

# **ARGO-ITALY: CATALOGUE OF PRODUCTS AND SERVICES**



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## Catalogue of products and services

- A dedicated **website** is available to support the activities and display the collected data on Argo-Italy in real time, to post graphical and tabular summaries, news and links related to Argo-Italy: <http://argo.ogs.it/#/>
- **Raw data from drifters, floats, and gliders were sent to the Global Data Assembly Centers** (drifter data: AOML/NOAA, Miami, Florida; Float data: Coriolis, Ifremer, Brest, France; glider data: EGO (Everyone's Glider Observatories)). Drifter, float and glider data were distributed in near real time on the Global Telecommunication System (GTS) and assigned a WMO number. Argo float and ocean glider data after a real time quality control performed by Coriolis are sent to Copernicus Marine Service.
- OGS team is committed to carrying out DMQC (delayed mode quality control) for physical parameters on all the Core-Argo floats of the Mediterranean and Black Seas, on Italian Core-Argo floats and on some Core-Argo floats in the world ocean. **DMQC is a second level of data quality control that is performed to provide the highest possible data quality.**
- Argo-Italy is contributing significantly to **monitoring and understanding the status and health of the Mediterranean Sea** (<https://sdgs.un.org/goals/goal13>, <https://sdgs.un.org/goals/goal14>).
- **Data produced by Argo-Italy are widely used by the scientific community and by the operational oceanographic services** and this has a strong impact in climate-change studies, marine environmental protection, economic development and services to society (see an example at <http://www.bio.isprambiente.it/cadeau/>).
- Argo-Italy provides **the data needed by operational ocean monitoring systems** to significantly improve atmosphere and ocean forecasts. Argo-Italy is essential to producing the marine core products and downstream services of European Union **Copernicus Marine Environment Monitoring Service - CMEMS** ([see product list for the Mediterranean Sea](#)).
- Argo-Italy data are routinely **assimilated in the operational [physical](#) and [biogeochemical](#) models of the Mediterranean Sea.**
- Argo-Italy data are distributed in near real time on the **Global Telecommunication System (GTS)** that is a communication network critical for **forecasting and warnings of hydrometeorological hazards** (<https://argo.ucsd.edu/organization/argo-data-system/>).

- Argo-Italy **contributes to other international oceanography programmes**, such as the Mediterranean Oceanography Network for the Global Ocean Observing System ([MONGOOS](#)) and the Global Earth Observation System of Systems ([GEOSS](#))
- Argo-Italy data are also distributed through **other data networks** like: European Marine Observation and Data Network ([EMODnet](#)).
- Argo-Italy data are used to build **Ocean Monitoring Indicators** like the [ocean heat content](#) that is a key factor to measure global warming.
- Together with other observing networks, Argo-Italy data contribute to the **good environmental assessment** by quantifying several [MSFD indicators](#), such as hydrographic changes and eutrophication.
- Argo-Italy data are used by **Italian regional users** (Agenzie ARPA regionali, Protezione Civile, [Laboratorio di monitoraggio e modellistica ambientale in Tuscany](#)) to improve regional forecasting models of marine currents, marine safety, coastal and marine environmental health, marine resources, climate, and daily and seasonal forecast.
- Argo-Italy data are used to **improve weather and [ocean forecasts](#)** to prevent catastrophic phenomena and extreme events.
- Argo-Italy's focus on the Mediterranean Sea has provided and is providing a unique dataset to study **temperature and salinity trends of different water masses** and to monitor in real time extreme events such as **heat waves** and **medicanes** (Mediterranean tropical cyclones, see also Menna et al., 2023) that increasingly affect our seas. Papers on these topics have been published in prestigious scientific journals.
- Argo-Italy floats are also deployed in remote regions of the Earth like the **Ross Sea polynya** to study the water characteristics and formation and their modification in a rapidly changing environment as part of the Programma Nazionale di Ricerche in Antartide (PNRA). These groundbreaking data have allowed us to study specific processes, which has recently generated a manuscript submitted to a prestigious scientific journal.
- BGC-Argo data provided by Argo Italy contribute to studying key processes of the **carbon cycle** and to understand and quantify carbon sequestration.
- Argo-Italy promotes outreach activities (interviews at schools, divulgation at public events) and programs (Adopt-a-Float, [https://argo.ogs.it/adopt\\_a\\_float/#](https://argo.ogs.it/adopt_a_float/#)) to attract the interest of people (mostly students) regarding the importance of the ocean and how crucial its study is to better understand and protect it.

- Argo-Italy promotes training/education of new young scientists through doctoral programs in collaboration with universities.