

EMSO Data Management Past and Present

EMSO ERIC Strategic Workshop
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EMSO ERIC – Introduction

Distributed European RI

14 regional facilities and **27** European

Institutions

~ **130** physical & biogeochemical parameters

Goal: offering **FAIR** data & services to scientific community



EMSO Data Infrastructure

Initial Approach: Centralized data infrastructure complemented by a harmonization system.

Problem: Heterogeneous data would require significant investment of time and effort from RF to achieve harmonization.

Actual Approach: Federated data infrastructure utilizing **ERDDAP** for enhanced data distribution and retrieval.

EMSO ERIC Data Infrastructure: ERDDAP

ERDDAP: EMSO's data backbone

Open-Source Software developed by **NOAA**

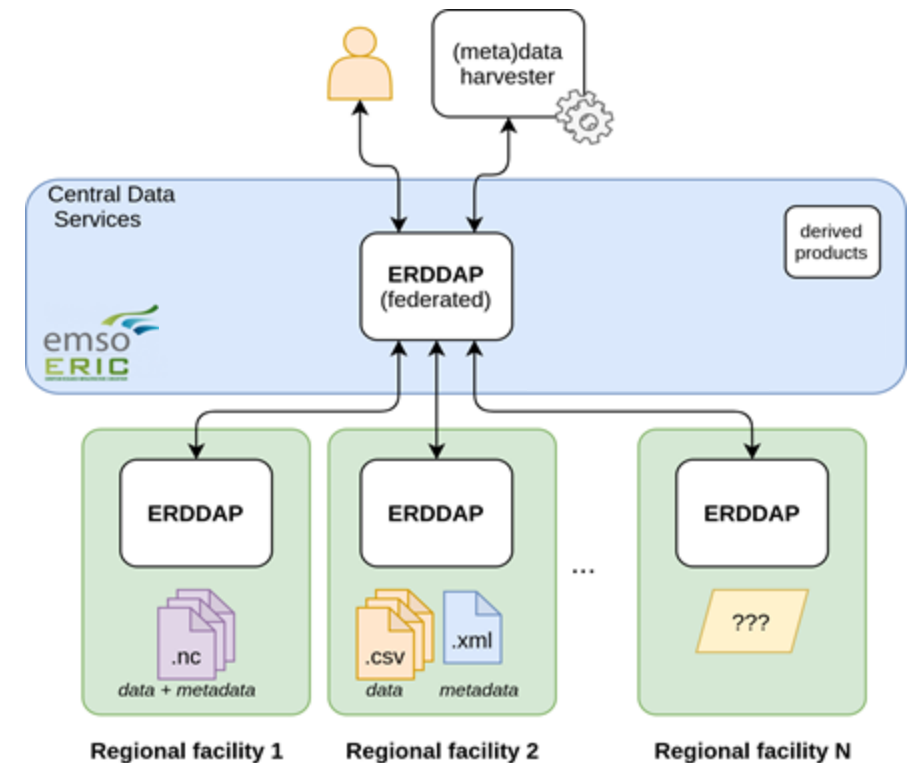
ERDDAP servers deployed at regional facilities

Central ERDDAP links regional facilities

Data Managed at RF level

EMSO ERDDAP deployment instructions on GitHub

Data needs to be fully **harmonized** at every RF



EMSO Metadata Standard

Custom EMSO Metadata Specification Document

Based on the OceanSITES Data Format but adapted to the needs of EMSO. Version control, human readable, machine-actionable, defines a set of compliance tests

