

Governance for Data Spaces

online webinar | June 26, 2023

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The Global Observation System for Mercury (GOS⁴M)

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DSSC Insight Series

“Governance for Data Spaces”

26 June 2023 | 14:00 to 15:30 CEST | online



The Data Spaces Support Centre receives funding from the European Union Digital Europe Programme under grant agreement n° 101063812.

The context: GOS⁴M as use case for GREAT

The GREAT project aims to **establish the Green Deal Data Space Foundation and its Community of Practice** which builds on both the European Green Deal and the EU's Strategy for Data.

To build the Community of Practice few Use Cases were selected

GOS⁴M was one of them as of its maturity



greatproject.eu



Funded by
the European Union

GEO, the Group on Earth Observations



What is GEO?

Is an Intergovernmental organization of more than 100 Members and in excess of 100 Participating Organizations

Is committed to improve the availability, access and use of Earth observations (EO) for the benefit of society

The GEO Work Programme is the primary instrument used to realize GEO's Mission and Vision



GEO's Implementation

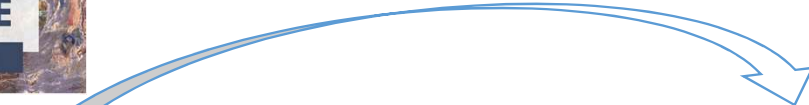
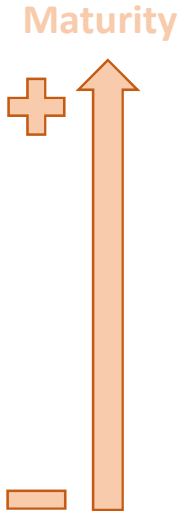


GEO Flagships

GEO Initiatives

GEO Pilot Initiatives

Regional
GEOs

A vertical stack of logos. From top to bottom: "GEO BON" with a globe icon; "GEO | GOS⁴M" with "GLOBAL OBSERVATION SYSTEM FOR MERCURY" below it; "GEOGLAM" with "Global Agricultural Monitoring" below it; "GFOI" with "Global Forest Observations Initiative" below it; and "GEO | LAND DEGRADATION NEUTRALITY" with a globe icon.

Support the implementation of GOS⁴M, which objectives are:

- **to support** the UN Global Partnership on Mercury Fate and Transport Research (UN F&T)
- **to provide** a global data sets of comparable monitoring data by harmonizing data provided by existing regional and global scale networks.
- **to provide** a Knowledge Hub integrating EO data sets and modeling tools that allow to co-design socio-economic-policy driven scenarios.
- **to assess** the effectiveness of measures undertaken by the Minamata Convention that Parties implement to reduce the risk for human health and the environment



Key aspects of the GOS⁴M-KH

- The KH is an integrated **multi-model and multi-domain computational platform** to support the implementation and effectiveness evaluation of the Minamata Convention on Mercury.
- **It is based on** a CTM emulator to provide end-users a scientific-based information on Hg endpoints.
- **It shares** data and programming components.
- **It enables** scenario analysis to assess the effectiveness of measures adopted.



