SeaDataCloud

Interopérabilité des données issues d'analyses par Cytométrie en Flux dans l'infrastructure Européenne SeaDataNet

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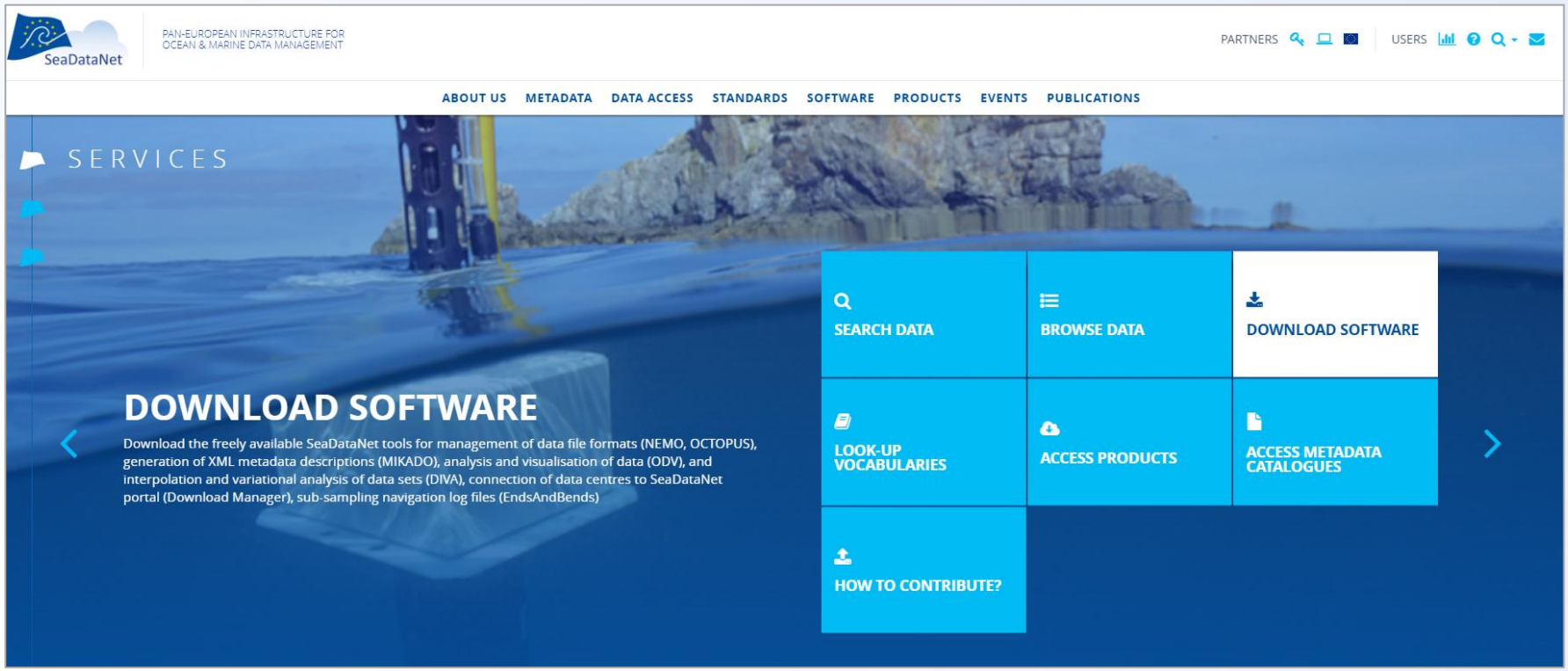
SeaDataNet ?

Une infrastructure pan-Européenne pour la gestion des données marines issues des centres de données (NODCs) de 34 pays riverains des eaux européennes.

90s	Metadata directories Medar/MedAtlas
2002-2005	Sea-Search (FP5)
2006-2011	SeaDataNet (FP6)
2011-2015	SeaDataNet II (FP7)
2016-2020	**SeaDataCloud (H2020)**

SeaDataCloud

Portail : standards, outils et services



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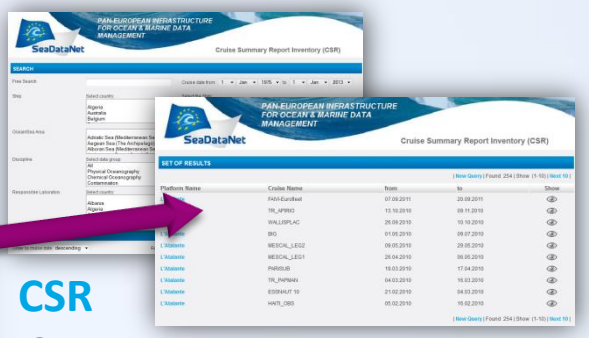
Standards

- Ensemble de normes communes pour le domaine marin en cohérence avec les normes ISO, OGC et la directive INSPIRE
  - **Normes ISO 19115 – 19139** pour la description des métadonnées
  - **Vocabulaires contrôlés** pour le domaine marin **(>65,000 termes dans 82 listes**) accessibles via des services web avec une gouvernance internationale
  - **Formats standards d'échange de données** : ODV ASCII et NetCDF (CF) qui sont entièrement pris en compte par les vocabulaires contrôlés
- Maintenance et diffusion des standards et protocoles de QA-QC en cohérence avec les lignes directrices de IOC/IODE et ICES/CIEM