Available in **GitHub** and **Zenodo**

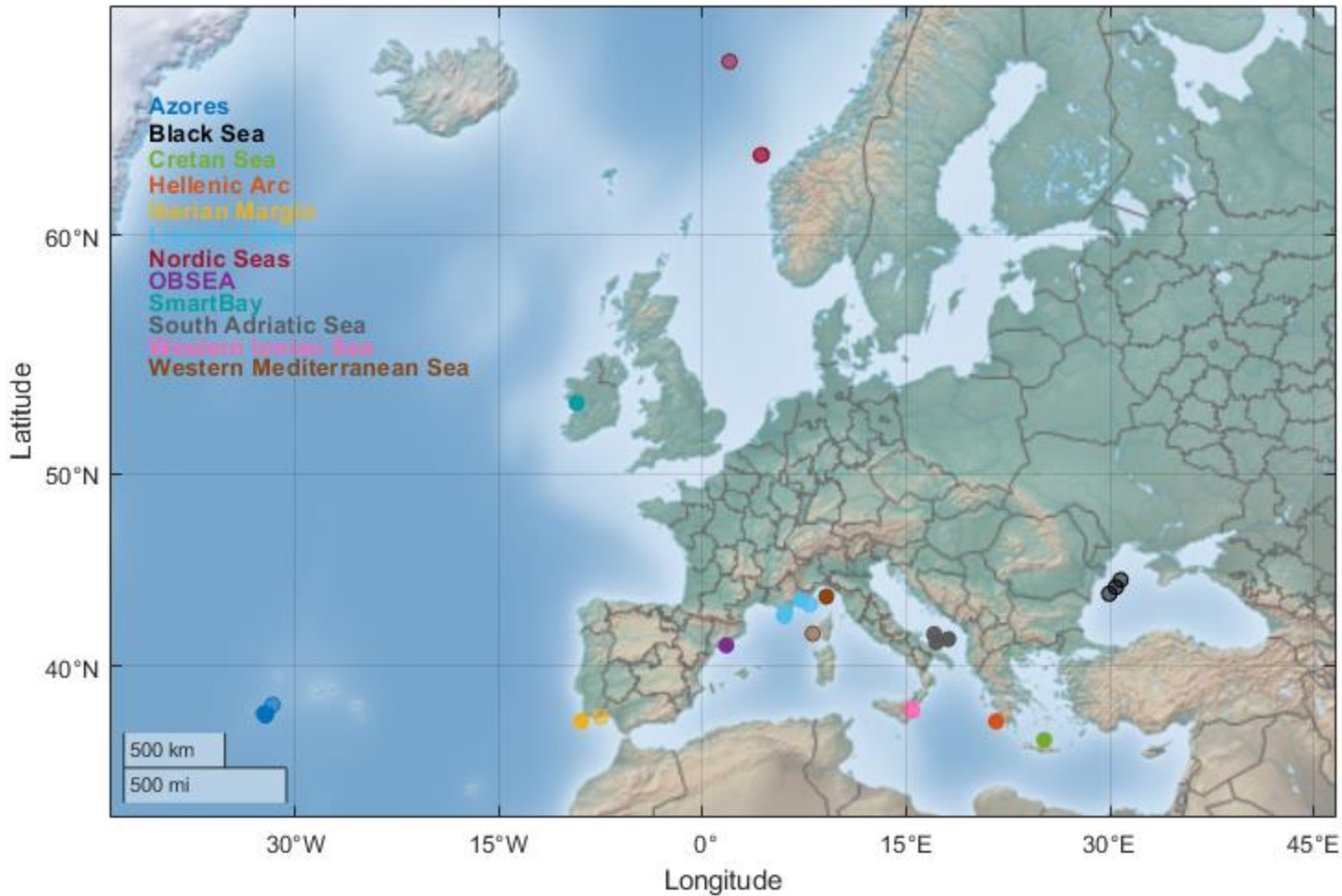


The screenshot shows the Zenodo repository page for the project "emso-eric/emso-metadata-specifications: EMSO Metadata Specifications v0.4". The page features the Zenodo logo at the top left and the EMSO ERIC logo with the text "EMSO ERIC, The European Multidisciplinary Seafloor and water column Observatory" at the top right. Below the header, it indicates the publication date as "February 16, 2024" and the version as "v0.4". There are buttons for "Software" and "Open". The main title of the repository is "emso-eric/emso-metadata-specifications: EMSO Metadata Specifications v0.4", with the author listed as "EnocMartinez: Cociancich". A description states: "This repository hosts the EMSO Metadata specifications to create EMSO-compliant datasets". Under the "Files" section, a file named "emso-eric/emso-metadata-specifications-v0.4.zip" is listed. At the bottom, a DOI badge displays "DOI 10.5281/zenodo.10669879".

