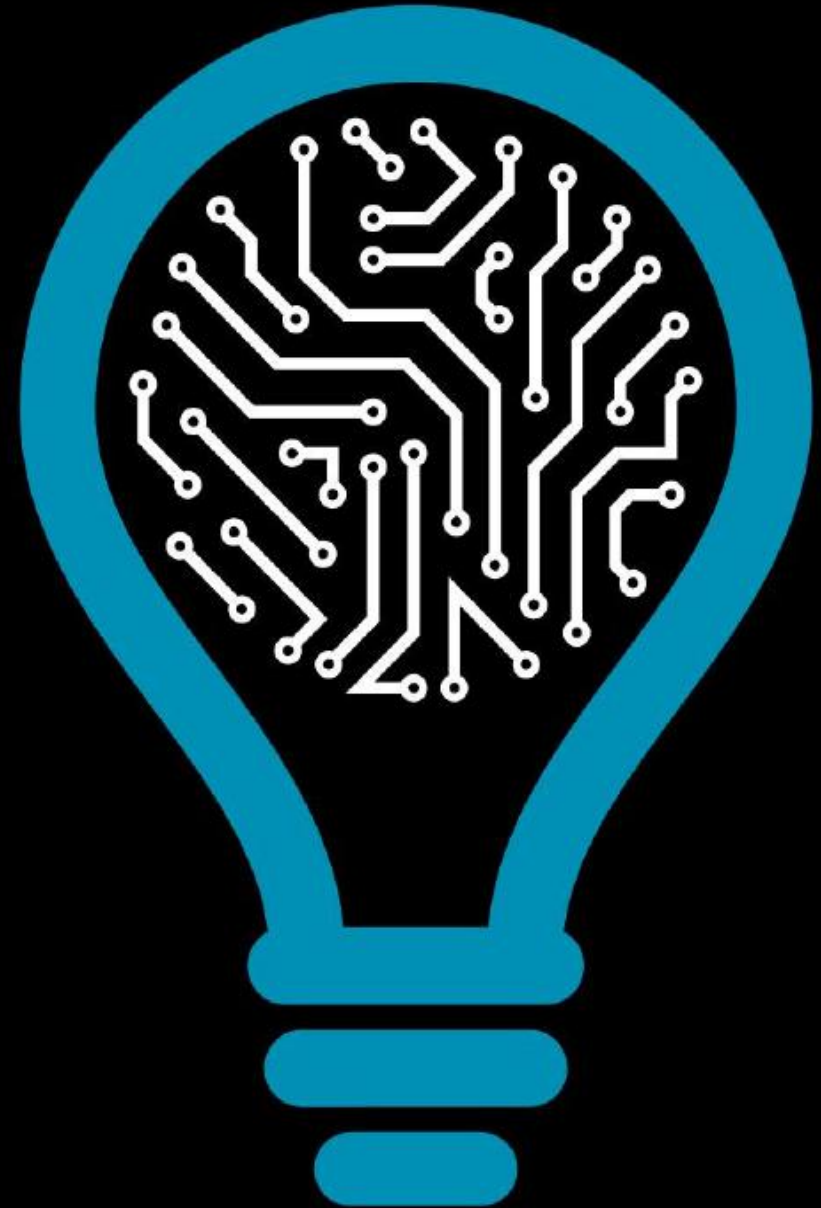


Gestão de dados do projeto SAIL

Susana Barbosa & SAIL team*

INESC TEC

* **SAIL team:** S. Barbosa, M. Camilo, C. Almeida, J. Almeida, G. Amaral, K. Aplin, J. Brito, R. Campos, M. F. Carvalho, T. Chen, L. Coelho, V. Conceição, G. David, N. Dias, A. Ferreira, V. Freitas, M. Gatta, L. Gonçalves, G. Harrison, A. Heilman, M. Henriques, P. Jorge, A. Lima, L. Lima, V. Lobo, C. Magalhães, A. Martins, M. Martins, R. Martins, T. Miranda, A. Mucha, J. Neto, K. Nicoll, E. Pereira, V. Pinto, S. Ramos, C. Ribeiro, I. Silva, J. Silva, P. Sousa, F. Teixeira, D. Viegas, and Eduardo Silva.



