instruments/Sensors

Instrument	Measured Parameter(s)	Range	Frequency	Resolution

Weather Station	Pressure	410 to 820 mm Hg	1 sec	0.1 mm Hg
	Temperature	0° to +60°C		0.1°C
	Heat Index	-40° to +74°C		1°C
	Humidity	1 to 100% RH		1%
	Rainfall	0 to 6553 mm		0.2 mm

Modality of access

Presence: the presence of the user is required for the operation of the equipment.

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.11 Double beam UV-VIS spectrophotometer

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Double beam UV-VIS spectrophotometer**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Manos Dassenakis Professor Department of Chemistry, National and Kapodistrian University of Athens Laboratory of Environmental Chemistry, University Campus, Athens 15784, Greece Phone: +30 210 7274269 e-mail: edasenak@chem.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

Double beam UV-VIS spectrophotometer with scanning capacity and measuring positions for cuvettes with optical length of 1cm and 5 cm. It is utilized mainly for spectrophotometric methods in aquatic samples (nutrients, chlorophyll) as well as other parameters than can be measured photometrically.

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Range**	**Frequency**	**Resolution**
VARIAN- Cary1E	Nitrites, nitrates, sillicates, ammonium, phosphates, chlorophyll, etc.	Depending on optical path (1 or 5cm)	-	0.0001 absorbance units

Modality of access

Presence: the presence of the user is required for the operation of the equipment.

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

4.12 Water and Sediment Samplers

Infrastructure (short name)	Coastal Zone Monitoring Infrastructure	ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών ΙΔΡΥΘΕΝ ΤΟ 1837
Installation (short name)	**Double beam UV-VIS spectrophotometer**	
Legal name of organization	NKUA	
Country	Greece	
Contact	Manos Dassenakis Professor Department of Chemistry, National and Kapodistrian University of Athens Laboratory of Environmental Chemistry, University Campus, Athens 15784, Greece Phone: +30 210 7274269 e-mail: edasenak@chem.uoa.gr	

Description	**Instruments/Sensors**	**Modality of access**	**Service & support**	**Special owner rules**

Description

For the collection of water samples from the various water bodies Niskin samplers are used, whereas for the sampling of surficial sediments the Birge-Eckman grab is used.

Instruments/Sensors

Modality of access

Presence: the presence of the user is required for the operation of the equipment.

Unit of access: day. Minimum duration, in principle corresponding to the period of installing, operating and un-installing the system by the users or on his/her behalf by the access provider.

Service & support

The scientific and technical staff of the groups participating in the Coastal Zone infrastructure will provide the user with all required information. Training workshops/ seminars will be provided.

Special owner rules

Access will be provided by the administrator of the node upon request.

5. University of Ioannina – Department of Agriculture

5.1 Agro-Meteorological station at Kostakii campus

Infrastructure (short name)	Agrometeorological stations network (plain of Arta)	 **University of Ioannina**
Installation (short name)	UOI Campus Kostakii - S08 (S08)	
Location	Kostakii, Arta	
Coordinates	39.12, 20.95	
Altitude	10 m	
Legal name of organization	University of Ioannina – Department of Agriculture	
Country	Greece	
Contact	Ioannis L. Tsiroyiannis University of Ioannina Department of Agriculture Kostakii Arta, Postal Code 47100, Greece Tel: +30- 2681050249 Fax:+30- 2681050240 E-mail: itsirog@uoi.gr	

Description	**Instruments Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

S08 is an agrometeorological station located at the campus of UOI at Kostakii, Arta.

The station is powered by a PV panel and it is equipped with the following sensors:

- Wind speed
- Wind direction
- Rain gauge
- Pyranometer
- Air temperature
- Relative Humidity
- Global - Diffuse radiation - Sunshine duration
- Soil moisture at 3 depths, i.e. 10 cm, 30 cm, 50 cm
- Soil temperature at 3 depths, i.e. 10 cm, 30 cm, 50 cm

Data are transmitted to the communications center gateway, using ADCON A753 addWAVE UHF