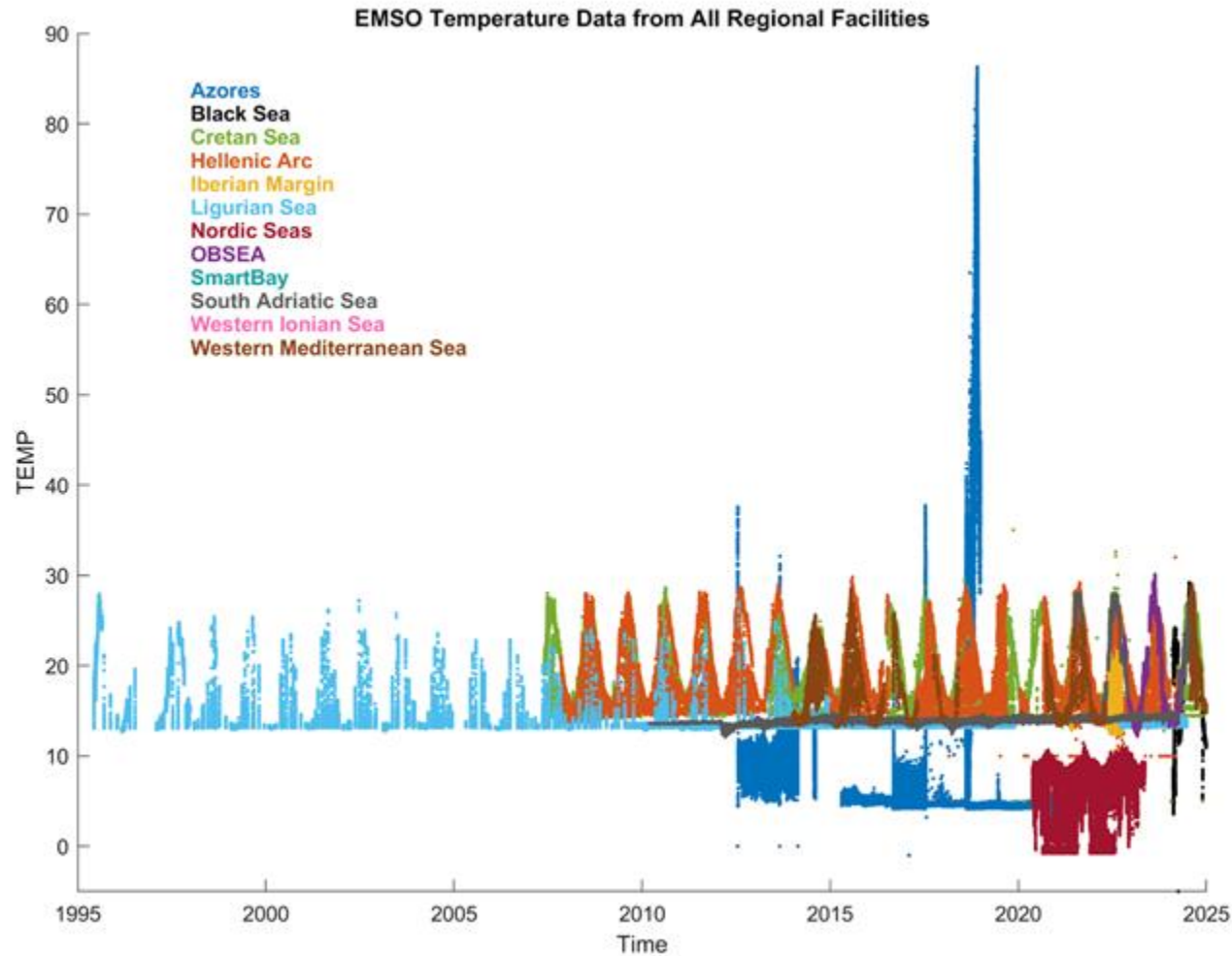
Harmonization Status

RF harmonization status				
	Regional Facility	15th Dec 2023	5th Nov 2024	28th Feb 2025
1	SmartBay	54%	78%	75%
2	OBSEA	88%	89%	90%
3	Cretan Sea	86%	87%	87%
4	Ligurian Sea	73%	78%	78%
5	Hellenic Arc	84%	84%	84%
6	Azores	87%	87%	88%
7	Nordic Seas	98%	99%	98%
8	Western Ionian Sea	100%	100%	100%
9	South Adriatic Sea	87%	89%	89%
10	Western Mediterranean Sea	100%	100%	100%
11	Iberian Margin	96%	In progress	96%
12	Black Sea	In progress	In progress	94%
13	Canary Islands	In progress	In progress	In progress
	total average	85%	89%	90%

