



23rd ERVO Annual Meeting – June 01st - 02nd, 2021

Presenter: Thomas Vandenberghe

EARS DEVELOPMENTS IN EUROFLEETS+

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- 3) MARIS B.V. (The Netherlands)
- 4) Institut Français de Recherche pour l'Exploitation de la Mer (France)
- 5) 52° North (Germany)

H2020 EUROFLEETS+

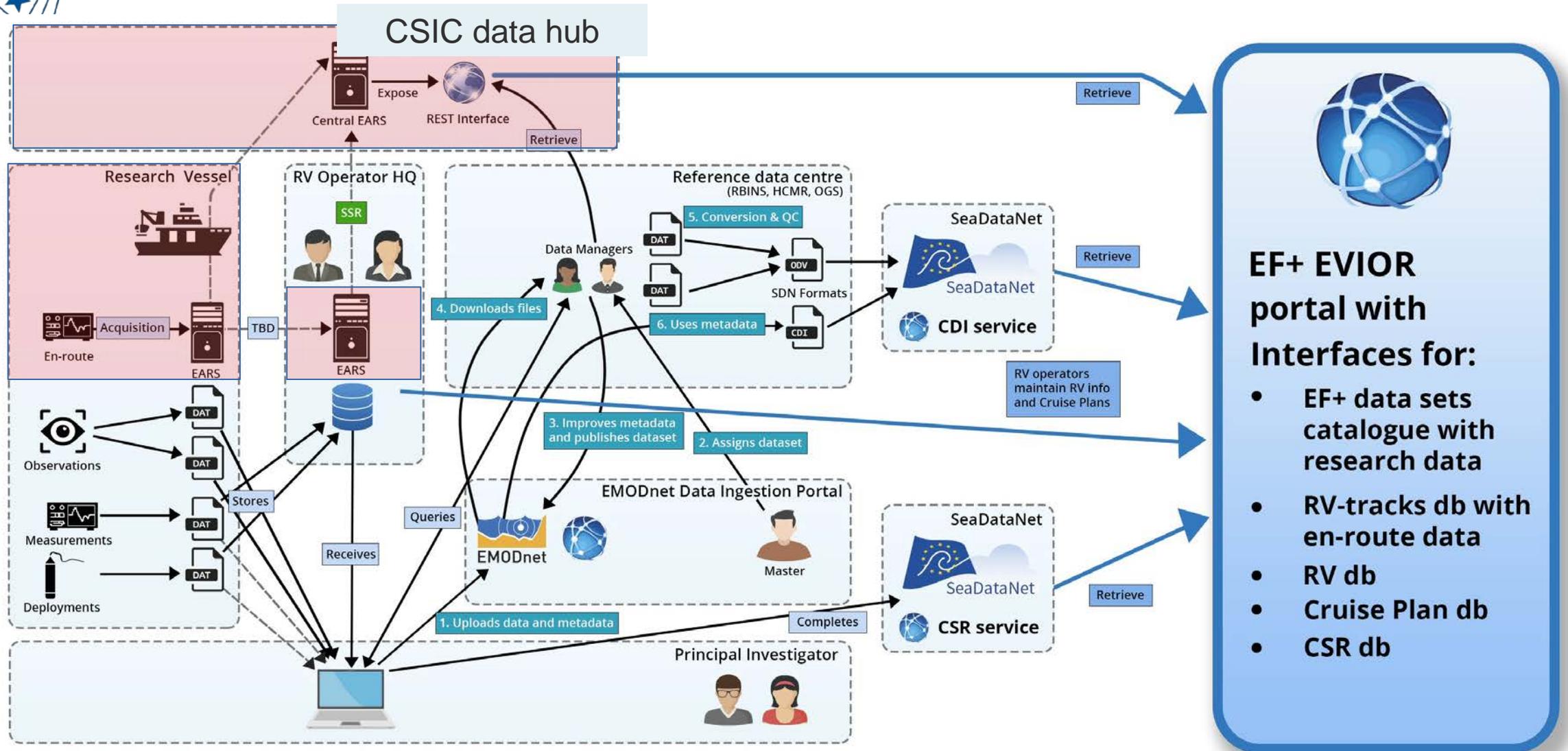


- Open TNA calls to access the European R/V fleet
- 42 operators
- 2019-2022
- Ship calls
 - Regional
 - OCEAN
 - co-PI
 - Remote





