

Vlab 1:

Unlocking the potential for integration of Coastal Ocean Observations along Europe (ICOOE)

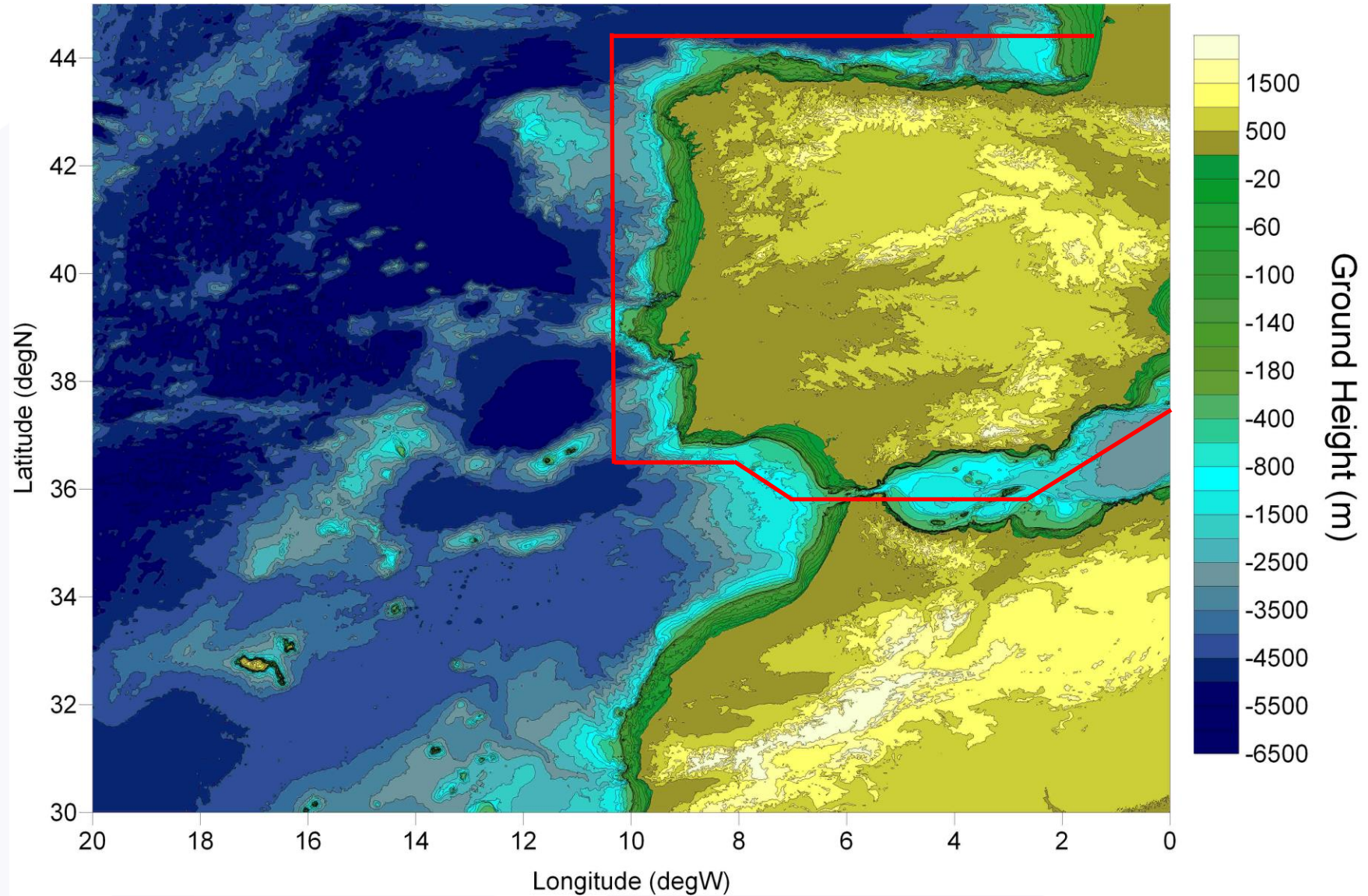
IH – João Vitorino, Vânia Lima, Paulo Nunes

SOCIB - Juan Gabriel Fernández, Miguel Charco, Juan Miguel Villoria

IEEE France - Jay Pearlman

Integration of ocean data and information from different sources is an essential step to build an in-depth knowledge base for applications and to support policy decisions

