# The ITINERIS’ EYES oceanographic cruise: InTegrating, INnovating, Evolving Research InfraStructures for hEalthY and predicted marine ecosystemS

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ITINERIS’ EYES is an inter-disciplinary research cruise designed to tackle the health of Mediterranean planktonic ecosystems, and improve their predictability, through multi-platform experiments acquiring several ocean, climate and biodiversity Essential Variables (EVs). The approach of ITINERIS’ EYES is to leverage on the technological contribution of 11 European and national Research Infrastructures (RIs) operating in the marine, atmospheric and biodiversity domains in the framework of the ITINERIS project, the Italian Integrated Environmental Research Infrastructures System (<https://itineris.cnr.it/>): EURO-ARGO, EMSO, ICOS, ACTRIS, DANUBIUS, EUROFLEETS, JERICO, eLTER, DISSCO, SIOS, and LNS.

The mission of ITINERIS’ EYES has been designed to advance our understanding of Mediterranean marine planktonic ecosystems, their biodiversity, functioning and adaptations to climate change. The cruise also aimed to improve our ability to predict the behaviour of marine ecosystems in four dimensions (4D) by addressing gaps in data collection of EVs, also thanks to the deployment of autonomous platforms that are collecting data in scarcely observed areas. Besides, data collected by various RIs’ technologies have been integrated and made FAIR; while fostering capacity building of RIs and promoting activities of science communication.

ITINERIS’ EYES has been carried out on board the CNR’s R/V Gaia Blu between 8th to 30th of July 2025 by 31 units of scientific and technical personnel (61% of ITINERIS’s recruited personnel and early career). We have encompassed the Western Mediterranean Sea, across the Tyrrhenian Sea, the Sardinia Channel, the Algero-Provençal basin and the Ligurian Sea. About 80 autonomous Argo floats and lagrangian drifters have been deployed in multi-platform experiments to extend our observation capabilities beyond the cruise.

Here, we will present the cruise, achievements and preliminary results. The efforts pursued to efficiently integrate RIs at sea and how this will be reflected into the marine IT-IOOS will be discussed.

**Keywords: Marine, Gaia Blu, Multi-platform**