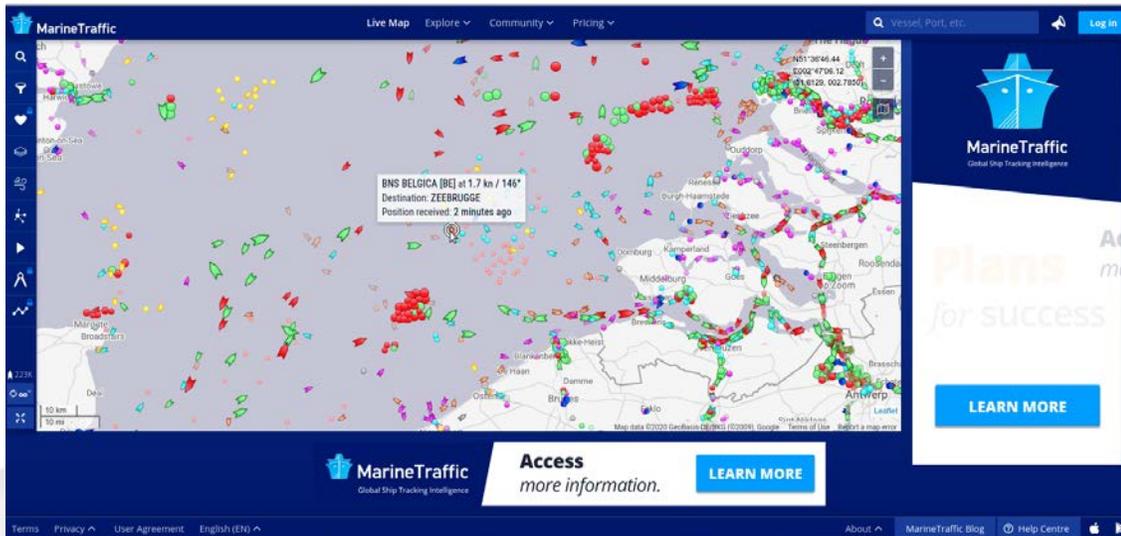
DATA FLOW FOR MANUAL AND EN-ROUTE DATA





DATA FLOW FOR EN-ROUTE DATA

Remote (N)RT displays



MarineTraffic – AIS
API, no en-route data



RV Belgica Een dienstverlenend oceanografisch onderzoekschip

RV Belgica Website Interface:

- Waar is RV Belgica?**
Informatie van: 12/10/2020 15:40:00 (CET)
Map Satellite
Map data ©2020 GeoBasis-DE/BKG (©2009), Google Terms of Use
Breedtegraad: 51.6233 ° Lengtegraad: 2.7849 °
Vaarsnelheid: 2.12 kn Koers: 149.7 ° Windkracht: 1.13 m/s
Windrichting: 314.9 ° Luchttemperatuur: 12.99 °C
Wattertemperatuur: 15.58 °C Waterdiepte: -21 m
Weergeven in applicatie »
- RV Belgica Webcam**
12/10/2020 15:26:01 (CET)
- Campagneprogramma**

10/10/2020 → 11/10/2020	Haven
Zeebrugge – Zeebrugge	
12/10/2020 → 16/10/2020	2020/25
Zeebrugge – Zeebrugge	DIVERSE MONITORING
17/10/2020 → 18/10/2020	Haven
Zeebrugge – Zeebrugge	
19/10/2020 → 19/10/2020	Onderhoud Meeting
Zeebrugge – Zeebrugge	
20/10/2020 → 23/10/2020	2020/26
Zeebrugge – Zeebrugge	MONITORING