**PARTICULARLY IMPORTANT
IN
COASTAL OCEAN AREAS**

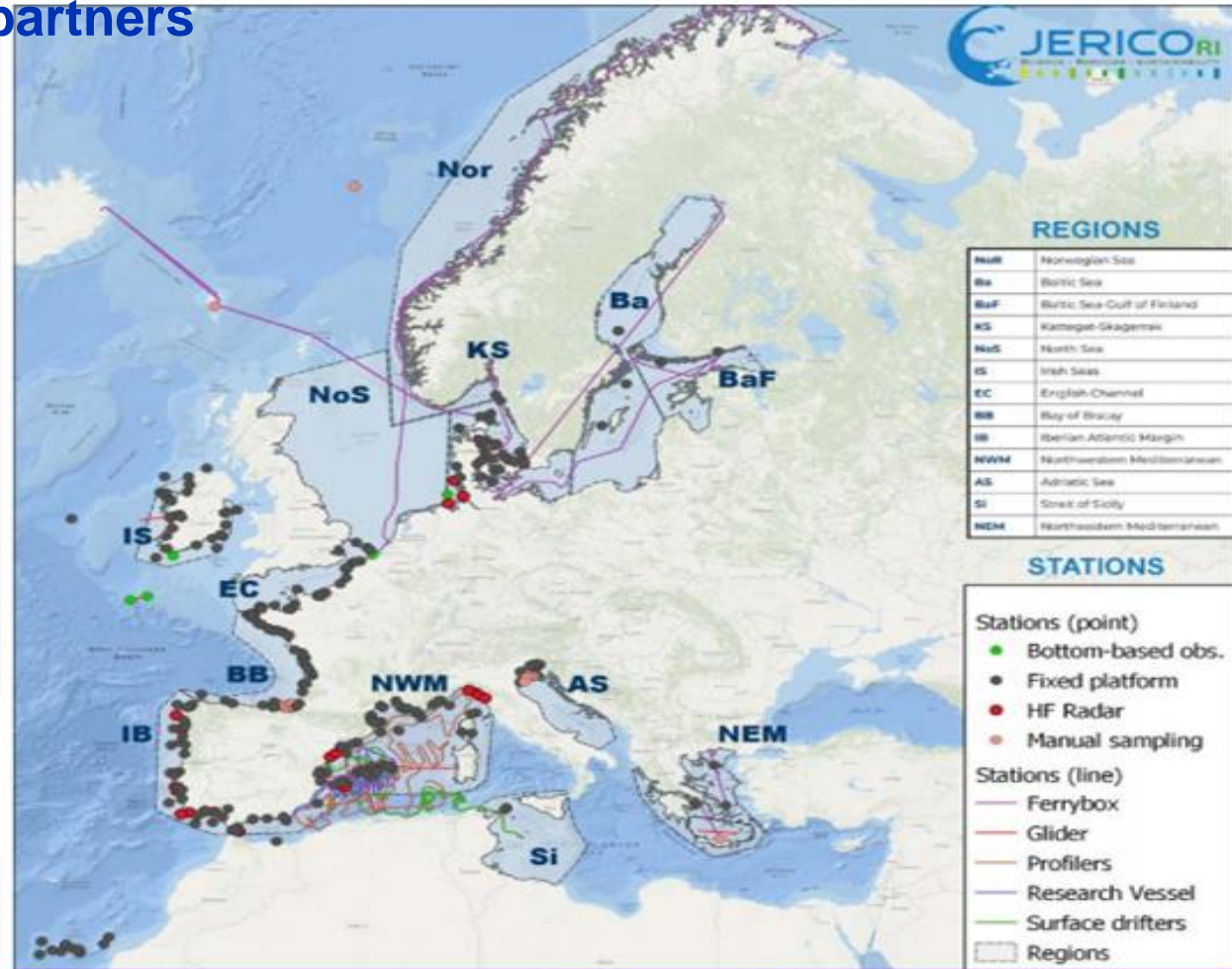


A Pan-European effort joining
17 European Nations
40 partners

A multisystem strategy with
more than 500 platforms listed

Specific articulations focused on
13 Regional Areas

VLAB#1 will improve the integration and combined analysis of JERICO-RI observations and related information with other available observations and information to get unprecedented insight on key coastal ocean processes