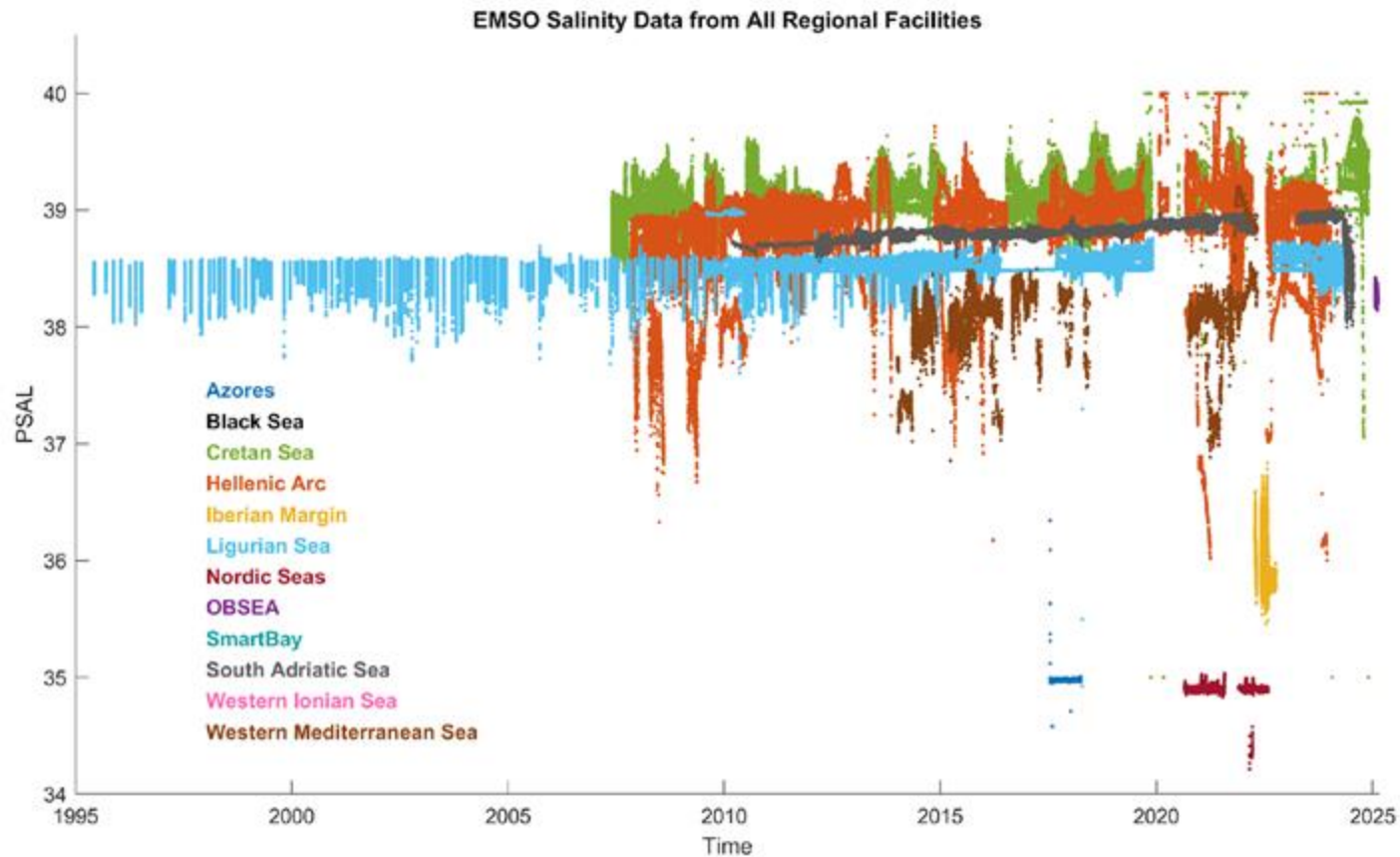
EMSO ERDDAP data overview



EMSO Temperature Data from all RF

