



Jerico Next – Biological data management

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Content



- Overview Jerico Next Biological data management
 - Data management – objectives and activities
 - Metadata catalogues
 - Marine Data Archive
 - Data integration and standardization



1. Part of main objectives of the WP 5 – Data Management

Create an **operational link with EMODnet biology** in order to facilitate the data exchange between existing marine biological data networks and data generated by the project.



2. Presentation of the tasks and interfaces with other WPs

The main activities will be:

1. Providing tools and services for extraction of comparative biological background data based on EMODNet biology data resources
2. Providing tools and services for performing quality control of biological data gathered within the project
3. Harmonization, integration and taxonomic & geographic standardization of biological sample and sensor data, generated by project (will be applied also on WP4 JRAP1 and JRAP2).
 - Harmonization of pelagic observations (for example collected by flow cytometer).
 - Harmonization of benthic observations (for example data from the French environmental database, Quadriges2).



2. Presentation of the tasks

JRAP1/ Pelagic Biodiversity

- Established methods:
 - Automated water sampling and traditional water sampling
 - Counting and identifying organism using the light and electron microscope
 - Taxonomic (species, functional group) information available
- Actions
 - Can be integrated using existing biological data formats and qc checks & made available using existing infrastructure of EMODnet



2. Presentation of the tasks

JRAP1/ Pelagic Biodiversity

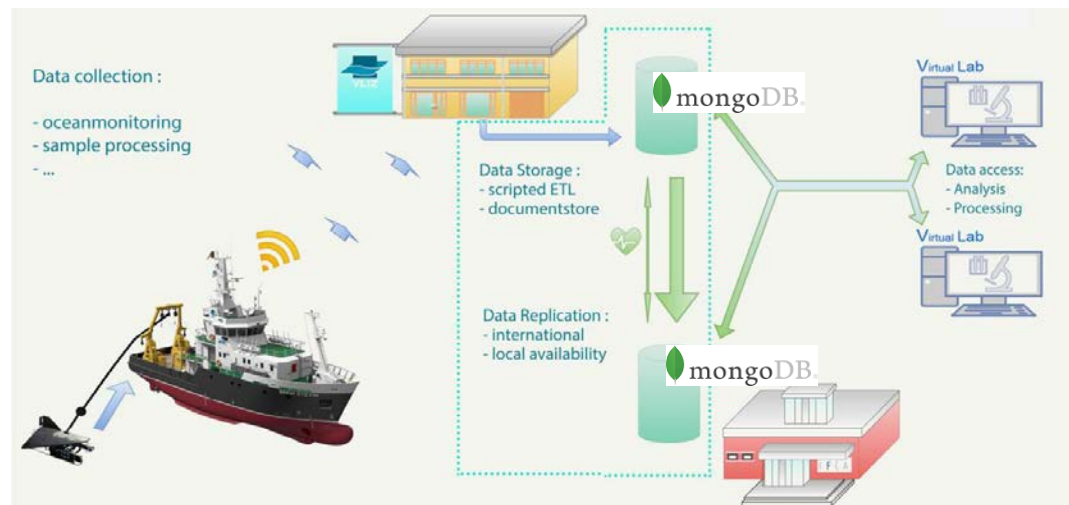
- Novel methods:
 - Imaging Flow Cytometry (in situ and on ship)
 - High Throughput sequencing of 16S and 18S rDNA
 - Data output is more complex, taxonomic annotations often last step
- Actions
 - We will describe datasets (metadata) and link to original datafiles (images, cyz files, fastq)
 - Archive original data files
 - Investigate data schemas for integration



2. Presentation of the tasks

JRAP1/ Pelagic Biodiversity

- Harmonization data for flow cytometer - set up common data system for output Flow cytometer data
 - Document oriented database
 - Outside scope of project, but analysed within Lifewatch





Deliverable 5.4

Report on QC steps of marine biological data management (M12)

Joint European Research Infrastructure network for Coastal Observatory – Novel European expertise for coastal observatories - JERICO-NEXT	
Deliverable title	Marine biological data: quality control and management practices
Work Package Title	WP5: Data Management
Task title	Integration of biological data
Deliverable number	D5.4
Description	This document describes the biological DMP including an elaborated section on quality control procedures for biological data.
Lead beneficiary	VLIJZ - Flanders Marine Institute
Lead Authors	L. Tyberghien, S. Claus, K. Deneudt
Contributors	
Submitted by	
Revision number	V3.0
Revision Date	15/09/2016
Security	Public

The JERICO-NEXT project is funded by the European Commission's H2020 Framework Programme under grant agreement No. 654410
Project coordinator: Ifremer, France.