Web site address : https://system.irrigation-management.eu/stations/1402/

Instruments/Sensors

Instrument	Measured Parameter(s)	Elevation/Depth	Sampling	Frequency of data recovery
Thiesclima_Wind-Small-Wind and NRG 200P	Wind Speed and Wind Direction	3 m	10 min	1 hour
Pronamic Rain-O-Matic	Rainfall	2 m	10 min	1 hour
E+E Electronik EE08 with protection shield	Air Temperature and Relative Humidity	2 m	10 min	1 hour
Delta-T BF5	Global - Diffuse Radiation - Sunshine Duration	3 m	10 min	1 hour
Decagon PYR – SP110	Solar radiation	2 m	10 min	1 hour
Meter Decagon Devices 5TM	Soil Moisture and Soil Temperature	–10 cm, –30 cm and –50 cm	10 min	1 hour

Modality of access

Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

S08 is part of the Agrometeorological stations network installed across the plain of Arta. All stations have modular design to support different types of sensors. Data are transmitted by UHF to the communications center and they are freely provided in near real time at: https://system.irrigation-management.eu

Access to S08 will take place during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request. Additionally, users can have unlimited access to historical data. Deployment of additional sensors is possible.

Special owner rules

The scientific and technical personnel of UOI will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the station, the user will have to provide the software and hardware adaptations required.

5.2 Agro-Meteorological station at Louros

Infrastructure **(short name)**	Agrometeorological stations network (plain of Arta)	 **University of Ioannina**
Installation **(short name)**	TOEB Lourou - S02 (S02)	
Location	Louros, Arta	
Coordinates	39.08, 20.89	
Altitude	0 m	
Legal name of organization	University of Ioannina - Department of Agriculture	
Country	Greece	
Contact	Ioannis L. Tsiroyiannis University of Ioannina Department of Agriculture Kostakii Arta, Postal Code 47100 GR-190 13, Greece Tel: +30- 2681050249 Fax:+30- 2681050240 E-mail: itsirog@uoi.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

S02 is an agrometeorological station located at the pumping station of Louros, Arta.

The station is powered by a PV panel and it is equipped with the following sensors:

- Wind speed
- Wind direction
- Rain gauge
- Pyranometer
- Air temperature
- Relative Humidity
- Global - Diffuse radiation - Sunshine duration
- Soil moisture at 3 depths, i.e. 10 cm, 30 cm, 50 cm
- Soil temperature at 3 depths, i.e. 10 cm, 30 cm, 50 cm

Data are transmitted to the communications center gateway, using ADCON A753 addWAVE UHF

Web site address : https://system.irrigation-management.eu/stations/1405/

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
Thiesclima_Wind-Small-Wind and NRG 200P	Wind Speed and Wind Direction	3 m	10 min	1 hour

Pronamic Rain-O-Matic	Rainfall	2 m	10 min	1 hour
E+E Electronik EE08 with protection shield	Air Temperature and Relative Humidity	2 m	10 min	1 hour
Delta-T BF5	Global - Diffuse Radiation - Sunshine Duration	3 m	10 min	1 hour
Decagon PYR – SP110	Solar radiation	2 m	10 min	1 hour
Meter Decagon Devices 5TM	Soil Moisture and Soil Temperature	–10 cm, –30 cm and –50 cm	10 min	1 hour

Modality of access

Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

S02 is part of the Agrometeorological stations network installed across the plain of Arta. All stations have modular design to support different types of sensors. Data are transmitted by UHF to the communications center and they are freely provided in near real time at: https://system.irrigation-management.eu

Access to S02 will take place during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request. Additionally, users can have unlimited access to historical data. Deployment of additional sensors is possible.

Special owner rules

The scientific and technical personnel of UOI will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the station, the user will have to provide the software and hardware adaptations required.

5.3 Agro-Meteorological station at Agios Spiridonas

Infrastructure (short name)	Agrometeorological stations network (plain of Arta)	 **University of Ioannina**
Installation (short name)	Agios Spiridonas - S06 (S06)	
Location	Agios Spiridonas, Arta	
Coordinates	39.15, 20.88	
Altitude	10 m	
Legal name of organization	University of Ioannina	
Country	Greece	
Contact	Ioannis L. Tsiroyiannis University of Ioannina Department of Agriculture Kostakii Arta, Postal Code 47100 GR-190 13, Greece Tel: +30- 2681050249 Fax:+30- 2681050240 E-mail: itsirog@uoi.gr	

Description	**Instruments Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

S06 is an agrometeorological station located at the Agios Spiridonas, Arta.

