

Royal Netherlands Institute for Sea Research



From cruise planning to database: *examples from NIOZ operations*

Zeynep Erdem

Science coordinator

National Marine Facilities NIOZ

IRSO 2025

Bergen, Norway



Inspired by...



Vessel Data transfer protocols – challenges faced & automation as the solution?

Rosemarie Butler,
Scientific & Technical Officer
ERVO 27th Meeting – Faroe Islands,
4th June 2025



&

Current Marine Facilities Planning developments



[Rosemarie Butler ERVO 2025 presentation](#)

Overview

- NIOZ vessels on board data handling protocol
- MFP – Shipsdata - DAS interaction
- Event logger on NIOZ Vessels: SHIPSDATA
- NIOZ database: DAS – Data Archiving System
- Open discussion

On board data handling protocol – Research Data Management (RDM)

- Dedicated crew member. Support for the science team.
- Dedicated folders for data for backup (equipment specific)
- Automated underway data transfer (e.g., sensors) via Shipsdata to DAS
- Event logging via Shipsdata (manual entry by the bridge)
- Hard drive data storage for larger data (e.g., HD video)
- Everything is backed up once the vessel is in homeport
- Expectation from science teams: post-expedition data storage to the database and reporting

NIOZ NMF - RDM RV PELAGIA ONBOARD DATA HANDLING

Dear Cruise participant,

in a few days, you will sail on board the *RV Pelagia*. This document provides information on data flows and research data management during and after the cruise. As of 9th May 2025, it replaces all previous descriptions that may accidentally be found as hard copies in your cabin.

Internet Access:

Connection to the internet can be accomplished in two ways:

1. Establish a physical connection using a LAN cable, which requires no further authentication.
2. connect to the 'pelagia'-wifi using the password 'guest@pelagia'.

Shipsdata Access:

The 'Shipsdata' is Pelagia's primary application for the acquisition, display, distribution, and storage of cruise data onboard (the manual is attached to this mail and available from the upper-left corner of the Shipsdata overview screen). An active connection to the RV Pelagia network (see above) is required in order to access Shipsdata.

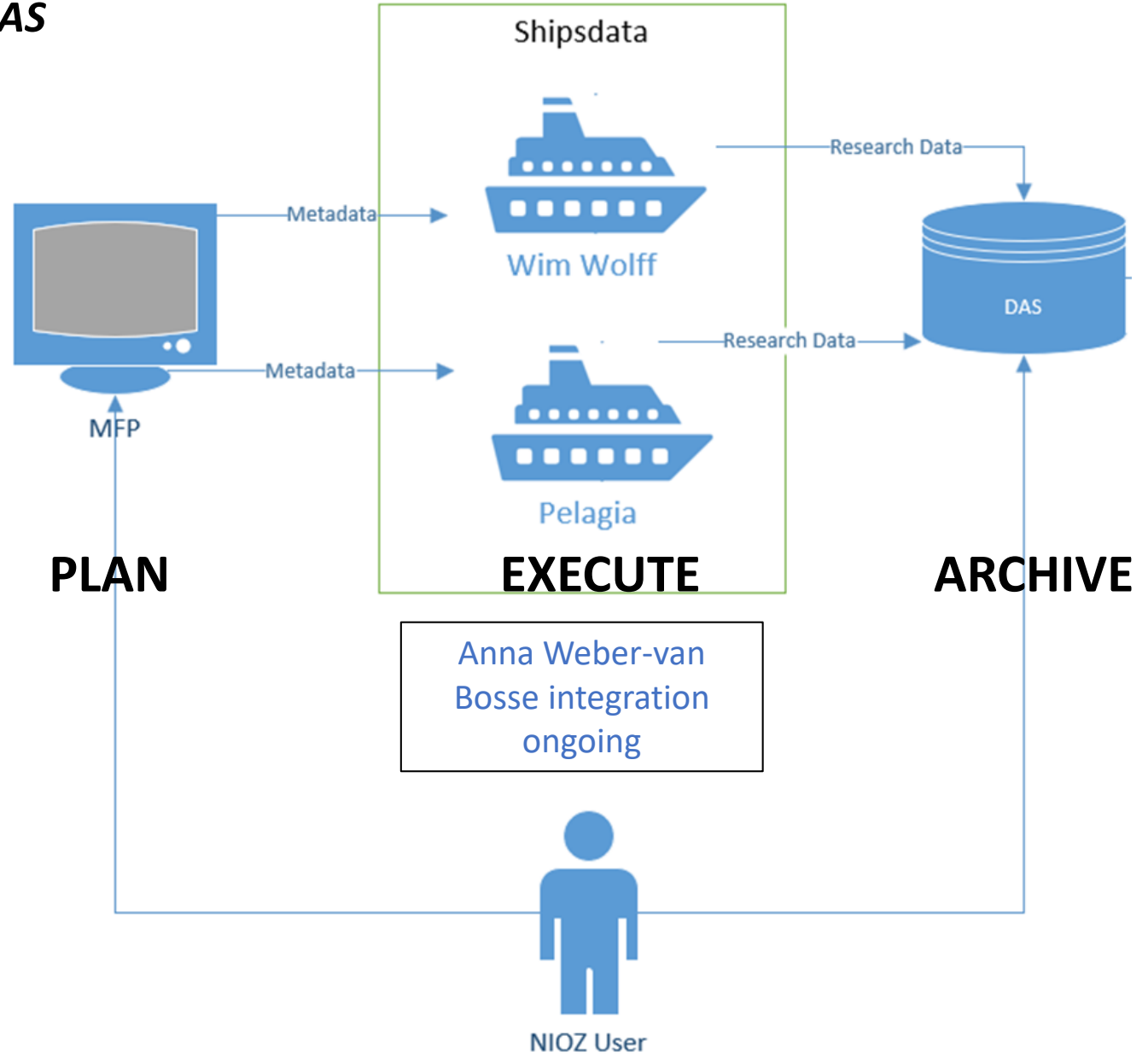
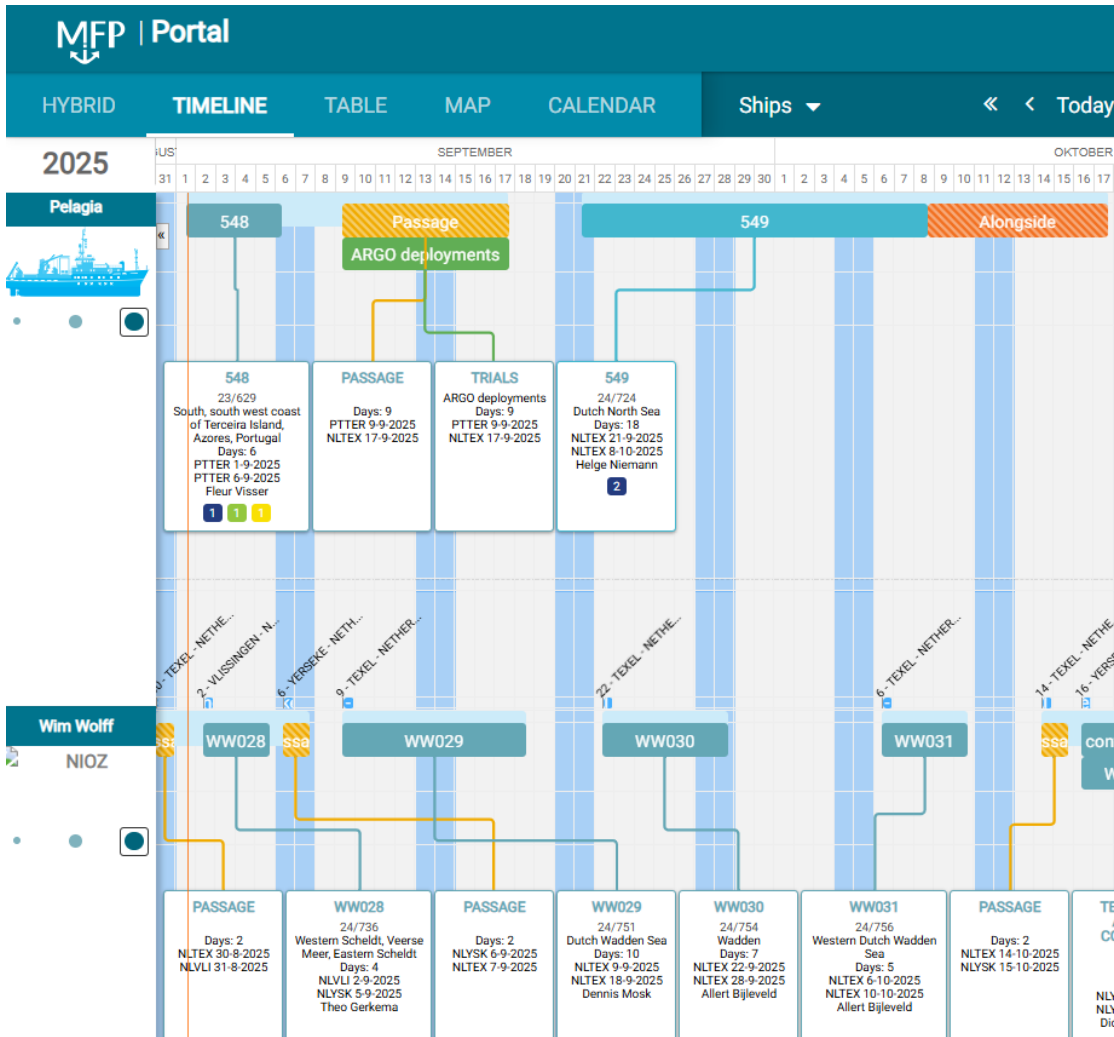
Getting access:

