

EGU2020-18320

<https://doi.org/10.5194/egusphere-egu2020-18320>

EGU General Assembly 2020

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Modus Operandi of the International Centre for Advanced Studies on River-Sea Systems (DANUBIUS-RI)

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DANUBIUS-RI, the International Centre for Advanced Studies on River- Sea Systems, is a distributed environmental research infrastructure on the Roadmap of the European Strategy Forum on Research Infrastructures (ESFRI). DANUBIUS-RI offers a new paradigm in aquatic science: the River- Sea continuum approach. It aims to provide an integrated research infrastructure with interdisciplinary expertise encompassing: remote and in-situ observation systems (including ships), experimental facilities, laboratories, modelling tools and resources for knowledge exchange along freshwater-seawater continua throughout Europe, from river source to sea. The Science and Innovation Agenda of DANUBIUS (SIA), presented in a tandem presentation, provides the scientific rationale that underpins the technical and organisational design of the research infrastructure, hence the components and their interaction. The research needs and priorities identified in the SIA shape the design of the infrastructure to ensure DANUBIUS-RI provides the interdisciplinary expertise, tools and capacities required.

This presentation describes the DANUBIUS-RI components, their functions and interactions, the governance structure and services of the RI to demonstrate how DANUBIUS-RI will transform its mission into science and services for the benefit of healthy River-Sea Systems.

The DANUBIUS-RI Components comprise the Hub, Data Centre, Nodes, Supersites, e-Learning Office and Technology Transfer Office, distributed across Europe. DANUBIUS-ERIC, as legal entity, provides the effective governance framework: it coordinates, manages, harmonizes and communicates the activities carried out by the DANUBIUS-RI Components.

The DANUBIUS Commons will be a key element of DANUBIUS-RI: a set of harmonised regulations, methods, procedures and standards for scientific and non-scientific activities, to guarantee the integrity, relevance, consistency and elevated quality of DANUBIUSRI's products and services. The DANUBIUS Commons will provide the framework to ensure that the outputs of DANUBIUS-RI are compatible, comparable, and exchangeable throughout the research infrastructure, and within the user community.

The DANUBIUS-RI Services span a range of disciplines, which is essential to address the major research questions and challenges in River-Sea Systems. Seven categories of services have been developed: (1) digital and non-digital data; 2) tools, methods and expert support; (3) study and measurements; (4) diagnostic and impact; (5) solution development; tests, audit, validation and certification; and (7) training.

DANUBIUS-RI will cooperate closely with other research infrastructures, including ICOS-ERIC, EMSOERIC, EURO-ARGO ERIC, LifeWatch ERIC and eLTER; with research infrastructure networks such as HYDRALAB and JERICO; with River Basin and Regional Seas Commissions; with data programmes and initiatives such as the European Copernicus programme, EUMETSAT and SeaDataNet; and with research programmes and initiatives such as JPI Water and JPI Oceans.

DANUBIUS-RI has completed its preparatory phase (DANUBIUS-PP) at the end of 2019, and now started its implementation. The first components successfully applied for EU infrastructural funding (EFRE). DANUBIUS-RI is expected to be operational by 2023.

How to cite: Friedrich, J., Bold, S., Heininger, P., Bradley, C., Tyler, A., Stanica, A., and Consortium, D.-P.: Modus Operandi of the International Centre for Advanced Studies on River-Sea Systems (DANUBIUS-RI), EGU General Assembly 2020, Online, 4–8 May 2020, EGU2020-18320, <https://doi.org/10.5194/egusphere-egu2020-18320>, 2020