The station is powered by a PV panel and it is equipped with the following sensors:

- Wind speed

- Wind direction
- Rain gauge
- Pyranometer
- Air temperature
- Relative Humidity
- Global - Diffuse radiation - Sunshine duration
- Soil moisture at 3 depths, i.e. 10 cm, 30 cm, 50 cm
- Soil temperature at 3 depths, i.e. 10 cm, 30 cm, 50 cm

Data are transmitted to the communications center gateway, using ADCON A753 addWAVE UHF

Web site address : https://system.irrigation-management.eu/stations/1403/

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
Thiesclima_Wind-Small-Wind and NRG 200P	Wind Speed and Wind Direction	3 m	10 min	1 hour
Pronamic Rain-O-Matic	Rainfall	2 m	10 min	1 hour

E+E Electronik EE08 with protection shield	Air Temperature and Relative Humidity	2 m	10 min	1 hour
Delta-T BF5	Global - Diffuse Radiation - Sunshine Duration	3 m	10 min	1 hour
Decagon PYR – SP110	Solar radiation	2 m	10 min	1 hour
Meter Decagon Devices 5TM	Soil Moisture and Soil Temperature	–10 cm, –30 cm and –50 cm	10 min	1 hour

Modality of access

Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

S06 is part of the Agrometeorological stations network installed across the plain of Arta. All stations have modular design to support different types of sensors. Data are transmitted by UHF to the communications center and they are freely provided in near real time at: https://system.irrigation-management.eu

Access to S06 will take place during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request. Additionally, users can have unlimited access to historical data. Deployment of additional sensors is possible.

Special owner rules

The scientific and technical personnel of UOI will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the station, the user will have to provide the software and hardware adaptations required.

5.4 Agro-Meteorological station at Kommeno

Infrastructure (short name)	Agrometeorological stations network (plain of Arta)	 **University of Ioannina**
Installation (short name)	Kommeno - S09 (S09)	
Location	Kommeno, Arta	
Coordinates	39.05, 21.01	
Altitude	10 m	
Legal name of organization	University of Ioannina	
Country	Greece	
Contact	Ioannis L. Tsiroyiannis University of Ioannina Department of Agriculture Kostakii Arta, Postal Code 47100 GR-190 13, Greece Tel: +30- 2681050249 Fax:+30- 2681050240 E-mail: itsirog@uoi.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

S09 is an agrometeorological station located at the Kommeno, Arta.

The station is powered by a PV panel and it is equipped with the following sensors:

- Wind speed
- Wind direction
- Rain gauge
- Pyranometer
- Air temperature
- Relative Humidity
- Global - Diffuse radiation - Sunshine duration
- Soil moisture at 3 depths, i.e. 10 cm, 30 cm, 50 cm
- Soil temperature at 3 depths, i.e. 10 cm, 30 cm, 50 cm

Data are transmitted to the communications center gateway, using ADCON A753 addWAVE UHF

Web site address : https://system.irrigation-management.eu/stations/1406/

Instruments/Sensors

Instrument	Measured Parameter(s)	Elevation/Depth	Sampling	Frequency of data recovery

Thiesclima_Wind-Small-Wind and NRG 200P	Wind Speed and Wind Direction	3 m	10 min	1 hour
Pronamic Rain-O-Matic	Rainfall	2 m	10 min	1 hour
E+E Electronik EE08 with protection shield	Air Temperature and Relative Humidity	2 m	10 min	1 hour
Delta-T BF5	Global - Diffuse Radiation - Sunshine Duration	3 m	10 min	1 hour
Decagon PYR – SP110	Solar radiation	2 m	10 min	1 hour
Meter Decagon Devices 5TM	Soil Moisture and Soil Temperature	–10 cm, –30 cm and –50 cm	10 min	1 hour

Modality of access

Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

S09 is part of the Agrometeorological stations network installed across the plain of Arta. All stations have modular design to support different types of sensors. Data are transmitted by UHF to the communications center and they are freely provided in near real time at: https://system.irrigation-management.eu

Access to S09 will take place during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request. Additionally, users can have unlimited access to historical data. Deployment of additional sensors is possible.

Special owner rules

The scientific and technical personnel of UOI will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the station, the user will have to provide the software and hardware adaptations required.

5.5 Agro-Meteorological station at Kambi

Infrastructure (short name)	Agrometeorological stations network (plain of Arta)	 **University of Ioannina**
Installation (short name)	Kambi – S12 (S12)	
Location	Kambi, Arta	
Coordinates	39.22, 20.91	
Altitude	10 m	
Legal name of organization	University of Ioannina	
Country	Greece	
Contact	Ioannis L. Tsiroyiannis University of Ioannina Department of Agriculture Kostakii Arta, Postal Code 47100 GR-190 13, Greece Tel: +30- 2681050249 Fax:+30- 2681050240 E-mail: itsirog@uoi.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

S12 is an agrometeorological station located at the Kambi, Arta.