1. Type 'shipsdata.rvpelagia.nl' in the address bar of your internet browser,
2. Click the 'Login' button on the top left corner.
3. The username is your email, and the password is the part of your email that precedes the '@'. It's imperative to change the password after the first log-in.
4. In case your personal account is disabled, a default account can be requested from the Electro-technical Officer (ETO)

Shipsdata Application:

Prior to the cruise, basic cruise and sensor metadata are imported from Marine Facilities

From planning to database: MFP – Shipsdata – DAS



Overview

Edit Layout

Overview

Sensors

Dataview

Control

Sign out



Nav Data

2023-06-27 13:27:38 UTC

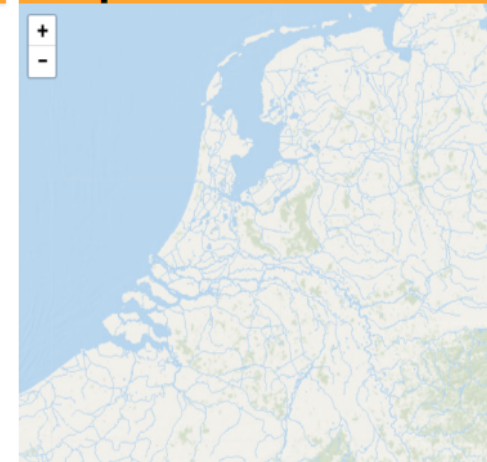
Display coordinates as: ▾

Latitude: "53" 00.400' N
Longitude: 004" 47.760' E
Speed: 0.0kn
Heading: 260.67"
Depth EAG00: 0,00M, EM302: 57.04m X
Waypoint: 53" 00.414' N 004" 40.334' E (Distance: 0.95 miles)
ETA: Speed too low for ETA calculation
Message speed up

Meteo Data

Water Temperature: X
Air Temperature: 17.2C
True Wind Speed: 8.00m/s
True Wind Direction: 274.0
Air Pressure: 1010.9hpa

Map



Winch Data

Name	Tension (kg)	Speed (meter / minute)	Payout (m)
CTD winch	00.00	0.00	12.00
Side winch	-47.00	-0.00	105.00
KLEY winch	-3021.00	0.00	0.00
Storm winch	-18.00	0.00	635.00
Towing winch	07.00	0.00	0.00

Aquaflo(SBE21)

Temperature: 19.11C X
Conductivity: 0.245/m X
Salinity: 1.41 X

Shipsdata



Sensors

Valid, Unreliable ⚠, Invalid ⚠

EA600 relative_depth(ea600) -4.0m correction(ea600) 4.0m true_depth(ea600) 0.0m	EM302	gyro	knmi_pressure relative_depth(ea600) -4.0m
KNMI_Radiation	KNMI_Temperature Air Temperature 17.1C Humidity 73 dewpoint 12.3	KNMI_Wind	MRU

Overview

Sensors

Dataview

Control

Sign out



Shipsdata and sensor information

Expedition planning and execution

MFP | Portal

HYBRID TIMELINE TABLE MAP CALENDAR

2025

september

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

21- TEXEL - NETHE...

Pelagia

Passage

ARGO deploy

<p>548</p> <p>23/629</p> <p>South, south west coast of Terceira Island, Azores, Portugal</p> <p>Days: 6</p> <p>PTTER 1-9-2025</p> <p>PTTER 6-9-2025</p> <p>Fleur Visser</p> <p>1 1 1</p>	<p>PASSAGE</p> <p>Days: 9</p> <p>PTTER 8-9-2025</p> <p>NLTEX 16-9-2025</p>	<p>TRIALS</p> <p>ARGO deployment</p> <p>Days: 9</p> <p>PTTER 8-9-2025</p> <p>NLTEX 16-9-2025</p>
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Manual

- Overview
- Sensors
- Dataview
- Control
- Sign out



Connected

Set message

Underway to Texel

Set

Set waypoint

Lat/Lon

Project

- Test - 1923-12-31
- Test - 1923-12-31
- 529 - SEALINK: Land, Se... - 2024-01-04
- 531 - Mixation-I Recovery - 2024-01-25
- 532 - Large ring-moorin... - 2024-02-25
- 533 - Concerted action... - 2024-04-15
- 534 - NoSE- North Sea A... - 2024-04-25
- 535 - Weeds of Change S... - 2024-06-13
- 536 - SEAPACT "Seabed... - 2024-07-23
- 537 - Methane emission... - 2024-08-15
- Test - 2024-09-12
- 538 - INDEX2024 - Leg 1 - 2024-10-29
- 539 - INDEX2024 - Leg 2 - 2024-11-21
- Mijn Eerste cruise - 2024-12-11
- Create new....

STATION TRANSECT



Zeynep Erdem

3 Months

Texel - Netherlands

Dock: 8-10-2025

Demob (end): 9-10-2025

No agent specified

Project Co-Editor
Martin Wilpshaar

Technicians 6

Equipment

- Overview
- Sensors
- Dataview
- Control**
- Sign out



Set message

Set

Set waypoint

Lat/Lon **Set**

Cruise

Mission name: SUBOT II
Code: 64AWVB001
Chief Scientist: Iakovos Petrou
Dep Harbour: Texel
Arr Harbour: Willemstad
Cruise period: October 25, 2025 - December 5, 2025

Modify cruise **Stop cruise**

Phase

Current phase: STATION 1
Change phase:
 Phase alias:

CALL **TRANSIT** **STATION** **TRANSECT**

Start action

Create new action
Change availability

Multibeam

Action Name: Multibeam
Action ID: G74
Action Description: Deep sea multibeam echo sounder

Start action

Running actions

Action	ID	Status	Started	Controls
CTD	1_2	BOTTOM	2025-10-25 06:01:41	
Multibeam	1_3	SCANNING	2025-10-25 02:00:21	