Motivation

NRP Sagres circumnavigation expedition 2020



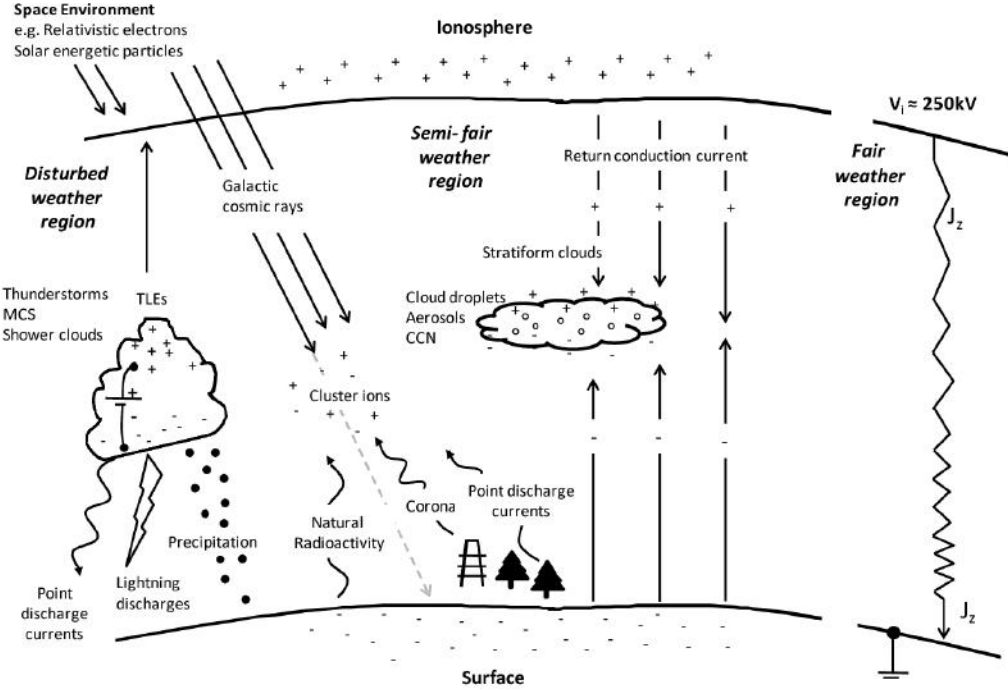
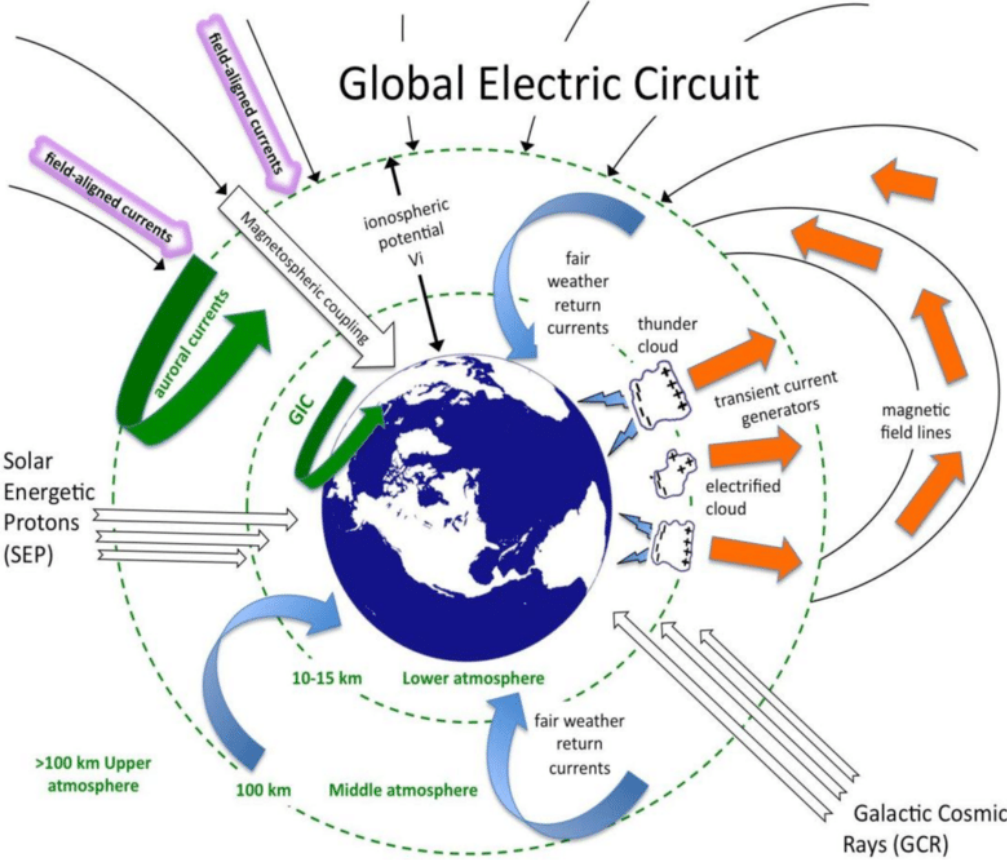
- Celebration of the 500-yrs of the 1st circumnavigation by Fernão de Magalhães
- Cultural, economic and scientific diplomacy