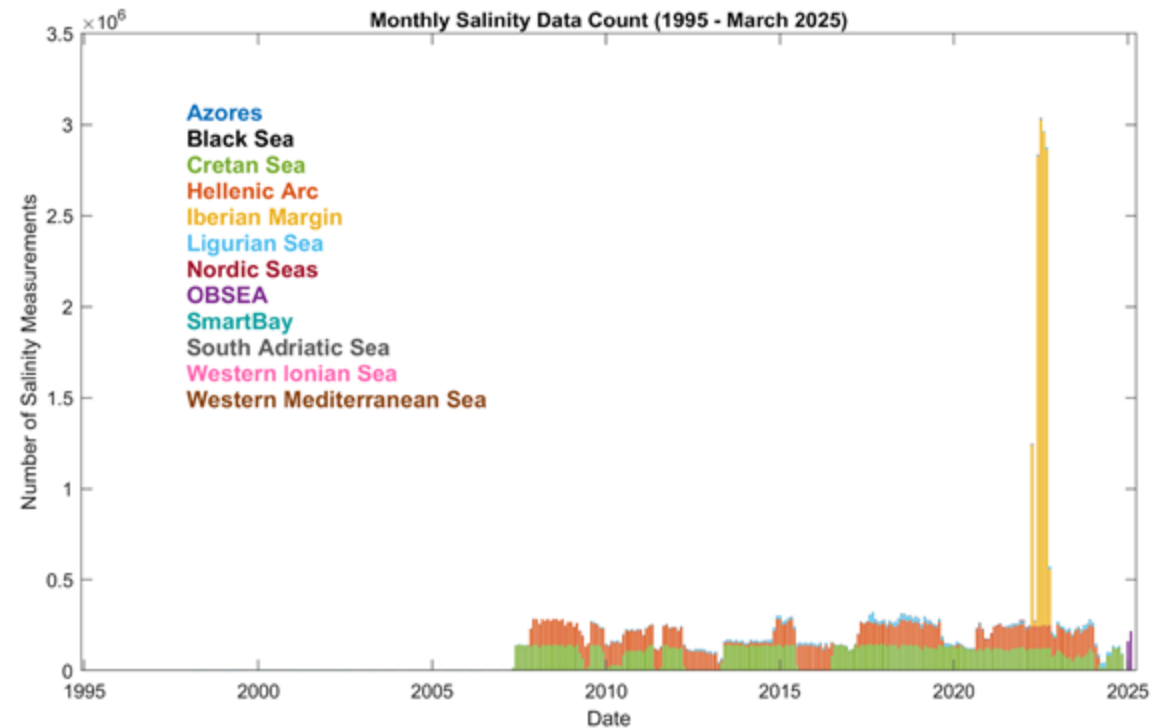
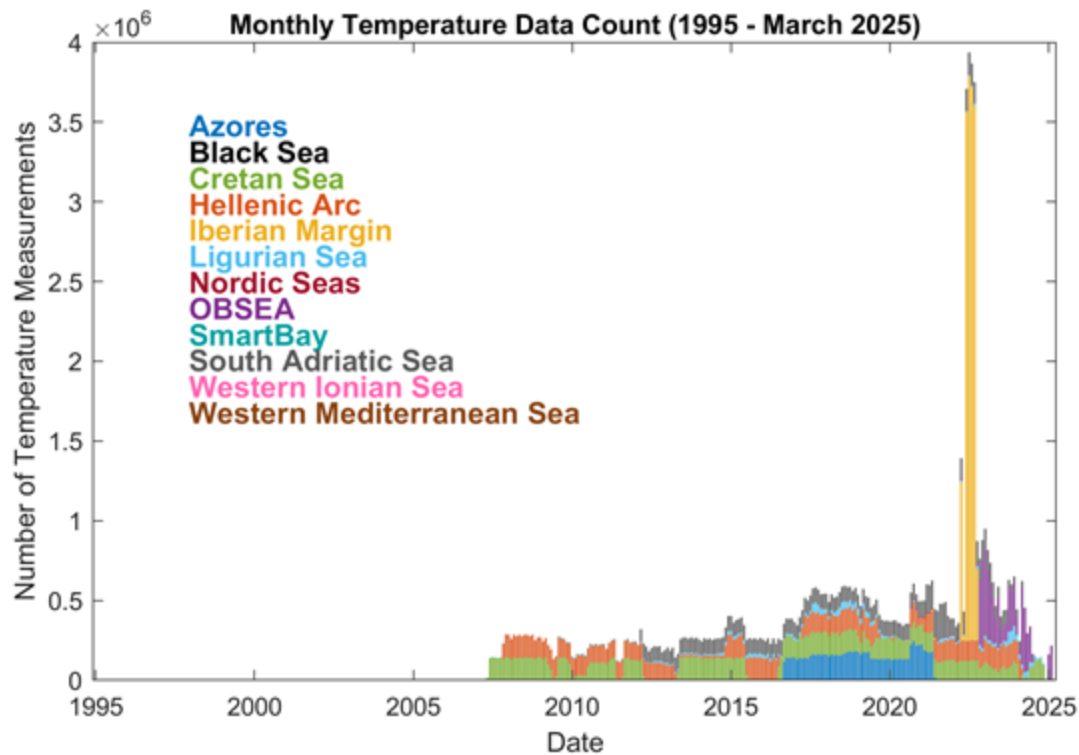


