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DANUBIUS RI SUPPORT

Newsletter

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Danube Delta Supersite

For the Danube Delta Supersite component of the DANUBIUS-RI project, the best locations of scientifically critical importance were chosen, studied, proposed, and prepared to achieve all the project's scientific objectives, following its requirements and compliance with national and European legislation.

Following the trips and meetings held in Tulcea County, the analyzes performed by the implementation team for the Danube Delta Supersite, the measurement areas were determined - observation areas and locations for field stations, each with several observation points.

The seven locations of field research stations were selected to ensure the Danube Delta Supersite (Natural Laboratory) 's good functioning in optimal socio-economic conditions, with a minimal negative impact on the environment: Murighiol (future area HUB), Chilia Veche, Tulcea, Sulina, Sf. Gheorghe, Jurilovca and Grindu.

Each field station will have several observation points rounded off for data collection and sampling. The field stations will be located in existing buildings (Sulina) or on free construction land, in the case of stations located at Murighiol Hub, Chilia Veche, Tulcea, Sf. Gheorghe, Jurilovca, Grindu.

Sulina Field Research Station (ST)

The location of the Sulina field station was selected for the detailed study of the Sulina observation area

Sulina mooring point.

The mooring of the technical ships that will serve Sulina Station will be done at a dedicated pontoon that will be moored.

The observation points of the station will cover on one side the Sulina mouth in the Black Sea, Baia Musura, and the South Sulina coastal section, the communication between the Sulina distributor with Baia Musura and with Busurca Canal to the Roșu – Roșulet lake system, but also the set of canals and lakes that communicate in the interdistributive depression and the evolution of the initial spit of the Danube Delta, Letea – Caraorman.

The field station will operate in the building of the Romanian Academy Stationary under the administration of the Institute of Biology, Sulina branch, located on Second Street, no. 35, Sulina. The building, called "Parparia" House, is listed on the list of historical monuments in Tulcea County, LMI code TL-II-m-B-21102.

The building currently houses research facilities in hydrobiology and is a center of excellence in biodiversity research in the Danube Delta Biosphere Reserve. The endowment will be completed with sediment testing equipment, equipment and equipment for primary processing and preservation of integrated samples in specialized laboratories:

- Life Sciences Laboratory;
- Earth Sciences Laboratory;
- Analog laboratory - which will model different processes of scientific interest in the area of river-sea
- interaction.

Observation points (PO) and Piezometric Drilling

The Research System (the necessary equipment complex) will be mounted in containers on a floating platform anchored with two metal columns to be able to take over the differences in water level. Where this is not possible, or the location conditions don't allow it, this will be mounted in containers on the shore.

Sulina station has ascribed:

A. Seven observation points:

1. Sulina_1: Pontoon + Container, located on the left bank - Sulina arm, 1350 m upstream of the city, approximately opposite the confluence of Sulina Arm with Busurca Canal; Access to the observation point (PO) Sulina_1 will be made exclusively from water.

2. Sulina_2: Pontoon + Container, located on the left bank of the Busurca Canal, at approx. 1100 m from the confluence with the Sulina Arm; Access to (PO) Sulina_2 will be made exclusively from water.

3. Sulina_3: Container, located on the right bank, on the southern jetty, at the Sulina weather station; Access to (PO) Sulina_3 will be made exclusively from water.

4. Crișan_1: Container, located on the left bank - the Sulina arm at the confluence between the Sulina Arm and the Old Danube; The access to (PO) Crișan_1 will be made from the water, with landing in the container area.