**Space-Atmospher-Ocean
Interactions in the marine
boundary Layer**

1 Oct 2019 – 30 Sep 2022

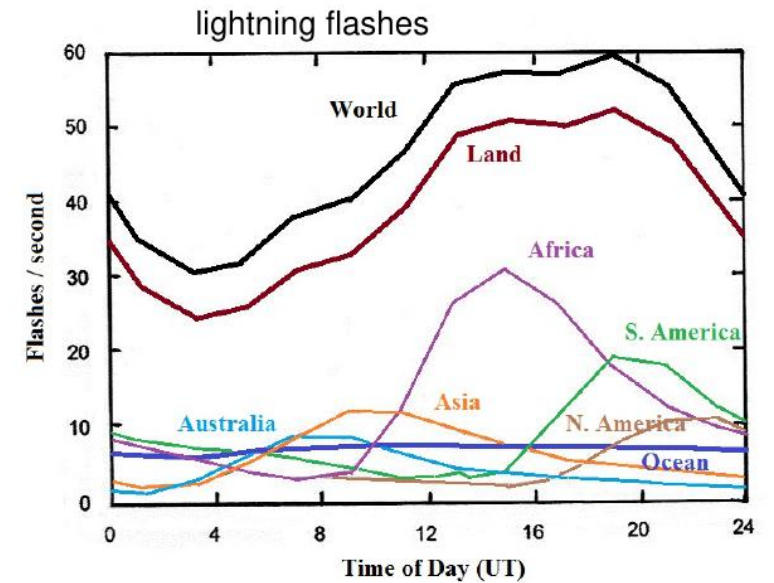
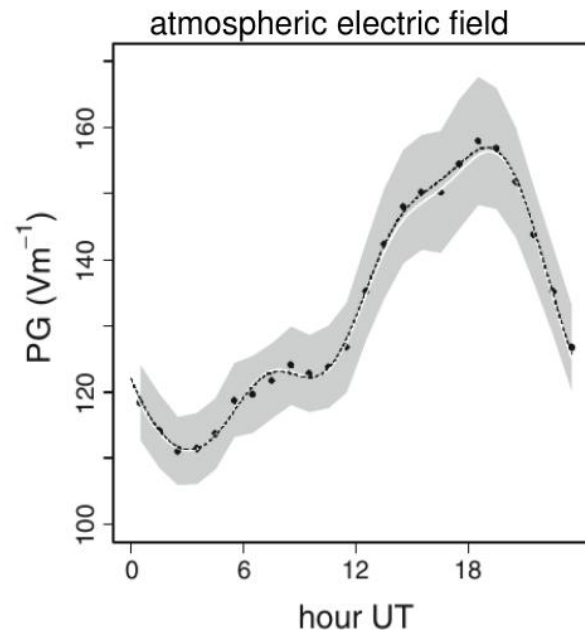
Scientific background

Earth's electric circuit – a global phenomenon... linking space, atmosphere and Earth's surface...