The station is powered by a PV panel and it is equipped with the following sensors:

- Wind speed
- Wind direction
- Rain gauge
- Pyranometer
- Air temperature
- Relative Humidity
- Global - Diffuse radiation - Sunshine duration
- Soil moisture at 3 depths, i.e. 10 cm, 30 cm, 50 cm
- Soil temperature at 3 depths, i.e. 10 cm, 30 cm, 50 cm

Data are transmitted to the communications center gateway, using ADCON A753 addWAVE UHF

Web site address : https://system.irrigation-management.eu/stations/1404/

Instruments/Sensors

Instrument	Measured Parameter(s)	Elevation/Depth	Sampling	Frequency of data recovery
Thiesclima_Wind-Small-Wind and NRG 200P	Wind Speed and Wind Direction	3 m	10 min	1 hour
Pronamic Rain-O-Matic	Rainfall	2 m	10 min	1 hour
E+E Electronik EE08 with protection shield	Air Temperature and Relative Humidity	2 m	10 min	1 hour
Delta-T BF5	Global - Diffuse Radiation - Sunshine Duration	3 m	10 min	1 hour
Decagon PYR – SP110	Solar radiation	2 m	10 min	1 hour
Meter Decagon Devices 5TM	Soil Moisture and Soil Temperature	–10 cm, –30 cm and –50 cm	10 min	1 hour

Modality of access

Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

S12 is part of the Agrometeorological stations network installed across the plain of Arta. All stations have modular design to support different types of sensors. Data are transmitted by UHF to the communications center and they are freely provided in near real time at: https://system.irrigation-management.eu

Access to S12 will take place during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request. Additionally, users can have unlimited access to historical data. Deployment of additional sensors is possible.

Special owner rules

The scientific and technical personnel of UOI will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the station, the user will have to provide the software and hardware adaptations required.

5.6 Agro-Meteorological station at Kompoti

Infrastructure **(short name)**	Agrometeorological stations network (plain of Arta)	 **University of Ioannina**
Installation **(short name)**	Kompoti – S20 (S20)	
Location	Kompoti, Arta	
Coordinates	39.10, 21.06	
Altitude	15 m	
Legal name of organization	University of Ioannina	
Country	Greece	
Contact	Ioannis L. Tsiroyiannis University of Ioannina Department of Agriculture Kostakii Arta, Postal Code 47100 GR-190 13, Greece Tel: +30- 2681050249 Fax:+30- 2681050240 E-mail: itsirog@uoi.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

S20 is an agrometeorological station located at the Kompoti, Arta.

The station is powered by a PV panel and it is equipped with the following sensors:

- Wind speed
- Wind direction
- Rain gauge
- Pyranometer
- Air temperature
- Relative Humidity
- Global - Diffuse radiation - Sunshine duration
- Soil moisture at 3 depths, i.e. 10 cm, 30 cm, 50 cm
- Soil temperature at 3 depths, i.e. 10 cm, 30 cm, 50 cm

Data are transmitted to the communications center gateway, using GPRS

Web site address : https://system.irrigation-management.eu/stations/1407/

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
Thiesclima_Wind-Small-Wind and NRG 200P	Wind Speed and Wind Direction	3 m	10 min	1 hour

Pronamic Rain-O-Matic	Rainfall	2 m	10 min	1 hour
E+E Electronik EE08 with protection shield	Air Temperature and Relative Humidity	2 m	10 min	1 hour
Delta-T BF5	Global - Diffuse Radiation - Sunshine Duration	3 m	10 min	1 hour
Decagon PYR – SP110	Solar radiation	2 m	10 min	1 hour
Meter Decagon Devices 5TM	Soil Moisture and Soil Temperature	–10 cm, –30 cm and –50 cm	10 min	1 hour

Modality of access

Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

S20 is part of the Agrometeorological stations network installed across the plain of Arta. All stations have modular design to support different types of sensors. Data are transmitted by GPRS to the communications center and they are freely provided in near real time at: https://system.irrigation-management.eu

Access to S20 will take place during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request. Additionally, users can have unlimited access to historical data. Deployment of additional sensors is possible.

Special owner rules

The scientific and technical personnel of UOI will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new

sensors into the station, the user will have to provide the software and hardware adaptations required.

