

Shipboard data management and access

EARS, Eurofleets Automatic Reporting System

Susana Diez





RVs data

This comprises underway data acquisition systems, human operations and by (un)deploying (a group of) sensors like frames, ROVs, AUVs or floats.

- En-route data acquisition by a platform: navigation, meteorology, thermosalinometry
- Human operations: physical measurements such as a CTD profile, sediment or biota samples; multibeam data, etc
- Long-term timeseries by deployed sensors

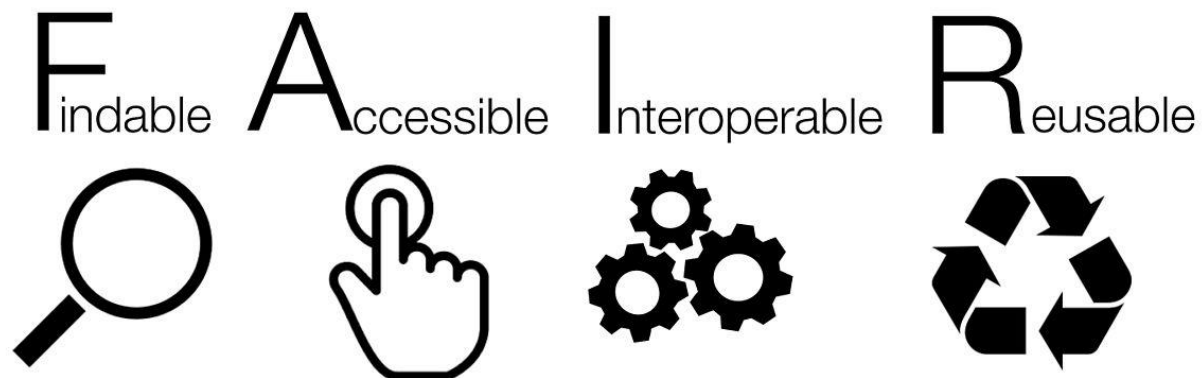


Category	Platform	Science	Matrix	Measurement type	spatiotemporal geometry	format at acquisition time	format at submission time	final format
En-route data acquisition	R/V, ROV, AUV, Float	Physics		Location	trajectory	Proprietary output files/network message	csv/ODV/NetCDF	ODV/NetCDF
En-route data acquisition	R/V, ROV, AUV, Float	Physics	air	Meteorology	trajectory	Proprietary output files/network message	csv/ODV/NetCDF	ODV/NetCDF
En-route data acquisition	R/V, ROV, AUV, Float	Physics, chemistry	water	Thermosalinometry	trajectory	Proprietary output files/network message	csv/ODV/NetCDF	ODV/NetCDF
En-route data acquisition	R/V, ROV, AUV, Float	Physics, chemistry	water	AUMS/FerryBox	trajectory	Proprietary output files/network message	csv/ODV/NetCDF	ODV/NetCDF
Long-term timeseries by deployed sensors	compound sensor	Physics, chemistry	water	Frame with multiple sensors	Point timeseries	Proprietary output files	csv/ODV/NetCDF	ODV/NetCDF
Long-term timeseries by deployed sensors	Single sensor	Physics, chemistry	water	Any single sensor (current meter, sea level, etc.)	Point timeseries	Proprietary output files		
Human operations	R/V	Physics	air, water, sediment	CTD profiles	Profile	Proprietary output files	csv/ODV/NetCDF	ODV/NetCDF
Human operations	R/V	Physics	air, water, sediment	Ad hoc physical observations	Single point in time and space	Proprietary output files/spreadsheet	csv/ODV/NetCDF	ODV
Human operations	R/V	Physics, Chemistry, Geology, Biology	water, sediment, biota	Water, sediment or biota samples	Single point in time and space	spreadsheet	csv/ODV	ODV
Human operations	R/V	Geology, Biology	Sediment, ecology	Human observations	Single point in time and space	spreadsheet	csv	ODV
Imagery data	R/V, ROV, AUV, Float	Geology, Biology	Sediment, ecology	Images	Single point in time and space	Image	n/a	n/a



Open Data Management Strategy

To ensure that the research and underway data collected by RVs are made widely available in line with FAIR and Open Research Data principles





In order to have FAIR Data -- > **metadata**

- Information about the cruise: who, when, what, how, ...
- Information about the events

Use of **controlled vocabularies** + rules & relations → **Ontologies**



BODC vocabularies

C17 Platform Code
L06 Platform Class
L05 Instrument
L22 Sensor Model
P02 Parameter