Scientific background

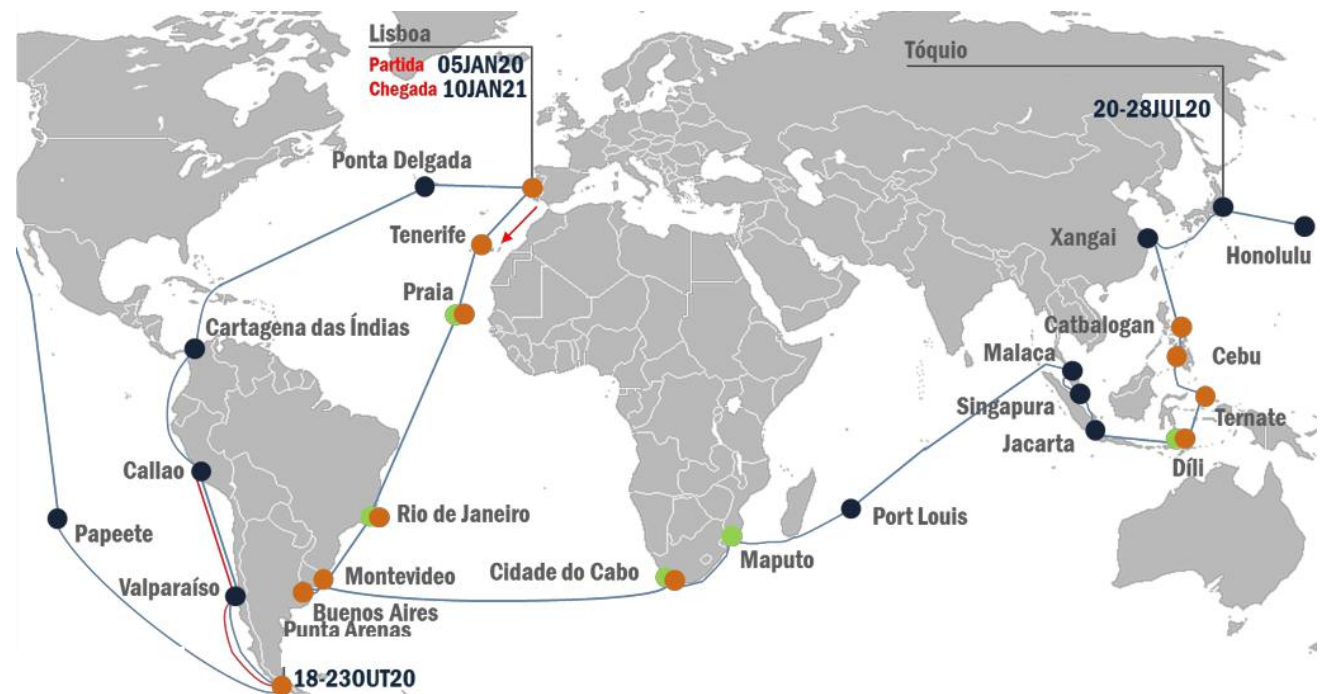
The Earth's global electric circuit and its link to thunderstorm activity was discovered thanks to data acquired on board the survey vessel "Carnegie" (1909-1929)