Failed actions

Action	ID	Controls
ADCP Track	1_1	



Shipsdata Dataview: Event logging

Connected | master | No active cruise | 2024-09-17 16:47:17 UTC

Dataviewer _20220819_64PE509_I_NANO

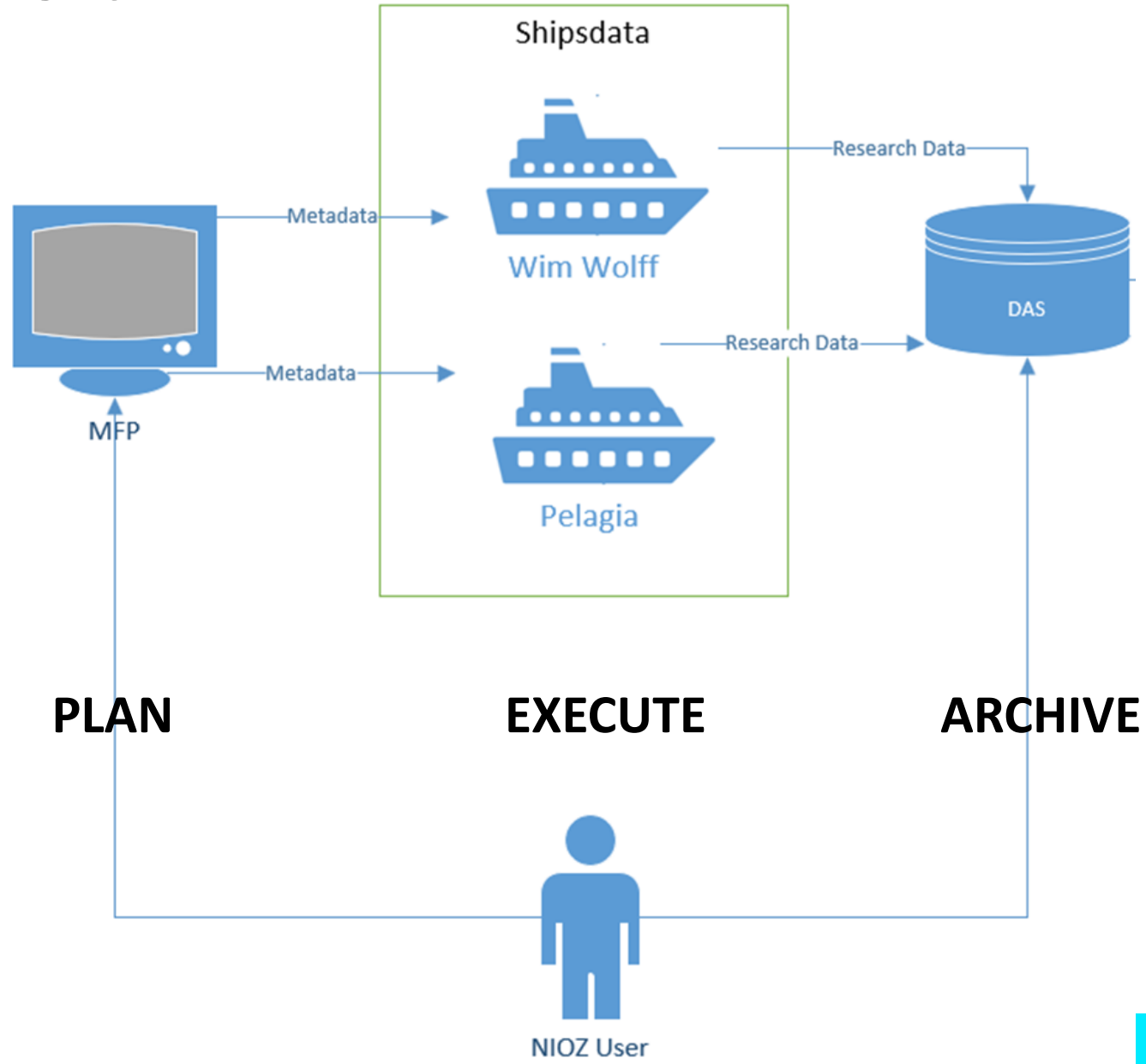
Select other cruise

Event summary

CTD Editor Note Export as CSV / ODV

Date	Seapath latitude	Seapath longitude	Phase name	Device name	Action name	Operation Id	Cast	Seapath time	Seapath latitude direction	Seapath longitude direction	Seapath year	Seapath month	Seapath day	Seapath speed over ground	Seapath course over ground	Seapath sea
YYYY-MM-DD hh:mm:ss	° north	° east												kn		
2022-08-23 09:35:47	36.2302	33.9005	STATION 2	CTD with Samples	BOT	64PE509CTDBOT2	2_5	93547			2022	8	23	0.4	284.07	
2022-08-23 08:52:28	36.2292	33.9012	STATION 2	CTD with Samples	BEGIN	64PE509CTDBOT2	2_5	85225			2022	8	23	0.2	60.39	
2022-08-23 08:32:33	36.2292	33.901	STATION 2	In Situ Pump	END	64PE509ISP2	2_4	83231			2022	8	23	0.3	63.13	
2022-08-23 08:05:48	36.2297	33.9005	STATION 2	In Situ Pump	STOP	64PE509ISP2	2_4	80546			2022	8	23	0.5	171.40	
2022-08-22 20:34:29	36.2293	33.9008	STATION 2	In Situ Pump	START	64PE509ISP2	2_4	203427			2022	8	22	0.2	166.28	
2022-08-22 20:30:36	36.2292	33.9007	STATION 2	In Situ Pump	BEGIN	64PE509ISP2	2_4	203033			2022	8	22	0.5	37.13	
2022-08-22 19:46:11	36.2288	33.8942	STATION 2	CTD with Samples	END	64PE509CTDBOT2	2_3	194610			2022	8	22	0.7	163.38	
2022-08-22 16:20:00	36.2298	33.9023	STATION 2	CTD with Samples	BOT	64PE509CTDBOT2	2_3	161958			2022	8	22	0.5	164.14	
2022-08-22 15:34:02	36.2292	33.9033	STATION 2	CTD with Samples	BEGIN	64PE509CTDBOT2	2_3	153400			2022	8	22	0.5	120.26	
2022-08-22 15:15:09	36.2292	33.9105	STATION 2	HD Video	END	64PE509HD2	2_2	151508			2022	8	22	0.1	105.86	
2022-08-22 14:30:59	36.2278	33.9097	STATION 2	HD Video	ENDTRACK	64PE509HD2	2_2	143057			2022	8	22	1.1	271.45	
2022-08-22 13:27:45	36.23	33.8987	STATION 2	HD Video	STARTTRACK	64PE509HD2	2_2	132746			2022	8	22	0.5	282.50	
2022-08-22 12:49:44	36.2297	33.8982	STATION 2	HD Video	BEGIN	64PE509HD2	2_2	124943			2022	8	22	0.6	339.07	
2022-08-22 12:34:19	36.2285	33.891	STATION 2	HD Video	END	64PE509HD2	2_1	123418			2022	8	22	0.5	289.81	

DAS – Data Archiving System: NIOZ Database



DAS – Data Archiving System: NIOZ Database



DAS
Zeynep Erdem

Quick Navigation

Analytical Runs

Availability

Biospecimens

Calibrations

Cloudiness

Core Samples

Cores

Cruises

Devices

Digital Objects

DOIs

Elements

Events

Experiments

Genomic Analysis

Length Units

Material Types

Cruises

Excel operations

New

Cruise Code ↑↓	Project Name ↑↓	Vessel ↑↓	Start Date ↑↓	End Date ↑↓	Port Dep. ↑↓	Port Arr. ↑↓	PI ↑↓
<input type="text" value="**64PE**"/>	<input type="text" value="Filter Project Nam"/>	<input type="text" value="Filter Vessel"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="Filter Port Dep."/>	<input type="text" value="Filter Port Arr."/>	<input type="text"/>
64PE514	Dust2023		07/03/2023	27/03/2023	CVMIN	ESAGP	Jan-Be
64PE517	NoSE- North Sea Atlantic Exchange		26/05/2023	14/06/2023	Texel	Texel	Furu Mi
64PE518	Marine Organism Responses to Multiple Stressors: cumulative impacts of human activities on marine ec		16/06/2023	27/08/2023	Texel	Texel	Kees C
64PE519	Bothnian Marix (Methane and ammonium removal in coastal systems)		01/07/2023	19/07/2023	Texel	Kiel Canal	Carolyn
64PE520	DEPOCA		29/07/2023	14/10/2023	Reykjavik	Ponta Delgada	Gerhar
64PE524	ReVIFES najaar 2023		30/09/2023	12/10/2023	Texel	Texel	Joop W
64PE525	Methane emission in the North Sea II		15/10/2023	01/11/2023	Texel	Texel	Helge M
64PE527	Ocean nanoplastic 2		24/11/2023	20/12/2023	Vigo	Nassau	Helge M
64PE529	SEALINK: Land, Sea, and Society: Linking terrestrial pollutants and inputs to nearshore coral reef g		01/04/2024	23/01/2024	Willemstad	Willemstad	Lennar



Quick Navigation

- Analytical Runs
- Availability
- Biospecimens
- Calibrations
- Cloudiness
- Core Samples
- Cores
- Cruises
- Devices
- Digital Objects
- DOIs
- Elements
- Events
- Experiments
- Genomic Analysis
- Length Units
- Material Types
- Mic Analysis
- Mic Fractions
- Mic Samples

Cruises

Code	Port Dep
023	CVMIN
023	Texel
023	Texel
023	Texel
023	Texel
023	Reykjavik
023	Texel
023	Texel
023	Vigo
024	Willemst
023	Nassau