Service de catalogage de Métadonnées

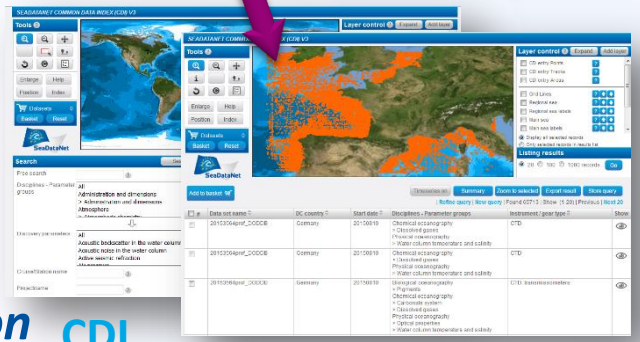
EDMO *Organisations*

EDMERP
Projets

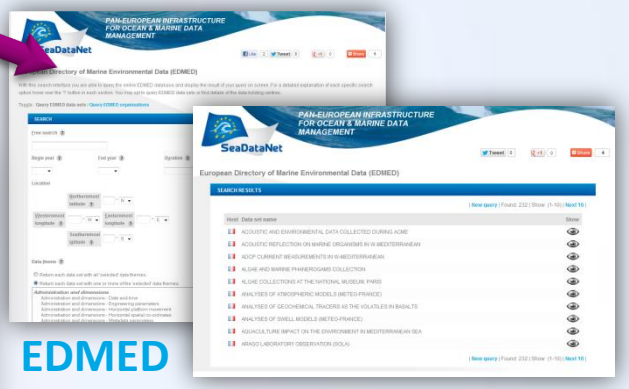


CSR
Campagnes en mer

EDIOS
Programmes d'observation



CDI

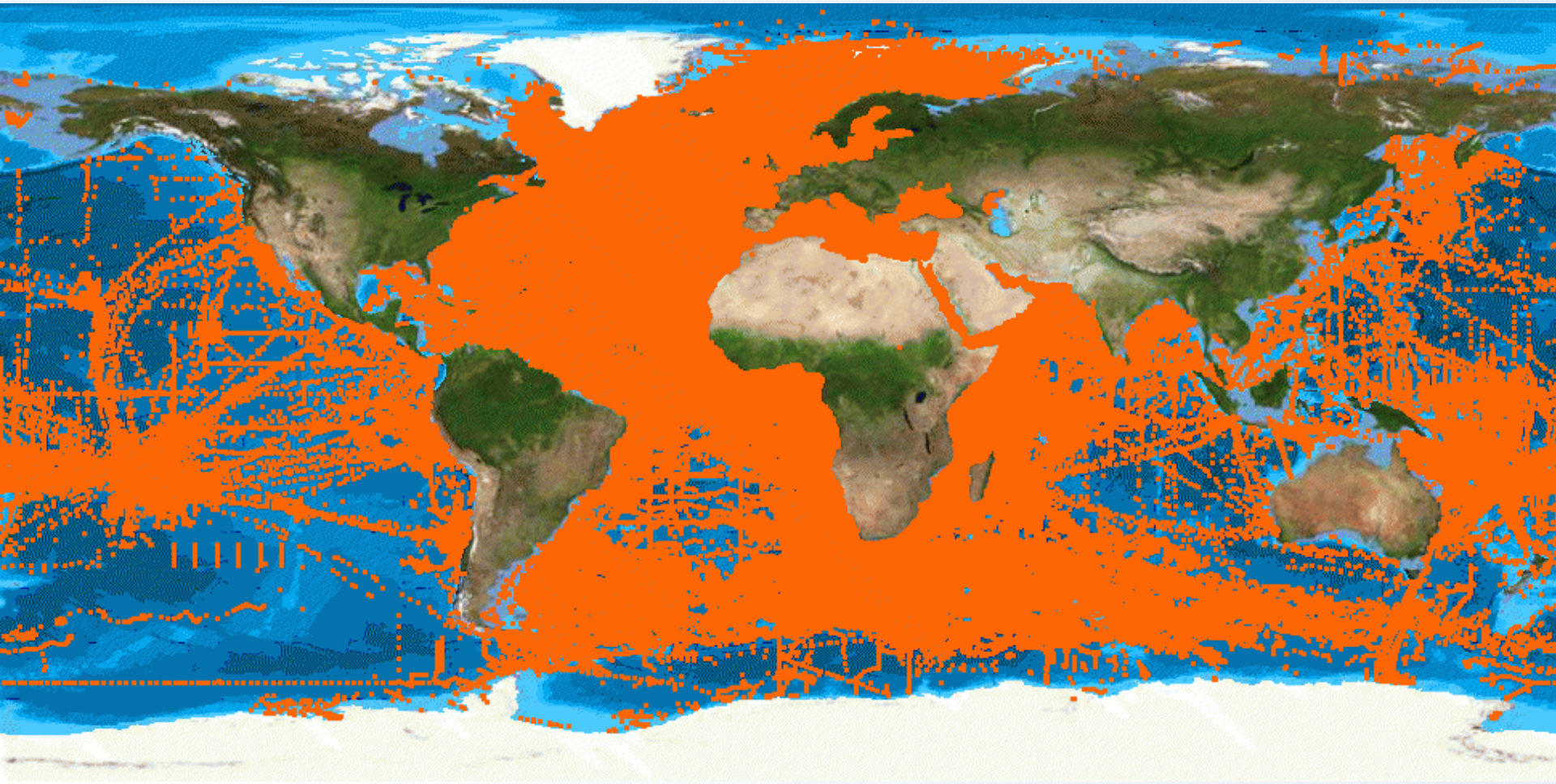


EDMED
Jeux de données

Accessibilité au service

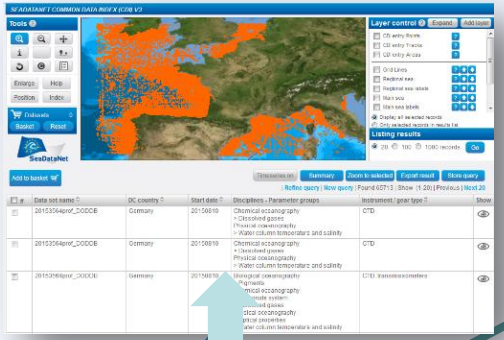
www.seadatanet.org

Visualisation du service CDI



***2.10 million** CDI depuis **1805 à 2018** venants de **34** pays: l'océanographie physique, chimique, géologique, géophysique, biologique et la bathymétrie*

SeaDataCloud



Visualisation et accessibilité des données standardisées

SeaDataNet

> 110 centres de données

NODCs; HOs; GEOs; BIOs; ICES; PANGAEA

≈ 600 fournisseurs Européens de données

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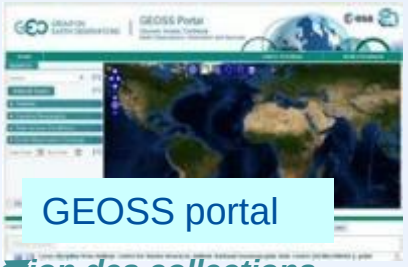


GEOSS portal

IODE ODP portal

Agrégation des collections

Black Sea portal

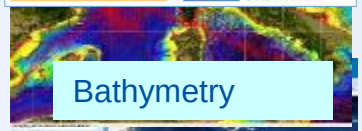
Caspian portal

Geo-Seas portal

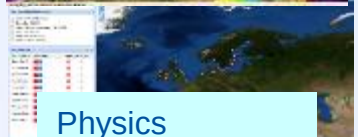
Sous-ensemble régionaux

EMODnet
European Marine Observation and Data Network

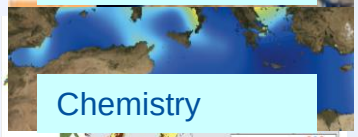
Portails thématiques



Bathymetry

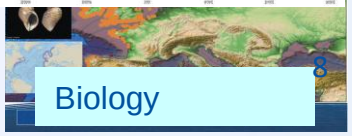


Physics



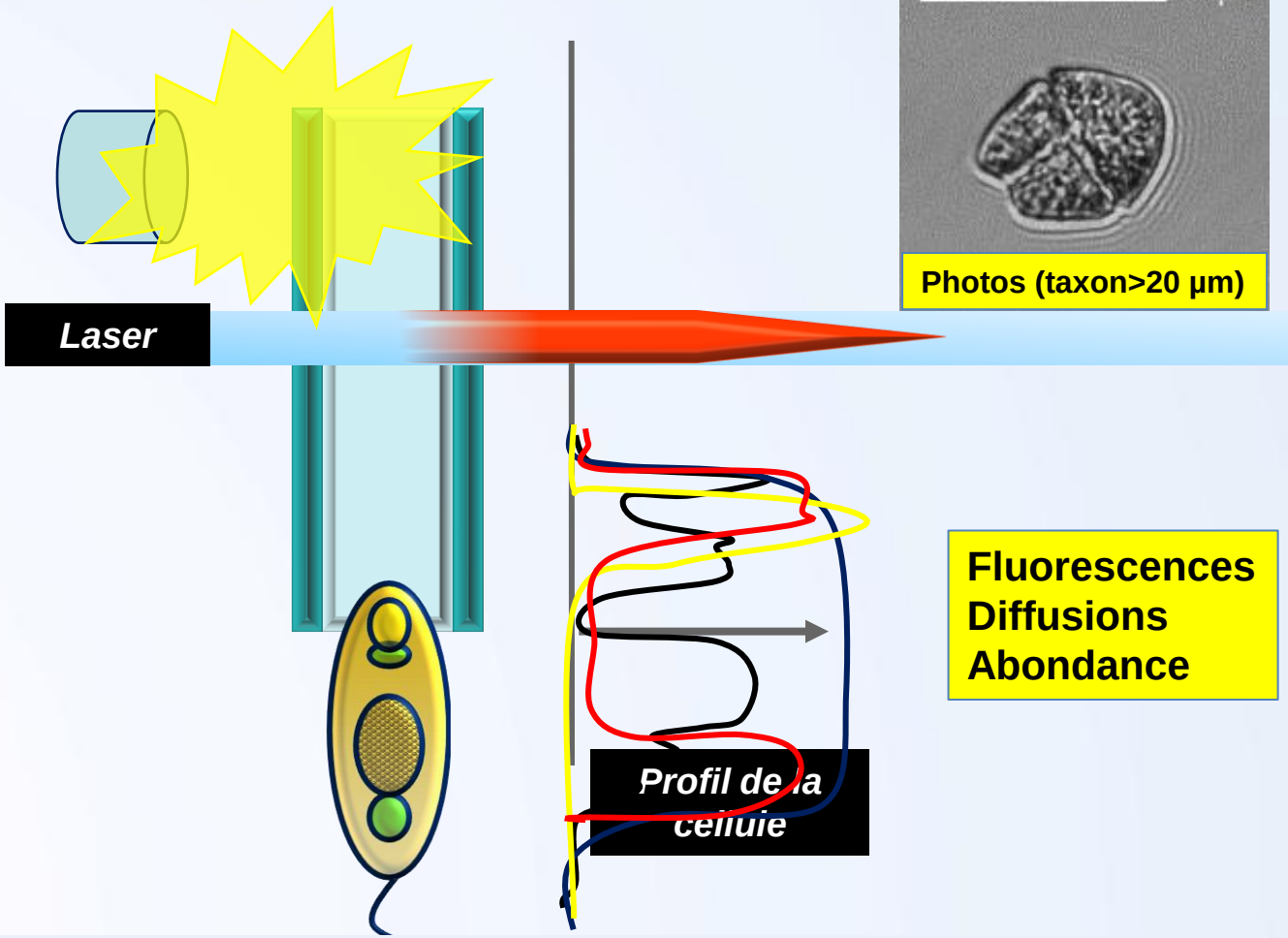
Chemistry

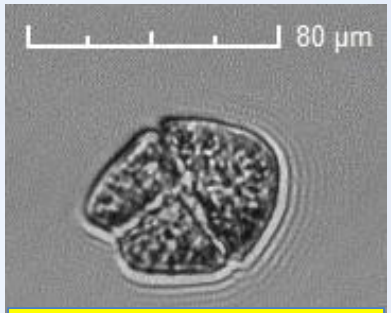
Geology



Biology

Application aux données de Cytométrie en flux (FCM)





Photos (taxon>20 µm)

Fluorescences
Diffusions
Abondance

CytoBuoy
flow cytometry solutions

Détection de la diversité des microorganismes marins: Phytoplancton, Bactéries, Virus,

Gestion des données FCM

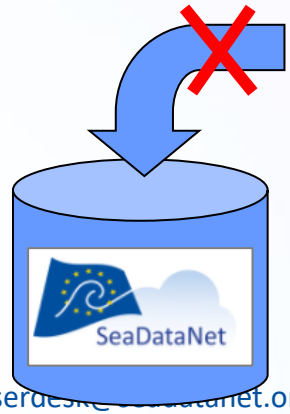
CytoClus

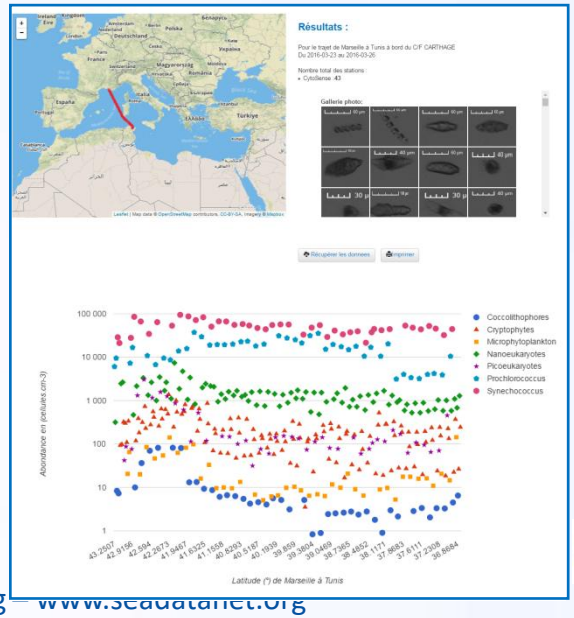
R

Fichier données
List et collection
des photo

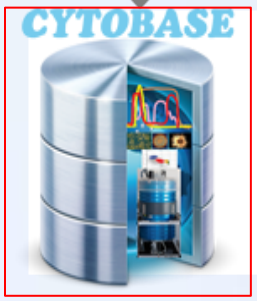
Acquisition | **Analyses** | **Consolidation** | **Expert QC**