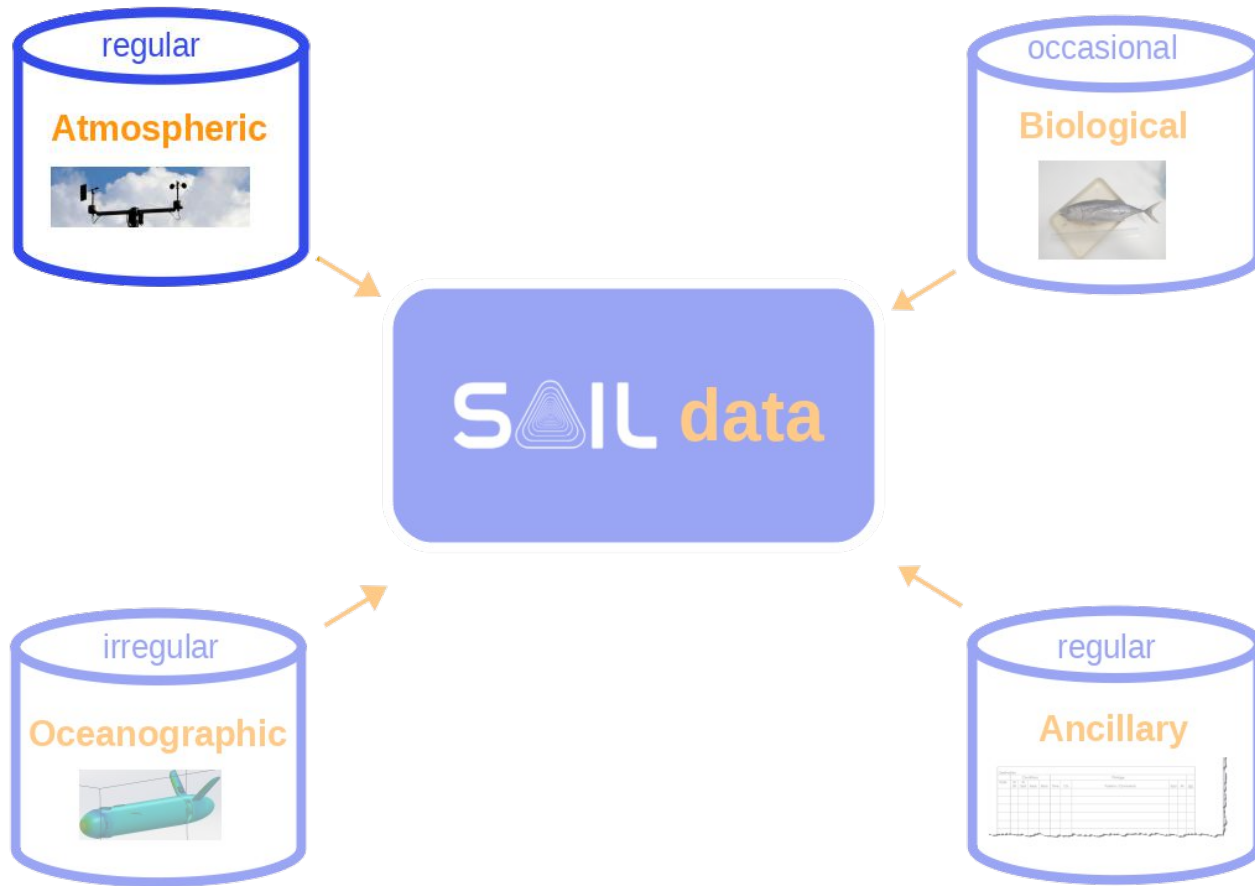
SAIL project

(Space-Atmosphere-Ocean Interactions in the marine boundary Layer)

The SAIL campaign will take place on board the Portuguese Navy ship NRP Sagres during its 2020 circumnavigation expedition, providing new data on the global atmospheric electric field and on its link to air pollution and aerosols, 100 years after the pioneering Carnegie cruises.