**Marine biological data:
quality control and
management practices**



Overview biological datatypes

JericoNext

4. Annexes

Annex 1: Table listing data sources and derived parameters for WP3/WP4. It is indicated whether the derived data fits the common data schemas or new data schema need to be explored. Data archival is possible for all data.

JRAP	JRAP data sources (sensor or sampling technique)	(Derived) biological parameters	Fit for common data schemas	New data schemas to be explored	Data archival possible
1	(ft)-psicam	absorption, chlorophyll-a	no	yes	yes
1	frf	Primary production	no	yes	yes
1	Cytosense flow cytometer	Total fluorescence per size class, Total biovolume per size class, characterisation of spectral groups	no	yes	yes
1	UVP5	Organisms per unit of volume	no	yes	yes
1	Imaging Flow cytobot	Phytoplankton biodiversity and abundance	yes	no	yes
1	fluorometer	Fluorescence parameters	no	yes	yes
1	fastcam	Phytoplankton biodiversity and abundance	yes	no	yes
1	phytoPAM	Fluorescence parameters	no	yes	yes
1	flowcam	Phytoplankton biodiversity and abundance	yes	no	yes
1	discrete water samples (microscopy)	Species abundance, Total abundance on higher taxonomic level	yes	no	yes
1	ferrybox data	Fluorescence parameters, Chlorophyll-a	no	yes	yes
2	SPI	OSI (sediment organism relationship) - BHQ (Benthic habitat quality quantification)	no	yes	yes
2	metabarcoding (dna data)	OTU abundance (Operational Taxonomic Units)	no	yes	yes
2	van veer grab	benthic species abundance	yes	no	yes



JRAP1: Pelagic Biodiversity

- Pulse-shape recording Flow Cytometer (+ Image acquisition) (VLIZ, CNRS LOG-MIO-BOREA, RWS, CEFAS)
- Imaging Flow Cytometer (SMHI coll. WHOI , SYKE)
- Flow Cytometer (HZG, SYKE)
- FlowCAM (IFREMER, CNRS-LOV, SYKE, AZTI)
- FastCAM (IFREMER)
- Absorption meter - PSICAM (HZG, SYKE)
- Spectral fluorometer - AOA or Fluoroprobe (CNRS-LOG-BOREA, IFREMER, SYKE)
- PAM or Phyto-PAM (CNRS LOG-BOREA, CEFAS)
- FRRF or spectral FRRF (SYKE, CNRS BOREA-LOG, VLIZ-RWS-NIOZ, CEFAS)
- Underwater Vision Profiler - UVP5 (CNRS-OSU V)



Metadata

- Data collection JRAP1 & JRAP2 (currently 31 sets)
- Metadata overview being available in EMODnet Biology
- Linking from Jerico-Next website to collection
- <http://www.emodnet-biology.eu/data-catalog?module=dataset&show=search&spcolid=910>
- New: Geographic interface on data collection

Data Catalog

21 records found with search conditions : [No parameters entered]



[Expand all](#) [Collapse all](#)

JERICO-NEXT: Joint Research Activity Project 1: Phytoplankton Biodiversity, [more](#)

..... [Baltic sea UVP5 image data set \(July 2017\)](#), [more](#)

..... [Bio-optical measurements in Utö Baltic Sea, spring 2017-spring 2018](#), [more](#)

..... **CAMANOC 2014: Ferry Box CAMANOC 2014 cruise data (English Channel, 2014)**, [more](#)

..... **IFCB110-SMHI: Imaging flow cytometry from SMHI in Tangesund 2016**, [more](#)