5. Crișan_2: Container, located on the left bank - Caraorman Canal, at approx. 200 m from the confluence with Sulina; The access to (PO) Crișan_2 will be made from the water, with landing in the container area;

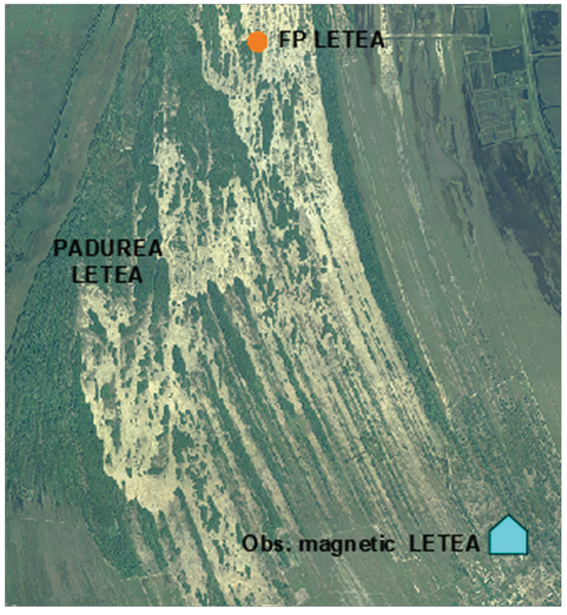
6. Caraorman_1: Pontoon + Container, located on the left bank - Caraorman Canal, next to the Caraorman fish farm; the approx. 200 m from Caraorman_2, towards the fishery arrangement, on the dam, an ICOS tower will be installed for networking with other research infrastructures according to the ESFRI requirements; Access to (PO) Caraorman_1 will be made exclusively from water.

7. Caraorman_2: Pontoon + Container, located on Lake Puiu - approx. 250 m North of the entrance of the Caraorman Canal in the lake, Access to (PO) Caraorman_2 will be made exclusively from the water.

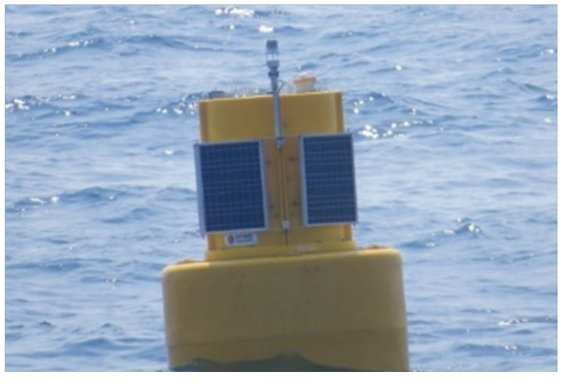
B. Piezometric Drilling:

1. Sulina piezometric drilling (FP), is located on the right bank of the Sulina Arm, in the Sulina Free Zone Basin area. Access to (FP) Sulina will be by land.

2. Piezometric drilling (FP) Letea, is located north of Letea Forest. Access to (FP) Letea will be by land.

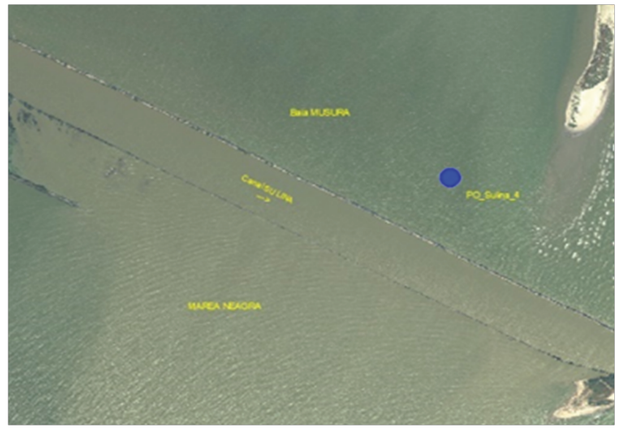


C. Coastal observation points:



Sulina_4: Buoy

The buoy will be mounted north of the northern jetty of the Sulina Canal, in Baia Musura. The access to Sulina_4 will be made exclusively from the water, with the help of the technical maritime ship dedicated especially to the maintenance of all the buoys and coastal beacons that will belong to DANUBIUS-RO.