-> Normes
-> Vocabulaire
-> Format de données





Accessibilité



Intégration

Leaflet

Google Developers

dygraphs

MySQL

talend

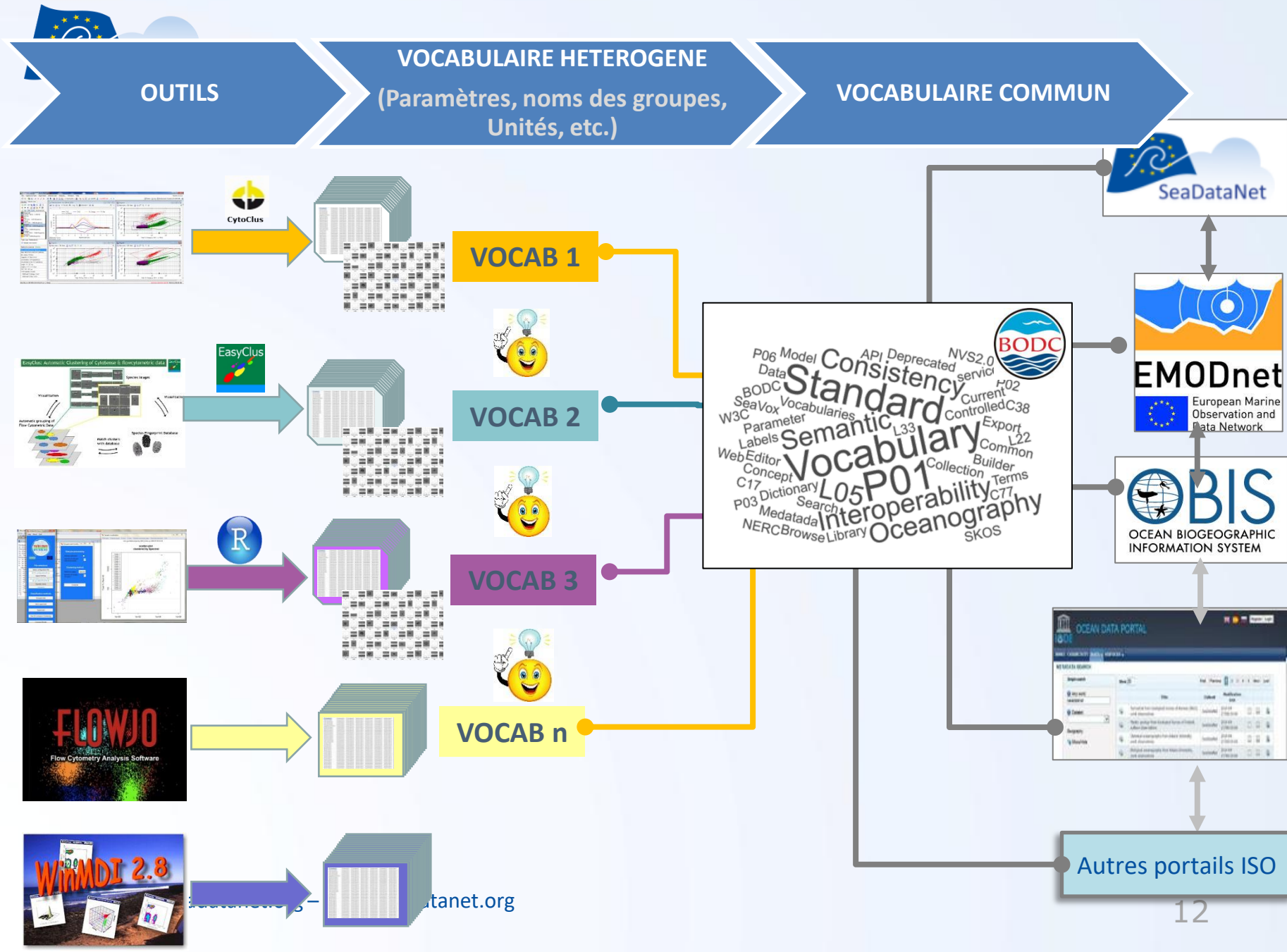
SeaDataCloud

WP9.5.2- Intégration, validation, archivage et accessibilité à long-terme des données de FCM

1
- Vocabulaire commun (contrôlé)

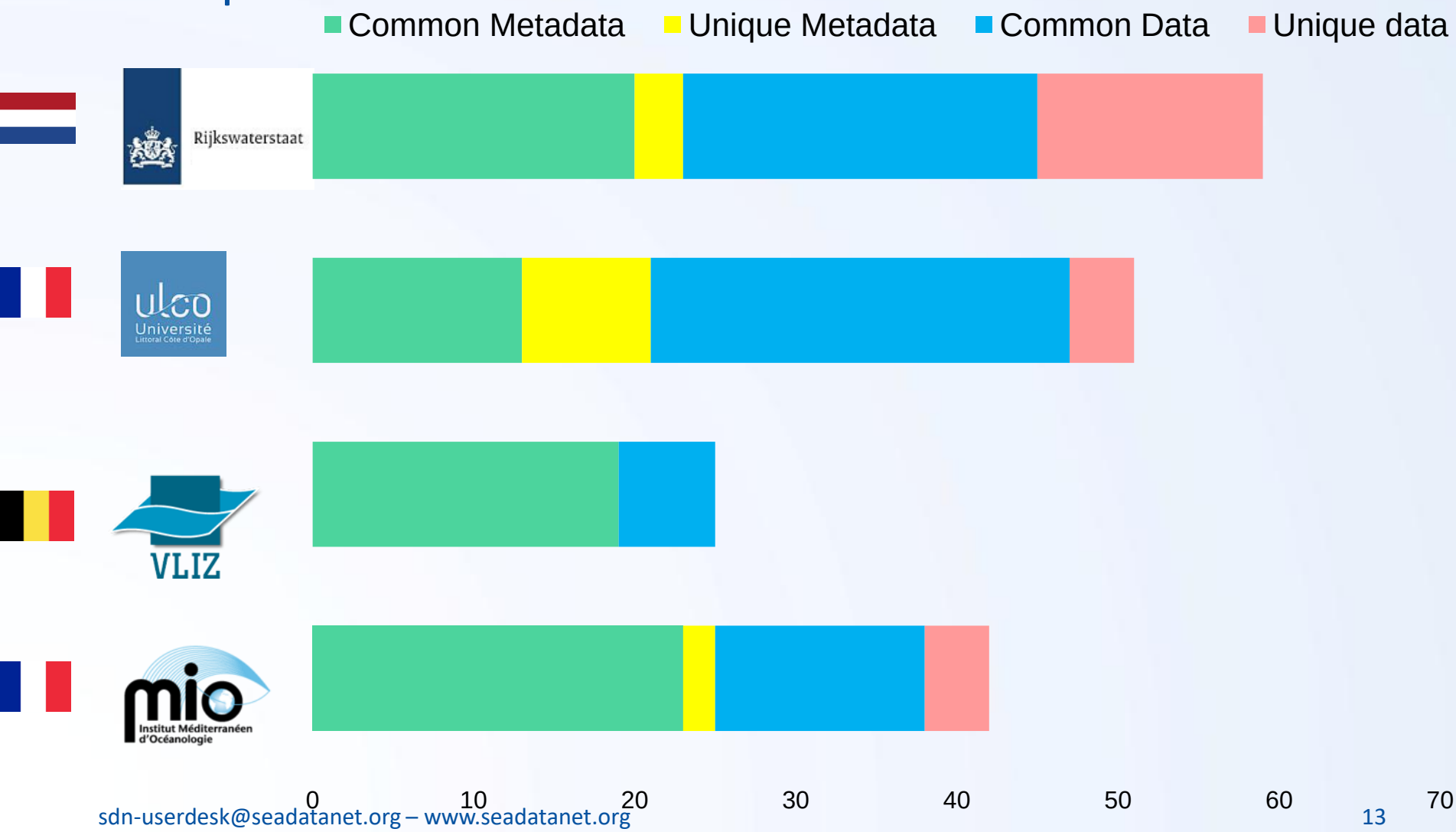
2
- Format d’échange standard de données