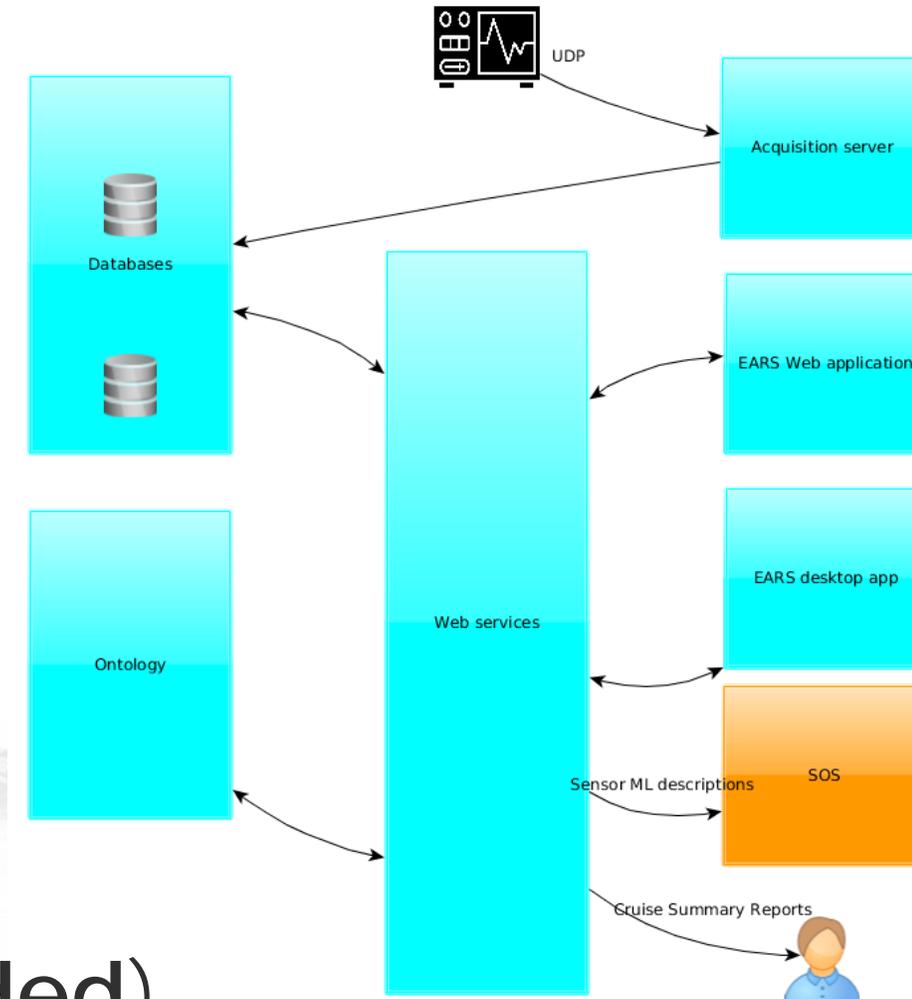
Volledige campagnetabel »

Institutional website – internal system
Not interoperable

EF+ AUTOMATIC REPORTING SYSTEM (EARS)



- Event logger
 - semantically aware (SDN vocabs)
 - enrich event with en-route data
 - → create complex metadata (CSR and SensorML events)
- En-route data
 - IFREMER TechSAS
 - available via web services
 - vessel-to-shore transfer (add-on, highly recommended)



INTERACT WITH EARS



Date	Time	Times	Tool category	Tool	Process	Action	Actor	Program	Label	Properties
2020-02-19	11:38:35	Z	benthos samplers	Gilson dredge	Sampling	End	ULB-STUD			Edt prop.
2020-02-19	11:38:55	Z	benthos samplers	Gilson dredge	Sampling	Start	Vansintjan Alex	OD NATURE-MF,O...		Edt prop.
2020-02-19	12:38:55	Z	benthos samplers	Gilson dredge	Sampling	Start	Albert Jean-Chris...	OD NATURE-MF,O...		Edt prop.
2020-02-19	11:45:43	Z	benthos samplers	Gilson dredge	Sampling	Start	Nuñez y Morales ...	OD NATURE-MF,O...		Edt prop.
2020-02-19	12:03:40	Z	current profilers	Teledyne RDI Workhorse Mar...	Track	Start	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	12:45:46	Z	current profilers	Teledyne RDI Workhorse Mar...	Track	End	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	16:27:09			Sea-Bird SBE 19plus SEACAT ...	Profile	AtDepth	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	16:28:18			Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	16:29:22			Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	16:30:23			Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	16:49:37			Sea-Bird SBE 19plus SEACAT ...	Profile	AtDepth	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	16:50:37			Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	16:51:37			Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edt prop.
2020-02-19	16:52:38			Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edt prop.