Cruise

64PE518

Code	6.b.6s
Cruise Code	64PE518
Project(s)	
Vessel	RV Pelagia
Start Date	16/06/2023
End Date	27/08/2023
Port of Departure	Texel
Port of Arrival	Texel
Principal Investigator	Kees Camphuysen
MFP ID	524
Project Name	Marine Organism Responses to Multiple Stressors: cumulative impacts of human activities on marine ec

Digital objects

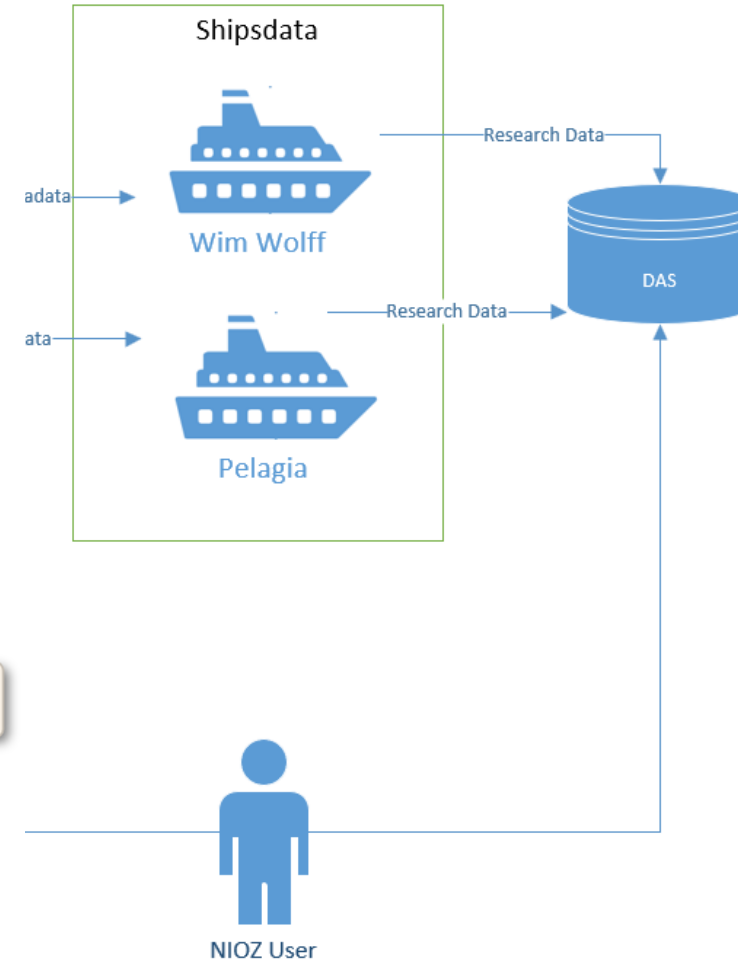
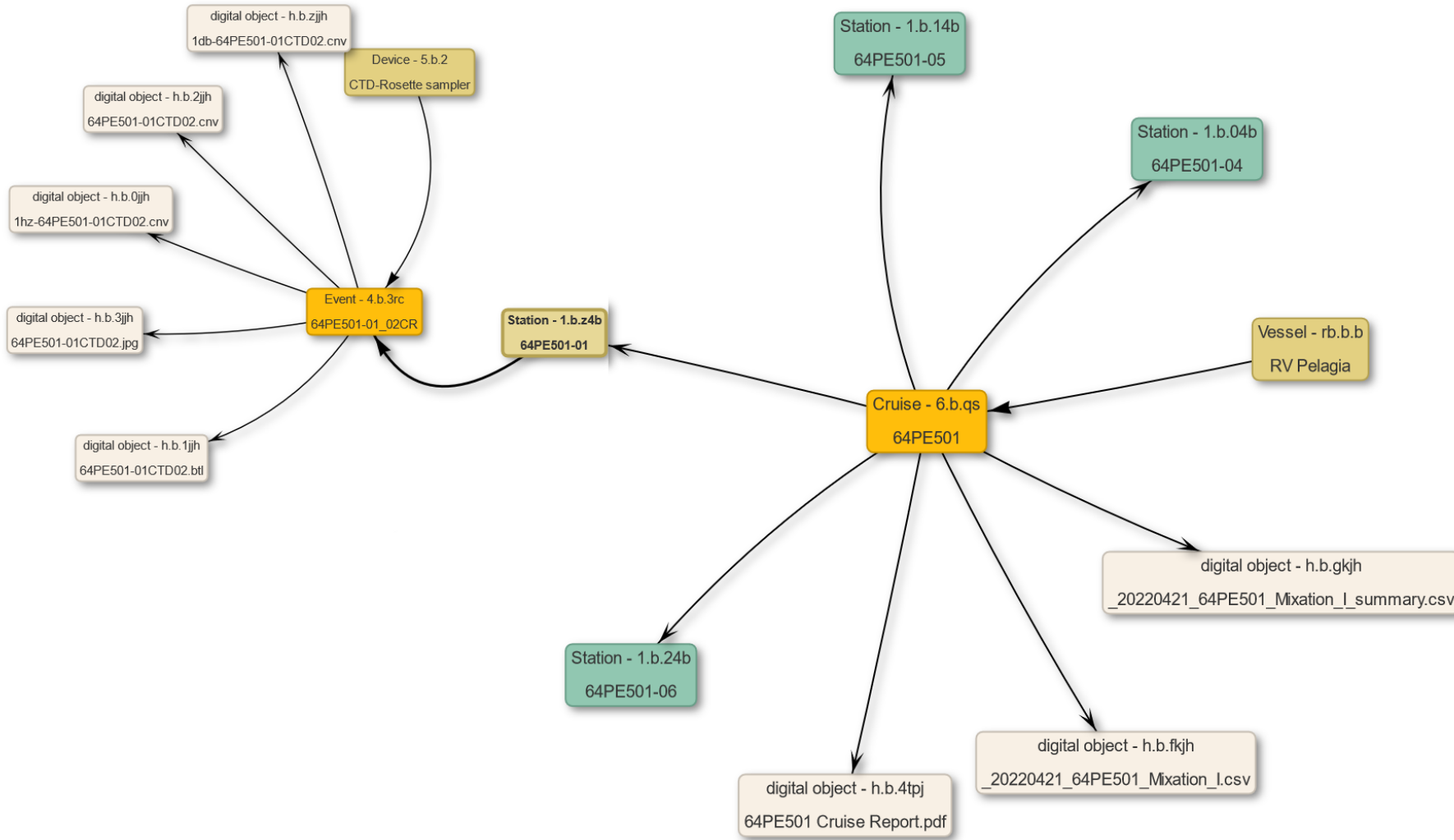
[Show search](#) [Select download requests](#)

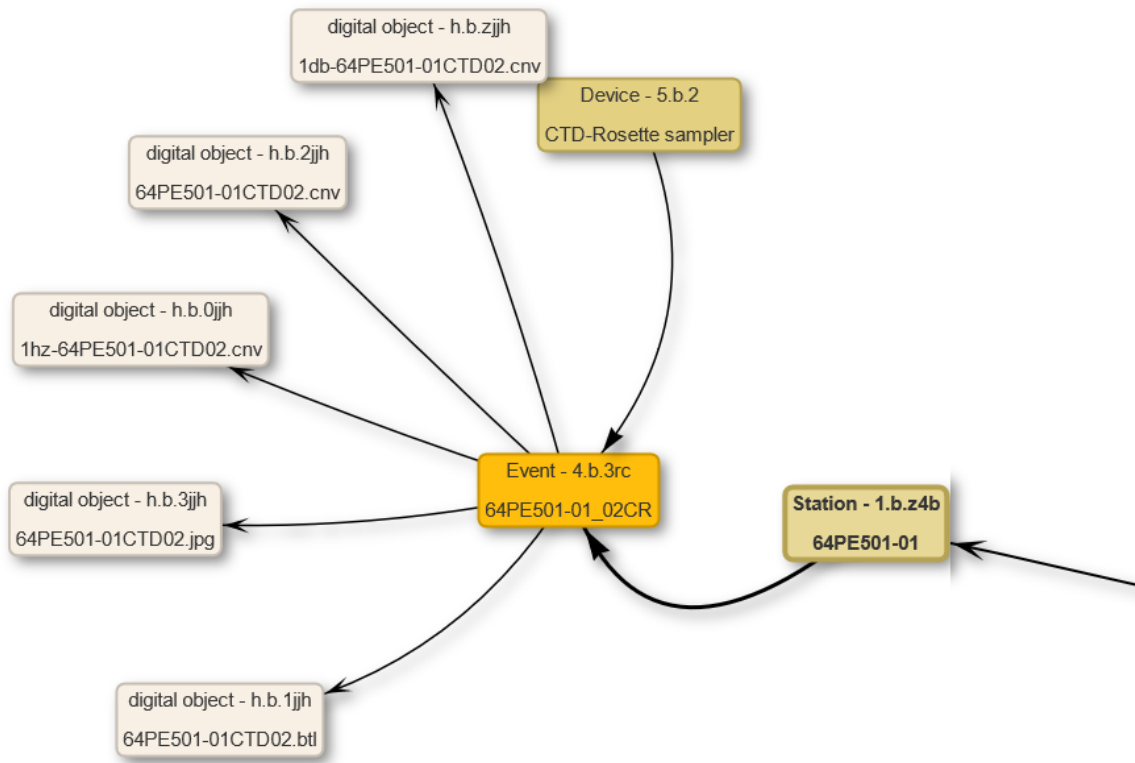
- > _20230616_64PE518_Marine_Organism_Responses_to_Multiple_St_summary (8).csv
- > _20230616_64PE518_Marine_Organism_Responses_to_Multiple_St.csv
- > 64PE518 Pelagia Cruise Report.pdf