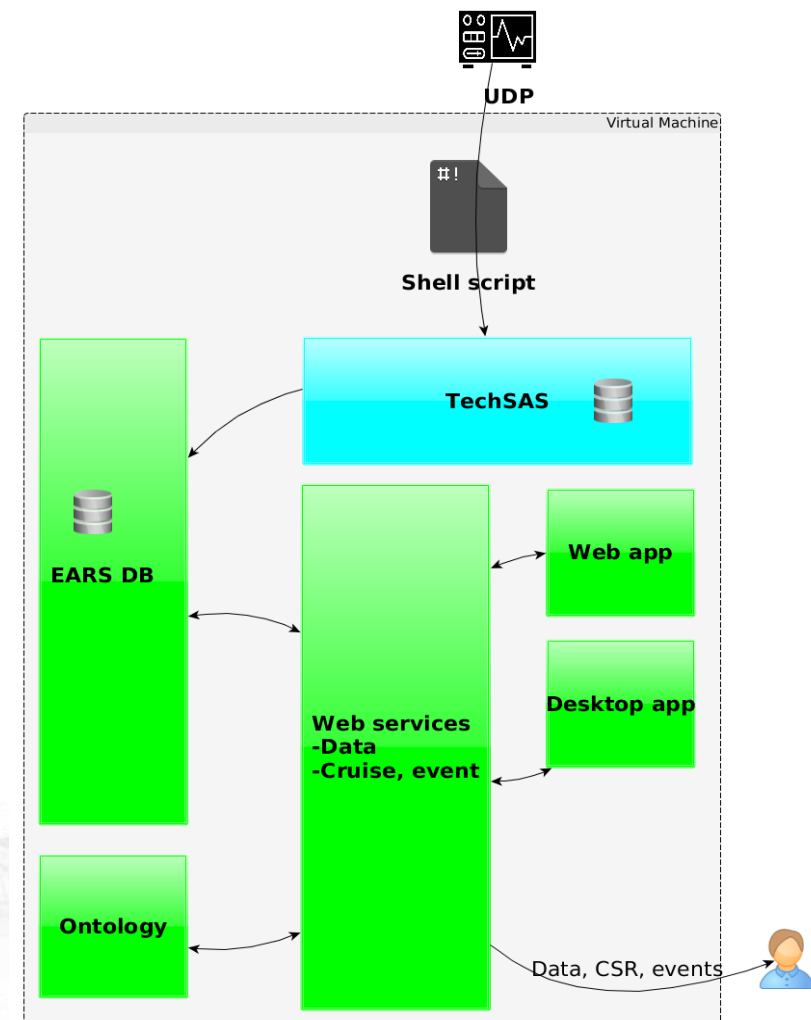
Event is defined by the triplet:
tool, process, action



EARS: Eurofleets Automatic Reporting System

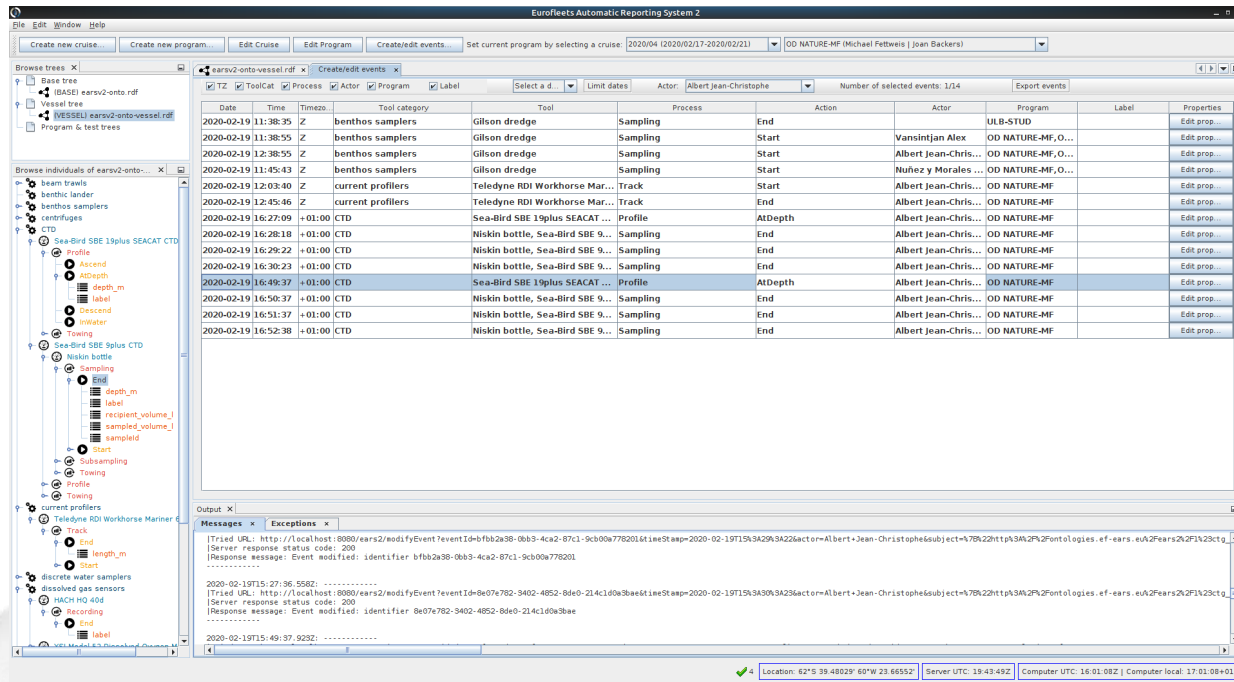
Advancing the shipboard data management system for:

- registering underway and events data
- (near) real-time transfer to shore and EVIOR portal
- Generating CSR (Cruise Summary Report) metadata files





EARS3



Desktop application – master view
Install on one PC

EARS

Event Events

ToolCategory

observers

Tool

Telescope or binocular

Process

Observation

Action

Start

Submit

Recent Events

mooring	Tripod	Deployment	Start	Submit
observers	Telescope or binocular	Observation	Start	Submit
research vessel	Belgica	Cruise	Start	Submit
observers	Telescope or binocular	Observation	End	Submit
centrifuges	Flow-through centrifuge	Initialisation	Start	Submit

Simple, mobile-friendly web application – fast
entry
Browser



Desktop application

- Create cruise & program
- Build scenarios

File Edit Window Help

New cruise New program Edit Cruise Edit Program Events cruise: GRACE (2022/01/17-2022/01/27) program: GRACE (Carmen Juan)

Browse ... View co... Browse ... Browse ... Browse ... Brow... X

earsv2-onto-vessel.rdf x

Visual

Properties

unconsolidated sediment corers - Properties

label unconsolidated sediment corers

alt label

definition Devices designed to collect samples of unconsolidated sedimen...

kind CTG

author SeaVox (BODC/SDN)

uri http://ontologies.ef-ears.eu/ears2/1#ctg_24

transitive uri http://vocab.nerc.ac.uk/collection/L05/current/51/

urn SDN:L05:51

status Validated

creation date Nov 12, 2014, 12:08:53 PM

internal details id=24; hash=2078427275; name=unconsolidated sediment cor...

unconsolidated sediment corers

CTG: Devices designed to collect samples of unconsolidated sediment from between the surface and depths from centimetres to 10s of metres with minimal disturbance of the sediment structure.