JERICO-RI observations

- **Surface Currents from HF**



CMEMS

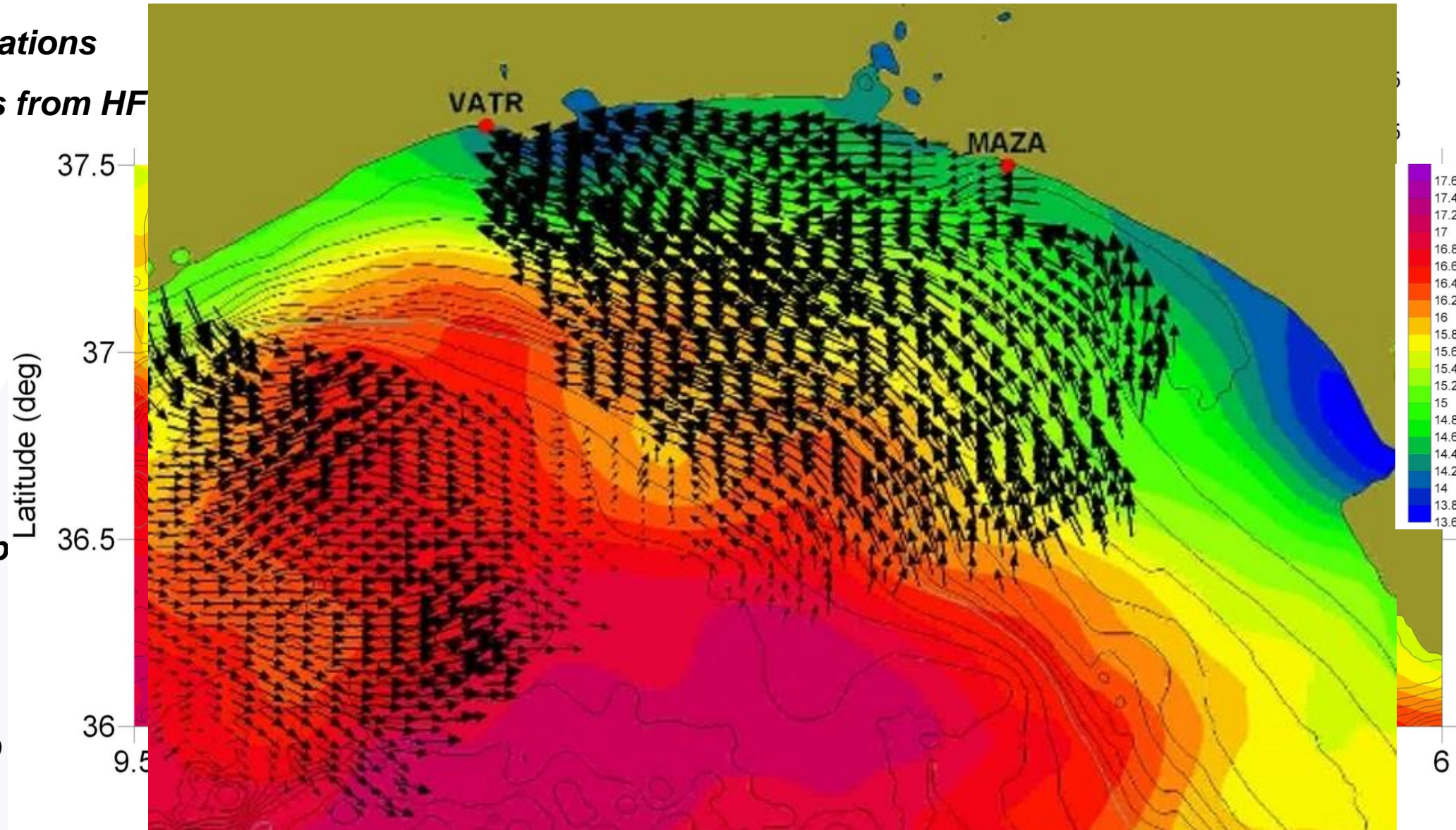
- **Sea Surface Temp**

CCS

- **Surface Winds**

EMODNET, GEBCO

- **Bathymetry**



JERICO-RI observations

- **Glider sections**



CMEMS

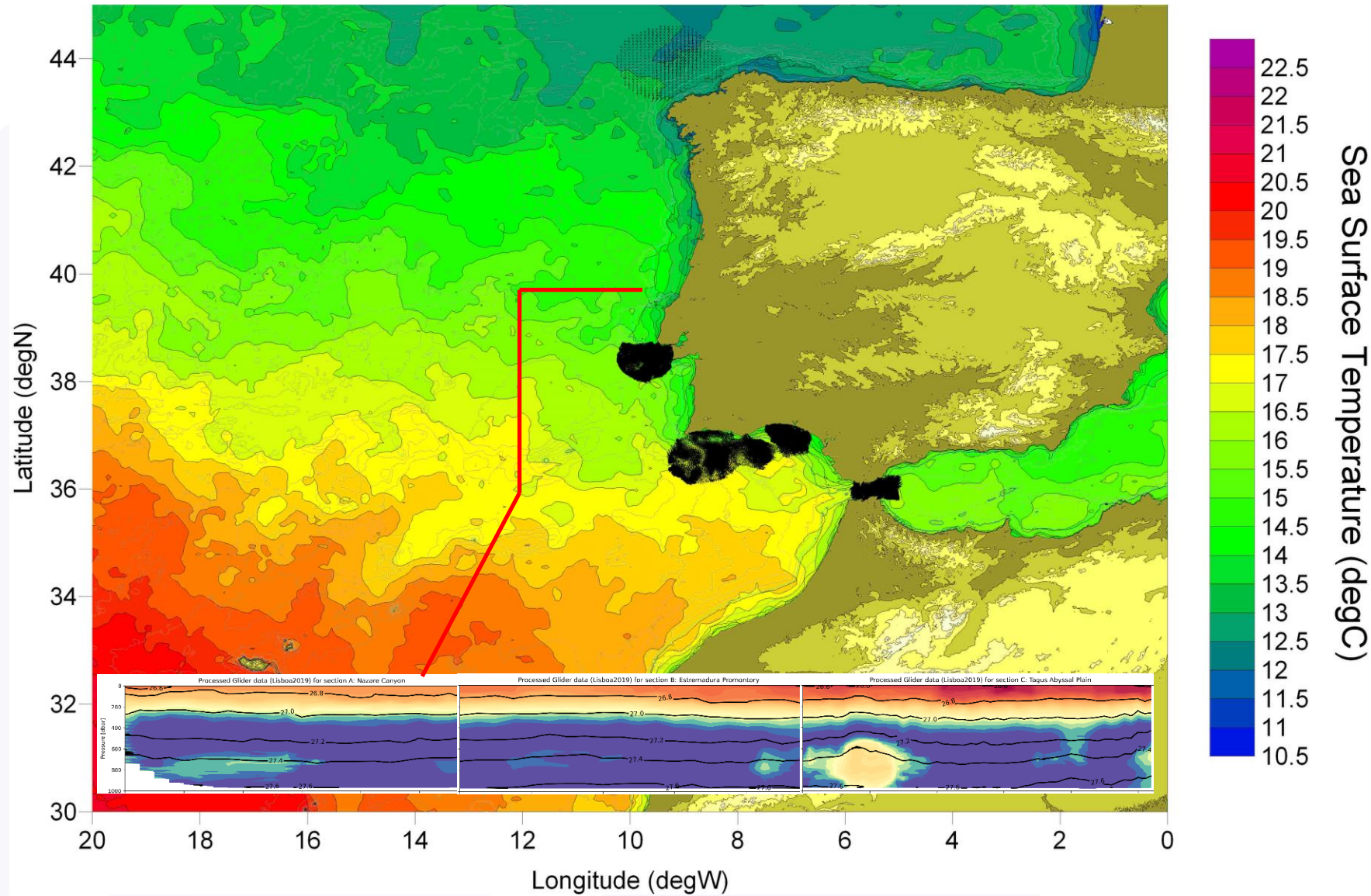
- **Sea Surface Temperature**

CCS

- **Surface Winds**

EMODNET, GEBCO

Bathymetry



METHODOLOGY

Three thematic services (TSs) will be implemented and used as demonstrators of integration capacities:

TS1 “transboundary processes and connectivity along the European coastal margins” will explore the potential of data integration, analysis and advanced visualization in the understanding of transboundary processes along the European coastal ocean and mapping their potential impacts (e.g biological connectivity, contaminant spread)

TS2 “Extreme Events” will focus on the impacts of major storms in the European coastal ocean and littoral domain..

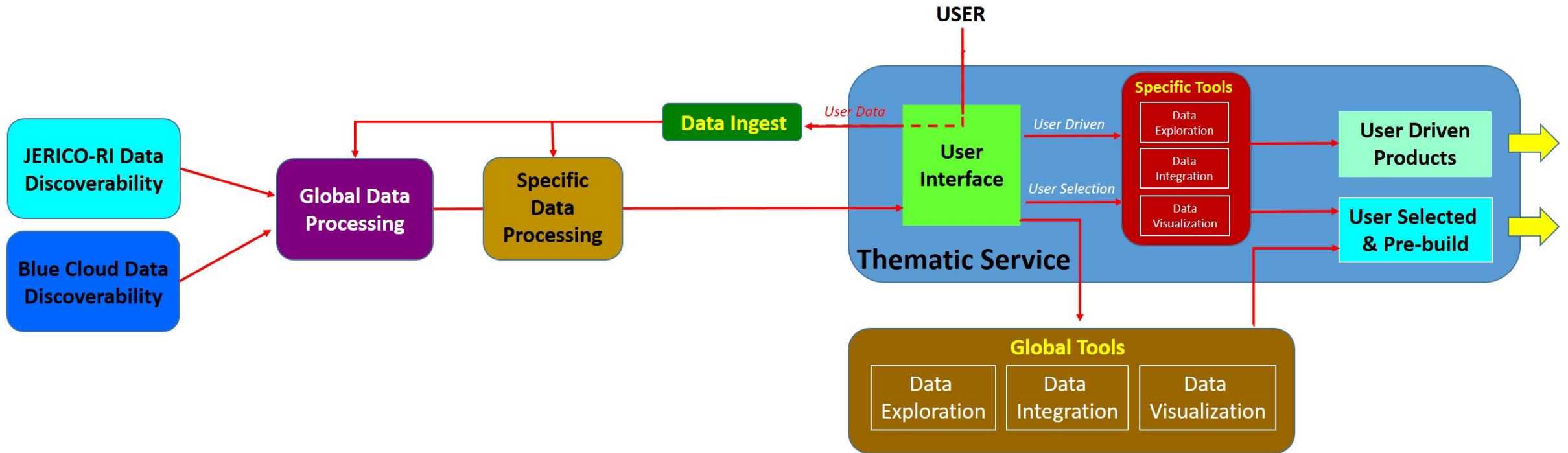
TS3 “Ocean glider” aims to demonstrate the added value chain of repeated glider sections from data acquisition to advanced products and visualisations for improved coastal information, integrating water mass information derived from repeated glider sections

Added-value products consist of advanced data and information products & interactive state-of-the-art visualizations