3
- Intégration des données dans SDN

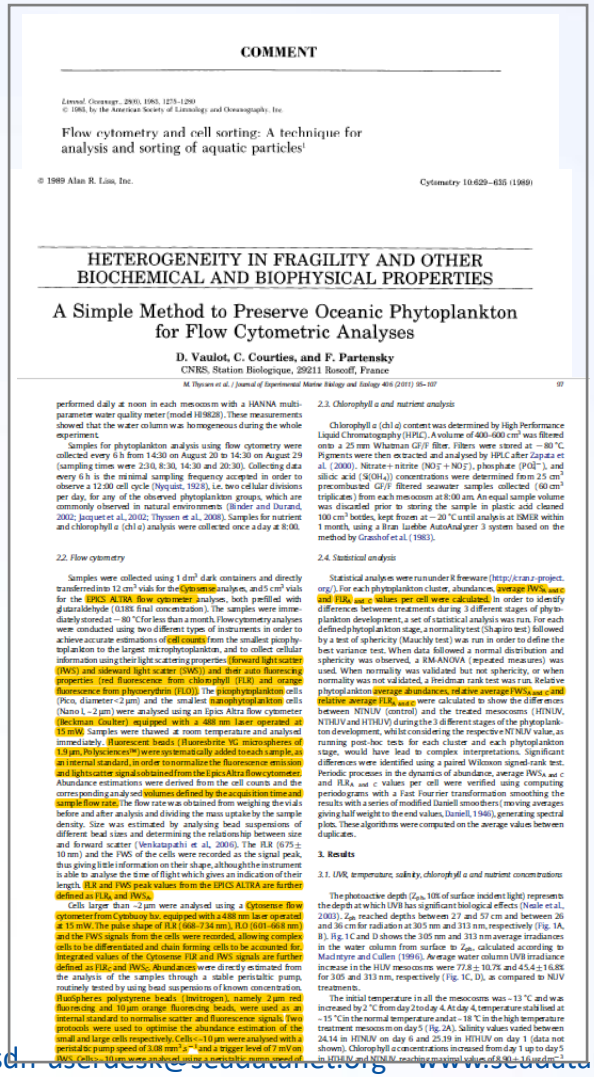

OUTILS
VOCABULAIRE HETEROGENE
(Paramètres, noms des groupes, Unités, etc.)
VOCABULAIRE COMMUN
CytoClus
EasyClus
R
FLOWJO
Flow Cytometry Analysis Software
WinMDI 2.8
VOCAB 1
VOCAB 2
VOCAB 3
VOCAB n
BODC
Standard
Consistency
Semantic
Vocabulary
Interoperability
Oceanography
P01
L05
SeaDataNet
EMODnet
European Marine Observation and Data Network
OBIS
OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM
OCEAN DATA PORTAL
Autres portails ISO

SeaDataCloud

FCM paramètres en commun



Recherche bibliographique de 1983 à 2017



COMMENT

Limnol. Oceanogr., 28(6), 1983, 1273–1280
© 1983, by the American Society of Limnology and Oceanography, Inc.

Flow cytometry and cell sorting: A technique for analysis and sorting of aquatic particles[1]

© 1989 Alan R. Liss, Inc. Cytometry 10:629–635 (1989)

HETEROGENEITY IN FRAGILITY AND OTHER BIOCHEMICAL AND BIOPHYSICAL PROPERTIES

A Simple Method to Preserve Oceanic Phytoplankton for Flow Cytometric Analyses

D. Vaulot, C. Courties, and F. Partensky
CNRS, Station Biologique, 29211 Roscoff, France

M. Thyssen et al. / Journal of Experimental Marine Biology and Ecology 404 (2011) 95–107 97

performed daily at noon in each mesocosm with a HANNA multi-parameter water quality meter (model H98828). These measurements showed that the water column was homogeneous during the whole experiment.

Samples for phytoplankton analysis using flow cytometry were collected every 6 h from 14:30 on August 20 to 14:30 on August 29 (sampling times were 2:30, 8:30, 14:30 and 20:30). Collecting data every 6 h is the minimal sampling frequency accepted in order to observe a 12:00 cell cycle (Nyquist, 1928), i.e. two cellular divisions per day, for any of the observed phytoplankton groups, which are commonly observed in natural environments (Binder and Durand, 2002; Jacquet et al., 2002; Thyssen et al., 2008). Samples for nutrient and chlorophyll a (chl a) analysis were collected once a day at 8:00.

2.2. Flow cytometry

Samples were collected using 1 dm³ dark containers and directly transferred into 12 cm³ vials for the Cytosense analyses, and 5 cm³ vials for the EPICS ALTRA flow cytometer analyses, both prefilled with glutaraldehyde (0.18% final concentration). The samples were immediately stored at −80 °C for less than a month. Flow cytometry analyses were conducted using two different types of instruments in order to achieve accurate estimations of cell counts from the smallest picophytoplankton to the largest microphytoplankton, and to collect cellular information using their light scattering properties (forward light scatter (FWS) and sideward light scatter (SWS)) and their auto fluorescing properties (red fluorescence from chlorophyll (FLR) and orange fluorescence from phycoerythrin (FLO)). The picophytoplankton cells (Pico, diameter < 2 μm) and the smallest nanophytoplankton cells (Nano L, ~2 μm) were analysed using an Epics Altra flow cytometer (Beckman Coulter) equipped with a 488 nm laser operated at 15 mW. Samples were thawed at room temperature and analysed immediately. Fluorescent beads (Fluoresbrite YG microspheres of 0.9 μm, Polysciences™) were systematically added to each sample, as an internal standard, in order to normalize the fluorescence emission and light scatter signals obtained from the Epics Altra flow cytometer. Abundance estimations were derived from the cell counts and the corresponding analysed volumes defined by the acquisition time and sample flow rate. The flow rate was obtained from weighing the vials before and after analysis and dividing the mass uptake by the sample density. Size was estimated by analysing bead suspensions of different bead sizes and determining the relationship between size and forward scatter (Venkatapathi et al., 2006). The FLR (675 ± 10 nm) and the FWS of the cells were recorded as the signal peak, thus giving little information on their shape, although the instrument is able to analyse the time of flight which gives an indication of their length. FLR and FWS peak values from the EPICS ALTRA are further defined as FLR_A and FWS_A.

Cells larger than ~2 μm were analysed using a Cytosense flow cytometer from Cytobuoy bv, equipped with a 488 nm laser operated at 15 mW. The pulse shape of FLR (668–734 nm), FLO (601–668 nm) and the FWS signals from the cells were recorded, allowing complex cells to be differentiated and chain forming cells to be accounted for. Integrated values of the Cytosense FLR and FWS signals are further defined as FLR_C and FWS_C. Abundances were directly estimated from the analysis of the samples through a stable peristaltic pump, routinely tested by using bead suspensions of known concentration. FluoSpheres polystyrene beads (Invitrogen), namely 2 μm red fluorescing and 10 μm orange fluorescing beads, were used as an internal standard to normalise scatter and fluorescence signals. Two protocols were used to optimise the abundance estimation of the small and large cells respectively. Cells < ~10 μm were analysed with a peristaltic pump speed of 3.08 mm³ s⁻¹ and a trigger level of 7 mV on FWS. Cells > 10 μm were analysed using a peristaltic pump speed of

2.3. Chlorophyll a and nutrient analysis

Chlorophyll a (chl a) content was determined by High Performance Liquid Chromatography (HPLC). A volume of 400–600 cm³ was filtered onto a 25 mm Whatman GF/F filter. Filters were stored at −80 °C. Pigments were then extracted and analysed by HPLC after Zapata et al. (2000). Nitrate + nitrite ($NO_3^- + NO_2^-$), phosphate (PO_4^{3-}), and silicic acid ($Si(OH)_4$) concentrations were determined from 25 cm³ preconditioned GF/F filtered seawater samples collected (60 cm³ triplicates) from each mesocosm at 8:00 am. An equal sample volume was discarded prior to storing the sample in plastic acid cleaned 100 cm³ bottles, kept frozen at −20 °C until analysis at IMER within 1 month, using a Bran Luebbe AutoAnalyzer 3 system based on the method by Grasshof et al. (1983).

2.4. Statistical analysis

Statistical analyses were run under R freeware (http://cran.r-project.org/). For each phytoplankton cluster, abundances, average $FWS_{A\ and\ C}$ and $FLR_{C\ and\ B}$ values per cell were calculated. In order to identify differences between treatments during 3 different stages of phytoplankton development, a set of statistical analysis was run. For each defined phytoplankton stage, a normality test (Shapiro test) followed by a test of sphericity (Mauchly test) was run in order to define the best variance test. When data followed a normal distribution and sphericity was observed, a RM-ANOVA (repeated measures) was used. When normality was validated but not sphericity, or when normality was not validated, a Friedman rank test was run. Relative phytoplankton average abundances, relative average $FWS_{A\ and\ C}$ and relative average $FLR_{C\ and\ B}$ were calculated to show the differences between NTNUV (control) and the treated mesocosms (HTNUV, NTHUV and HTHUV) during the 3 different stages of the phytoplankton development, whilst considering the respective NTNUV value, as running post-hoc tests for each cluster and each phytoplankton stage, would have lead to complex interpretations. Significant differences were identified using a paired Wilcoxon signed-rank test. Periodic processes in the dynamics of abundance, average $FWS_{A\ and\ C}$ and $FLR_{A\ and\ C}$ values per cell were verified using computing periodograms with a Fast Fourier transformation smoothing the results with a series of modified Daniell smoothers (moving averages giving half weight to the end values, Daniell, 1946), generating spectral plots. These algorithms were computed on the average values between duplicates.