[Edit](#) [Close](#)



DAS – Data Archiving System: NIOZ Database





Zeynep Erdem

Search by code/name Excel operations New

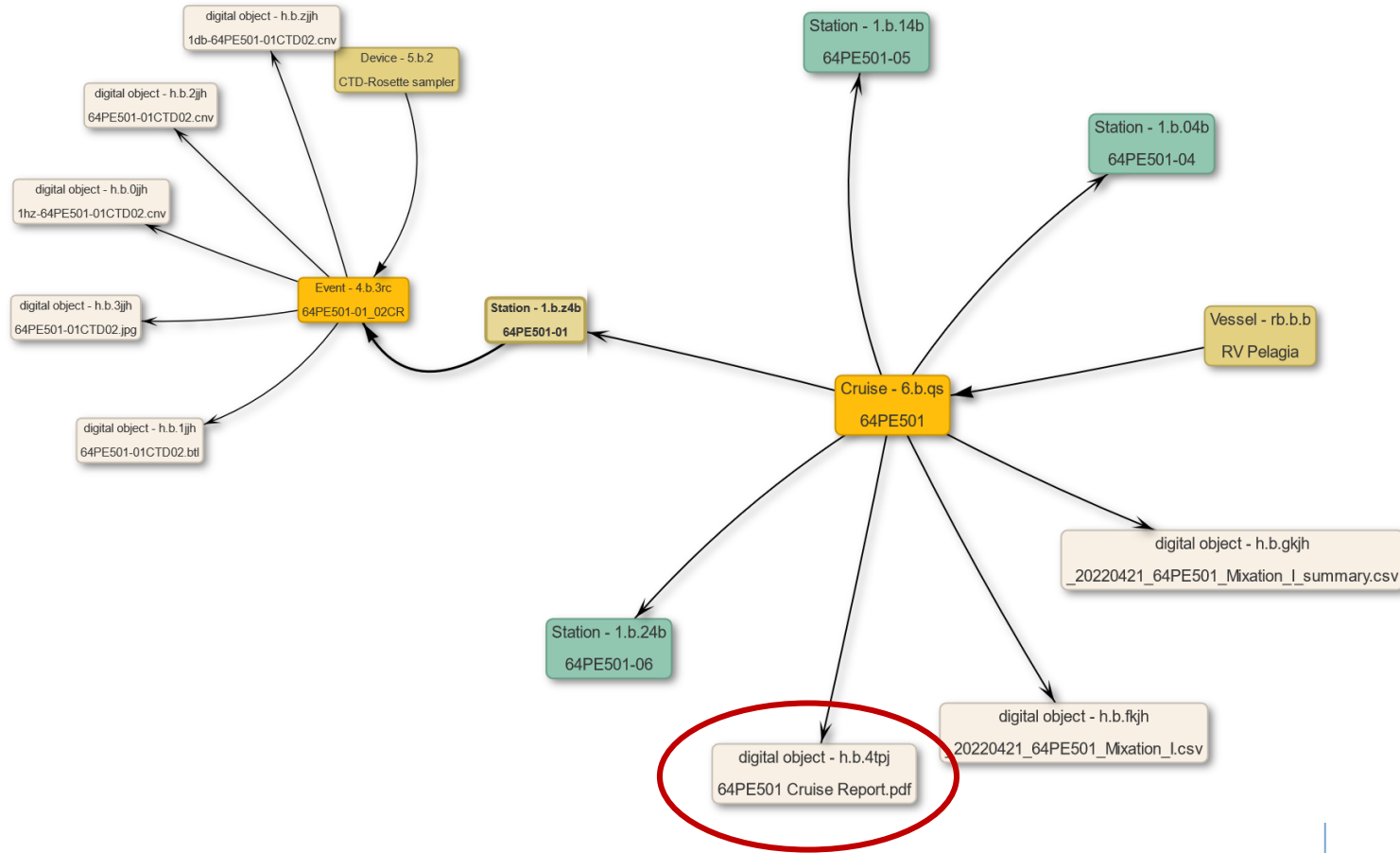
st No.	Latitude	Longitude	Start Date	Start Time	Device
	-24.055672	12.843218	03/02/2019		CTD-Rosette sampler
	-24.05546	12.843102	03/02/2019		CTD-Rosette sampler
	-24.071752	12.841458	03/02/2019		IN-Situ Pump
	-24.072108	12.841237	03/02/2019		IN-Situ Pump
	-24.055658	12.843173	03/02/2019		Multi corer
	-24.025885	13.126232	04/02/2019		CTD-Rosette sampler
	-24.025512	13.126267	04/02/2019		CTD-Rosette sampler
64PE449-02	-24.042628	13.126477	04/02/2019		IN-Situ Pump
64PE449-02	-24.042628	13.126477	04/02/2019		IN-Situ Pump
64PE449-02	-24.042628	13.126477	04/02/2019		IN-Situ Pump
64PE449-02	-24.025768	13.126322	05/02/2019		Box corer
64PE449-02	-24.026348	13.126105	05/02/2019		Multi corer
64PE449-02	-24.025582	13.126273	04/02/2019		Multi corer
			05/02/2019		Piston corer
64PE449-03	-23.11435	14.125285	01/02/2019		IN-Situ Pump
64PE449-03	-23.11435	14.125285	01/02/2019		IN-Situ Pump