Providing FAIR tools and services that take advantage of the
JERICO-Coastal Ocean Resource Environment (J-CORE) e-infrastructure
as well as globally accepted Ocean Best Practices and OGC standards (e.g., WMS and WFS)

J-CORE functionalities (API, web services, client libraries, tools...), will be expanded in the context of WP5 BC2026

GENERAL STRUCTURE ICOOE THEMATIC SERVICE



THEMATIC SERVICES TS#1 & TS#2

JERICO-RI (JERICO-CORE)

JERICO-RI

- HF Radar Currents
- Current Profile in MP Buoys
- T in Wave Buoys
- T,S in MP Buoys
- T,S Glider
- SSH at coastal tide gages

BLUE CLOUD RESOURCES

COPERNICUS

- SST fields
- NEMO 3D T,S, SSH, Current
- ERA5 Surface Meteo Params

SeaDataNet

- Physics, BGC, Biology

EMODnet

- Physics, Chemistry, Biology

BATHYMETRY

- EMODNET, GEBCO
- Other specific for local areas

OPB and AquaDocs

Best practices and documents

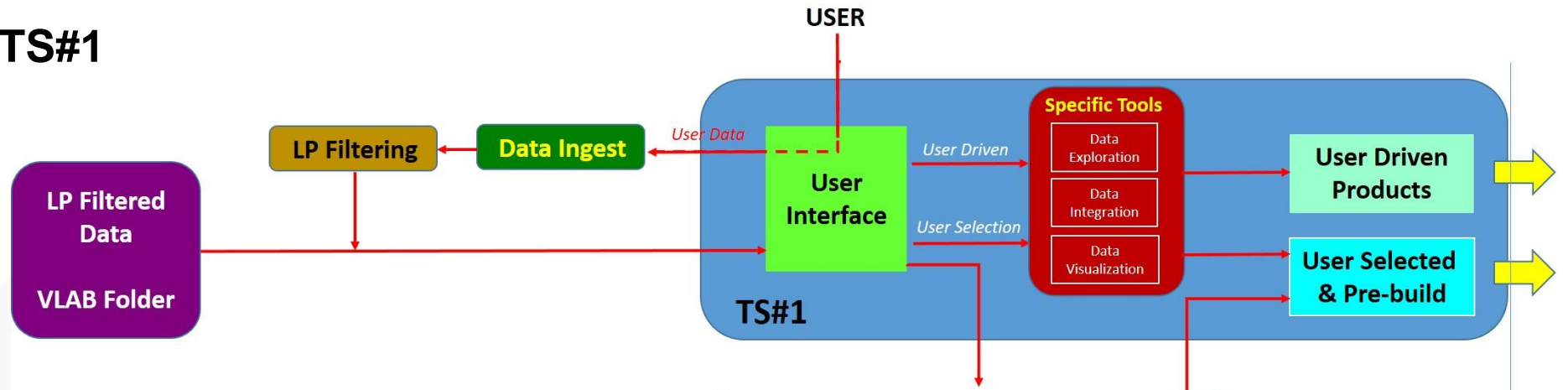
IBERIAN ATLANTIC MARGIN



THEMATIC SERVICE TS#1

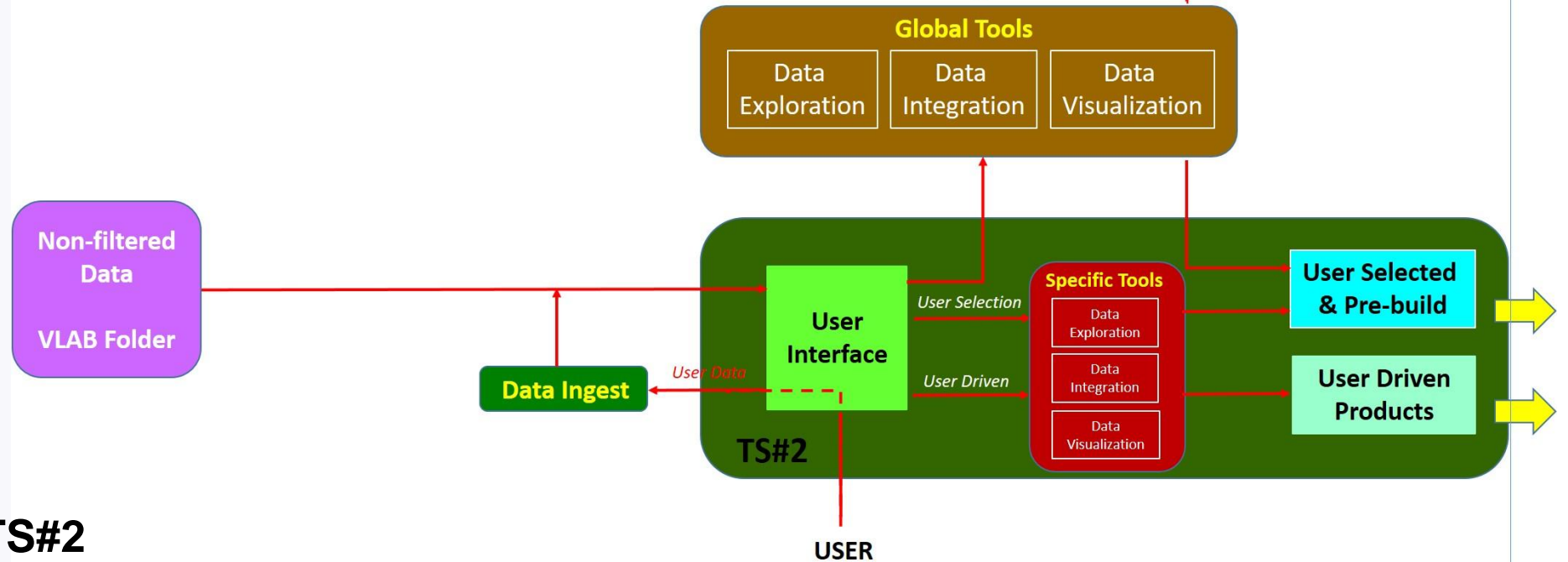
SPECIFIC DEMO CASES

JAN-MAY 2020



Storm EMMA
(28 Feb- 05 Mar 2018)

Hurricane LESLIE
(10 -13 October 2018)