Output X

Messages x Exceptions x

2022-01-04T15:42:53.153Z: Vessel: Belgica

2022-01-04T15:42:53.179Z: Current program: GRACE (Carmen Juan)

2022-01-04T15:42:53.187Z: Current cruise: GRACE (2022/01/17-2022/01/27)

2022-01-04T15:46:15.955Z: -----

|Tried URL: http://localhost/ears3/ontology/vessel/upload

|Server response status code: 202

|Response message: File correctly saved

2022-01-04T15:46:16.389Z: The tree has been saved.

4 Computer UTC: 15:48:01Z | Computer local: 16:48:01+01



Desktop application

➤ Create events

Eurofleets Automatic Reporting System 2

File Edit Window Help

Create new cruise... Create new program... Edit Cruise Edit Program Create/edit events... Set current program by selecting a cruise: 2020/04 (2020/02/17-2020/02/21) OD NATURE-MF (Michael Fettweis | Joan Backers)

Browse trees X

- Base tree (BASE) earsv2-onto.rdf
- Vessel tree (VESSEL) earsv2-onto-vessel.rdf
- Program & test trees

Browse individuals of earsv2-onto... X

- beam trawls
- benthic lander
- benthos samplers
- centrifuges
- CTD
 - Sea-Bird SBE 19plus SEACAT CTD
 - Profile
 - Ascend
 - depth_m
 - label
 - Descend
 - depth_m
 - label
 - InWater
 - Towing
 - Sea-Bird SBE 9plus CTD
 - Niskin bottle
 - Sampling
 - depth_m
 - label
 - recipient_volume_l
 - sampled_volume_l
 - sampleid
 - End
 - Start
 - Subsampling
 - Towing
 - Profile
 - Towing
 - current profilers
 - Teledyne RDI Workhorse Mariner
 - Track
 - length_m
 - Start
 - discrete water samplers
 - dissolved gas sensors
 - HACH HQ 40d
 - Recording
 - End
 - label
 - YSI Model C3 Dissolved Oxygen M...

Output X

Messages x Exceptions x

Messages

2020-02-19T15:27:36.556Z: -----
|Tried URL: http://localhost:8080/ears2/modifyEvent?eventId=bfb2a38-0bb3-4ca2-87c1-9cb00a778201&timeStamp=2020-02-19T15:34:29&actor=Albert+Jean-Christophe&subject=%7B%22http%3A%2F%2Fontologies.ef-ears.eu%2Fears%2F%23ctg...
|Server response status code: 200
Response message: Event modified: identifier bfb2a38-0bb3-4ca2-87c1-9cb00a778201

2020-02-19T15:27:36.556Z: -----
|Tried URL: http://localhost:8080/ears2/modifyEvent?eventId=8e07e782-3402-4852-8de0-214c1d0a3bae&timeStamp=2020-02-19T15:34:30&actor=Albert+Jean-Christophe&subject=%7B%22http%3A%2F%2Fontologies.ef-ears.eu%2Fears%2F%23ctg...
|Server response status code: 200
Response message: Event modified: identifier 8e07e782-3402-4852-8de0-214c1d0a3bae

2020-02-19T15:49:37.923Z: -----

Date	Time	Timezo...	Tool category	Tool	Process	Action	Actor	Program	Label	Properties
2020-02-19	11:38:35	Z	benthos samplers	Gilson dredge	Sampling	End		ULB-STUD		Edit prop...
2020-02-19	11:38:55	Z	benthos samplers	Gilson dredge	Sampling	Start	Vansintjan Alex	OD NATURE-MF,O...		Edit prop...
2020-02-19	12:38:55	Z	benthos samplers	Gilson dredge	Sampling	Start	Albert Jean-Chris...	OD NATURE-MF,O...		Edit prop...
2020-02-19	11:45:43	Z	benthos samplers	Gilson dredge	Sampling	Start	Núñez y Morales ...	OD NATURE-MF,O...		Edit prop...
2020-02-19	12:03:40	Z	current profilers	Teledyne RDI Workhorse Mar...	Track	Start	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	12:45:46	Z	current profilers	Teledyne RDI Workhorse Mar...	Track	End	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	16:27:09	+01:00	CTD	Sea-Bird SBE 19plus SEACAT ...	Profile	AtDepth	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	16:28:18	+01:00	CTD	Niskin bottle	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	16:29:22	+01:00	CTD	Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	16:30:23	+01:00	CTD	Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	16:49:37	+01:00	CTD	Sea-Bird SBE 19plus SEACAT ...	Profile	AtDepth	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	16:50:37	+01:00	CTD	Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	16:51:37	+01:00	CTD	Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edit prop...
2020-02-19	16:52:38	+01:00	CTD	Niskin bottle, Sea-Bird SBE 9...	Sampling	End	Albert Jean-Chris...	OD NATURE-MF		Edit prop...