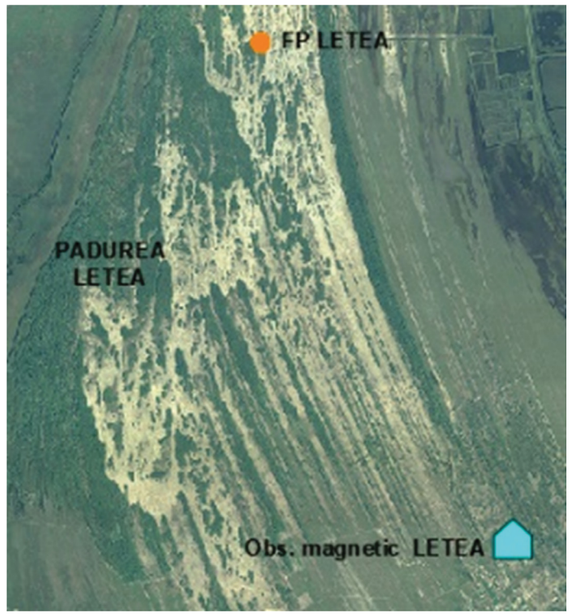


Sulina_5: Coastal beacon

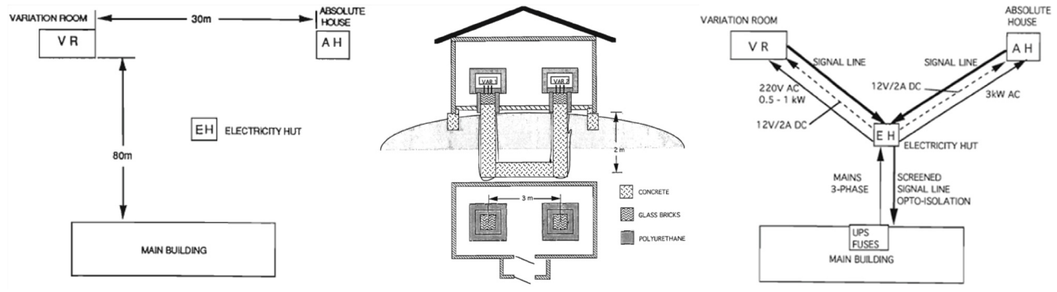
The beacon will be mounted at the isobath (-15.00) m south of the southern jetty of the Sulina Canal, approximately in front of the former mouth of the Stinking Gorge. The access to Sulina_5 will be made exclusively from the water, with the help of the technical maritime ship dedicated especially to the maintenance of all the buoys and coastal beacons that will belong to DANUBIUS-RO.

D. Letea magnetic observer

Location: South of Letea Forest, in the area of C. A. Rosetti.



The recording and absolute measuring equipment shall be installed in two different enclosures (variometer housing, VR, and absolute measuring housing, AH) at a distance of at least 80 m from the building observation point, according to the related scheme.



The following parameters will be measured and analyzed:
Air temperature, humidity, visibility, evapo-perspiration, precipitation, aerosols, wind (speed / direction), flow, level (includes tides), waves and currents (coastal stations), water flow characterization, light transmittance (sea, lake), water temperature, conductivity / salinity, pH, chlorophyll-a, turbidity, total suspended sediment, particle size distribution (suspended and bottom), NO3 seawater and freshwater, NH4 seawater and freshwater, TP water seawater and freshwater, SRP seawater and freshwater, carbon (TOC, DOC), dissolved oxygen, hydrogen sulfide (H2S), methane (CH4).

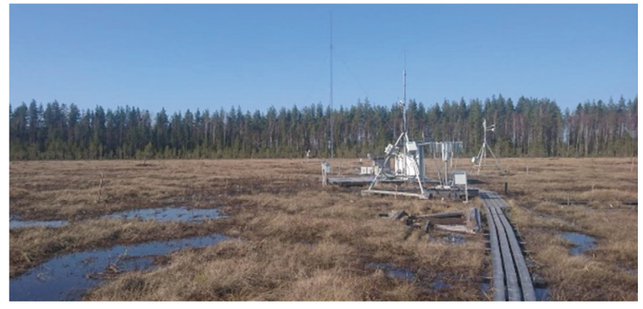
Equipped containers that will measure a large number of hydrological, geochemical, geological, geomorphological, hydro chemical, biological, etc. parameters will be installed in the observation points. From the construction point of view, the observation points (containers) will be positioned on water or on land. Sensors for measuring the physical and chemical parameters of the water will be placed inside. Other sensors (eg for measuring water level, speed and flow) will be mounted on movable scaffolding in water, so that it can be easily maintained / repaired / replaced.