www.gos4m.org

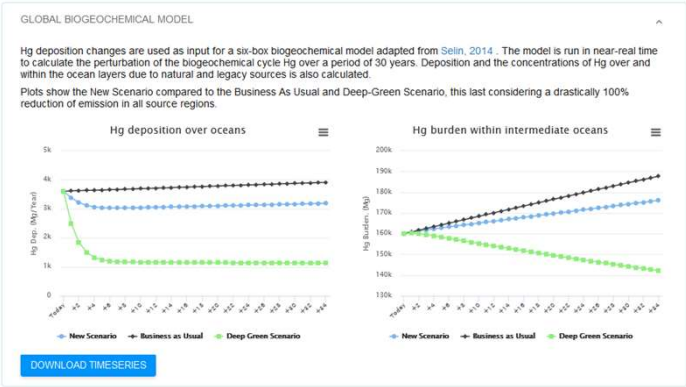
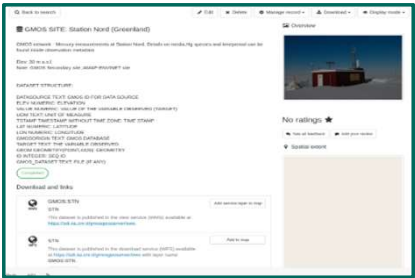
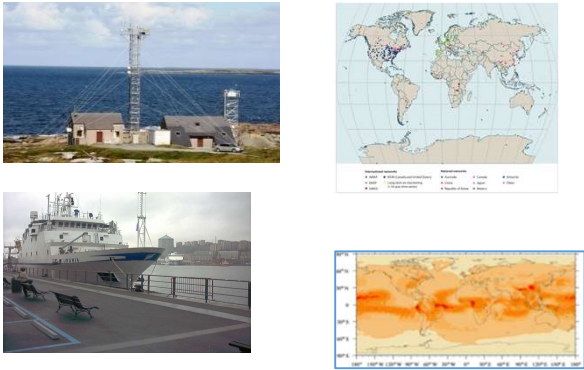


Data Value Chain (simplified)