EMSO Salinity Data from all RF

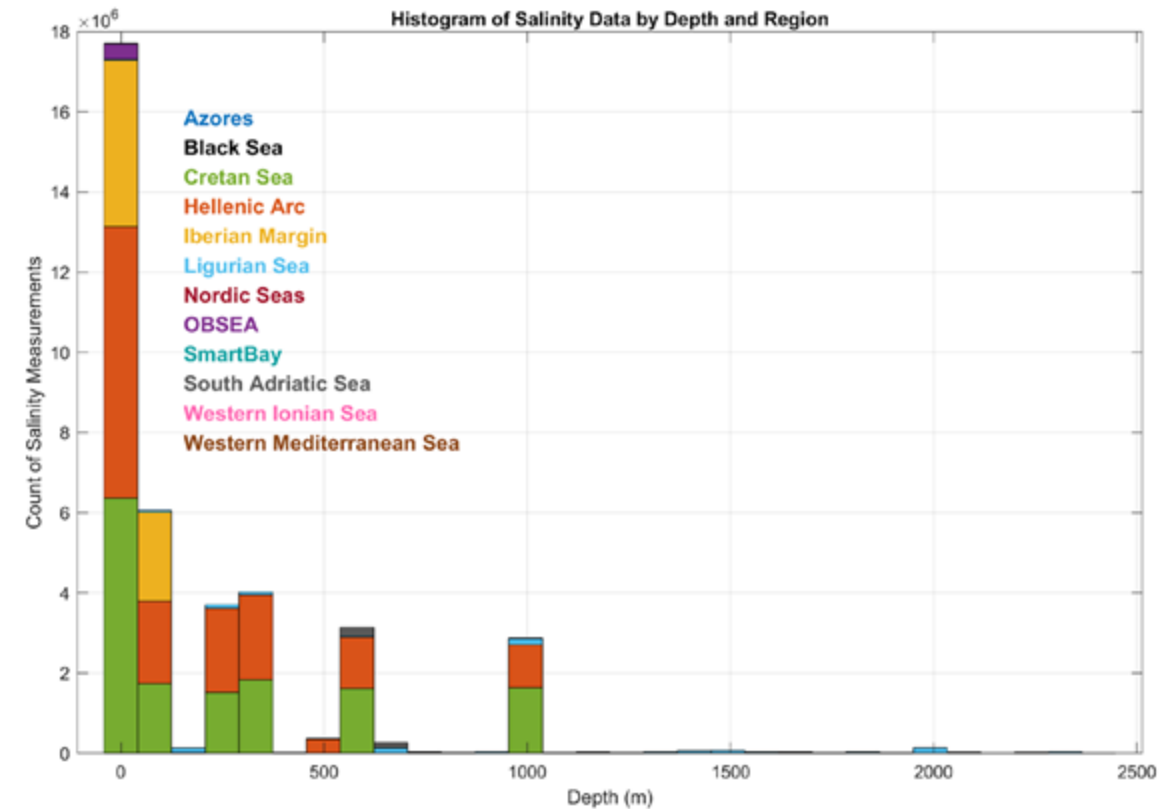
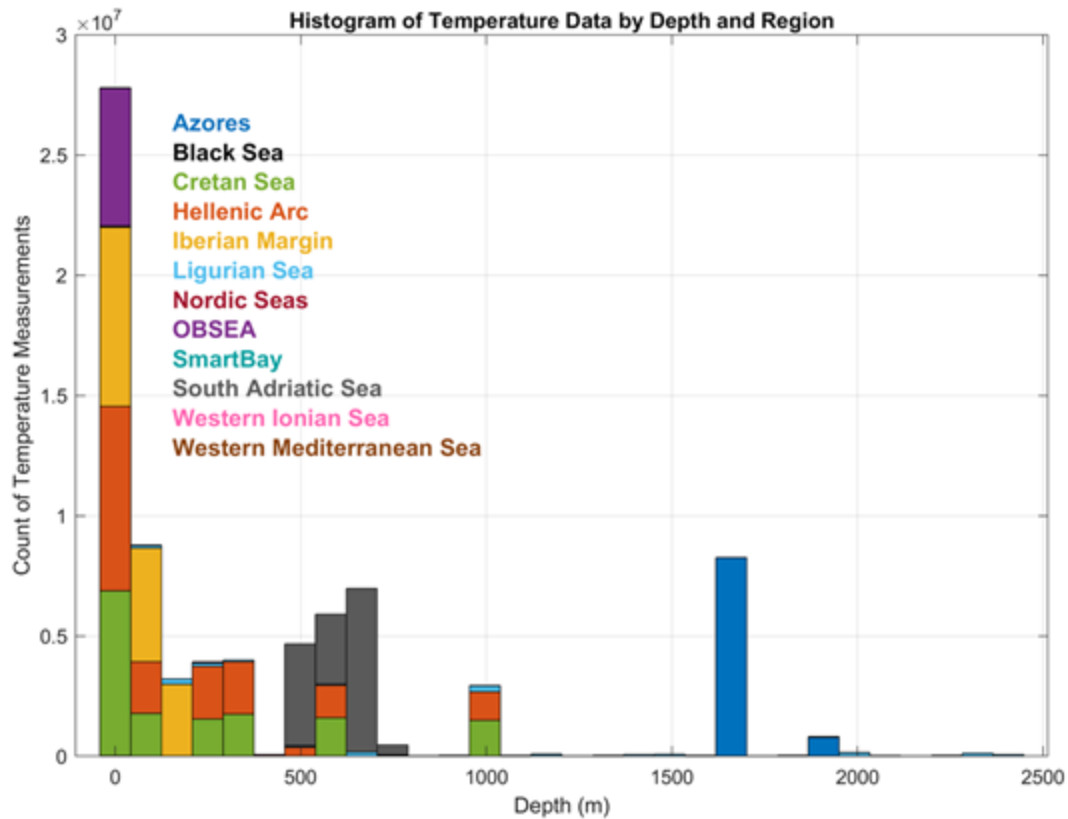