Desktop application – synoptic view

EARS Current program - Event Events Thomas Vandenberghe

Common scenarios

- CTD
- Sea-Bird SBE 911 CTD
- Maintenance
- End
- current profilers
- Teledyne RDI Ocean Surveyor 75kHz vessel-mounted ADCP
- Track
- Start
- unconsolidated sediment corers
- Unspecified gravity corer
- Deployment
- OnBottom
- lowered unmanned submersible
- SBE 32 Carousel Water Sampler Frame
- Profile
- InWater

Category lowered unmanned submersible

Tool SBE 32 Carousel Water Sampler Frame

Process Profile

Action InWater

Submit

Simple, mobile-friendly web application – on-deck entry

DEPLOYMENT PLAN



- Training webinars on March 16/23 → Operators/PI
 - Installation/use
- Installation by Virtual Machine or native (expert)
- Newly installed on Celtic Explorer (PORO-CLIM), Pelagia (iMar)
 - Events created by PI
 - En-route data in dashboard
- Next: Operators contacted 2 months before cruise



EARS DATAGRAMS

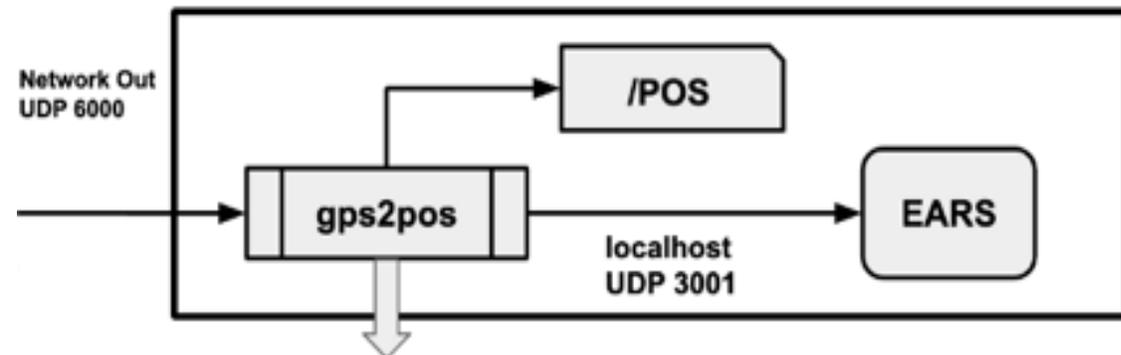
EARS needs three datagrams put on the network in a very specific format, each for navigation, thermosalinometry and meteorology.

```
SGPGLL,4214.46,N,00843.79,W
SGPGGA,112007,4214.463,N,00843.795,W,1,8,01,+0002,M,,M,,
SGPAPB,A,,,N,,,,,,,,
SGPBWC,112007,,,,,T,,M,,N,
SGPVTG,197.T,199.M,00.0,N,
SGPRMC,112007,A,4214.46,N,00843.79,W,00.0,197,261020,02,W*79
SGPRMB,A,,,,,,,,,,,,,*27
SGPGLL,4214.46,N,00843.79,W
SGPGGA,112009,4214.464,N,00843.795,W,1,8,01,+0002,M,,M,,
SGPAPB,A,,,N,,,,,,,,
SGPBWC,112009,,,,,T,,M,,N,
SGPVTG,197.T,199.M,00.0,N,
SGPRMC,112009,A,4214.46,N,00843.79,W,00.0,197,261020,02,W*77
SGPRMB,A,,,,,,,,,,,,,*27
```

MARINE GPS OUTPUT NMEA 0183

RMC - Recommended Minimum Specific GPS/Transit Data

Transformation is needed



\$EFPOS,131017,132035,3.01803,51.44738,216.2,8.9,-27.7,215.4,8.7



Are all sensor datagrams related to navigation, thermosalinometry and meteo published on UDP?

no

yes

A Serial to Ethernet converter should be installed (MOXA NPort)

Transformation

Done by RV technicians

Please give the format of your position datagrams (ideally RMC) in order to include an script in the Virtual machine for POS