Data production (observations & simulations) & QA/QC

Data cataloguing & publication

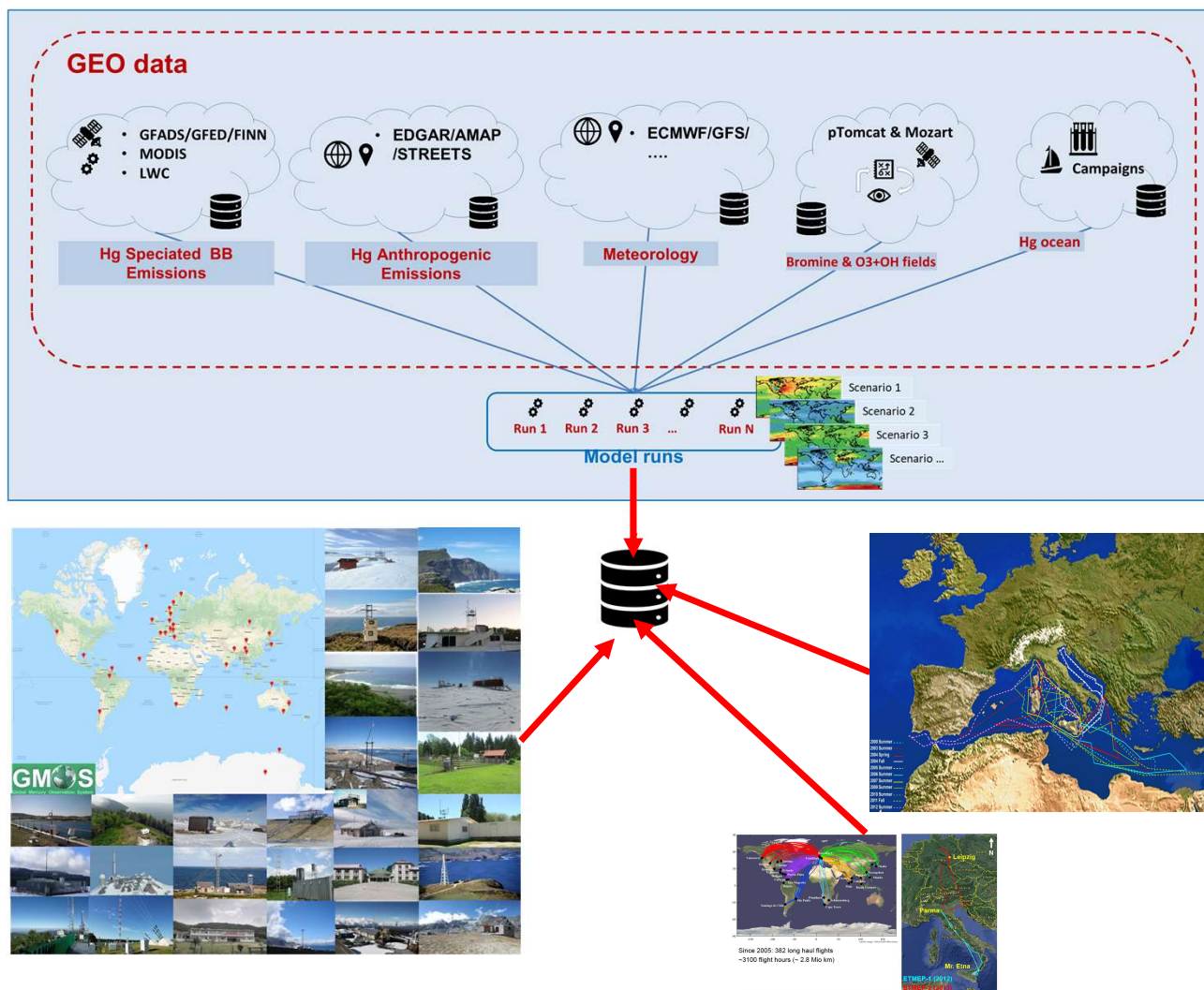
Knowledge generation



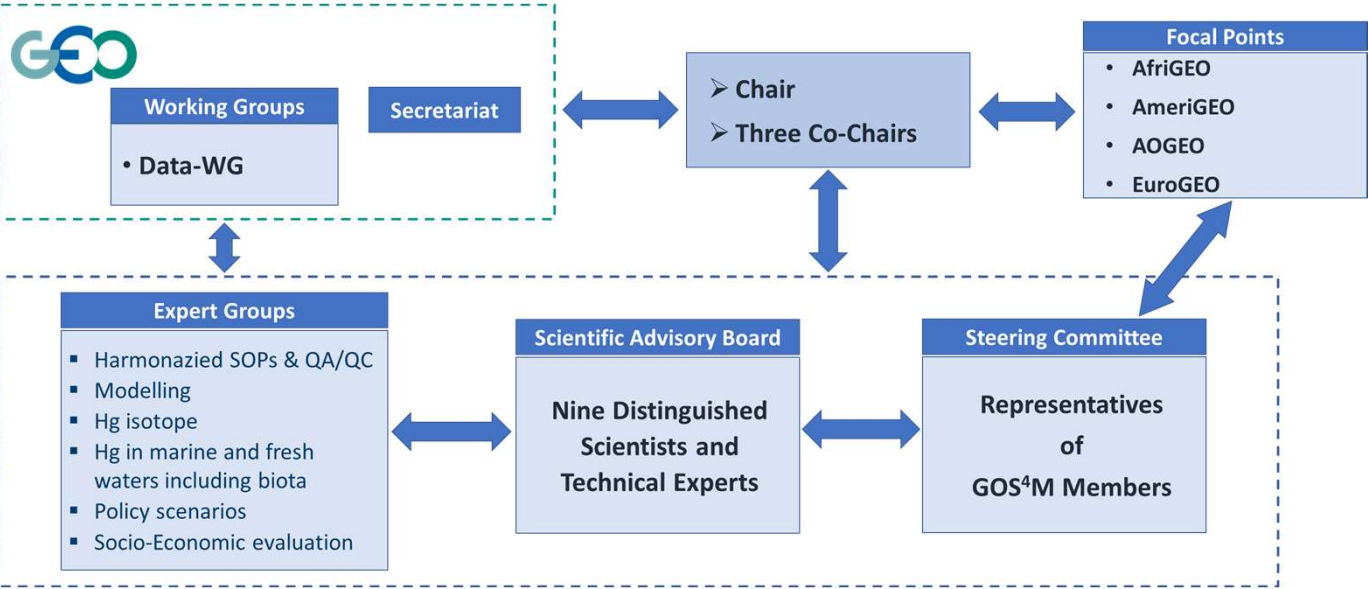
Data Production

Data archived undergo a QA/QC process and include:

- In-situ data
- Monitoring campaigns
- Model outputs
- Pollutant in biota



Becoming part and governing bodies



21 partners



Global Observation System for Mercury (GOS⁴M)
 A Flagship of the Group on Earth Observations (GEO)
Membership Agreement

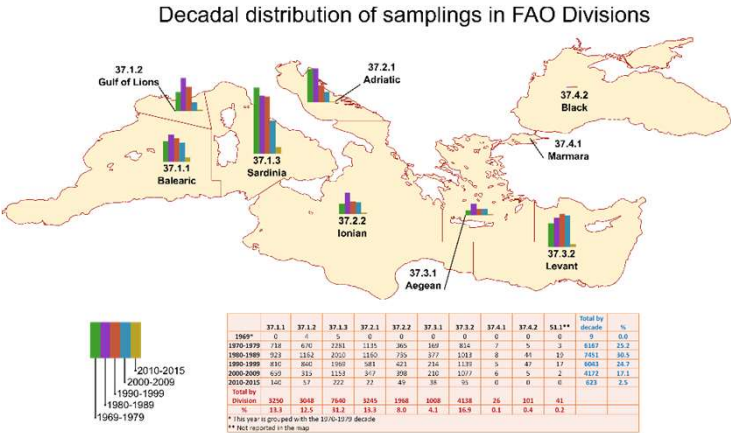
Title	Global Observation System for Mercury (GOS ⁴ M) – Membership Agreement
Date of last revision	20 October 2020
Subject	Membership agreement
Status	Final version
Type	Text
Description	Membership Agreement to be signed by all interested Parties that agree to become members of the GEO Flagship "Global Observation System for Mercury (GOS ⁴ M)" consortium.
Format	docx
Rights	Public
Identifier	GOS4M_Membership Agreement_rev1.docx
Language	En
Coverage	GOS ⁴ M lifetime
URL	www.gos4m.org

Under development

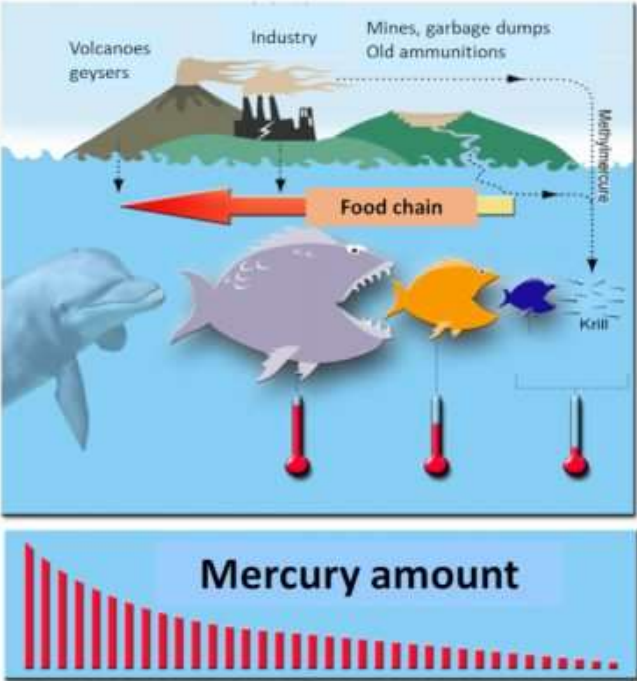
Human health risk module

Human Exposure to Methylmercury in Fish will be based on:

- Levels of mercury in fish
- Fish consumption spatial distribution by fish type
- Population distribution

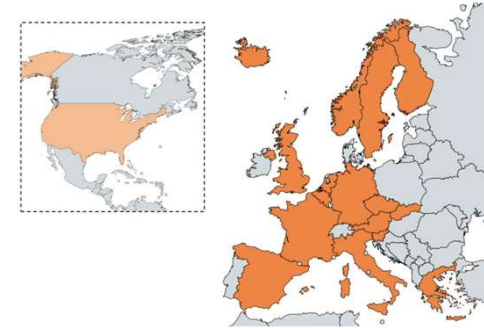


Cinnirella et al. (2019), Mercury concentrations in biota in the Mediterranean Sea, a compilation of 40 years of surveys, [doi:10.1038/s41597-019-0219-y]