1 / 100 Reset view

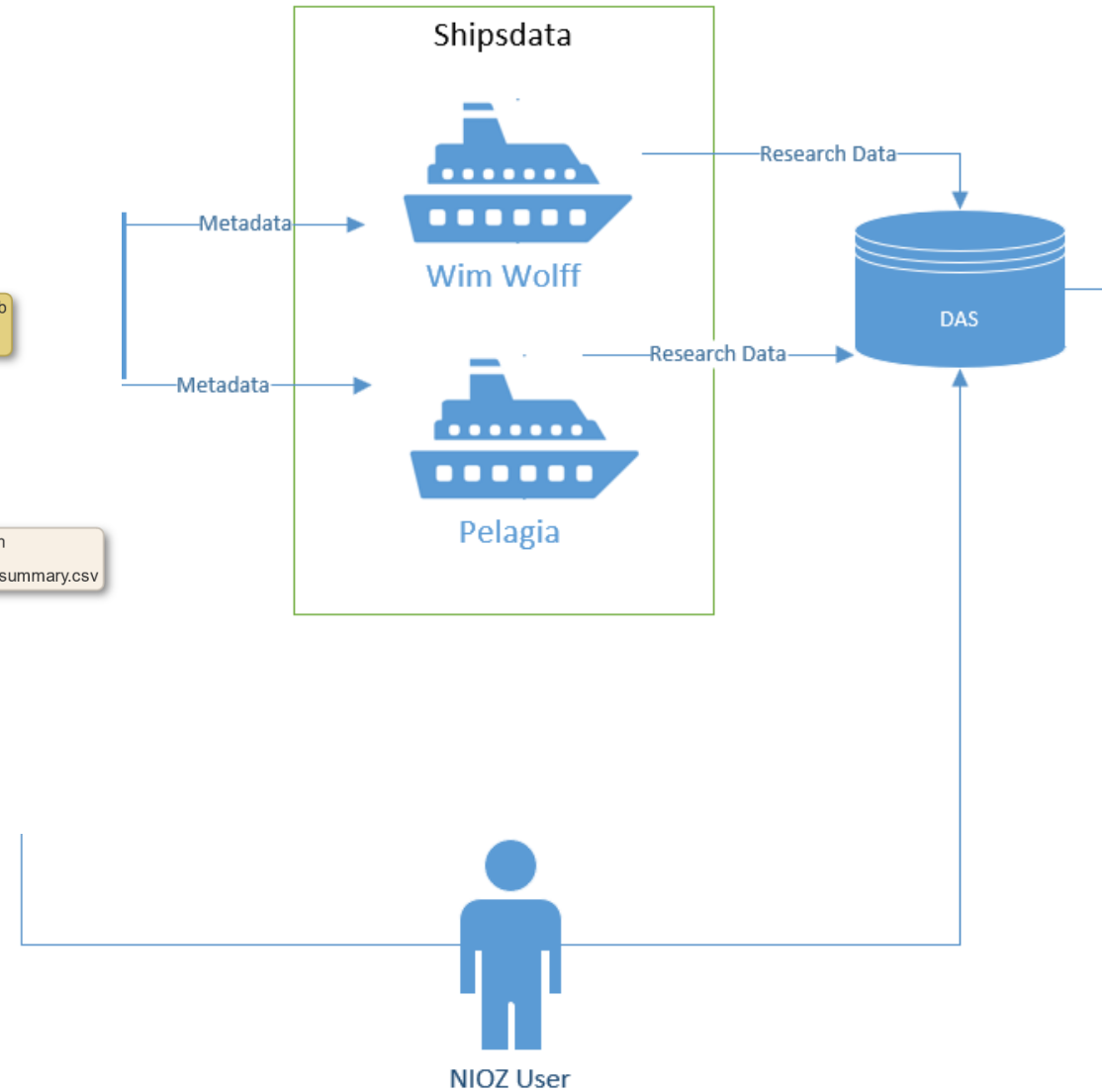
- Digital Objects
- DOIs
- Elements
- Events
- Experiments
- Genomic Analysis
- Length Units
- Material Types
- Mic Analysis
- Mic Fractions
- Mic Samples
- MMB Fractions

Clear 1 filter

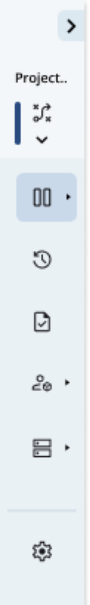
DAS – Data Archiving System: NIOZ Database



Cruise Reports



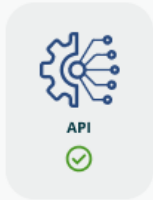
Cruise log to MFP > reports



Project Management > Workflow > Upload Ships data

Upload Ships Data

Automatic Data Upload



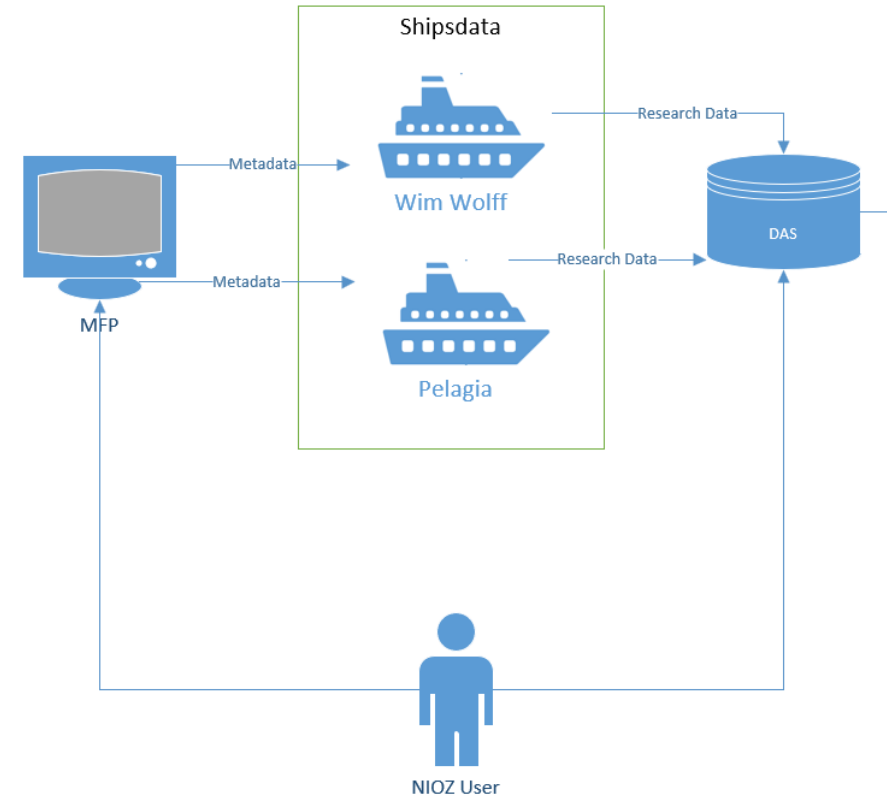
The ShipsData system running on your vessel is designed to automatically upload the generated data file directly after the cruise is finished.

This upload occurs via a secure API connection, ensuring your cruise data is seamlessly transferred and integrated into the Marine Facilities Planning platform without requiring manual intervention.

Manual Data Upload

Important: Make sure that the file being uploaded is specific to your cruise and is in the correct format required by the ShipsData system. Once uploaded, it will be processed and integrated into the Marine Facilities Planning platform.

[Select document](#) Drop files here to upload



Cruise log to MFP > reports



MFP - Project Management
Jeroen Buijs

Uploaded Cruise title name

_20230729_64_PES... Add description Download

Station name	Devices used	Entry date	Exit date
Station 0	ACQUATO, CTD, with Samples	29-12-2023 8:33	29-12-2023 8:33
Station 1	ACQUATO, CTD, with Samples, In Situ Pump	01-01-2024 7:33	01-01-2024 6:33
Station 2	ACQUATO, CTD, with Samples	02-01-2024 8:33	03-01-2024 8:33
Station 3	ACQUATO, CTD, with Samples	04-01-2024 5:33	06-01-2024 18:24
Station 4	ACQUATO, CTD, with Samples	02-01-2024 8:33	03-01-2024 8:33
Station 5	ACQUATO, CTD, with Samples	04-01-2024 5:33	06-01-2024 18:24

Station 1

Devices(s) Used
None, ACQUATO, CTD with Samples, in Situ Pump

Station Time 13.804.60m	Entry Date 2023-08-02 05:53:01	Entry Coordinates Lat: 55.7432, Lon: -29.0388
Dist. Travelled 13.804.60m	Exit Date 2023-08-02 05:53:01	Exit Coordinates Lat: 55.7432, Lon: -29.0388

CTD with Samples


Begin	Time: 2023-08-06 09:44:58	Lat: 52.01, Lon: -29,41
Start	Time: 2023-08-06 09:44:58	Lat: 52.01, Lon: -29,41

Cruise reports



MFP | NIOZ Project Management
Zeynep Erdem

Project Management > Workflow > Upload Ships Data
23/664 TWINDEEPS



Lat: 36.24, Lon: -33.89
 Entry: 8/25/2022 9:28
 Exit: 8/25/2022 15:56
 Equipment Used: None, CTD with Samples, Ultra Clean CTD, Multi Corer

Station Name	Devices Used	Entry Date	Exit Date
None 0		19-08-2022 13:23	19-08-2022 13:23
STATION 1	Ultra Clean CTD, Hopper Camera, In Situ Pump, Shipsdata, CTD with Samples	20-08-2022 12:02	21-08-2022 17:43
STATION 2	HD Video, CTD with Samples, In Situ Pump, Ultra Clean CTD, Boxcore d=500, Multi Corer, Floating trap	22-08-2022 09:19	25-08-2022 09:11
STATION 3	CTD with Samples, Ultra Clean CTD, Multi Corer	25-08-2022 09:28	25-08-2022 15:56
GYRATION 1		25-08-2022 21:30	25-08-2022 21:30

STATION 3

Device(s) Used:
None, CTD with Samples, Ultra Clean CTD, Multi Corer

Device Barcode(s) Used:
205395, 8204, 200275

Entry Date: 8/25/2022 9:28 Exit Date: 8/25/2022 15:56 Time At Station: 06h28m

Entry Coordinates: Lat: 36.2437, Lon: -33.8875 Exit Coordinates: Lat: 36.2443, Lon: -33.8875 Distance Travelled: 17.1 meters