Location: 62°S 39.48029° 60°W 23.66552° Server UTC: 19:43:49Z Computer UTC: 16:01:08Z Computer local: 17:01:08+01



➤ Cruise overview

- Download event list (csv)

EARS_export_events_SINES (1)

Tool category	Tool category c	Tool	Tool code	Process	Action	Station	Label	Description	Acquisition Timestamp	Latitude	Longitude	Depth	Heading
meteorological packages	SDN:L05::102	Campbell Scientific CR1000 data logger	SDN:L22::TOOL1541	Track	Start		MET	MET Startup	2022-09-11T09:00:37Z	38.7018888	-9.1575185	9.94	75.91
thermosalinographs	SDN:L05::133	Sea-Bird SBE 21 Thermosalinograph	SDN:L22::TOOL0667	Track	Start		TSS	TSS Startup	2022-09-11T09:01:09Z	38.7018883	-9.1575187	10.16	75.96
current profilers		Teledyne RDI Ocean Surveyor 75kHz vessel-m	SDN:L22::TOOL0362	Track	Start		ADCP75kHz	ADCP75kHz Startup	2022-09-11T09:02:33Z	38.7018885	-9.1575155	9.94	76.23
current profilers		Teledyne RDI Ocean Surveyor 150kHz vessel-	SDN:L22::TOOL0363	Track	Start		ADCP150kHz	ADCP150kHz Startup	2022-09-11T09:04:10Z	38.7018902	-9.1575077	10.16	74.65
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	ST01	CTD001		2022-09-11T18:21:52Z	37.2585302	-9.0768038	143.58	296.36
multinet	SDN:L05::68	Vertical multinet	ears:concept::42331b99-4168	Towing	Start	ST01	MN001		2022-09-11T19:10:31Z	37.2585285	-9.0768102	143.0	296.44
unconsolidated sediment corers		Unspecified box corer	SDN:L22::TOOL1177	Deployment	Start	ST01	BC001		2022-09-11T19:53:43Z	37.2585357	-9.0767942	142.55	295.87
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	ST02	CTD002		2022-09-11T22:10:44Z	37.3425125	-9.2955215	186.62	311.06
multinet	SDN:L05::68	Vertical multinet	ears:concept::42331b99-4168	Towing	Start	ST02	MN002		2022-09-11T23:27:51Z	37.3425105	-9.2955375	828.29	310.3
unconsolidated sediment corers		Unspecified box corer	SDN:L22::TOOL1177	Deployment	Start	ST02	BC002		2022-09-12T00:45:53Z	37.3425052	-9.2955335	829.02	164.11
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	CCMAR	CTD003		2022-09-12T12:20:32Z	36.8513008	-8.9280555	170.79	193.33
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	FARO1	CTD004		2022-09-13T06:21:50Z	36.9021393	-7.9066672	103.15	236.02
unconsolidated sediment corers		Unspecified box corer	SDN:L22::TOOL1177	Deployment	Start	FARO1	BC003		2022-09-13T06:40:45Z	36.9022888	-7.9068797	102.73	229.03
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	FARO2	CTD005		2022-09-13T08:14:39Z	36.8580265	-7.9067107	339.82	223.75
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	FARO3	CTD006		2022-09-13T09:39:52Z	36.799441	-7.9067352	763.79	230.34
multinet	SDN:L05::68	Vertical multinet	ears:concept::42331b99-4168	Towing	Start	FARO3	MN003		2022-09-13T10:33:30Z	36.7994527	-7.9067198	763.92	232.4
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	FARO4	CTD007		2022-09-13T12:46:27Z	36.762818	-7.906234	653.91	229.47
water temperature sensor	SDN:L05::134	Sea and Sun Technology Microstructure Profil	SDN:L22::TOOL0453	Profile	Start	FARO4	PF001		2022-09-13T13:32:05Z	36.763111	-7.90493	653.59	134.81
plankton nets		Vertical phytoplankton net	ears:concept::abc6d4be-6d55	Towing	Start	FARO4	PS001		2022-09-13T14:48:59Z	36.7619057	-7.9060037	656.17	235.63
multinet	SDN:L05::68	Vertical multinet	ears:concept::42331b99-4168	Towing	Start	FARO4	MN004		2022-09-13T15:27:38Z	36.761897	-7.9060252	656.41	235.35
unconsolidated sediment corers		Unspecified box corer	SDN:L22::TOOL1177	Deployment	Start	FARO4	BC004		2022-09-13T16:35:54Z	36.7619028	-7.9060038	656.46	249.83
multinet	SDN:L05::68	Vertical multinet	ears:concept::42331b99-4168	Towing	Start	ST03	MN005		2022-09-14T15:23:10Z	37.9948028	-11.4276952	5092.79	296.41
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	ST03	CTD008		2022-09-14T17:02:42Z	37.994828	-11.4276675	5093.69	288.95
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	ST03	CTD009		2022-09-14T18:36:18Z	37.9950665	-11.4282468	5093.3	281.18
water temperature sensor	SDN:L05::134	Sea and Sun Technology Microstructure Profil	SDN:L22::TOOL0453	Profile	Start	ST03	PF002		2022-09-14T22:05:05Z	37.9942793	-11.4282563	5091.53	227.67
plankton nets		Vertical phytoplankton net	ears:concept::abc6d4be-6d55	Towing	Start	ST03	PS002		2022-09-14T23:32:41Z	37.9948103	-11.428734	5091.19	310.16
unconsolidated sediment corers		Unspecified box corer	SDN:L22::TOOL1177	Deployment	Start	ST03	BC005		2022-09-14T23:43:38Z	37.9949448	-11.4283537	5091.22	310.55
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	ST04	CTD010		2022-09-15T10:31:49Z	37.7415093	-10.6077805	4334.44	304.96
CTD		Sea-Bird SBE 911 CTD	SDN:L22::TOOL0035	Profile	Start	ST04	CTD011		2022-09-15T12:18:27Z	37.7410673	-10.6078063	4332.02	298.15
water temperature sensor	SDN:L05::134	Sea and Sun Technology Microstructure Profil	SDN:L22::TOOL0453	Profile	Start	ST04	PF003		2022-09-15T15:20:52Z	37.739995	-10.6071642	4317.76	238.24

