

DANUBIUS-RI: A distributed, pan-European Research Infrastructure for Advanced Studies on River-Sea Systems

Our Motivation

Rivers, transitional waters and adjacent coastal seas are continuously changing over different spatial (regional, national and global) and temporal (seasons to centuries) scales due to various natural and human pressures. Consequently, the quantity and quality of water and sediment transported along the river-sea continuum as well as the structure and functioning of associated ecosystems are fundamentally changing the provision of ecosystems services by River-Sea Systems. However, the ability to respond to these changes is limited due to a lack of understanding regarding the functioning of River-Sea Systems, whereas the advancement of this understanding is hindered by unsuitable and/or fragmented research facilities, research and data.

Our Mission

DANUBIUS-RI, the International Centre for Advanced Studies on River-Sea Systems, currently brings together around 30 partner organisations from 15 countries coordinated by the Romanian research institute GeoEcoMar. DANUBIUS-RI is a long-term, distributed, interdisciplinary European research infrastructure (RI) integrating studies of rivers and their catchments, transitional waters, such as estuaries and deltas, and their adjacent coastal seas (i.e. River-Sea Systems). Our mission is to facilitate and provide interdisciplinary knowledge for the sustainable management of River-Sea Systems by (1) providing research facilities linking freshwater, transitional and coastal waters; (2) advancing process and system understanding; (3) enhancing stakeholder engagement; and (4) enabling the development of integrated management options and environmental policy-making. In 2016, the European Strategy Forum for Research Infrastructures (ESFRI) included DANUBIUS-RI in its Roadmap highlighting the relevance of a pan-European research infrastructure for River-Sea Systems. The Horizon 2020 project DANUBIUS-PP (Preparatory Phase) has built the scientific, legal and financial foundation to implement and operate DANUBIUS-RI (www.danubius-pp.eu).

Our Research Themes

The Science & Innovation Agenda of DANUBIUS-RI is guiding the research infrastructure's evolution as it progresses from preparation through implementation to operation. It describes the vision, mission and approach, as well as providing a framework for DANUBIUS-RI's research and highlighting DANUBIUS-RI's research priorities. The framework includes interrelated key challenges in River-Sea Systems, such as climate change and extreme events, the quantity and quality of water and sediment transported along the river-sea continuum as well as the structure and functioning of associated ecosystems.

Our Components & Services

DANUBIUS-RI comprises a Hub, Data Centre, Technology Transfer Office, as well as Nodes and Supersites. Nodes provide the best available methods and expertise regarding observation and analysis, modelling and socio-economic impact. Supersites will provide laboratory, field and Earth observation data and access to River-Sea Systems at locations of scientific relevance and political opportunity to study the functioning of these systems, to assess impacts and risks from various human activities, and to develop and test potential measures to address common challenges. The current set of 12 Supersites cover a wide range of River-Sea Systems along climatic, environmental and socio-economic gradients, as well as along a gradient of human impact across Europe. DANUBIUS-RI provides access to facilities, standardised methods and tools, as well as data and samples related to a range of River-Sea Systems. Furthermore, DANUBIUS-RI brings together relevant expertise and provide expert support, as well as training for students, early career researchers and academics.

Contact

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