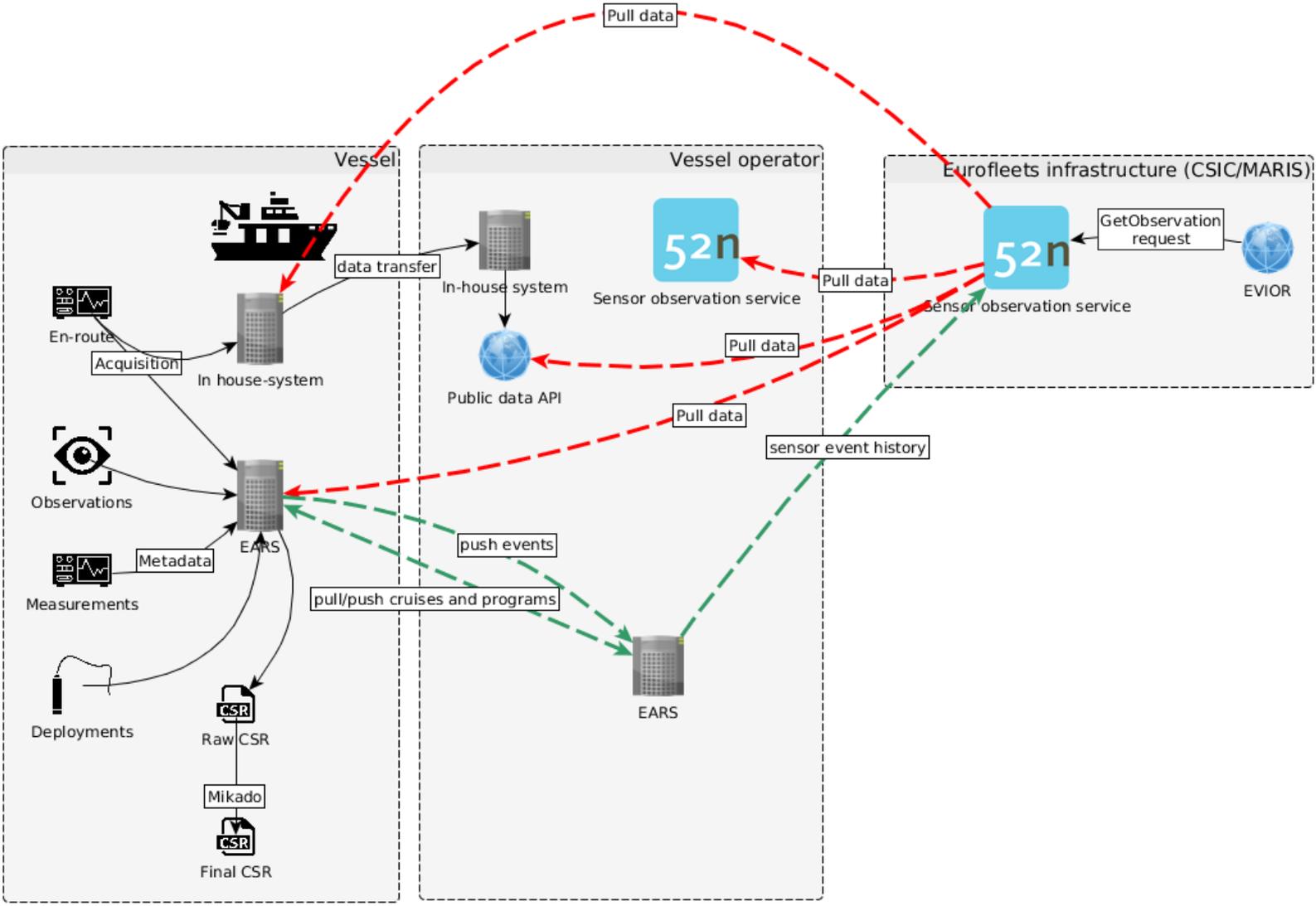


VESSEL-TO-SHORE DATA FLOW



Eurofleets+

alliance of European marine research infrastructure
meet the evolving needs of the research and industrial communities