THEMATIC SERVICE TS#2

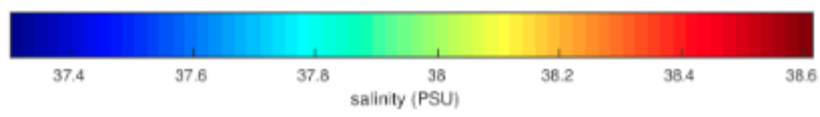
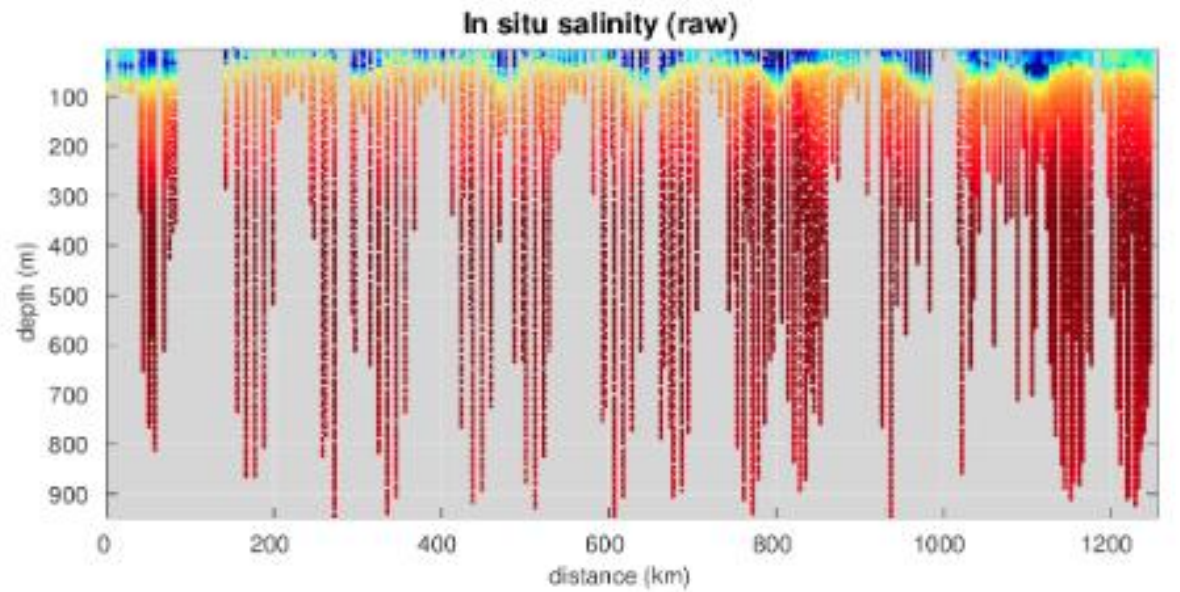
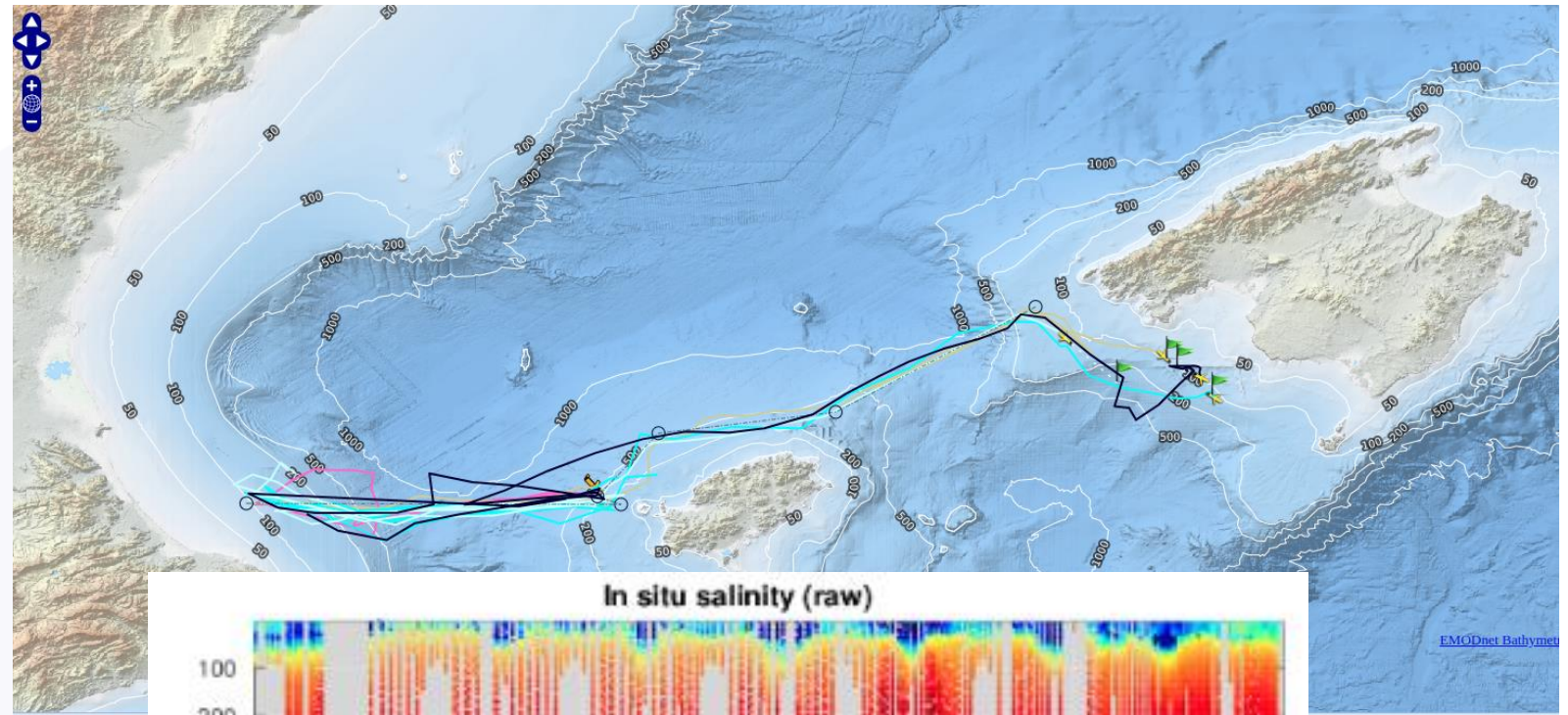
THEMATIC SERVICE TS#3

JERICO-RI

- Glider profiles from SOCIB endurance observations of the physical and biochemical parameters
- Associated climatology and anomaly