- CTD with Samples:
▶ BEGIN
▶ BOT
▶ END
- Ultra Clean CTD:
▶ BEGIN
▶ BOT
▶ END
- Multi Corer:
▶ BEGIN
▶ BOT
▶ END
- None:
▶ PHASE END



MFP | NIOZ Project Management Zeynep Erdem

Project Management > Workflow 23/664 TWINDEEPS

Project Roles

Principle Investigator: Furu Mienis ✓
Project Co-Editor: Joana Xavier ✓
Project Manager: N.A. ✓
[Expand](#)

Alternate ID: 544 ✓
Priority: Not Set ✓

Project Dates

Ship	Pelagia
IMS equipment located at stores quarantine area	N.A.
IMS dispatch date	N.A.
planned mobilisation date	1-6-2025
planned sail date	4-6-2025
planned docking date	15-6-2025
planned demobilisation date	16-6-2025

Attachments

Application: 23/664 TWINDEEPS

[Archive workflow](#)

TABLE	GANTT	APP. FORMS	HISTORY	TASKS	PROJECT STRUCTURE
Name	Responsibility	Status	Deadline	Completed	Action
1. APPLICATION STAGE					
Complete cruise application form	Furu Mienis ✓, Joana Xavier	Complete ✓	...	27-11-2023	View
Approve cruise application form	You ✓	Complete ✓	...	29-11-2023	View
Confirm availability of funding	Furu Mienis ✓, Joana Xavier	Complete ✓	...	6-2-2024	View
Upload draft cruise application cost	You ✓	Complete ✓	...	14-2-2025	View
2. SCHEDULE CONSTRUCTION					
Add cruise application to programme	You ✓	Complete ✓	...	9-9-2024	View
3. CRUISE PLANNING					
Submit diplomatic clearance application	You ✓, Furu Mienis, Joana Xavier	Complete ✓	7-10-2024	7-1-2025	View
check availability NMF pool equipment	You ✓, Sharyn Ossebaar, Toon Koopman, Yvo Witte, Nicole Bale	Complete ✓	7-10-2024	14-2-2025	View
Cruise planning meeting	You ✓, Yvo Witte	Complete ✓	30-11-2024	22-11-2024	View
Upload ships deck plan	Yvo Witte ✓	Complete ✓	7-5-2025	27-5-2025	View
Cruise plan	Furu Mienis, Joana Xavier, Yvo Witte	Active (8/9)	14-5-2025		Open
Upload details science Party	Furu Mienis, Joana Xavier	Active (12/13)	5-4-2025		Open
4. CRUISE LOGISTICS					
Finalise equipment PlanLists	Furu Mienis, Sharyn Ossebaar, Toon Koopman, Yvo Witte, Nicole Bale, Henk de Haas, Leon Wuis	Active	...		Open
5. CRUISE DELIVERY					
Cruise Delivery	You	Active	5-5-2025		
6. POST CRUISE					

Cruise log to MFP > equipment history



MFP | NIOZ Inventory Management Yasar Abbas

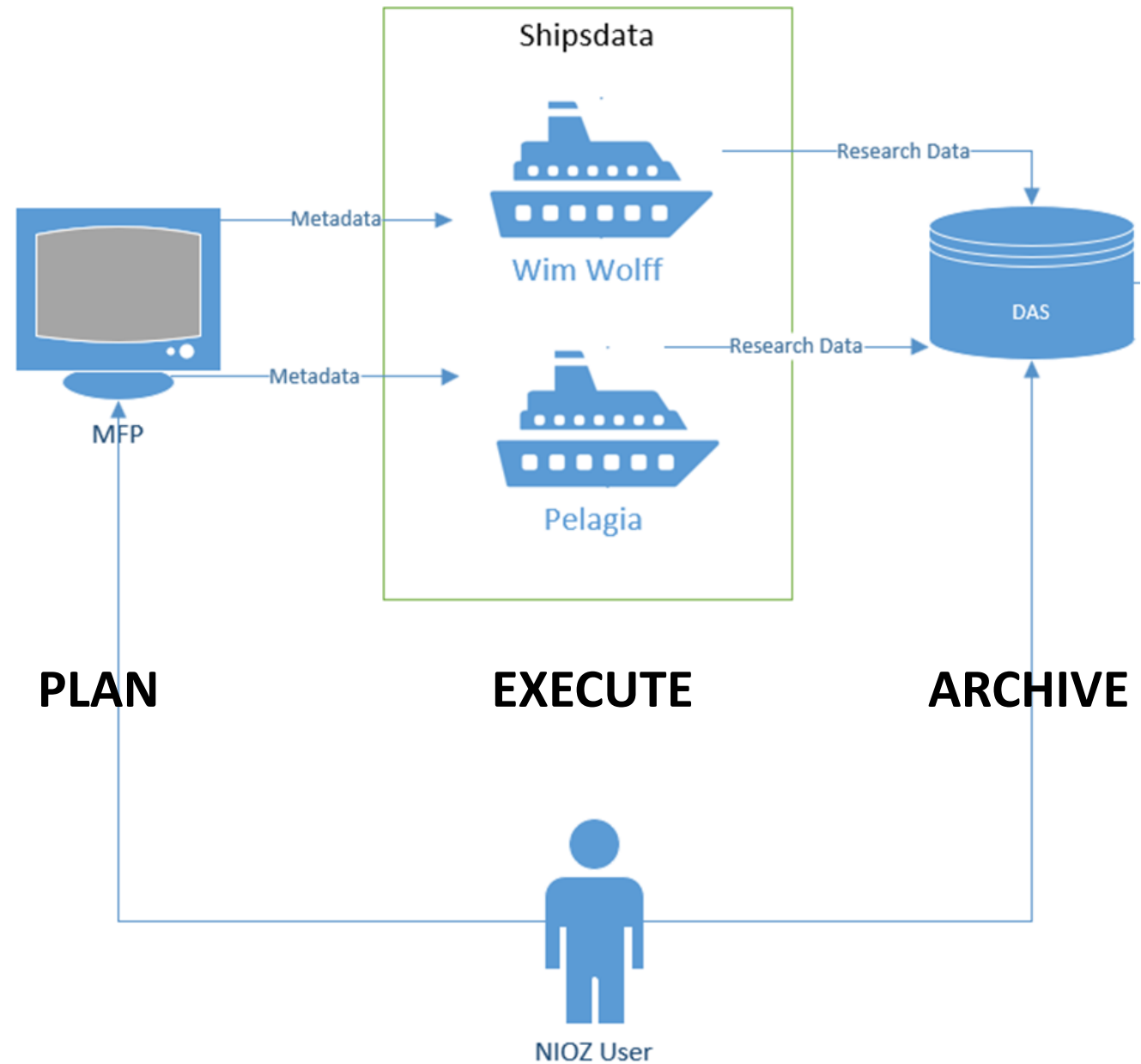
Ultra Clean CTD frame 8204 / 01

[+ Add](#) [Export](#)

Start	End	User	Note	Tags	Properties	
25-8-2022	25-8-2022	System .	Ships data - Upload		Cruise: TestCruise, Station: STATION 3, Depth (m): 2.203,10, Cast: 3_2, Time: 2h28m0s	✎ ✕
23-8-2022	23-8-2022	System .	Ships data - Upload		Cruise: TestCruise, Station: STATION 2, Depth (m): 2.242,70, Cast: 2_6, Time: 2h21m0s	✎ ✕
21-8-2022	21-8-2022	System .	Ships data - Upload		Cruise: TestCruise, Station: STATION 1, Depth (m): 848,67, Cast: 1_11, Time: 1h31m0s	✎ ✕
20-8-2022	20-8-2022	System .	Ships data - Upload		Cruise: TestCruise, Station: STATION 1, Depth (m): 808,24, Cast: 1_2, Time: 1h5m0s	✎ ✕
20-8-2022	20-8-2022	System .	Ships data - Upload		Cruise: TestCruise, Station: STATION 1, Depth (m): 803,23, Cast: 1_1, Time: 0h15m0s	✎ ✕

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- Planning & Logistics via MFP
- MFP info used in SHIPSDATA: expedition metadata
- Event logging via SHIPSDATA
- Synchronized underway data transfer to the database – DAS
- Event log book back to MFP
 - Chief scientist to complete cruise report summary – automatic archiving in DAS
 - Equipment and sensor deployment history



Comments, Questions, Suggestions....?

How do you handle this on your vessels?