..... **MAREL Carnot: MAREL Carnot data and metadata from Coriolis Data Centre (English Channel, since 2004)**, [more](#)

..... [Phycoerythrin fluorescence and cell counts of phycoerythrin containing species, ferry Finnmaid Helsinki - Travemunde, summer 2016](#), [more](#)

..... [Phytoplankton biodiversity data from a North Sea Cruise with R/V Endeavour in June 2016](#), [more](#)

..... [Phytoplankton biodiversity data from a North Sea Cruise with R/V Simon Stevin in May 2016](#), [more](#)

..... [Phytoplankton biodiversity data from a North Sea Cruise with R/V Zirfaea in April 2016](#), [more](#)

..... [Phytoplankton biodiversity data from a North Sea Cruise with R/V Zirfaea in June 2016](#), [more](#)

..... [Plankton biodiversity data from a North Sea Cruise with R/V Simon Stevin in May 2017](#), [more](#)

..... [Silja Serenade ferrybox measurements between Helsinki and Stockholm, spring 2017-spring 2018](#), [more](#)

..... **A*MIDEX CHROME: Western Mediterranean automated flow cytometry surface sample from Ships of O/P crossing Tunis-Marseille and Tunis-Genova between October 2016-January 2017**, [more](#)

JERICO-NEXT: Joint Research Activity Project 2: Benthic Biodiversity, [more](#)

..... **Pagure-Next-2016: Benthic biodiversity cruise in the Bay of Brest in October 2016**, [more](#)

..... **JERICOBENT: Impact study of Gironde input on benthic ecosystems of the West-Gironde mud-patch (2016 -2018)**, [more](#)

..... [Invasive species diversity in the Bay of Brest \(2018\)](#), [more](#)

..... [Macrobenthos collected in the Cretan Sea between 2016 and 2017](#), [more](#)

..... [Microbial diversity of the Cretan Sea between 2016 and 2017](#), [more](#)

..... [Physicochemical characterization of the Cretan Sea between 2016 and 2017](#), [more](#)

Data Catalog

[\[report an error in this record \]](#)




IFCB110-SMHI: Imaging flow cytometry from SMHI in Tangesund 2016

Citation

Swedish Meteorological and Hydrological Institute (2016). Imaging flow cytometry from SMHI in Tangesund 2016.

Contact: [Karlson, Bengt](#) ; [Brosnahan, Michael](#)

Availability:  This dataset is licensed under a [Creative Commons Attribution 4.0 International License](#).

Description

An imaging flow cytometer, the Imaging FlowCytobot, was used to investigate phytoplankton abundance and diversity in a fjordal system on the Swedish Skagerrak coast. Samples of 5 mL were collected approximately every 25 minutes. An automated winch was used to move the IFCB to different depths. Chlorophyll fluorescence of individual organisms was used to trigger the camera in the instrument. Several thousand images were collected in each sample. Automated image analyses was used to analyse the images produced to identify and count cells of different plankton taxa.

Scope

Themes: [Biology](#) > [Phytoplankton](#)

Keywords: [Marine](#), [Flow cytometry](#), [ANE](#), [Skagerrak](#)

Geographical coverage

[ANE](#), [Skagerrak](#) [[Marine Regions](#)]

Temporal coverage

9 August 2016 - 16 October 2016

Contributors

Swedish Meteorological and Hydrological Institute (SMHI), [more](#), data creator

[Karlson, Bengt](#)

Woods Hole Oceanographic Institution (WHOI), [more](#)

[Brosnahan, Michael](#)

New: Jerico Next Geographic Interface, embedded in EMODnet Biology

The screenshot displays the EMODnet Biology Geographic Interface. At the top, the EMODnet logo is on the left, and the word "BIOLOGY" is prominently displayed in the center, with the tagline "Dive into data on Europe's marine life" underneath. A dark blue navigation bar contains the following menu items: HOME, DATA CATALOGUE, DATA DOWNLOAD, MAP VIEWER, PRODUCT GALLERY, Project, CONTRIBUTE, CONTACT, and BLOG.