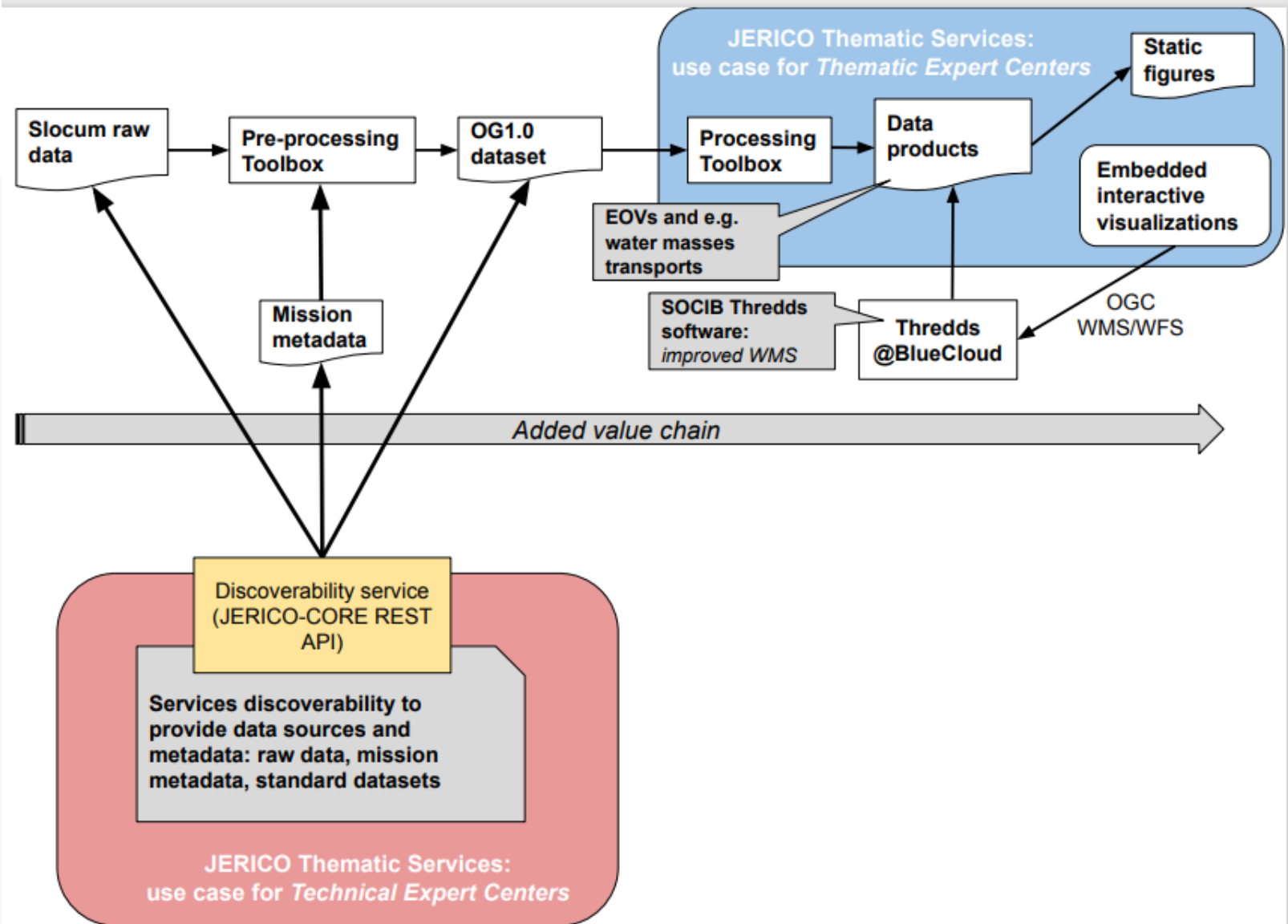
OPB and AquaDocs

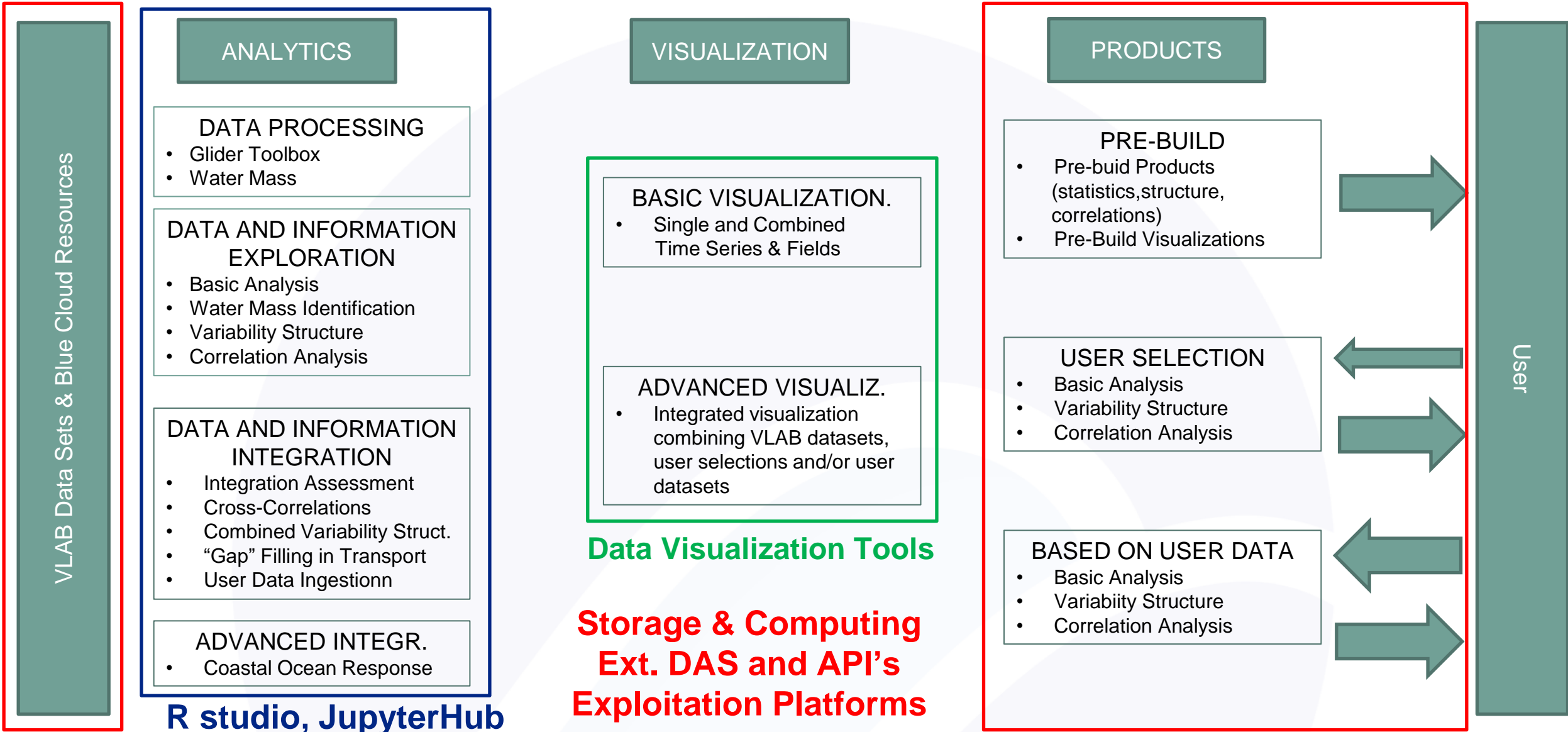
Best practices and documents



EMODnet Bathymetry

THEMATIC SERVICE TS#3





Dataset/Variable	TS#	Data Infrastructure	Data Access	Link to dataset
IN SITU OBSERVATIONS				
Surface Currents measured by coastal HF radars (JERICO partners)	TS#1	CMEMS(INSITU_GLO_PHY_UV_DISCRETE_MY_013_044)	FTP	https://doi.org/10.17882/86236
	TS#2	EMODnet Physics		
Current profiles measured by offshore buoys (JERICO partners)	TS#1	Instituto Hidrografico Puertos del Estado	HTTP	TBD
Sea Level Height measured by coastal tide gauges (JERICO partners)	TS#1	CMEMS (INSITU_GLO_PHY_SSH_DISCRETE_MY_013_053)	FTP	https://doi.org/10.17882/93670
	TS#2	EMODnet Physics		
Near Surface Temperature measured by offshore buoys (JERICO partners)	TS#1	Instituto Hidrografico	HTTP	TBD
	TS#2	Puertos del Estado		
Water column T,S measured by underwater gliders (JERICO partners)	TS#1	PLOCAN	HTTP	http://data.plocan.eu/thredds/catalog/glider/catalog.html
SOCIB Glider - Canales EnduranceLine.	TS#3	SOCIB Data Repository	REST API	https://doi.org/10.25704/JD07-SV9
Water Column Temperature measured by multiparametric buoys (JERICO)	TS#1	Instituto Hidrografico	HTTP	TBD
	TS#2	Puertos del Estado		
Wave parameters measured by offshore buoys (JERICO-RI partners)	TS#2	CMEMS (INSITU_GLO_WAV_DISCRETE_MY_013_045) EMODnet Physics	FTP	https://doi.org/10.17882/70345
River outflow from River GaugeStations	TS#1	EMODnet Physics	TBD	TBD
Seabed Substrate Coastal Type	TS#1	EMODnet Geology	TBD	TBD
	TS#2			
Coastal Migration	TS#2	EMODnet Geology	TBD	TBD
Monthly Vessel Density Maps (Tankers)	TS#1	EMODnet Human Activities	TBD	TBD
REMOTE SENSING OBSERVATIONS				
Sea Surface Temperature	TS#1	CMEMS (SST_ATL_SST_L4_NRT_OBSERVATIONS_010_025)	HTTP	https://doi.org/10.48670/moi-00152
	TS#2			
Sea Surface Height	TS#1	CMEMS (SEALEVEL_EUR_PHY_L4_NRT_OBSERVATIONS_008_060)	HTTP	https://doi.org/10.48670/moi-00142
Surface Geostrophic Current	TS#1	CMEMS (SEALEVEL_EUR_PHY_L4_NRT_OBSERVATIONS_008_060)	HTTP	https://doi.org/10.48670/moi-00142