Web application

➤ Create events

ILVO-EV_2021 (Els Vanderperren/Heleen Lenoir) ▼

Station
W01

Event label
W01-trawl2


☰


Common scenarios ^


beam trawls
OD Nature beam trawl 8m
Towing Start

beam trawls
OD Nature beam trawl 8m
Towing End

research vessel
Belgica
Cruise Start

Category Nothing selected ▲ 

Tool Nothing selected ▲ 

Process Nothing selected ▲ 

Web application

- Events overview
 - Modify, delete
 - Download event list

Current program ▾

Station

Event label

Toggle column: **Category** - **Station** - **Label**
☒ Display only my own events

Show

25 ▾

 entries

Search:

date ▾	time ▾	category ▾	tool ▾	process ▾	action ▾
21-12-06	14:59:59Z	transmissometers	WETLabs ac-9 Absorption and Attenuation meter	Recording	End
21-11-29	16:28:54Z	binoculars and terrestrial scopes	Unspecified telescope	Observation	Start
21-09-23	11:50:34Z	research vessel	Belgica	Cruise	Start
			Kongsberg		

Web application

- Cruise overview
 - Download event list (csv)
 - Download cruise data (csv, xml)
 - Download Cruise Summary Reports

Current program ▾

Cruises@Belgica

Show 10 ▾ entries

Search:

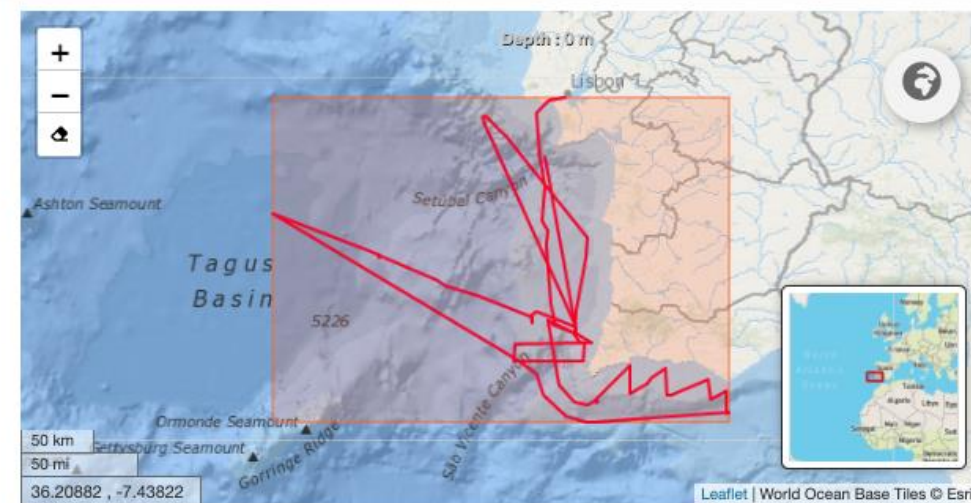
Identifier ▲	Start date ▾	End date ▾	Chief scientist ▾	Cruise summary report	Navigation
BE2004/04	2004-03-02 08:00:00	2004-03-05 18:00:00	Vera Van Lancker	✓	<ul style="list-style-type: none">• CSV• XML• JSON
BE2004/05	2004-03-08 08:00:00	2004-03-12 18:00:00	Michael Fettweis	✓	<ul style="list-style-type: none">• CSV• XML• JSON
BE2004/06a	2004-03-15 08:00:00	2004-03-19 18:00:00	Hans Hillewaert	✓	<ul style="list-style-type: none">• CSV• XML• JSON
BE2004/06b	2004-03-22 08:00:00	2004-03-25 18:00:00	Hans	✓	<ul style="list-style-type: none">• CSV• XML

GENERAL INFORMATION

ID	Platform/Ship
21027629	Sarmiento de Gamboa
Cruise begin	Cruise end
11.09.2022	20.09.2022
Port of Departure	Port of Return
Lisbon, Portugal	Lisbon, Portugal

Chief Scientist(s)
[Fontela, Marcos - University of Algarve, Marine Sciences Centre](#)

Responsible(s) Laboratory
[CSIC, Marine Technology Unit](#)
[University of Algarve, Marine Sciences Centre](#)



DESCRIPTION

The overall objective of this study is to identify the changes and risks for marine ecosystem functioning and its biodiversity deriving from the potential impact of climate change on Iberian Upwelling fronts.