3. Results

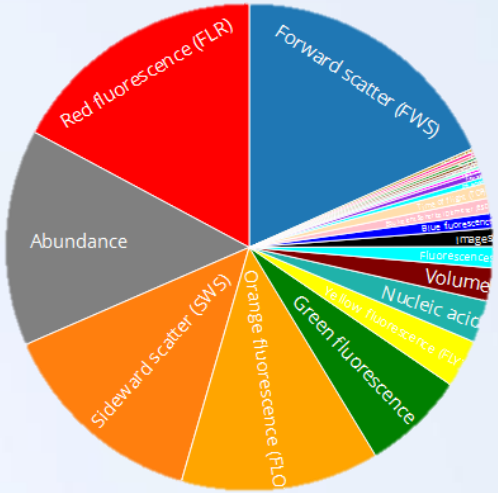
3.1. UVR, temperature, salinity, chlorophyll a and nutrient concentrations

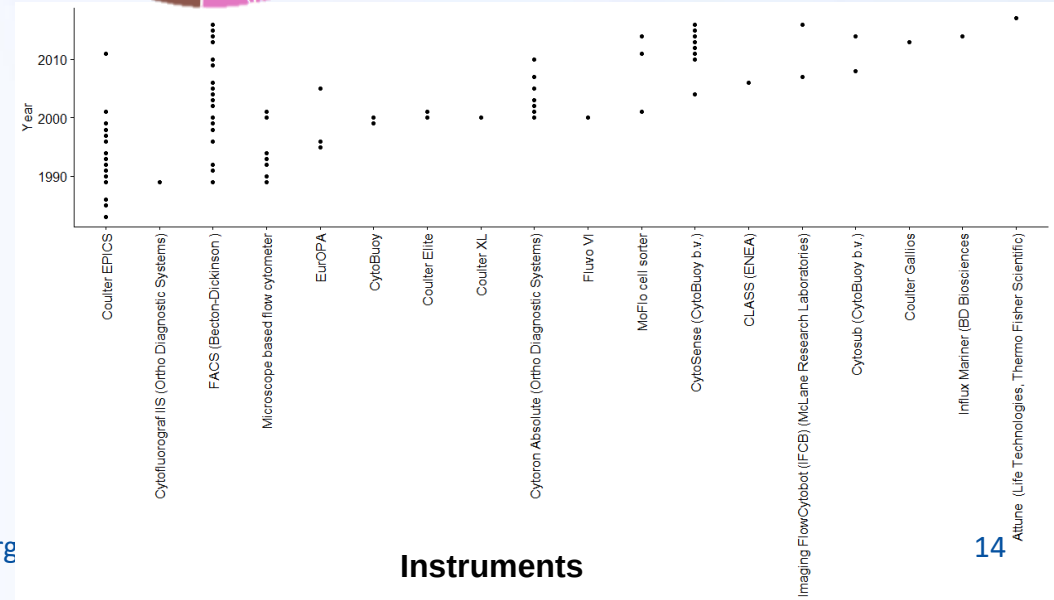
The photoactive depth ($Z_{10\%}$, 10% of surface incident light) represents the depth at which UVR has significant biological effects (Neale et al., 2003). $Z_{10\%}$ reached depths between 27 and 57 cm and between 26 and 36 cm for radiation at 305 nm and 313 nm, respectively (Fig. 1A, B). Fig. 1 C and D shows the 305 nm and 313 nm average irradiances in the water column from surface to $Z_{10\%}$, calculated according to MacIntyre and Cullen (1996). Average water column UVR irradiance increase in the HUV mesocosms were 77.8 ± 10.7% and 45.4 ± 16.8% for 305 and 313 nm, respectively (Fig. 1C, D), as compared to NUV treatments.

The initial temperature in all the mesocosms was ~13 °C and was increased by 2 °C from day 2 to day 4. At day 4, temperature stabilised at ~15 °C in the normal temperature and at ~18 °C in the high temperature treatment mesocosms on day 5 (Fig. 2A). Salinity values varied between 24.14 in HTNUV on day 6 and 25.19 in HTHUV on day 1 (data not shown). Chlorophyll a concentrations increased from day 1 up to day 5 in HTHUV and NTNUV, reaching maximal values of 8.90 ± 1.0 μg dm⁻³

Clusters

Paramètres mesurés





Instruments

SeaDataCloud

Flow Cytometry vocabulary standardization Questionnaire

This questionnaire is dedicated to set up a common standardized vocabulary of the flow cytometry (FCM) metadata and data. it will take approximately 15 minutes to be completed.

This questionnaire is carried out within the framework of SeaDataCloud H2020 project in order to standardize, validate and guarantee a long-term storage and access of flow cytometry datasets.

The questionnaire is divided into four main parts:

Part I: FCM Group names and definitions

Part II: FCM Metadata

Part III: Sample Metadata

Part IV: FCM Data

There are 58 questions in this survey.

Load unfinished survey | Next ▸ | Exit and clear survey

Questionnaire sent to 180 FCM users all around the world

LimeSurvey

Construction du vocabulaire/ Modèle sémantique

Chemical model	Biological model	Physical model
Measurement **Substance** Measurement matrix relationship **Matrix** Matrix subcomponent	**Measurement** **Organism Name** Organism Specifics Measurement matrix relationship **Matrix** Matrix subcomponent Method	**Measurement** Statistical **Physical entity** Measurement matrix relationship **Matrix** Method
Concentration of **carbon (total inorganic) {TCO2}** per unit mass of the **water body [dissolved plus reactive particulate phase]**	**Abundance** of **Bacteria (ITIS: 202421: WoRMS 6) [Subgroup: heterotrophic]** per unit volume of the **water body** by **automated flow cytometry**	**Area mean of Forward light scatter pulse** per cluster from the **water body** by **flow cytometry**

Area

Mean of

Forward light scatter pulse

per cluster from the

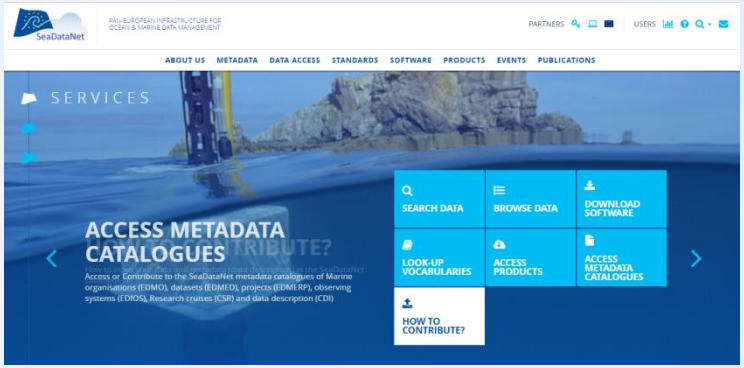
Water body by

flow cytometry

The cluster name is managed in a separate vocabulary list

SeaDataCloud

Vocabulaire commun pour la FCM



➔ https://www.seadatanet.org/

BODC WEBSERVICES V2 (LIBRARIES) CL12

Library	Thesaurus	Title	Alt Title	Version	Members	Modified
C16		SeaDataNet sea areas	SDN sea areas	9	127	11/7/2012 2:00:06 AM
C17		ICES Platform Codes	ICES Platforms	712	5607	3/20/2018 2:00:05 AM
C19		SeaVoX salt and fresh water body gazetteer	SeaVoX water bodies	17	263	2/21/2018 2:00:03 AM
C32		International Standards Organisation countries	ISO countries	7	251	1/14/2016 2:00:02 AM
C34		Activity purpose categories	Purpose categories	4	22	8/27/2011 3:00:05 AM
C35		European Nature Information System	EUNIS3 Habitats	1	56	2/19/2010 2:01:37 AM

F02	SeaDataCloud Flow Cytometry Standardised Cluster Names	SDC flow cytometry cluster names	2	11	2/3/2018 2:00:02 AM

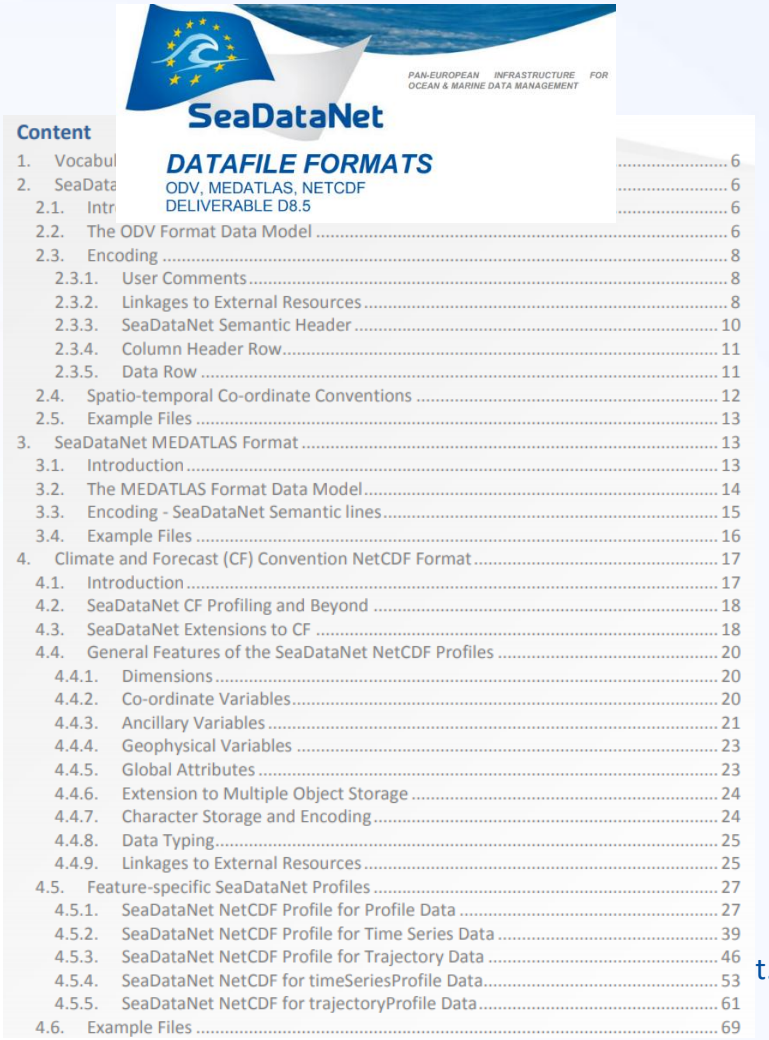
P01	BODC Parameter Usage Vocabulary	BODC PUV	800	37732	3/14/2018 2:00:03 AM
P02	SeaDataNet Parameter Discovery Vocabulary	SeaDataNet PDV	107	435	2/13/2018 2:00:03 AM