Monthly Temperature/Salinity Data

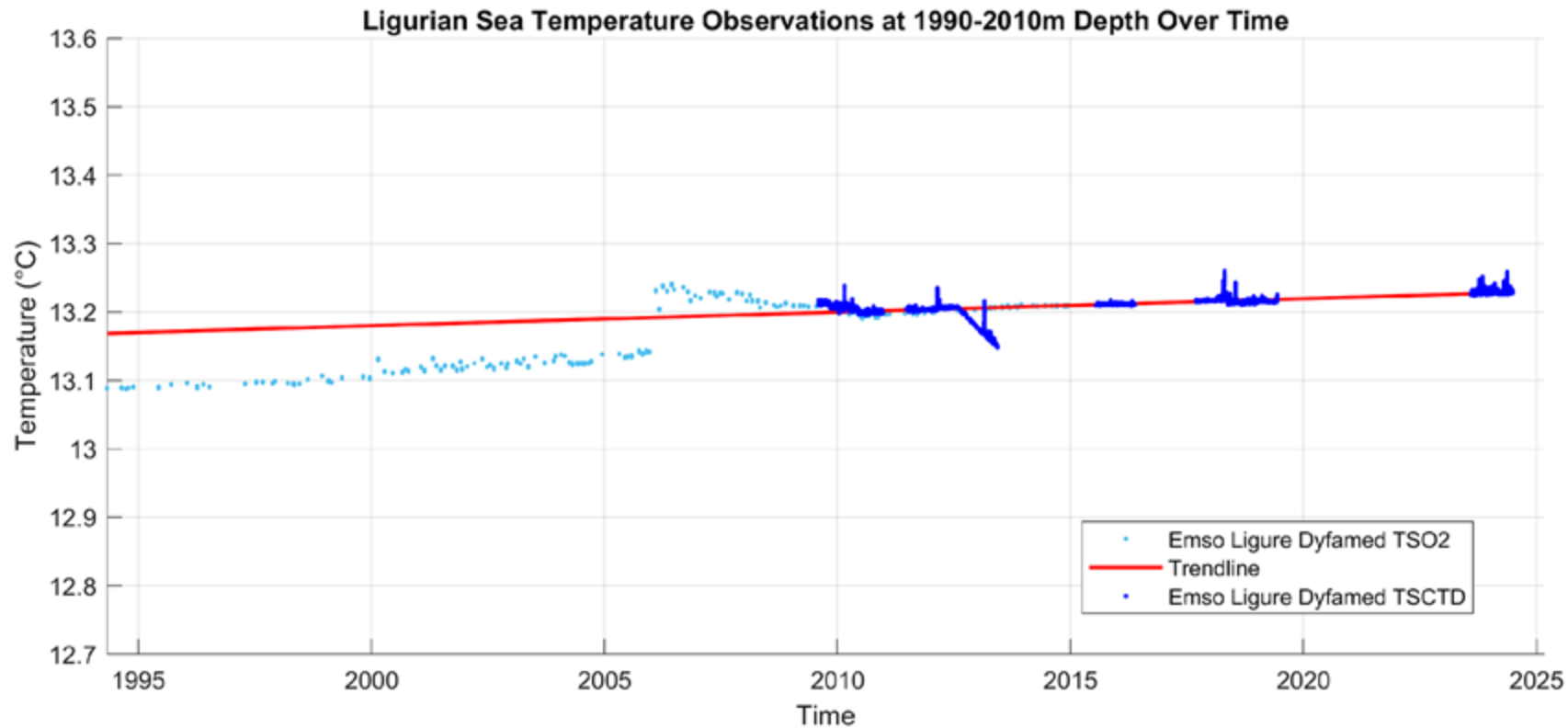
count



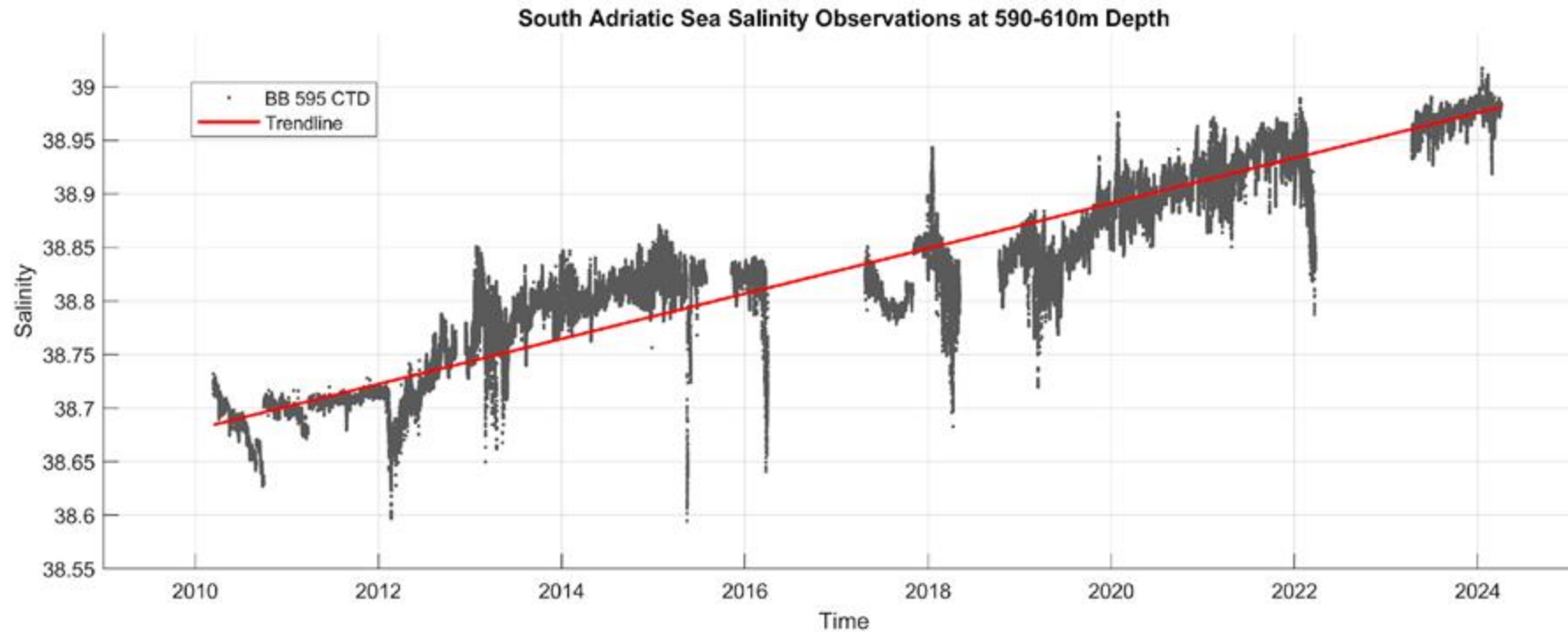
Histogram of Temperature/Salinity Data by Depth



Ligurian Sea (2000 m) Temperature trend example



South Adriatic Sea (595 m) Salinity trend example



Summary

ERDDAP is the backbone

Harmonization is **improving (90 %)** due to EMSO

Metadata Specification Document & Metadata

Harmonizer tool.

Overview of EMSO Data (trends)

**Thank you for your
time and attention!**