The main interface is divided into several sections:

- Map configuration:** A panel on the left side containing:
 - Background:** A dropdown menu currently set to "OpenStreetMap".
 - Active Layers (3):** A section with a "Catalogue" tab and a search bar labeled "Search layer catalogue".
 - Layer List:** A list of layers with checkboxes and information icons:
 - Administrative boundaries
 - Data products
 - EMODnet environmental layers
 - EMODnet Seabed Habitats
 - JERICO-Next:** (Expanded)
 - JERICO-Next Biology areas
 - JERICO-Next Biology transects
 - JERICO-Next Biology stations
- Map:** A map of Europe showing various geographical features and data layers. A yellow shaded area covers the British Isles. Colored lines (red, blue, green, purple) represent biological data collection areas and transects across the continent. A tooltip window titled "JERICO-Next Biology areas" is overlaid on the map, containing the text: "Areas where biological data was collected under the framework of the JERICO-Next project" and a "metadata" link.



BIOLOGY

Dive into data on Europe's marine life

- HOME
- DATA CATALOGUE
- DATA DOWNLOAD
- MAP VIEWER
- PRODUCT GALLERY
- Project
- CONTRIBUTE
- CONTACT
- BLOG

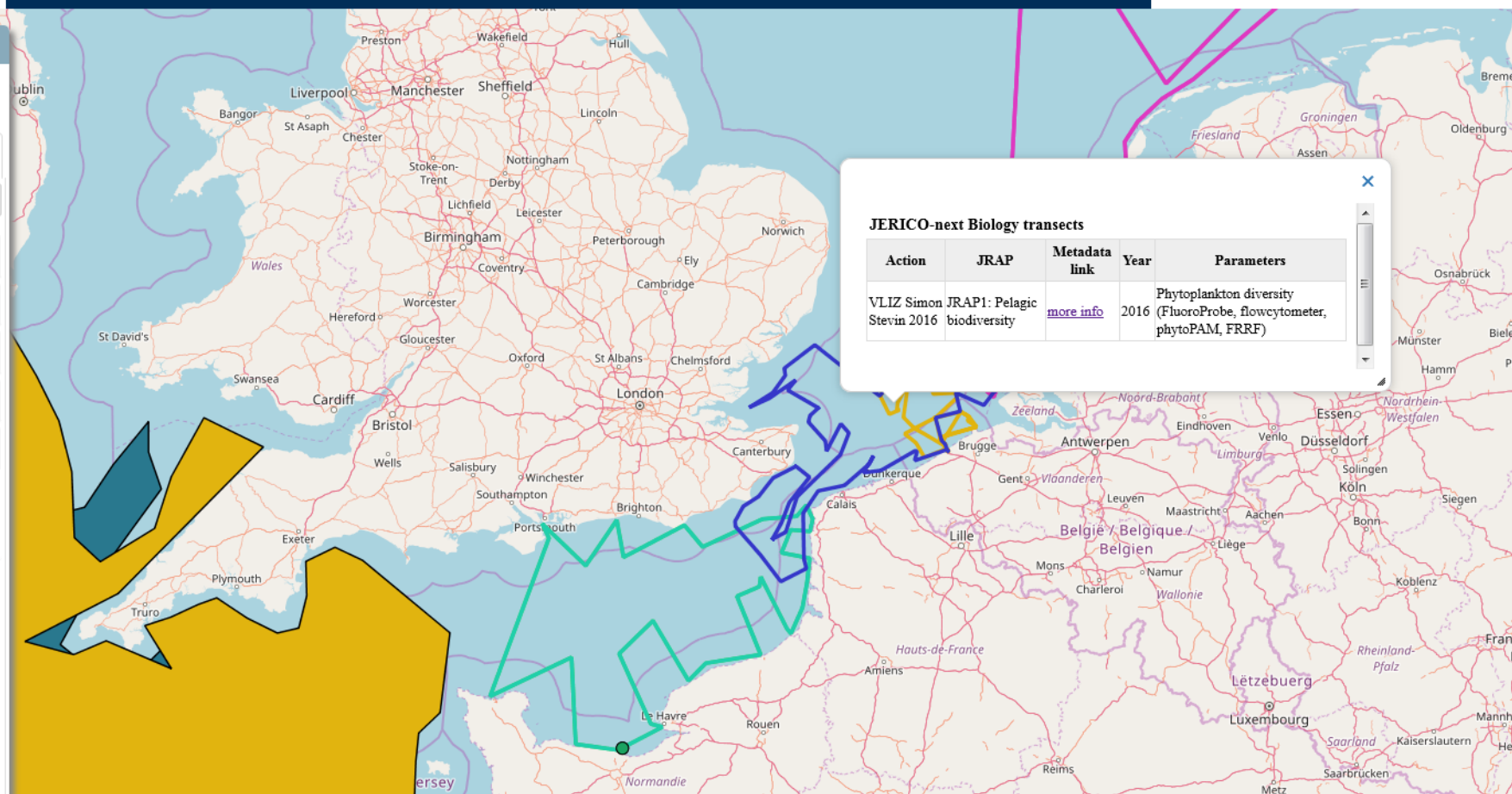
Map configuration

Background: OpenStreetMap

Active Layers (3) | Catalogue

Search layer catalogue

- Administrative boundaries
- Data products
- EMODnet environmental layers
- EMODnet Seabed Habitats
- JERICO-Next
 - JERICO-Next Biology areas
 - JERICO-Next Biology transects
 - JERICO-Next Biology stations



JERICO-next Biology transects

Action	JRAP	Metadata link	Year	Parameters
VLIZ Simon Stevin 2016	JRAP1: Pelagic biodiversity	more info	2016	Phytoplankton diversity (FluoroProbe, flowcytometer, phytoPAM, FRRF)