5.7 Meteorological station at Aktion

Infrastructure **(short name)**	Agrometeorological stations network (plain of Arta)	 **University of Ioannina**
Installation **(short name)**	Aktion (Aktion)	
Location	Aktion, Preveza	
Coordinates	38.95, 20.76	
Altitude	2 m	
Legal name of organization	University of Ioannina	
Country	Greece	
Contact	Ioannis L. Tsiroyiannis University of Ioannina Department of Agriculture Kostakii Arta, Postal Code 47100 GR-190 13, Greece Tel: +30- 2681050249 Fax:+30- 2681050240 E-mail: itsirog@uoi.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

Aktion is a meteorological station located at the Aktion, Preveza.

The station is powered by a PV panel and it is equipped with the following sensors:

- Wind speed
- Wind direction
- Rain gauge
- Pyranometer
- Air temperature
- Relative Humidity
- Barometric pressure

Data are transmitted to the communications center gateway, using GPRS

Web site address : https://system.irrigation-management.eu/stations/1427/

Instruments/Sensors

Instrument	Measured Parameter(s)	Elevation/Depth	Sampling	Frequency of data recovery
GILL Meteo package	Wind speed, Wind Direction, Air Temperature, Barometric Pressure, Relative Humidity	3 m	10 min	1 hour
Pronamic Rain-O-Matic	Rainfall	2 m	10 min	1 hour
Decagon PYR – SP110	Solar radiation	2 m	10 min	1 hour

Modality of access

Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

Aktion is part of the Agrometeorological stations network installed across the plain of Arta. All stations have modular design to support different types of sensors. Data are transmitted by GPRS to the communications center and they are freely provided in near real time at: https://system.irrigation-management.eu

Access to Aktion will take place during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request. Additionally, users can have unlimited access to historical data. Deployment of additional sensors is possible.

Special owner rules

The scientific and technical personnel of UOI will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the station, the user will have to provide the software and hardware adaptations required.

5.8 Meteorological station at Lamari

Infrastructure (short name)	Agrometeorological stations network (plain of Arta)	 **University of Ioannina**
Installation (short name)	TOEB Lamaris (TOEB Lamaris)	
Location	TOEB Lamaris, Preveza	
Coordinates	39.10, 20.73	
Altitude	6 m	
Legal name of organization	University of Ioannina	
Country	Greece	
Contact	Ioannis L. Tsiroyiannis University of Ioannina Department of Agriculture Kostakii Arta, Postal Code 47100 GR-190 13, Greece Tel: +30- 2681050249 Fax:+30- 2681050240 E-mail: itsirog@uoi.gr	

Description	**Instruments** **Sensors**	**Modality of access**	**Service & support**	**Special rules**

Description

TOEB Lamaris is a meteorological station located at Lamari, Preveza.

The station is powered by a PV panel and it is equipped with the following sensors:

- Wind speed
- Wind direction
- Rain gauge
- Pyranometer
- Air temperature
- Relative Humidity

Data are transmitted to the communications center gateway, using GPRS

Web site address : https://system.irrigation-management.eu/stations/1428/

Instruments/Sensors

Instrument	**Measured Parameter(s)**	**Elevation/Depth**	**Sampling**	**Frequency of data recovery**
Pronamic Rain-O-Matic	Rainfall	2 m	10 min	1 hour

E+E Electronik EE08 with protection shield	Air Temperature and Relative Humidity	2 m	10 min	1 hour
Decagon PYR – SP110	Solar radiation	2 m	10 min	1 hour
THIES	Wind Speed	3 m	10 min	1 hour
NRG	Wind Direction	3 m	10 min	1 hour

Modality of access

Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

TOEB Lamaris is part of the Agrometeorological stations network installed across the plain of Arta. All stations have modular design to support different types of sensors. Data are transmitted by GPRS to the communications center and they are freely provided in near real time at: https://system.irrigation-management.eu

Access to TOEB Lamaris will take place during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request. Additionally, users can have unlimited access to historical data. Deployment of additional sensors is possible.

Special owner rules

The scientific and technical personnel of UOI will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the station, the user will have to provide the software and hardware adaptations required.

