

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

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DANUBIUS-RI, the International Centre for Advanced Studies on River-Sea Systems, currently brings together around 30 partners from over 15 countries coordinated by the research institute GeoEcoMar in Romania. DANUBIUS-RI is a long-term, distributed and interdisciplinary 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). The overall aim is to facilitate and provide interdisciplinary knowledge for 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 build the scientific, legal and financial foundation to implement and operate DANUBIUS-RI (www.danubius-pp.eu).

The Science & Innovation Agenda is guiding the research infrastructure's evolution from preparation through implementation to operation. It describes our vision, mission and approach, as well as provides a framework for DANUBIUS-RI's research and highlights DANUBIUS-RI's research priorities. The framework includes interrelated key challenges in River-Sea Systems, such as climate change and extreme events, quantity and quality of water and sediment transported along the river-sea continuum as well as the structure and functioning of associated ecosystems. The Science & Innovation Agenda will be published in November 2019 and will thereafter be regularly updated.

DANUBIUS-RI is composed of 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 provide access to a River-Sea System at locations of scientific relevance and political opportunity to study the functioning of these systems, to assess impacts and risks from various human activities, as well as to develop and test potential measures to address common challenges. The current set of 12 Supersites covers 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 several River-Sea Systems. Furthermore, DANUBIUS-RI brings together relevant expertise and provide expert support, as well as train students and early career researchers.