BIOLOGY

Dive into data on Europe's marine life

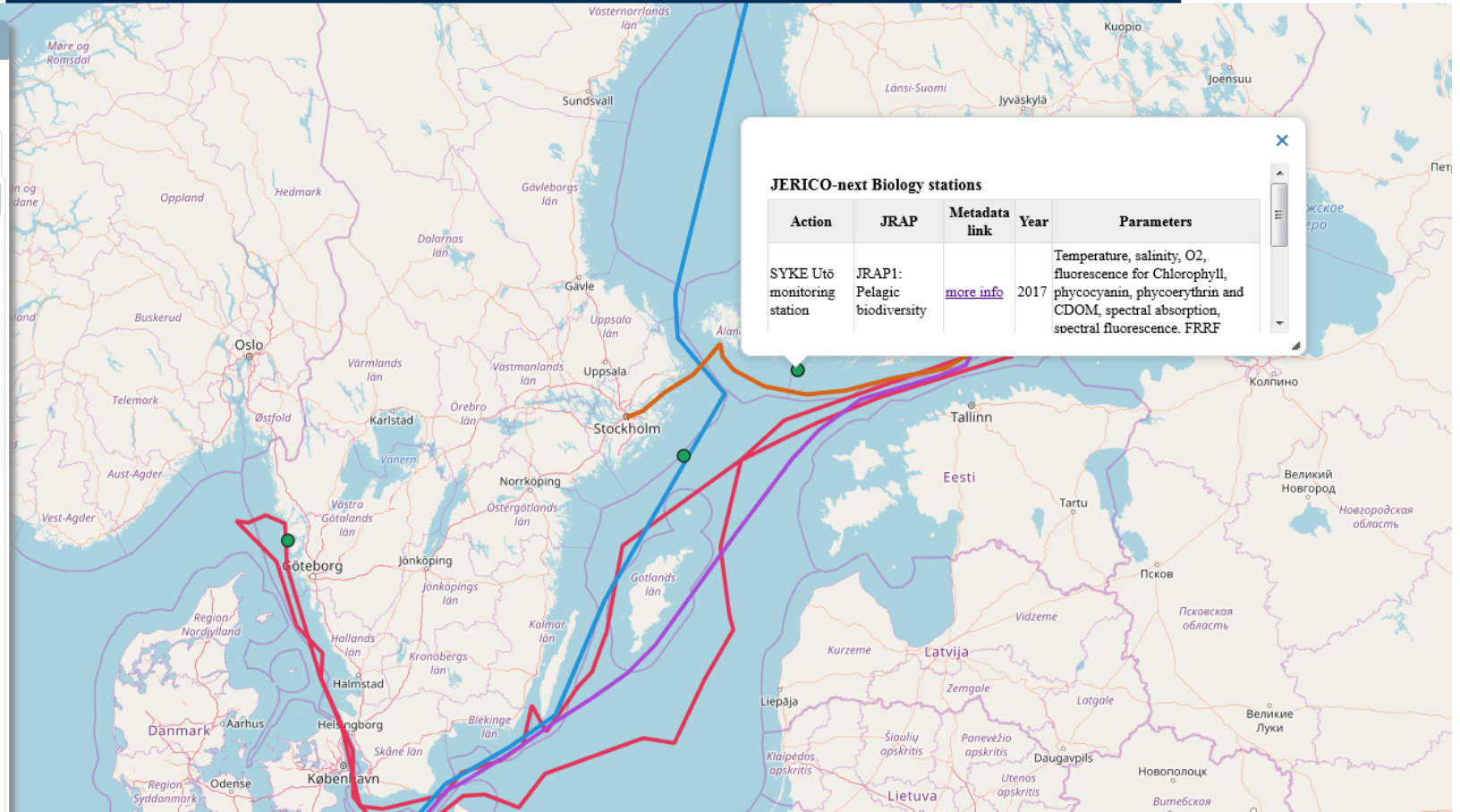
Map configuration

Background: OpenStreetMap

Active Layers (3) Catalogue

Search layer catalogue

- Administrative boundaries
- Data products
- EMODnet environmental layers
- EMODnet Seabed Habitats
- JERICO-Next
 - JERICO-Next Biology areas
 - JERICO-Next Biology transects
 - JERICO-Next Biology stations



Data Catalog

[\[report an error in this record \]](#)

[\[view external version \]](#)



Phytoplankton biodiversity data from a North Sea Cruise with R/V Simon Stevin in May 2016

Contact: data@vliz.be

Archived data




Archived file:

[Sea_meteo_and_navigationalData.zip](#)

[CTD_Data.zip](#)

[Flowcytometry_VLIZ.zip](#)

[Flowcytometry_RWS.zip](#)

Availability:  This dataset is licensed under a [Creative Commons Attribution 4.0 International License](#).

Special collections:

[Belgian marine datasets](#)

• [EMODNET](#)

[Belgian marine, coastal & estuarine areas](#)

• [Jerico-Next](#)

Description

Phytoplankton data collected in the framework of Jerico-NEXT JRAP 1. Data were collected using different methods and sensors (fluoroprobe, flow cytometer, phytopam, FRRF).



Data archival