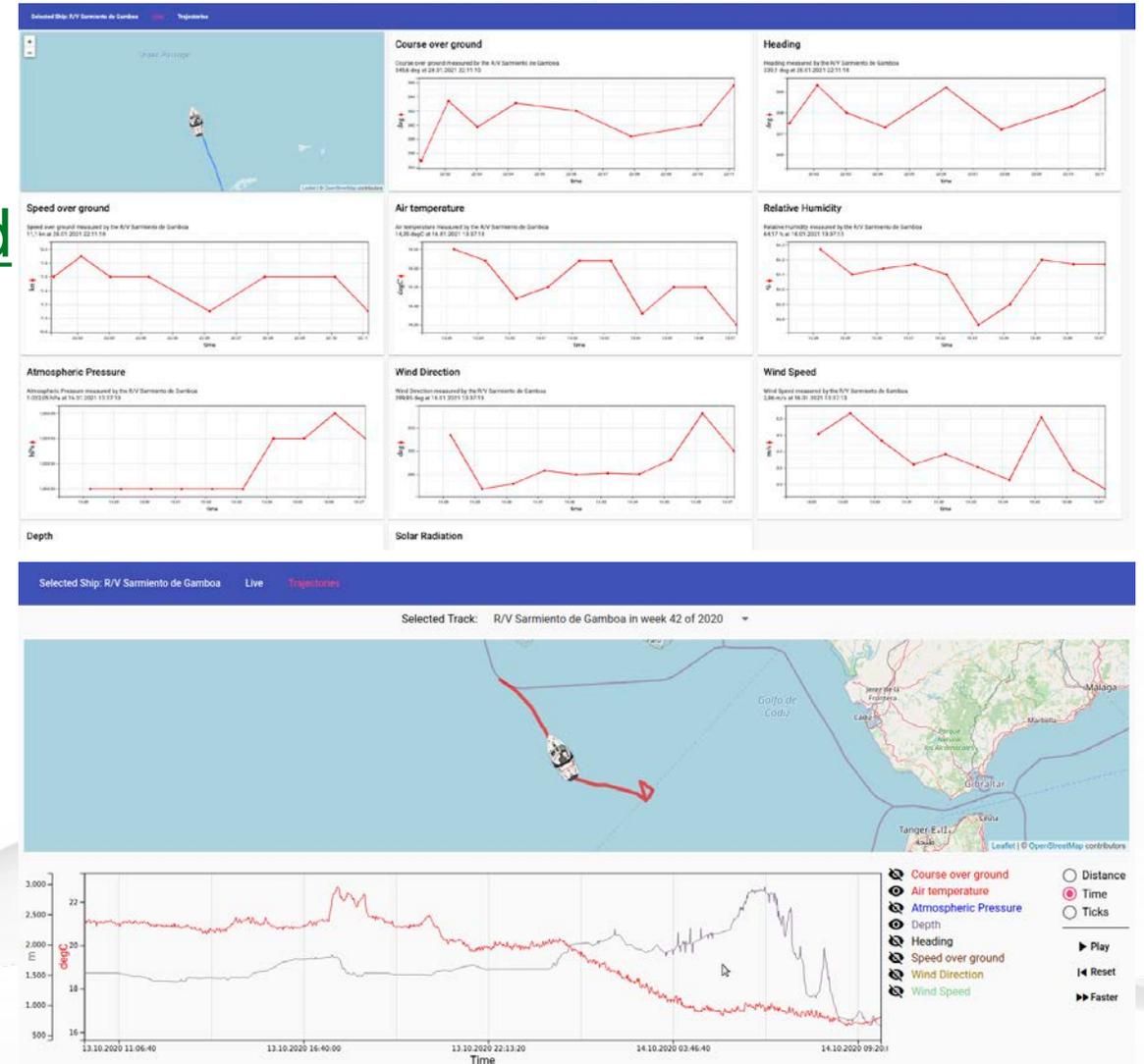
ON SHORE VIEWING SERVICES



UTM-CSIC DATA HUB

<http://eurofleets.utm.csic.es/dashboard>

- 52°N Sensor Observation Service
- Navigation, Thermosal, Meteo data
- **The way to go:**
 - FAIR and nice (+INSPIRE)
 - Data flow to EVIOR portal
- Plug in EF+ R/V



ON SHORE VIEWING SERVICES



- R/V Belgica (decommissioned)
- R/V Garcia del Cid
- R/V Hesperides
- R/V Sarmiento de Gamboa
- R/V Celtic Explorer
- R/V Pelagia