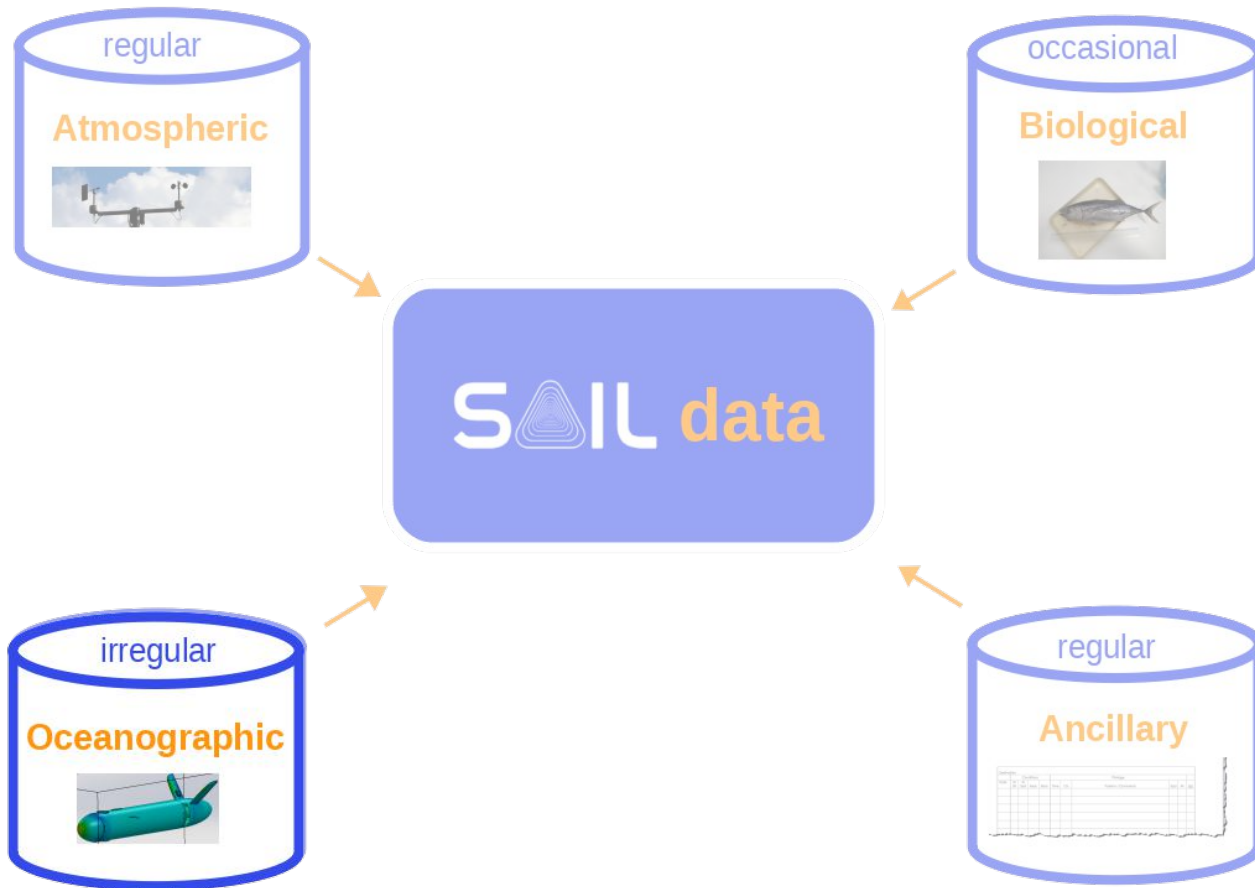
SAIL data



Regular (1 Hz measurement)

- Atmospheric electric field
- Kinematic GNSS
- Gamma radiation
- Cosmic radiation
- Atmospheric ions
- Radiance
- Visibility

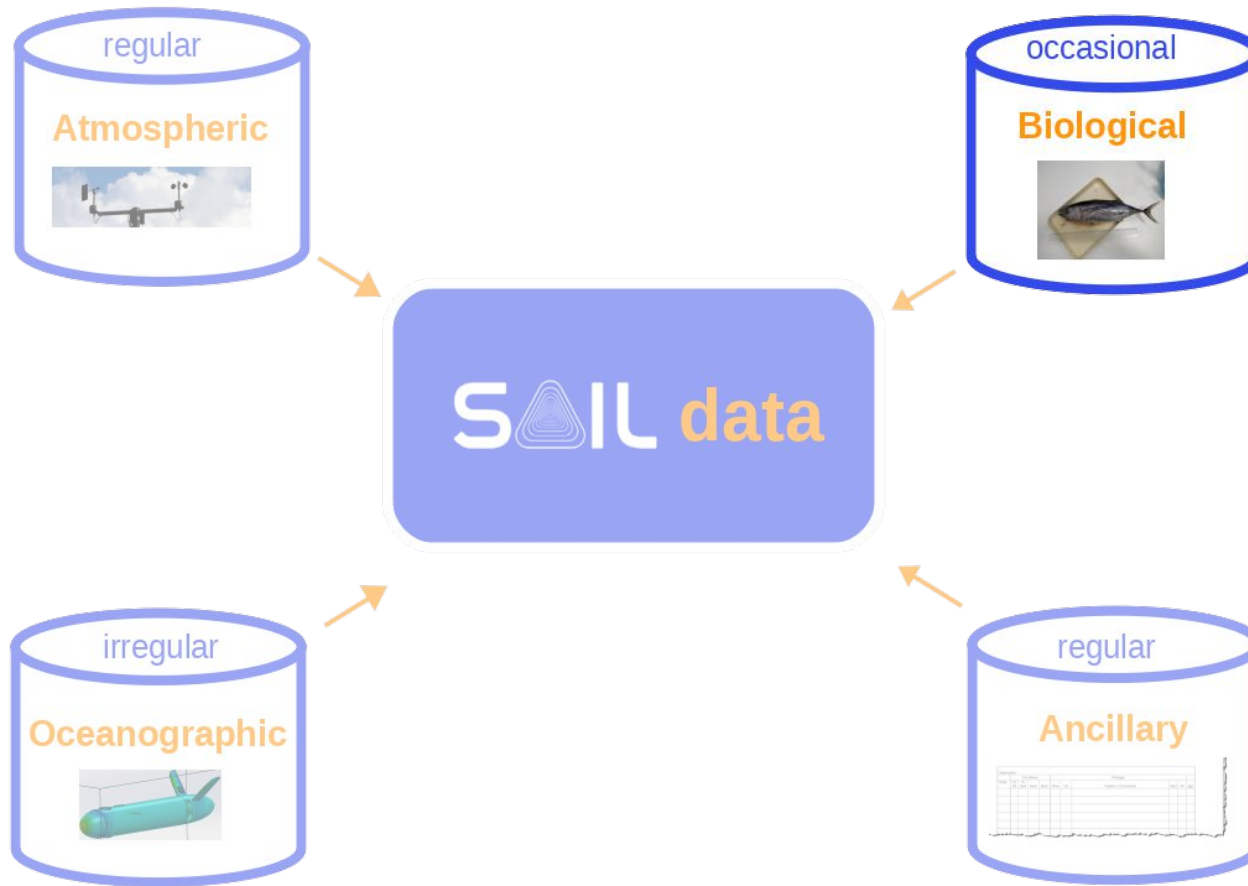
SAIL data



Irregular (tow-fish)