Each observation point will be equipped with communication equipment for the transmission of measured data, with solar panels and batteries to ensure the necessary energy and with surveillance and guard equipment (proximity sensors, perimeter lights and video surveillance).

The equipment and endowments necessary for each observation point will be purchased according to the parameters to be measured and analyzed: water level, conductivity, water temperature, chlorophyll a, pH, turbidity, NO3, NO2, NH4, TN, carbon (TOC, DOC), dissolved O2, T ° air, humidity, visibility, evapo-perspiration, precipitation, aerosols, wind, CH4, H2S, CO2, pressure (level), 3 x (conductivity, Tapa) (at various depths), light transmissivity , NO3 seawater / Acoustic Doppler Current Profiler (ADCP), SRP, submersible multi-parametric system for in-situ observation of particle size distribution (in suspension and bottom) and volumetric concentration.

Networking ESFRI (The European Strategy Forum on Research Infrastructure)

In order to create a network between the research infrastructures, on the territory of the Danube Delta Supersite will be installed:
- 4 observation points on the Murighiol meander, Murighiol observation area, for collaboration with DREAM - Danube River Research and Management
- 2 ICOS towers in the positions of the Caraorman_1 and SfGheorghe_2 observation points, for the collaboration with ICOS RI - Integrated Carbon Observation System Research Infrastructure
- 1 complete seismic station in Murighiol and a complex observatory for measuring the magnetic field, ionization of the atmosphere, modern weather station, GPS and detection of electrical discharges at the FP Letea observation point, thus ensuring collaboration with EPOS - European Plate Observing System - Research Infrastructure for Solid Earth Science. Coastal stations will also be integrated into the Black Sea hazard monitoring system and the EPOS network.



The SULINA Field Research Station will manage:
- networking cu EPOS RI – Observatorul magnetic Letea unde se vor monta și echipamente pentru o stație seismică completă;
- networking cu ICOS RI – ICOS Tower situat lângă Punctul de Observație Caraorman_1, care va fi de tip ”tower for wetlands”. Spre exemplificare se prezintă figurile de mai jos:

Transport equipment

The Sulina Field Research Station (ST) will be equipped with the following transport equipment:

A maritime technical vessel - dedicated to the interventions and maintenance of buoys and coastal beacons under the administration of DANUBIUS-RO, a catamaran - which will be used for the maintenance of observation points in the Delta area of the Supersite, managed by ST Sulina. It will also be available for teams of researchers who will study the Sulina zoom in DANUBIUS projects, a 4 x 4 off-road car - which will be used for land trips to the Observation Points and the Letea Geomagnetic Observatory, a UTV (Utility Terrain Vehicle) - used for transporting samples and maintaining sensors in hard-to-reach points.

Online conference - “Estuaries and costal seas in the Anthropocene, Structure, functions, services and management”

Between September 6-9, 2021, the ECSA-EMECS 13 online conference “Estuaries and costal seas in the Anthropocene, Structure, functions, services and management” will take place.

Additional information can be obtained by accessing
http://www.estuarinecoastalconference.com/?utm_campaign=STM-J_121852_CONF_NEWS_AB&utm_medium=email&utm_acid=57579276&SIS_ID=&dgcid=STMJ_121852_CONF_NEWS_AB&CMX_ID=&utm_in=DM126448&utm_source=AC_

Third JPI Water Conference,

November 17-18, 2021

The third JPI conference “FROM RESEARCH TO PRACTICE: POLLUTANTS, PATHOGENS AND ANTIMICROBIAL RESISTANCES IN THE WATER CYCLE” will take place on November 17-18, 2021 in Mülheim. The aim of the conference is to encourage the transfer from research to practice to end users and policy makers.

It will mobilize European and international experts and researchers in the field of water, European institutions, political representatives and representatives of the European Commission.

In the context of the conference, a European competition will be hosted entitled "Digital solutions for the control of pollutants, pathogens and antimicrobial resistance in the water cycle". Further information on this competition can be found at https://waterjpi-conference-muelheim.com/

www.dans2.ro

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