6. Hellenic Centre for Marine Research – Institute of Marine Biological Resources and Inland Waters (IMBRIW)

6.1 Telemetric stations of surface waters monitoring

Infrastructure **(short name)**	IMBRIW Monitoring, and Information System for Inland Waters (IMBRIW-MISIW)	
Installation **(short name)**	Greek rivers (IMBRIW-MIS)	
Location	Evrotas, Pamisos, Alfeios, Acheloos, Spercheios, Pinios, Axios, **Greece**	
Coordinates	36.800° N – 40.800° N 20.000° – 26.000° E	
Legal name of organization	HCMR	
Country	Greece	
Contact	Elias Dimitriou Hellenic Centre for Marine Research Institute of Marine Biological Resources and Inland Waters 46.7 km Athens-Sounio Ave. PO Box 712 Anavyssos, Attica GR-190 13, Greece Tel: +30-22910 76389 Fax:+30-22910 76419 E-mail: elias@hcmr.gr	

Description	**Instruments**	**Modality of access**	**Service & support**	**Special rules**

	Sensors			

Description

The Inland Waters' automatic telemetric stations network of Greece is an operational monitoring and information system for the Greek Rivers. The observing component is a system of new generation sensors and telecommunication protocols. The equipment is comprised of a multiparameter water quality probe, the insitu Aqua TROLL 400 or the Aqua TROLL 600 or the OTT Hydrolab Instrument to measure water stage in the river, temperature, DO, pH and conductivity. In the Aqua TROLL 400 the dissolved oxygen, electrical conductivity, pressure, and temperature sensors are integrated into the instrument, while the pH/ORP sensor and the RDO Sensor Cap are replaceable. In the Aqua TROLL 600, the water level/pressure sensor and barometric pressure sensor are integrated into the sonde, while the conductivity, temperature, turbidity, pH/ORP sensors and the RDO Sensor Cap are replaceable. The Hydrolab on the other hand has four configurable ports that can include combinations of sensors.

There are already many stations installed and operating and a few ones are planned to be installed in summer 2019. The entire network is comprised of stations installed in the basins of two tributaries of the Axios river, in the Achelloos river, Spercheios river, Evrotas river, Pamisos river, Alfeios river, Pinios river in Thessaly.

Web site address : https://imbriw.hcmr.gr/en/automatic-monitoring-data-map/

Instruments/Sensors

Instrument	Measured Parameter(s)	Range	Units of Measure	Frequency of data recovery
Level, Depth, Pressure Sensor	Level, depth and pressure	76 m (250 ft); absolute (non-vented) and 200 m (650 ft) in AT 600 and Hydrolab	Pressure: psi, kPa, bar, mbar, mmHg, inHg Level: mm, cm, m, in, ft	Cont.
Conductivity Sensor	Electrical Conductivity, Salinity, TDS	5 to 100,000 (350,000 in AT600) µS/cm	Actual conductivity (µS/cm, mS/cm) Specific conductivity (µS/cm, mS/cm)	Cont.

			Salinity (PSU) Total dissolved solids (ppt, ppm) Resistivity (Ohms-cm) Density (g/cm3)	
RDO (Optical Dissolved Oxygen Sensor)	Dissolved Oxygen	0 to 8 mg/L; 8 to 20 mg/L; 20 to 50 mg/L; Full operating range: 0 to 50 mg/L	mg/L, % saturation, ppm	Cont.
ORP Sensor Specifications	ORP	±1400 mV ±1000 mV in Hydrolab	mV	Cont.
pH Sensor	pH	0 to 12 (to 14 in AT600 and Hydrolab) pH units	pH units	Cont.
Temperature Sensor	temperature	-5 to 50° C (23 to 122° F)	Celsius, Fahrenheit	Cont.

Modality of access

- Remote: the measuring system is implemented by the operator of the installation and the presence of the user group is not required,
- Partially remote: the presence of the user group is required at some stage e.g. installing and un-installing user's equipment.

Unit of access: month. Minimum duration, in principle corresponding to the period of installing, operating and un-installing a measuring system by the users or in his/her behalf by the access provider.

Service & support

The national telemetric monitoring network of inland waters is both a geographically and scientifically distributed infrastructure in Greek rivers offering end-to-end services both to science and to society. The stations are open for access to users to host sensors for recording a number of parameters.

The stations support different types of sensors but restrictions are applied in specific brands and sensor types. The network provides real time data in most of the cases.

Access will be made during the regular maintenance visits (2-4 per year). The duration of these visits is usually 1 day and can be extended upon request.

Special owner rules

The scientific and technical personnel of the telemetric monitoring network will carry out all operations, while training courses will be given on both hardware and software. In case of integration of new sensors into the system, the user will have to provide the software and hardware adaptations required.