L22	SeaVoX Device Catalogue	SeaVoX Device Catalogue	324	1280	3/6/2018 2:00:04 AM

P06	BODC data storage units	BODC units	99	346	2/16/2018 2:00:02 AM

SeaDataCloud

2. Format d'échange de données



Content

THE SDN FORMAT DATA MODELS	
NAME	TYPE
Biological data	Time series
Chemical	Time series
Contaminant in Biota	Time series
Tide gauge	Time series
Tide gauge with instrument	Time series
Trajectory TSG	Time series
Contaminant in sediment	Profiles
CTD	Profiles
CTD with instruments	Profiles
XBT	Profiles

//<subject>SDN:LOCAL:**vol_ech**</subject><object>**SDN:P01::VOLWBSMP**</object><units>**SDN:P06::MCUB**</units><instrument>**SDN:L22::TOOL1209**</instrument>

//<subject>SDN:LOCAL:**sdn_ClusterName**</subject><object>**SDN:P01::NMCLFL02**</object><units>**SDN:P06::UUUU**</units><instrument>**SDN:L22::TOOL1209**</instrument>

//<subject>**SDN:LOCAL:abundance**</subject><object>**SDN:P01::SDBIOL01**</object><units>**SDN:P06::NCM3**</units><instrument>**SDN:L22::TOOL1209**</instrument>

//<subject>**SDN:LOCAL:moy_tot_SWS**</subject><object>**SDN:P01::SWSAREAA**</object><units>**SDN:P06::USPC**</units><instrument>**SDN:L22::TOOL1209**</instrument>

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Cruise	Station	Type	YYYY-MM	Longitude [	Latitude [de	LOCAL_CD	EDMO_coc	Bot. Depth	DEPTH [m]	QV:SEADA	ti	e_ISO86	QV:SEADA	vol_ech [m^	QV:SEADA	sdn_Cluste	QV:SEADA	sdn_Cluste	QV:SEADA	abundance [	QV:SEADA	moy_tot_Fl	QV:SEADA	FLR_TOTA	QV:SEADA	moy_tot_
CHROME_I	S1	C	2016-03-24	5.26124	43.2507	FA880320	3078	0	6	1	2	16-03-24	1	0.376328	1	Eukaryote p	1	SDN:F02::F	1	87.63	1	12241.57	1	6394.2	1	247.434
									6	1	2	16-03-24	1	0.376328	1	Synechococ	1	SDN:F02::F	1	21194.4	1	984.505	1	540.018	1	1207.1
									6	1	2	16-03-24	1	0.376328	1	Prochlorocc	1	SDN:F02::F	1	9437.06	1	39.4288	1	18.0989	1	27.703
									6	1	2	16-03-24	1	4.21779	1	Cryptophyt	1	SDN:F02::F	1	741.38	1	24534.84	1	17783.15	1	10133.7
									6	1	2	16-03-24	1	4.21779	1	Microphyto	1	SDN:F02::F	1	65.67	1	123771	1	151218	1	20281.
									6	1	2	16-03-24	1	4.21779	1	Coccolithop	1	SDN:F02::F	1	7.35	1	43755.3	1	15892.1	1	24131.
									6	1	2	16-03-24	1	4.21779	1	Eukaryote n	1	SDN:F02::F	1	2970.52	1	53946.7	1	21944.63	1	618.44
									6	1	2	16-03-24	1	0.402186	1	Prochlorocc	1	SDN:F02::F	1	6063.34	1	42.2521	1	17.3289	1	28.887
									6	1	2	16-03-24	1	0.402186	1	Synechococ	1	SDN:F02::F	1	28735.5	1	876.007	1	432.296	1	1045.7
									6	1	2	16-03-24	1	0.402186	1	Eukaryote p	1	SDN:F02::F	1	42.27	1	10255.1	1	8190.031	1	254.343
									6	1	2	16-03-24	1	0.402186	1	Standard bc	1	SDN:F02::F	1	2.49	1	21157.3	1	3.7525	1	38109
									6	1	2	16-03-24	1	4.16954	1	Cryptophyt	1	SDN:F02::F	1	526.44	1	25208.31	1	16832.4	1	3799.14
									6	1	2	16-03-24	1	4.16954	1	Microphyto	1	SDN:F02::F	1	20.63	1	145903	1	180243	1	10625
									6	1	2	16-03-24	1	4.16954	1	Coccolithop	1	SDN:F02::F	1	8.39	1	42357.2	1	17263.2	1	27263.
									6	1	2	16-03-24	1	4.16954	1	Eukaryote n	1	SDN:F02::F	1	2738.19	1	51546.6	1	19162.42	1	615.48
CHROME_I	S2	C	2016-03-24	5.37174	43.092	FA880320	3078	0	6	1	2	16-03-24	1	0.377151	1	Prochlorocc	1	SDN:F02::F	1	7288.88	1	43.0467	1	17.4221	1	28.381
									6	1	2	16-03-24	1	0.377151	1	Eukaryote p	1	SDN:F02::F	1	76.89	1	12170.35	1	6714.12	1	263.971
									6	1	2	16-03-24	1	0.377151	1	Synechococ	1	SDN:F02::F	1	27866.9	1	902.762	1	488.755	1	1066.9
CHROME_I	S3	C	2016-03-24	5.4981	42.3156	FA880320	3078	0	6	1	2	16-03-24	1	3.77561	1	Cryptophyt	1	SDN:F02::F	1	631.82	1	25864.58	1	18194.35	1	3524.25
									6	1	2	16-03-24	1	3.77561	1	Microphyto	1	SDN:F02::F	1	20.13	1	108890	1	107858	1	46748
									6	1	2	16-03-24	1	3.77561	1	Coccolithop	1	SDN:F02::F	1	10.06	1	44887.5	1	21092.5	1	23305.
									6	1	2	16-03-24	1	3.77561	1	Eukaryote n	1	SDN:F02::F	1	2629.51	1	41808.22	1	17680.85	1	511.0
									6	1	2	16-03-24	1	0.324117	1	Prochlorocc	1	SDN:F02::F	1	16634.6	1	40.9643	1	20.7149	1	29.830
									6	1	2	16-03-24	1	0.324117	1	Eukaryote p	1	SDN:F02::F	1	1317.43	1	8307.87	1	5209.686	1	228.773

FA88032016_00001_FCMW_20180302_

Echelle de contrôle qualité

ODV QFSetName= **ODV**

Set Description: ODV generic quality flags

Reference: ODV Users Guide, http://odv.awi.de/en/documentation/

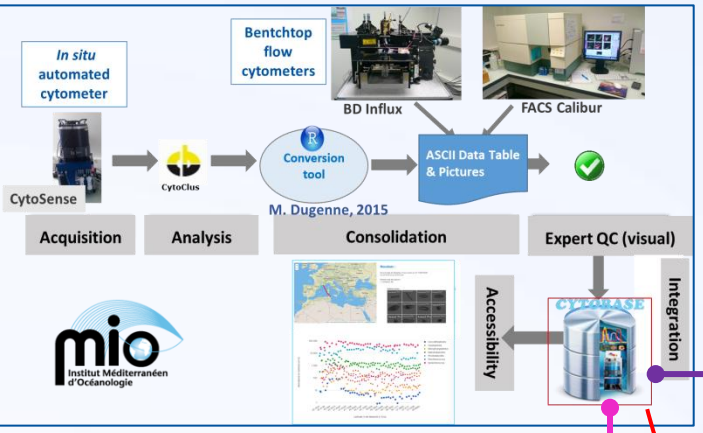
Ocean Data View

https://odv.awi.de

Flag Description	ODV	GTSPP	ARGO	SEADATANET	ESEAS	WOD	WODSTATION	WOCEBOTTLE	WOCECTD	WOCESAMPLE	QARTOD	BODC	PANGAEA	SMHI	OceanSITES	IODE
good quality	**0**	1	1	1	1	0	0	2	2	2	3	blank	blank	blank	1	1
unknown quality	**1**	0	0	0	0	0	0	2	2	2	0	blank	*	blank	0	2
questionable quality	**4**	3	3	3	3	4	3	3	3	7	2	K	?	?	3	3
bad quality	**8**	4	4	4	4	4	3	4	4	7	1	K	?	B	4	4

3. Intégration dans SDN

SeaDataCloud



Metadata generation

MIKADO

Coupling table

Download Manager

SeaDataNet

SEADATANET PORTAL

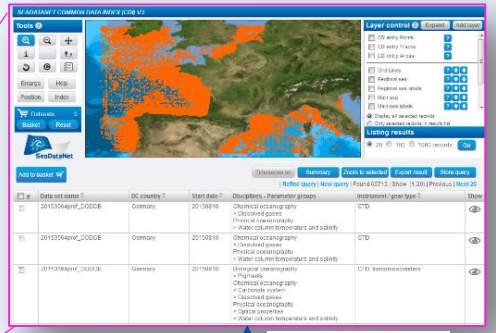
CSR

EDIOS

EDMED

EDMERP

CDI



Ocean Data View

https://odv.awi.de

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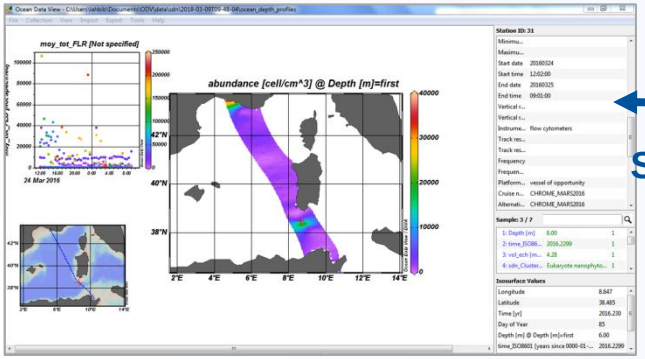
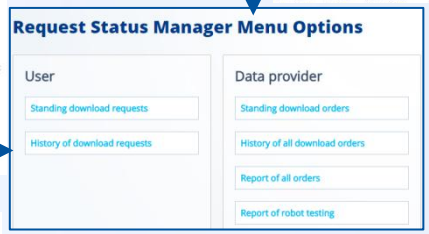