Chlorophyll-a concentration	TS#1	CMEMS (OCEANCOLOUR_ATL_BGC_L4_NRT_009_116 ; OCEANCOLOUR_ATL_BGC_L4_MY_009_118)	HTTP	https://doi.org/10.48670/moi-00288
				https://doi.org/10.48670/moi-00289

Dataset/Variable	TS#	Data Infrastructure	Data Access	Link to dataset
MODEL RESULTS				
3D analysis of T,S, Current, sea surface height from NEMO model	TS#1	CMEMS (IBI_ANALYSISFORECAST_PHY_005_001)	HTTP	https://doi.org/10.48670/moi-00027
	TS#2			
3D analysis of wind, air temperature, humidity	TS#1	C3S (ERA5 HOURLY DATA ON SINGLE LEVELS)	HTTP	https://doi.org/10.24381/cds.adbb2d47
	TS#2			
Habitat Suitability Maps for macro algae species	TS#1	EMODnet Biology	DD&AS	TBD
BATHYMETRY				
DTM for domain selected	TS#1	EMODnet Bathymetry	DD&AS	TBD
	TS#2			
	TS#3			

Select Geographical
area of interest

Select Time Period
of interest

Start Date: ~~2020-03-01~~ 2020-03-01

End Date: ~~2020-03-31~~ 2020-03-31



Available Parameters / Datasets for requested area and period

Surface Currents

- HF radar TRADE
- HF radar Gibraltar
- NEMO model

Sub-Surface Currents

- IH MP buoy Faro
- NEMO model

Surface Temperature

- IH MP buoy Faro
- IH Wave Faro
- Pde MP buoy Cadiz
- Pde MP Buy Gilbralta
- CMEMS SST
- NEMO model

Sub-Surface Temperature

- IH MP buoy Faro
- NEMO model

Surface Salinity

- Pde MP buoy Cadiz
- Pde MP Buy Gibraltar
- NEMO model

Sub-Surface Salinity

- NEMO model

Sea Surface Height

- IH tide Gauge1
- IH tide gauge 2
- PdE tide gauge 1
- PdE tide gauge 2
- CMEMS altimetry
- NEMO model



Select Parameters / Datasets of Interest to Analysis

Surface Currents

- HF radar TRADE
- HF radar Gibraltar
- NEMO model

Sub-Surface Currents

- IH MP buoy Faro
- NEMO model

Surface Temperature

- IH MP buoy Faro
- IH Wave Faro
- Pde MP buoy Cadiz
- Pde MP Buy Gibraltar
- CMEMS SST
- NEMO model

Sub-Surface Temperature

- IH MP buoy Faro
- NEMO model

Surface Salinity

- Pde MP buoy Cadiz
- Pde MP Buy Gibraltar
- NEMO model

Sub-Surface Salinity

- NEMO model

Sea Surface Height

- IH tide Gauge1
- IH tide gauge 2
- PdE tide gauge 1
- PdE tide gauge 2
- CMEMS altimetry
- NEMO model