- Long term preservation of raw data files in Marine Data Archive
- Trusted repository under ICSU World Data System
- Jerico-Next collection
- Personal, Shared or Public
- Allows metadata annotation at file level

Marine Data Archive



Free search



- Jerico_NEXT
 - Quarantine (0)
 - JRAP1
 - CruiseRVSimonStevin_May2016
 - CruiseRVSimonStevin_May2017
 - Cruise data
 - CTD data
 - Flowcytometer data
 - Sea and meteo
 - JRAP2

Files	Type	Data
LW_2017_protocol_1 2017-05-08 14h04	CV7	Flow
LW_2017_protocol_1 2017-05-08 14h30		Flow
LW_2017_protocol_1 2017-05-08 15h00		Flow
LW_2017_protocol_1 2017-05-08 15h30		Flow
LW_2017_protocol_1 2017-05-08 16h00		Flow
LW_2017_protocol_1 2017-05-08 16h30		Flow
LW_2017_protocol_1 2017-05-08 17h00		Flow
LW_2017_protocol_1 2017-05-08 17h30		Flow
LW_2017_protocol_1 2017-05-08 18h00		Flow

- Go to file
- Archive file
- New version
- Move
- Delete
- Download
- Group in fileset
- Edit metadata
- Show metadata
- Apply template

Archived by Mortelmans Jonas
Author(s) Mortelmans Jonas
Start Year 2017
Data type Flowcytometer data
Path Jerico_NEXT/JRAP1/CruiseRVSimonStevin_May2017/Flowcytometer data
Summary During the Jerico-Next cruise, 8-12 May 2017, the FlowCytometer protocols (pr1, pr2, pr3), every 30 minutes.