LOCATION

General Ocean Areas
North Atlantic Ocean

[Link to Charts](#)



Marsden Squares (S, N, E, W)

ADDITIONAL INFORMATION

Parameters measured
Air pressure
Air temperature
Atmospheric humidity

Instruments used
ADVs and turbulence probes
CTD
Global Navigation Satellite System receivers



Outfitting the Eurofleets+ fleet

So far EARS has been installed on 14 RVs

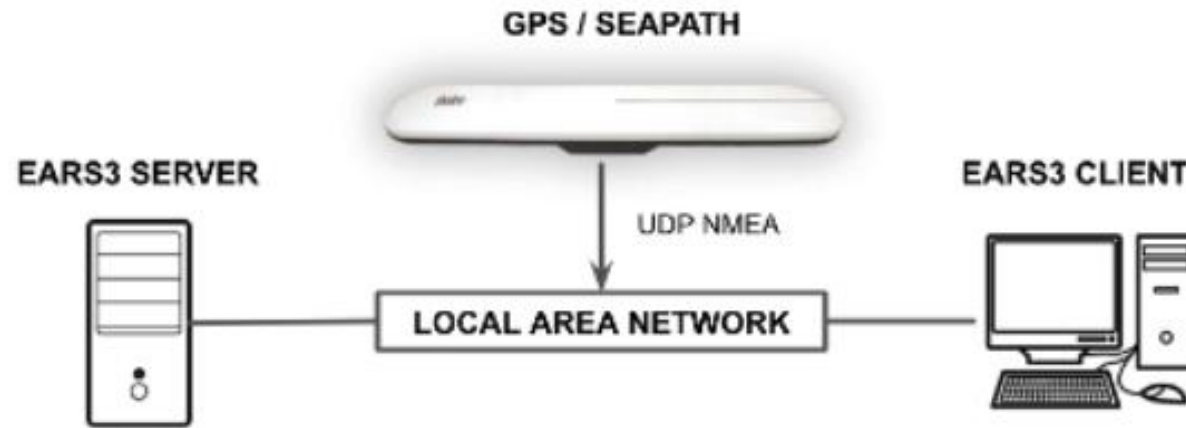
EARS3 Installation

- **EARS Server** + web app (V3): (virtual) server
- **EARS Client**: client desktop application on PC



SERVER Single Virtual Machine (or self-managed)

- VirtualBox/Hyper-V/VMWare running Ubuntu Linux (memory stick)
- Has all EARS Server components, transform UDP navigation datagram to EARS format, sending to shore, VPN for remote access
- Make available on LAN, specifically to computer that will host client application



- Internet connection and SSH access is very useful for remote troubleshooting and updates

EARS datagrams

EARS needs NAV, TSS & MET datagrams put on the network (UDP not serial)

If serial then MOXA Nport

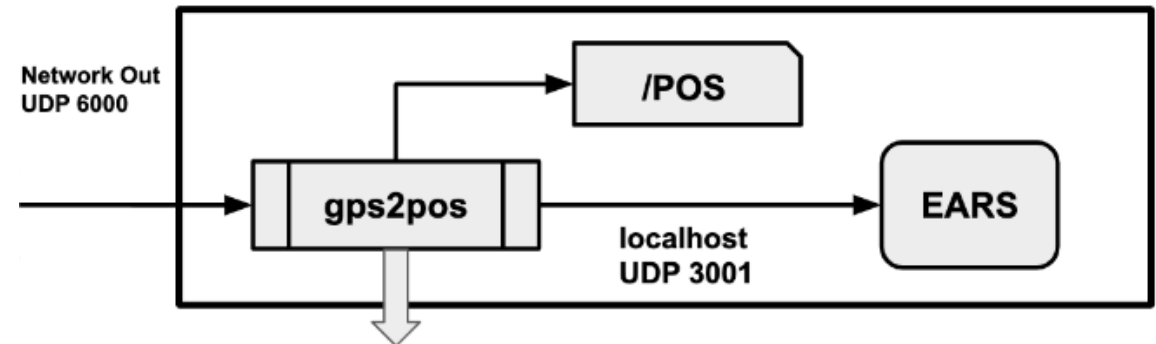


Transformation is
needed, script
included in VM

```
$GPGLL,4214.46,N,00843.79,W  
$GPGGA,112007,4214.463,N,00843.795,W,1,8,01,+0002,M,,M,,  
$GPAPB,A,,,N,,,,,,,,,  
$GPBWC,112007,,,,,T,,M,,N,  
$GPVTG,197.T,199.M,00.0,N..  
$GPRMC,112007,A,4214.46,N,00843.79,W,00.0,197,261020,02,W*79  
$GPRMB,A,,,,,,,,,,,,,*27  
$GPGLL,4214.46,N,00843.79,W  
$GPGGA,112009,4214.464,N,00843.795,W,1,8,01,+0002,M,,M,,  
$GPAPB,A,,,N,,,,,,,,,  
$GPBWC,112009,,,,,T,,M,,N,  
$GPVTG,197.T,199.M,00.0,N..  
$GPRMC,112009,A,4214.46,N,00843.79,W,00.0,197,261020,02,W*77  
$GPRMB,A,,,,,,,,,,,,,*27
```