Select Analysis Tools

EXPLORATION OF INDIVIDUAL DATA SETS

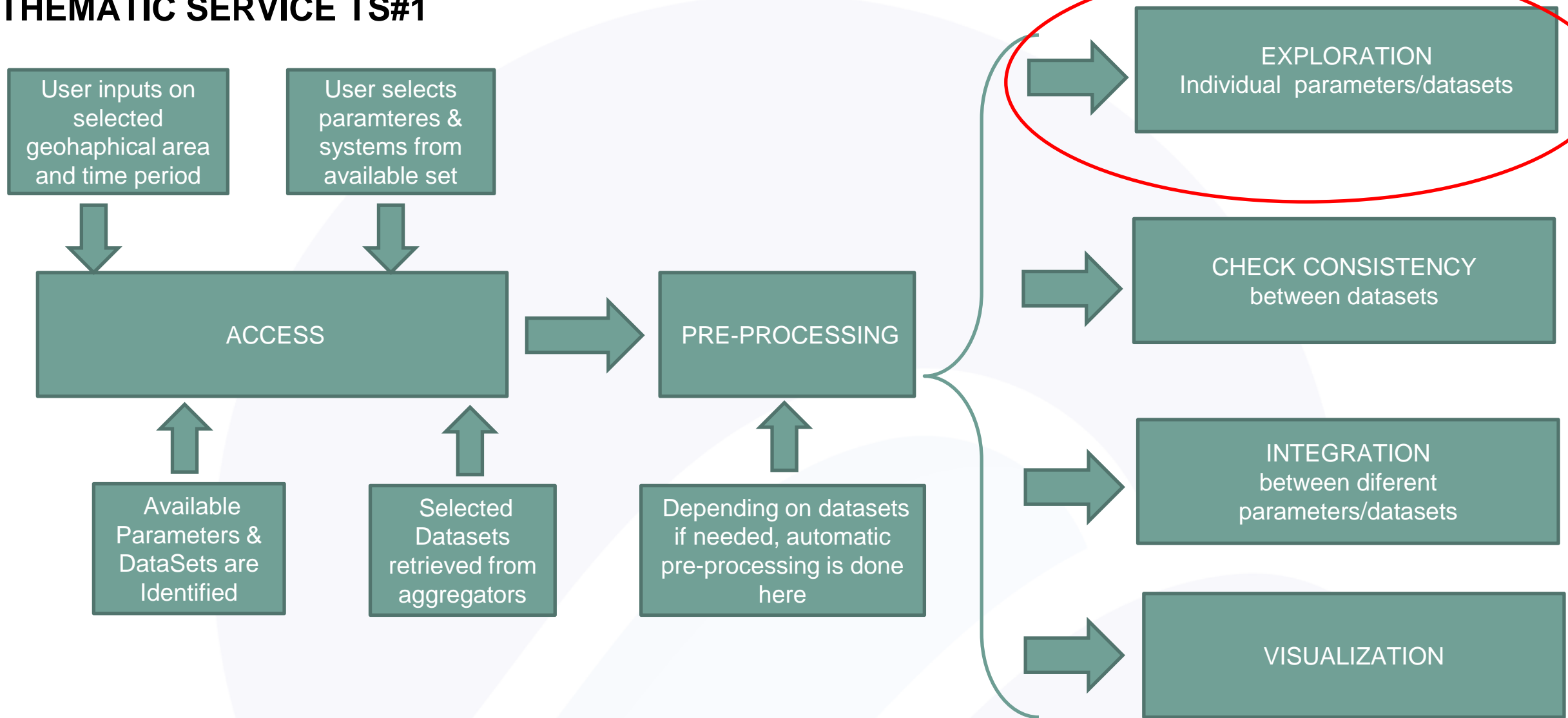
CHECK CONSISTENCY OF DATA SETS

INTEGRATION OF DATA SETS

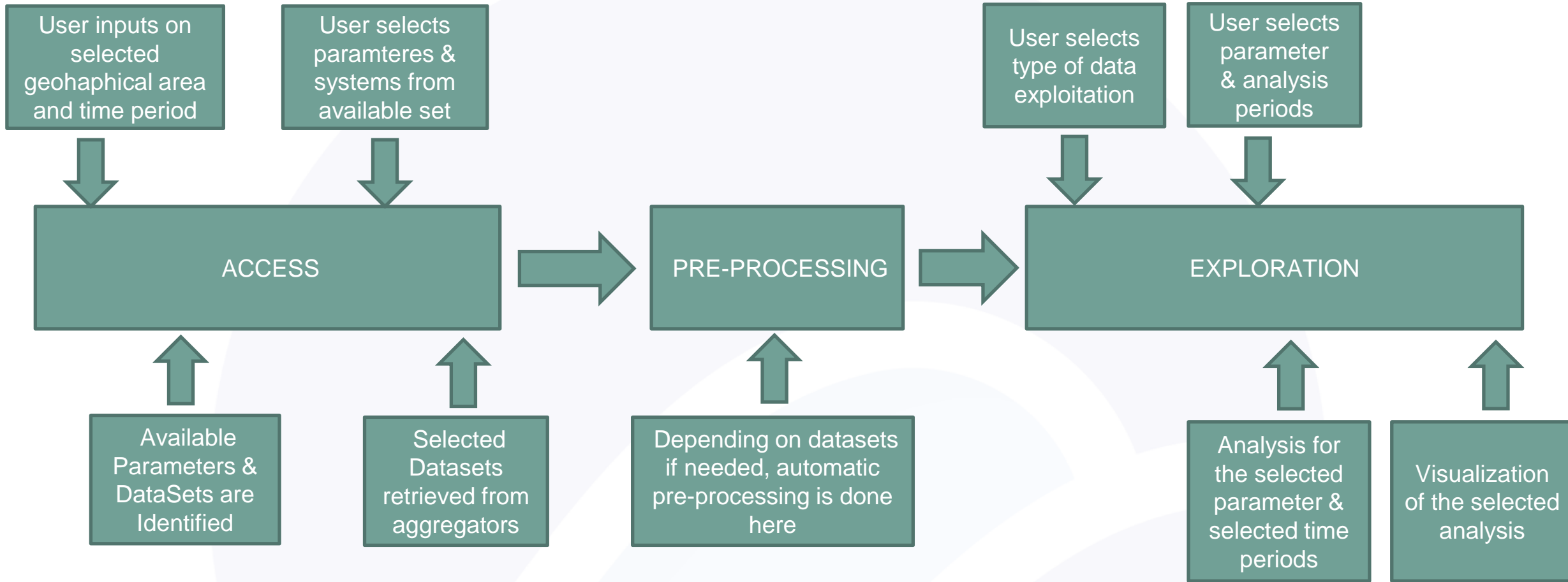
ADVANCED INTEGRATION OF DATA SETS

VISUALIZATION OF DATA SETS

THEMATIC SERVICE TS#1



THEMATIC SERVICE TS#1



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