EDIT FILE METADATA

File properties | **Extra attributes** | **Description**

Biotic composition ... phytoplankton +
Deployment Underway
Sampling frequency < daily
Sampling device ... Flowcytometer
Parameters (biotic) ... Phytoplankton taxonomy-related biovolume
Parameter(s) ... FL Orange per particle +
... FL Red per particle -
... FWS per particle -
... Curvature p
... FL Red 2 pe
... FL Yellow pe
... SWS per pa

Sea area(s) North Sea (MRGID:
Coordinate reference WGS84 (epsg: 432)
Location Belgian, Dutch, Frer
Max. longitude 2.883
Min. longitude 1.82
Max. latitude 51.226
Min. latitude 50.994

First date 2017-05-08
Last date 2017-05-08

Free labels ... Project JericoNext 2017 +
... Report http://seadata.bsh -
... Sampling platform RV Simon Stevin -
... Keyword Jerico -

Linked files ... +

Protocol values ... FI Orange 80 +
... FI Red2 95 -
... SWS 60 -
... normal trigger SWS 33 -
... Protocol Description Low pumpspeed ar -
... FI Red 95 -
... Protocol Local Name Protocol 1 -
... FI Yellow 80 -
... smartrigger FL Red 6 -
... Pump speed 2µl/s / 6min -

Free labels ... Project
... Report http://seadata.bsh -
... Sampling platform RV Simon Stevin -

Underlined items are required.
Cancel Reset Save changes



laas Deneudt

Marine Data Archive



[Intro](#) [Archive](#) [Manual](#) [Policy](#) [Register](#) [Contact](#) [FAQ](#)

Direct Link

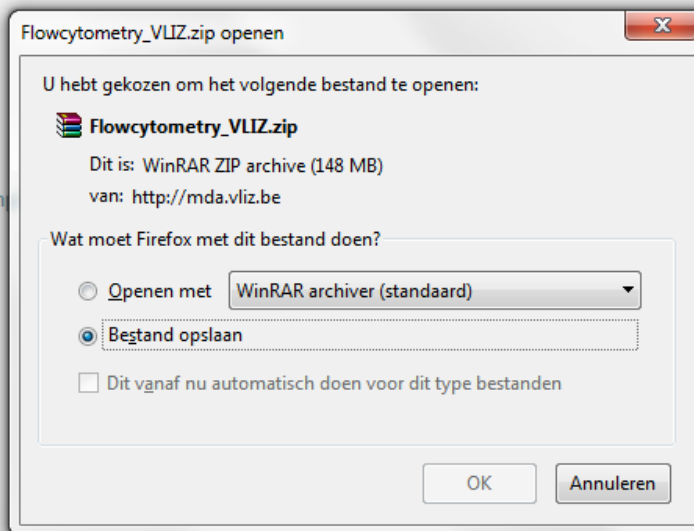
download

File: 'Flowcytometry_VLIZ.zip'

File properties

Filename	Flowcytometry_VLIZ.zip
Direct link	http://mda.vliz.be/mda/directlink.php
Datatype	In situ Instrument data
MIMEtype	
Authors	Lennert Tyberghein
Dataprovider	VLIZ
Email Dataprovider	
Conditions of use	
Creationdate	
Submitter	Tyberghein Lennert
Submit date	2016-10-06 13:02:10
Archived by	Tyberghein Lennert
Archive date	2016-10-06 13:09:32
Path	Public datasets/Jerico-NEXT/JRAP1/CruiseRVSimonStevin_May2016/
Start year	2016
End year	2016
Summary	
Description	
Changes	

Metadata





Data integration

- Parameter vocab for FCM created (MIO, BODC)
- Processed data available in OBIS Env (in prep)
- Processed data made available EMODnet download service (in prep)