MARINE GPS OUTPUT NMEA 0183

RMC - Recommended Minimum Specific GPS/Transit Data

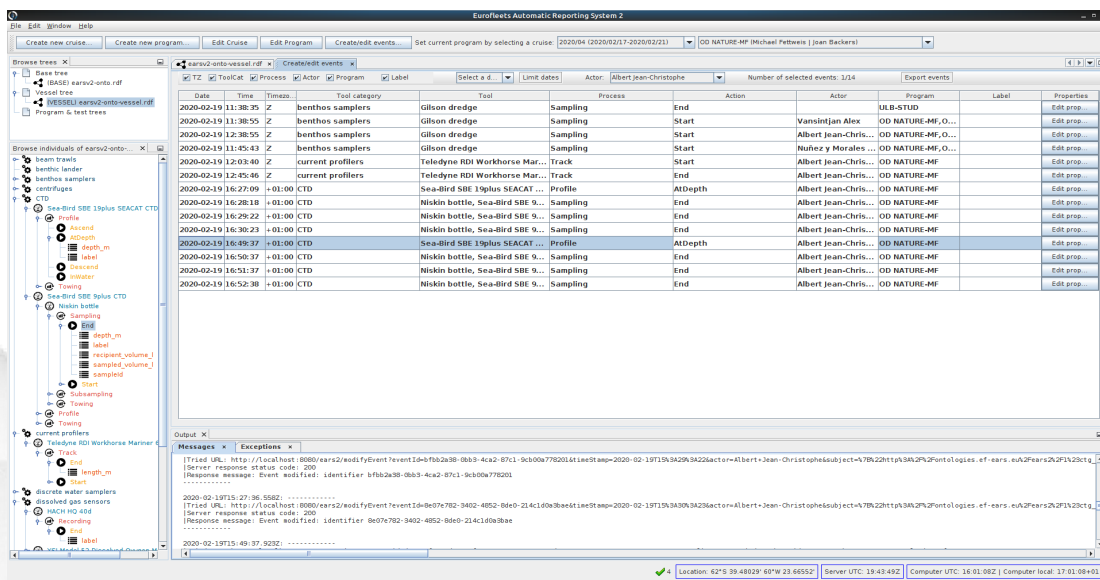


\$EFPOS,131017,132035,3.01803,51.44738,216.2,8.9,-27.7,215.4,8.7



CLIENT = EARS FROND-END APPLICATION ON A PC JAVA 11 ENVIRONMENT

- Must have internet connection during setup; best continuously
- ✓ Check connection with the server
- ✓ Create a new vessel tree





Manuals:

- **Installation from docker:** <https://github.com/naturalsciences/ears3-server/>
- **Installation from CSIC VM:**
[http://datahub.utm.csic.es/files/wl/?id=VSdOEI6Opfl0HWcOE6irB8RJQVqzFDKt&path=EA RS%20V3%20FEUROFLEETS Guideline%20for%20easy%20installation%20%26%20configuration n%20of%20the%20integrated%20shipboard%20system.pdf&mode=list](http://datahub.utm.csic.es/files/wl/?id=VSdOEI6Opfl0HWcOE6irB8RJQVqzFDKt&path=EA%20RS%20V3%20FEUROFLEETS%20Guideline%20for%20easy%20installation%20%26%20configuration%20of%20the%20integrated%20shipboard%20system.pdf&mode=list)
- **Desktop and web app:**
<http://datahub.utm.csic.es/files/wl/?id=VSdOEI6Opfl0HWcOE6irB8RJQVqzFDKt&path=EA RS%20V3%20Eurofleets%20B D3.9 manual ears3 client webapp.pdf&mode=list>
- **Training video (03/2021):**
<http://datahub.utm.csic.es/files/wl/?id=VSdOEI6Opfl0HWcOE6irB8RJQVqzFDKt&path=Webinars presentations%20Technicians webinar %2016032021&mode=list>

Support:

- Normally no Linux commands required
- Installation based on the manuals first, interventions only for emergencies



EF DASHBOARD

- The information exchange from EARS to the Dashboard is arranged by adoption and adaptation of the open-source SeaDataNet Sensor Web Enablement (SWE) toolkit developed by 52°N. The adapted SWE Toolkit has been installed and configured at UTM-CSIC
- An EF+ Data Hub for the underway data (nav, met, and tss) and events has been deployed at UTM-CSIC. Information from the Data Hub provides the input for the Dashboard.
- Data transfer:
 - RV: EARS VM, RV sends datagrams to data hub or query from CSIC to RV WS



ON BOARD

EARS
DESKTOP

VM

EARS SERVER
nmea2pos
(UDP 3101)
VPN Client

GPS

UDP NMEA

UDP
6000-7000

UDP-Hub

format

UTM-CSIC DATAHUB
<http://datahub.utm.csic.es>

/serie

NAV

/ws

getLast

UTM-CSIC EUROFLEETS LINK
<http://eurofleets.utm.csic.es>

ef-feeder

/dashboard

Operator WS
getLast

HTTP

HTTP-Hub

EVIOR PORTAL

52n





UTM-CSIC Data Hub - data@utm.csic.es

Name	Last modified	Size	Description
Parent Directory		-	
SDG/	2020-07-13 10:16	-	RV Sarmiento de Gamboa
PEL/	2022-02-01 14:14	-	RV Pelagia
JCI/	2022-01-20 12:35	-	AS Juan Carlos I
HES/	2020-07-13 10:16	-	RV Hesperides
GDC/	2020-07-13 10:14	-	RV Garcia del Cid
DAN/	2021-06-22 10:26	-	RV Dana
CEX/	2021-05-19 10:56	-	RV Celtic Explorer
BEL/	2020-10-13 10:50	-	RV Belgica
AEG/	2021-09-22 07:46	-	RV Aegaeo