Export file example



	Date	Seapath latitude	Seapath longitude	Phase name	Device name	Barcode	Action name	Operation Id	Cast	EA600 relative_depth(ea600) m
26	4/27/2024 10:28	58.4	5.0993	STATION 4	None		PHASE START	64PE534	None	304.4
27	4/27/2024 11:03	58.4002	5.1002	STATION 4	Boxcore d=300		BEGIN	64PE534BOX3004	4_1	305.6
28	4/27/2024 11:12	58.4002	5.1002	STATION 4	Boxcore d=300		BOT	64PE534BOX3004	4_1	304.6
29	4/27/2024 11:25	58.4003	5.1002	STATION 4	Boxcore d=300		END	64PE534BOX3004	4_1	304.8
30	4/27/2024 11:42	58.3998	5.1	STATION 4	None		PHASE END	64PE534	None	304.6
31	4/27/2024 11:42	58.3998	5.1	TRANSIT 5	None		PHASE START	64PE534	None	304.6
32	4/27/2024 11:42	58.3998	5.1	TRANSIT 5	None		PHASE END	64PE534	None	304.6
33	4/27/2024 11:42	58.3998	5.1	STATION 5	None		PHASE START	64PE534	None	304.6
34	4/27/2024 11:42	58.3998	5.1	STATION 5	Multi Corer		BEGIN	64PE534MC125	5_1	304.4
35	4/27/2024 11:53	58.4003	5.0995	STATION 5	Multi Corer		BOT	64PE534MC125	5_1	304.2
36	4/27/2024 12:01	58.4	5.0993	STATION 5	Multi Corer		END	64PE534MC125	5_1	304.8
37	4/27/2024 12:49	58.4002	5.0997	STATION 5	None		PHASE END	64PE534	None	304.8
38	4/27/2024 12:49	58.4002	5.0997	TRANSIT 6	None		PHASE START	64PE534	None	304.6
39	4/27/2024 12:49	58.4002	5.0997	TRANSIT 6	None		PHASE END	64PE534	None	304.6
40	4/27/2024 12:49	58.4002	5.0997	STATION 6	None		PHASE START	64PE534	None	304.6
41	4/27/2024 12:53	58.4002	5.0998	STATION 6	Pistoncorer d=110		BEGIN	64PE534PC1106	6_1	304.6
42	4/27/2024 13:18	58.3998	5.1005	STATION 6	Pistoncorer d=110		BOT	64PE534PC1106	6_1	304.6
43	4/27/2024 13:36	58.4	5.0997	STATION 6	Pistoncorer d=110		END	64PE534PC1106	6_1	304.4
44	4/27/2024 14:03	58.399	5.0997	STATION 6	None		PHASE END	64PE534	None	305.6
45	4/27/2024 14:03	58.399	5.0997	TRANSIT 7	None		PHASE START	64PE534	None	305.6
46	4/27/2024 14:35	58.4005	5.0992	TRANSIT 7	None		PHASE END	64PE534	None	303.8
47	4/27/2024 14:35	58.4005	5.0992	STATION 7	None		PHASE START	64PE534	None	303.8
48	4/27/2024 14:37	58.4005	5.0993	STATION 7	Hopper Camera		BEGIN	64PE534HOPCAM7	7_1	304.2
49	4/27/2024 14:39	58.4007	5.0992	STATION 7	Hopper Camera		START	64PE534HOPCAM7	7_1	304.2
50	4/27/2024 14:46	58.4015	5.0987	STATION 7	Hopper Camera		BOTTOM	64PE534HOPCAM7	7_1	304.2
51	4/27/2024 15:44	58.4108	5.0905	STATION 7	Hopper Camera		STOP	64PE534HOPCAM7	7_1	302.3
52	4/27/2024 15:51	58.4112	5.0893	STATION 7	Hopper Camera		END	64PE534HOPCAM7	7_1	302.3
53	4/27/2024 15:54	58.4113	5.0888	STATION 7	None		PHASE END	64PE534	None	302.5
54	4/27/2024 15:54	58.4113	5.0888	TRANSIT 8	None		PHASE START	64PE534	None	302.5
55	4/27/2024 16:31	58.4003	5.0998	TRANSIT 8	None		PHASE END	64PE534	None	304.4
56	4/27/2024 16:31	58.4003	5.0998	STATION 8	None		PHASE START	64PE534	None	304.4
57	4/27/2024 16:31	58.4005	5.0997	STATION 8	Multibeam	212687	BEGIN	64PE534EM3028	8_1	304.4
58	4/28/2024 4:03	59.1332	4.457	STATION 8	Multibeam	212687	COCH	64PE534EM3028	8_1	248

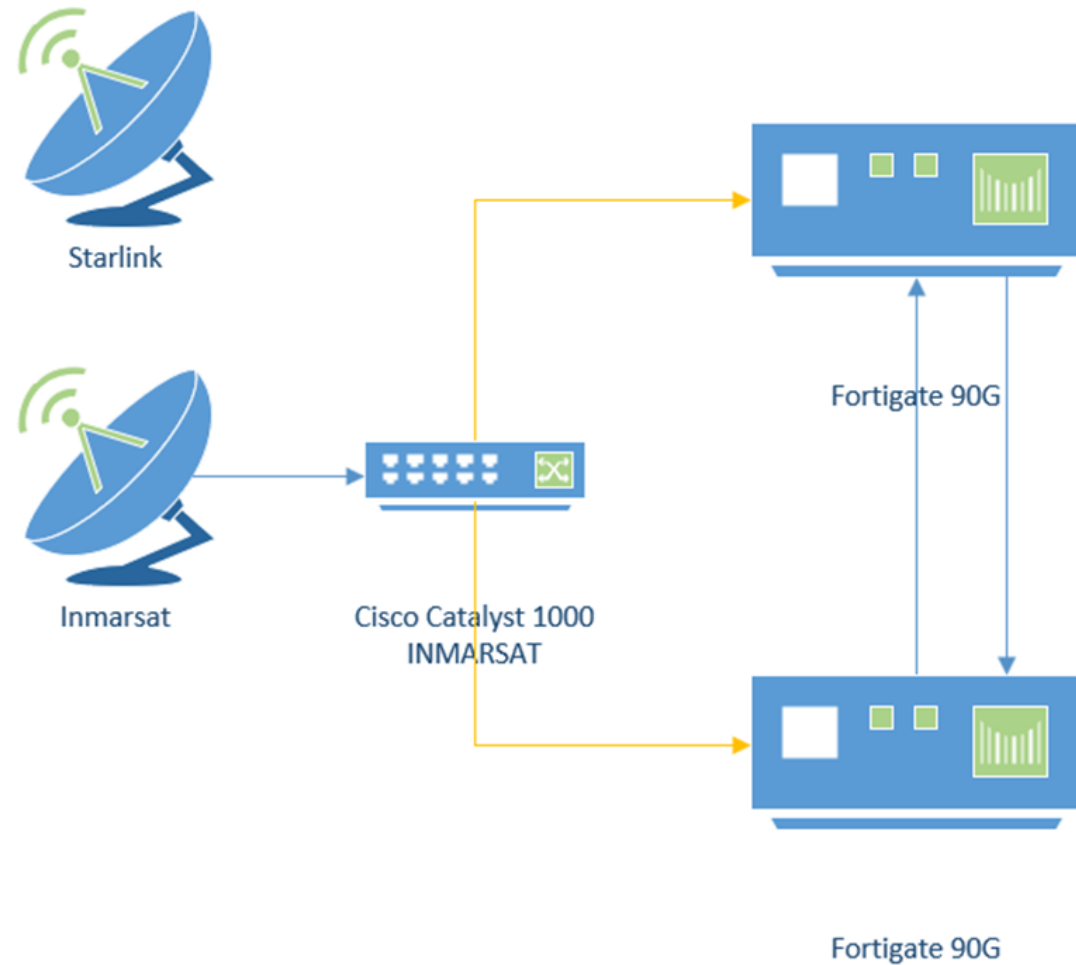
Network on RV Anna Weber – van Bosse

External

- FBB
- 4G
- VSAT
- Starlink (WIP)

Internal

- Fully redundant network
- Modern hardware firewall for traffic control



For questions: rdm@nioz.nl

Equipment

- Double Fortigate Firewall
- Inmarsat Nexuswave
- Decentralized wifi system by Aruba for full inside and outside vessel coverage.
- 3x Hypervisor servers with 12 computing cores and 128gb RAM
- 84 TB redundant disk array storage system for science and crew data.
- 48 TB automated backup server with replication.