- Temperature
- Salinity
- Pressure
- Chlorophyll
- Dissolved oxygen
- Spectral radiance
- Acoustic noise
- Turbidity

SAIL data

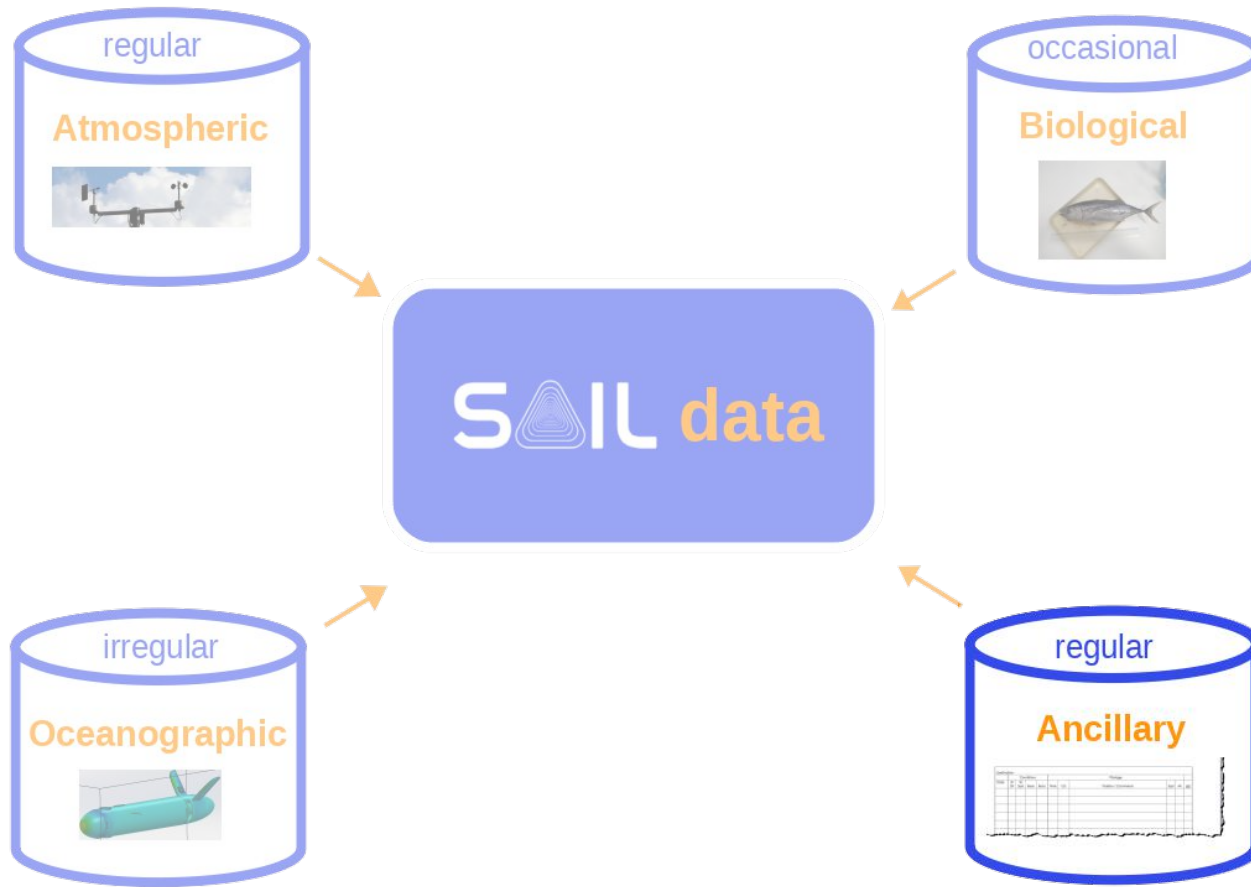


Biological (fish) samples

- Species / Sex
- Length
- Weight / Liver weight
- White muscle*
- Gill arches*
- Gastrointestinal tract*
- Head (brain)*