UTM-CSIC Data Hub - data@utm.csic.es

Name	Last modified	Size	Description
Parent Directory		-	
TSS/	2022-03-21 00:01	-	Sea surface thermosalinograph data
POS/	2020-04-19 08:32	-	Autoindexed position data
NAV/	2022-03-21 00:00	-	Navigation data
MET/	2022-03-21 00:00	-	Weather station data
EVT/	2020-07-13 10:16	-	Events metadata

```
$SDGMET,20220321,000045,9.2235700,-24.7645133,9.25,169.28,22.25,86.08,-2.53,1025.12
$SDGMET,20220321,000145,9.2214000,-24.7618833,8.73,175.84,22.14,86.18,0,1025.02
$SDGMET,20220321,000245,9.2192717,-24.7592517,8.73,172.06,22.31,86.32,-2.53,1025.02
$SDGMET,20220321,000345,9.2171417,-24.7566083,9.41,166.41,22.25,86.01,-2.53,1025.02
$SDGMET,20220321,000445,9.2150683,-24.7541050,9.26,168.63,22.28,86.28,-2.53,1025.02
$SDGMET,20220321,000545,9.2129667,-24.7516267,9.42,170.60,22.21,86.28,-2.53,1025.02
$SDGMET,20220321,000645,9.2107767,-24.7490850,8.87,173.22,22.25,86.38,-2.53,1025.12
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$SDGMET,20220321,000845,9.2065417,-24.7439667,7.25,164.41,22.11,86.32,-2.53,1024.91
$SDGMET,20220321,000945,9.2043233,-24.7414333,9.82,166.05,22.01,85.70,-2.53,1024.91
$SDGMET,20220321,001045,9.2022700,-24.7388900,9.95,159.51,22.25,85.74,-2.53,1025.12
$SDGMET,20220321,001145,9.2001550,-24.7363183,9.51,161.75,22.42,85.30,-2.53,1025.02
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$SDGMET,20220321,001550,9.1915983,-24.7261083,10.73,168.08,22.08,84.28,0,1025.12
$SDGMET,20220321,001650,9.1894717,-24.7234800,9.05,175.16,22.35,84.96,-2.53,1025.12
$SDGMET,20220321,001750,9.1874200,-24.7209533,7.95,165.84,22.35,84.48,-2.53,1025.02
```

GetLast Web Service feeds
the SWE Ingestion toolkit for
each vessel to be shown by
means of the dashboard



Select a ship:

R/V Belgica

R/V Dana

R/V García del Cid

R/V Hesperides

R/V Ramón Margalef

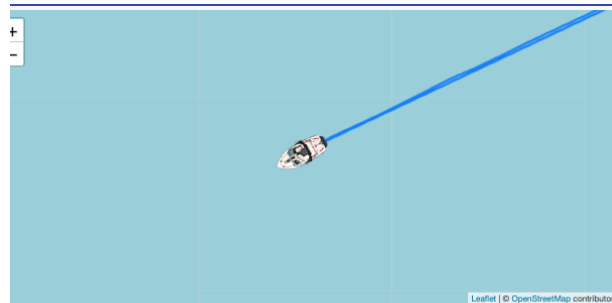
R/V Sarmiento de Gamboa

R/V Aegaeo

R/V Celtic Explorer

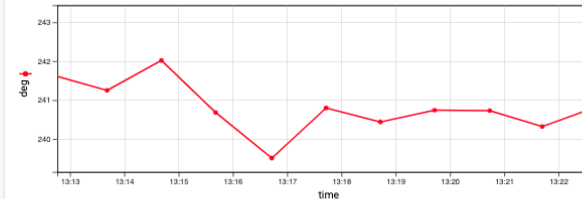
R/V Árni Friðriksson

R/V Pelagia



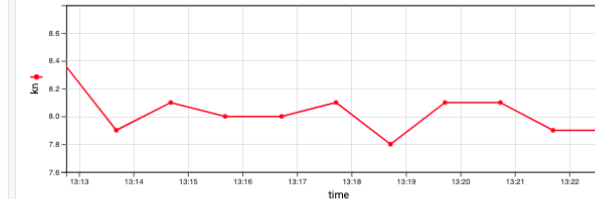
Heading

Heading measured by the R/V Sarmiento de Gamboa
240,86 deg at 14.11.2022 13:22:46



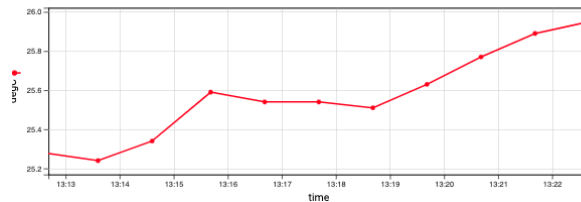
Speed over ground

Speed over ground measured by the R/V Sarmiento de Gamboa
7,9 kn at 14.11.2022 13:22:46



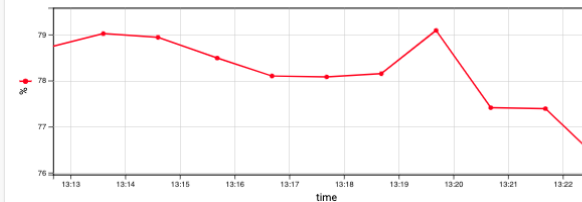
Air temperature

Air temperature measured by the R/V Sarmiento de Gamboa
5,95 degC at 14.11.2022 13:22:41



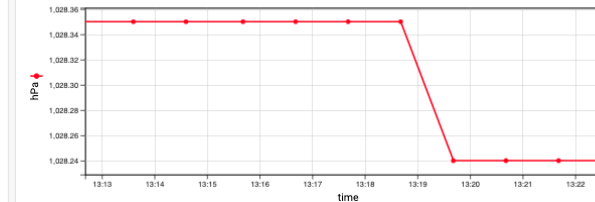
Relative Humidity

Relative Humidity measured by the R/V Sarmiento de Gamboa
76,26 % at 14.11.2022 13:22:41



Atmospheric Pressure

Atmospheric Pressure measured by the R/V Sarmiento de Gamboa
1,028,24 hPa at 14.11.2022 13:22:41



Selected Track: R/V Sarmiento de Gamboa in week 44 of 2022