IMPORT

SDN Format

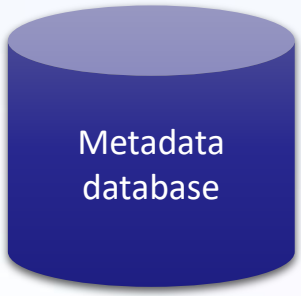


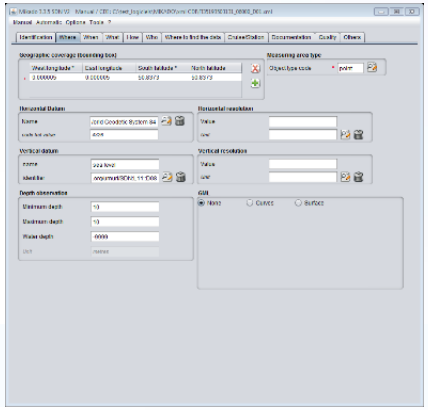
OCEAN DATA VIEW ASCII FORMAT

sdn-userdesk@seadatanet.org – www.seadatanet.org

SeaDataCloud

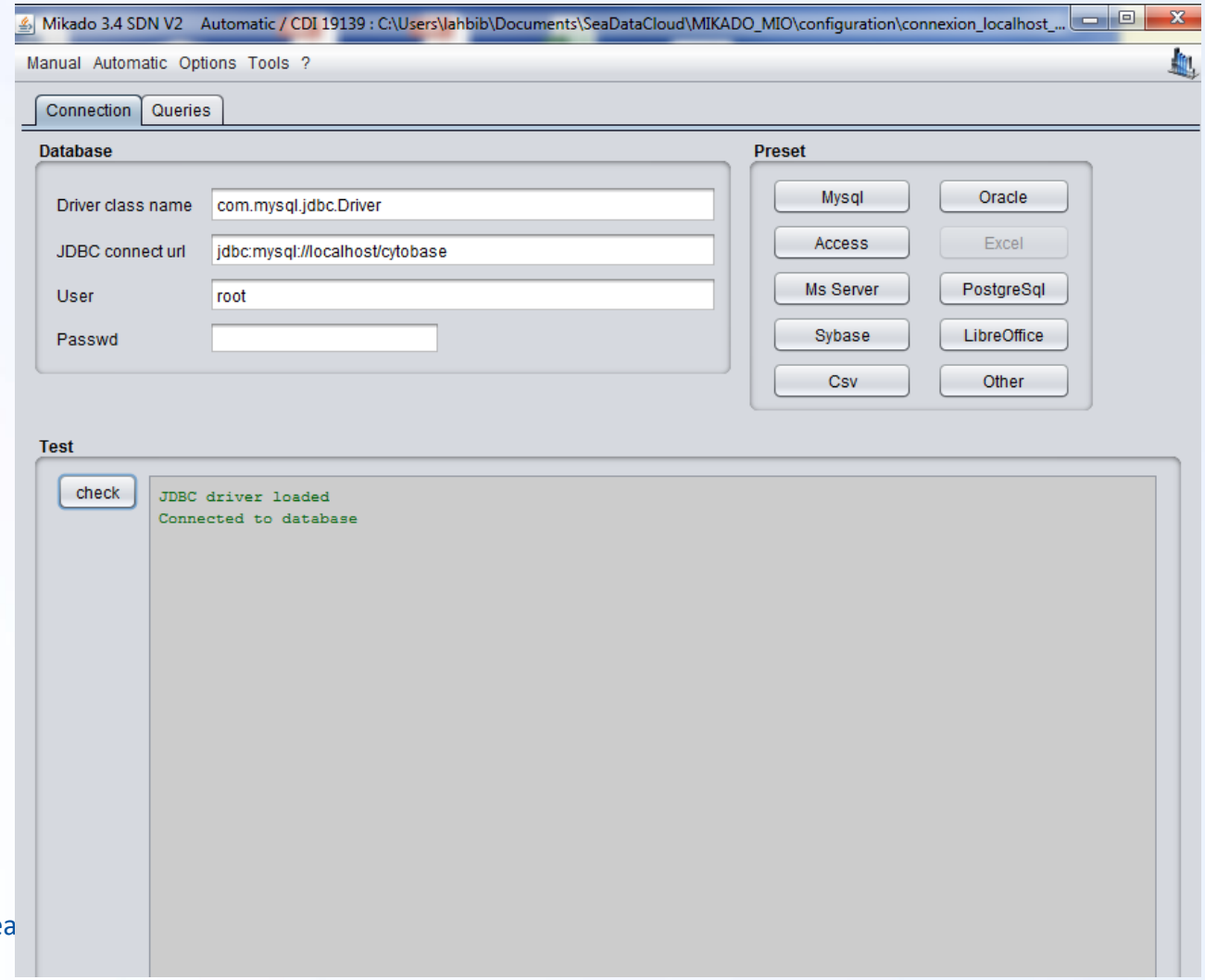
- MIKADO

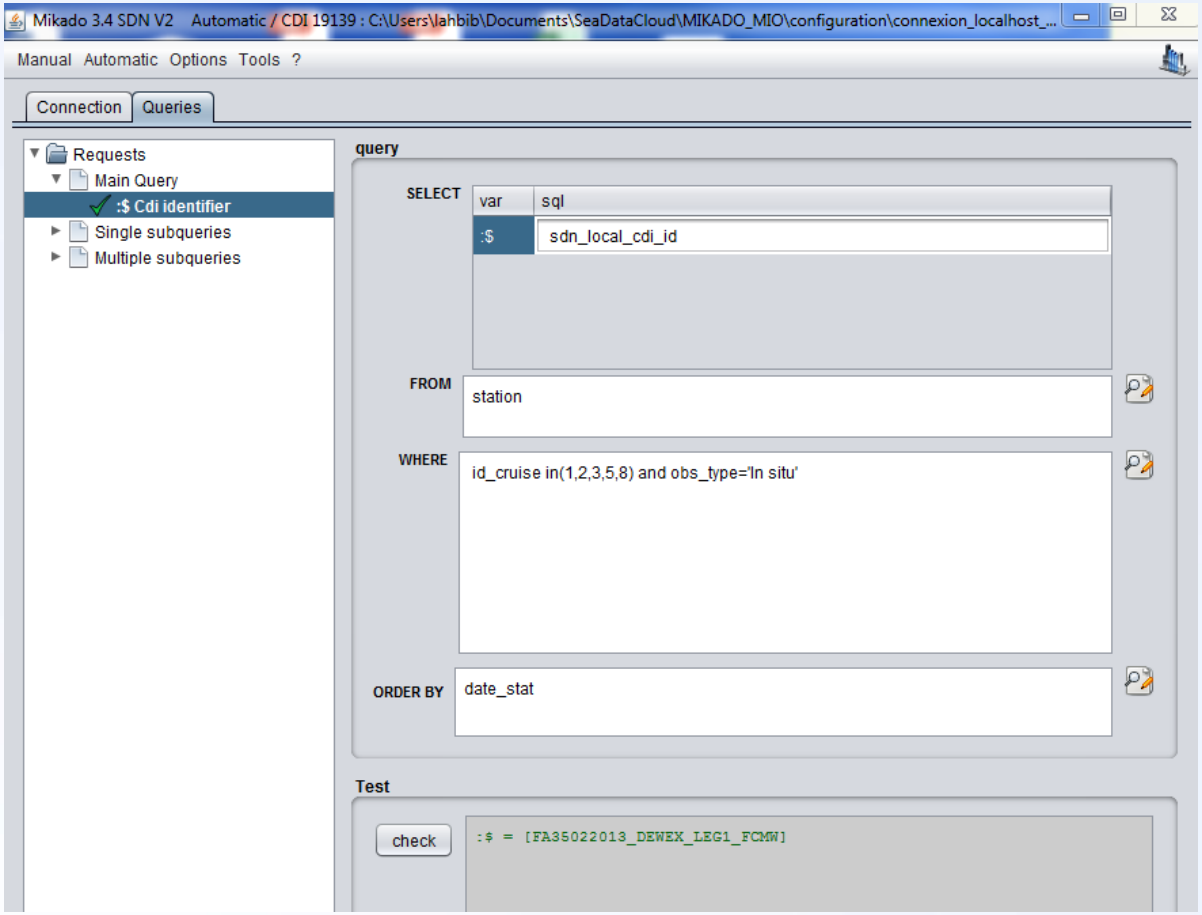


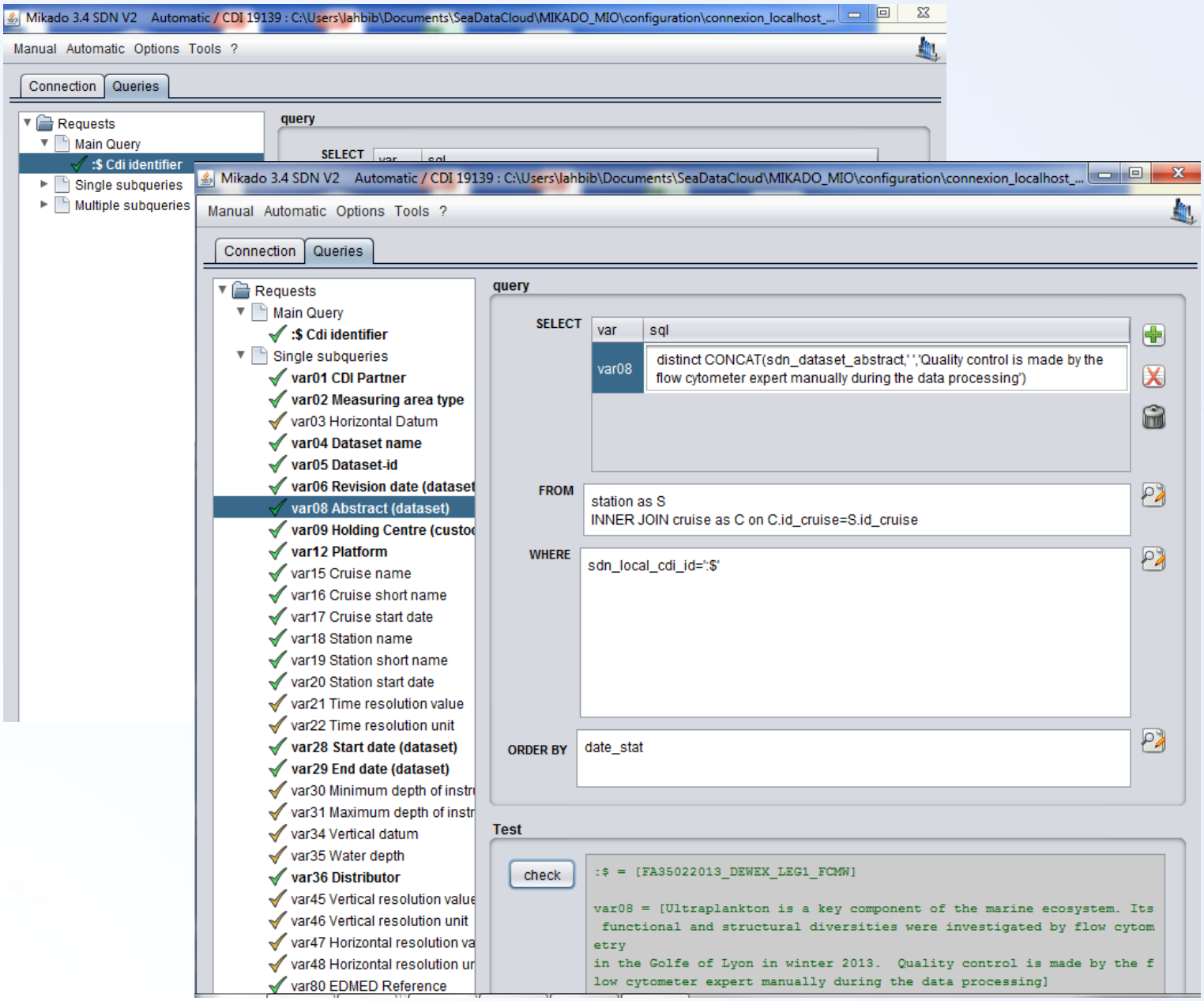


SeaDataCloud

MIKADO




Mikado 3.4 SDN V2 Automatic / CDI 19139 : C:\Users\lahbib\Documents\SeaDataCloud\MIKADO_MIO\configuration\connexion_localhost_...
Manual Automatic Options Tools ?
Connection
Queries
Requests
Main Query
:$ Cdi identifier
Single subqueries
Multiple subqueries
query
SELECT
var
sql
:$
sdn_local_cdi_id
FROM
station
WHERE
id_cruise in(1,2,3,5,8) and obs_type='In situ'
ORDER BY
date_stat
Test
check
:$ = [FA35022013_DEWEX_LEG1_FCMW]


Mikado 3.4 SDN V2 Automatic / CDI 19139 : C:\Users\lahbib\Documents\SeaDataCloud\MIKADO_MIO\configuration\connexion_localhost_...
Manual Automatic Options Tools ?
Connection
Queries
Requests
Main Query
:$ Cdi identifier
Single subqueries
Multiple subqueries
query
SELECT
var
sql
var08
distinct CONCAT(sdn_dataset_abstract,' ','Quality control is made by the flow cytometer expert manually during the data processing')
FROM
station as S
INNER JOIN cruise as C on C.id_cruise=S.id_cruise
WHERE
sdn_local_cdi_id=':$'