After: DANIEL Vincent (2022), Mercury, fish and gold miners, Encyclopedia of the Environment, [online ISSN 2555-0950] url : <https://www.encyclopedie-environnement.org/en/health/mercury-fish-gold-miners/>. CC BY-NC-SA license

Sustainability perspectives & Data Space



GOS⁴M is part of the EIRENE Research Infrastructure



EIRENE RI (Research Infrastructure for Environmental Exposure assessment in Europe) is a new ESFRI RI that is aimed to fill the gap in the European infrastructural landscape and pioneers the first EU infrastructure on human exposome research (environmental exposures and their impacts).

www.eirene-ri.eu

The EIRENE RI **Vision** is to mediate an **open access to the infrastructures** supporting a world-class research expanding the scientific knowledge in the area of human exposome, supporting the **development of new technologies** and **translation of the research results** to the daily lives of citizens via public-private (industry, spin-offs) or public-public (policy-making) partnerships in order to tackle a problem of non-genetic factors behind the development of chronic conditions and to improve the population health.

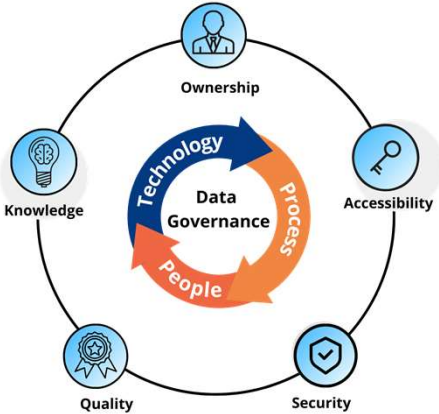
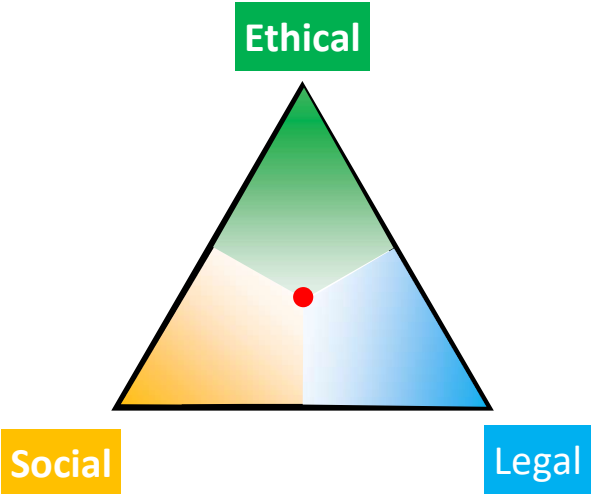
The EIRENE RI consists of **17 National Nodes** representing 50+ institutions.

Toward a possible Exposome Data Space

1. Mass spectrometry data (markers of exposure and effect)
 - a. Environmental (air, soil, indoor, water, food, products) exposures
 - b. Human exposures
2. Nucleotide sequence-based data (genetic predispositions, markers of susceptibility)
 - a. genomics,
 - b. epigenomics,
 - c. metagenomics,
 - d. transcriptomics
3. Biological and biochemical markers
4. Anthropometry and medical data
5. Self-reported (questionnaire) data
 - a. Health
 - b. Lifestyle and nutrition
 - c. Social environment
 - d. Psychology and stress
6. Ancillary Geospatial data (EO data)
7. Image and video data
9. Info on provenance of samples and data

Issues to be considered

- Ethical, Legal and Social Issues (ELSI)
- Data governance (interoperability, licensing, sustainability)
- Science –policy interaction (need for approval of data)



After: saxon.ai

Thank you!



or further information

gos4m.org