* -20°C

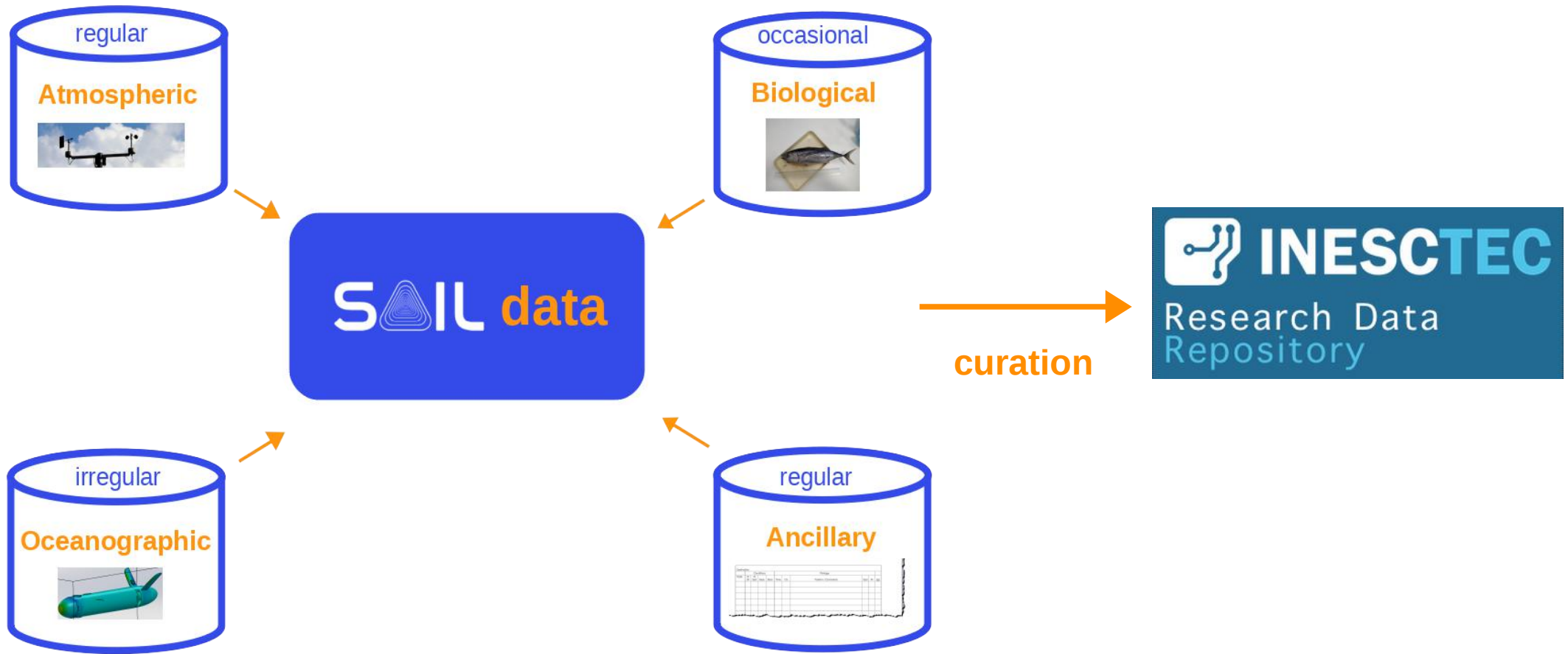
SAIL data



Ship logs

- Position, speed
- Wind
- Temperature
- Precipitation
- Water temperature
- ...

SAIL data



SAIL data - features

- Multi-disciplinary and Multi-domain
- Global nature (spatial distribution)
- Hard / rare sampling environment (marine boundary layer + ocean)
- Uniqueness & non-replicable (2020 circumnavigation)
- Enormous potential for redistribution & re-use

SAIL documents

- SAIL OpsCon – System Operational Concept (ISO/IEC 2011)
- SAIL SyRS – System Requirements Specification (ISO/IEC/IEEE 29148:2011)
- SAIL SoRS – Software Requirements Specification
- SAIL manual for biological samples (protocols for classification, sampling and storage)
- Onboard operations manuals (system maintenance & troubleshooting)
- Data management plan

SAIL goal

To contribute to the study of space-earth interactions at the global scale by collecting atmospheric electric field and related data over the global ocean.

Expected outcome:

unique global dataset for the study of space-atmosphere-ocean interactions

- available from a web-based repository
- FAIR datasets
- open to the scientific community & publicly available

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