ORDER BY
date_stat
var01 CDI Partner
var02 Measuring area type
var03 Horizontal Datum
var04 Dataset name
var05 Dataset-id
var06 Revision date (dataset
var08 Abstract (dataset)
var09 Holding Centre (custod
var12 Platform
var15 Cruise name
var16 Cruise short name
var17 Cruise start date
var18 Station name
var19 Station short name
var20 Station start date
var21 Time resolution value
var22 Time resolution unit
var28 Start date (dataset)
var29 End date (dataset)
var30 Minimum depth of instr
var31 Maximum depth of instr
var34 Vertical datum
var35 Water depth
var36 Distributor
var45 Vertical resolution value
var46 Vertical resolution unit
var47 Horizontal resolution va
var48 Horizontal resolution ur
var80 EDMED Reference
Test
check
:$ = [FA35022013_DEWEX_LEG1_FCMW]
var08 = [Ultraplankton is a key component of the marine ecosystem. Its functional and structural diversities were investigated by flow cytometry
in the Golfe of Lyon in winter 2013. Quality control is made by the flow cytometer expert manually during the data processing]

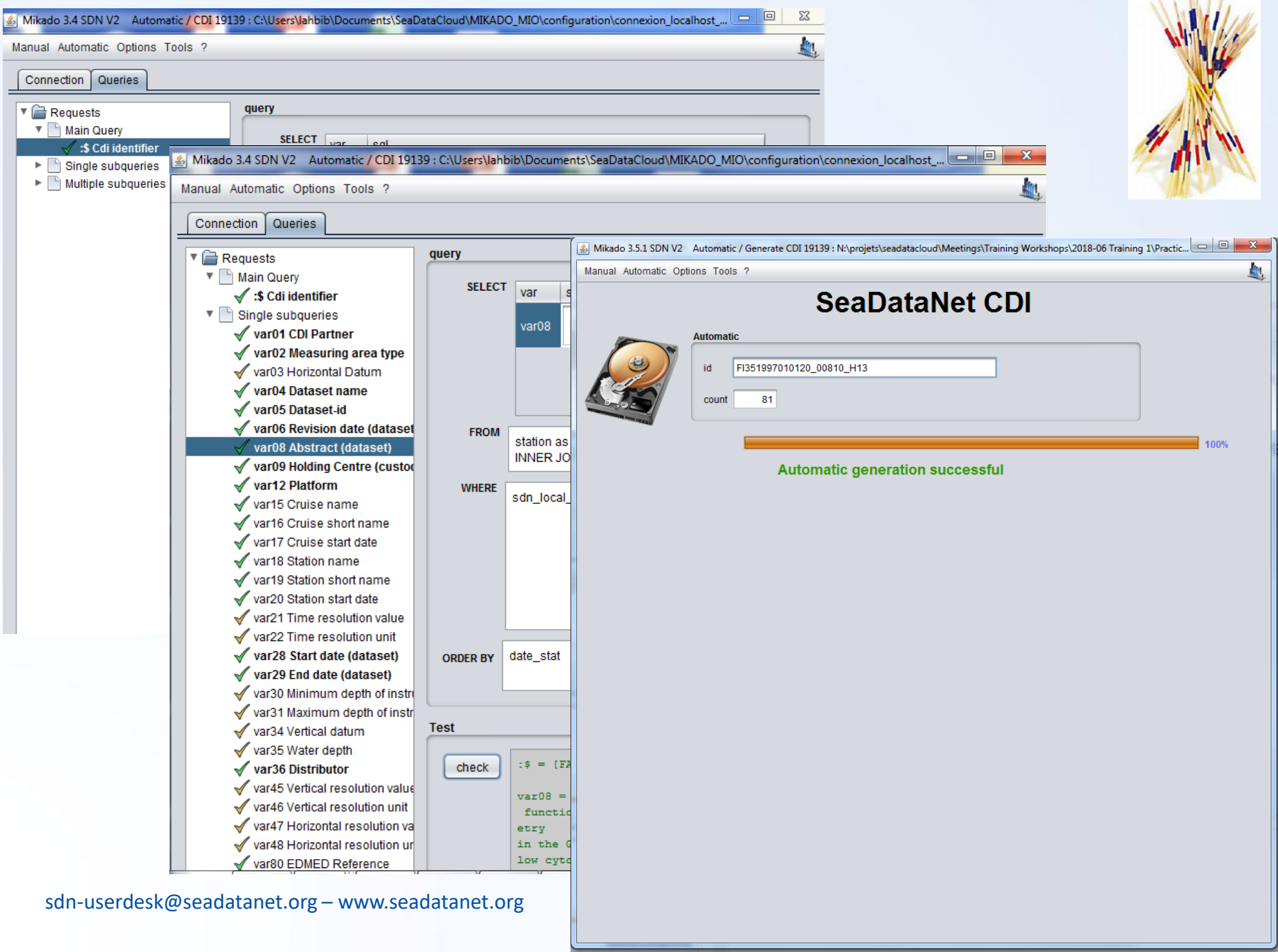

Mikado 3.4 SDN V2 Automatic / CDI 19139 : C:\Users\lahbib\Documents\SeaDataCloud\MIKADO_MIO\configuration\connexion_localhost_...
Manual Automatic Options Tools ?
Connection Queries
Requests
Main Query
:$ Cdi identifier
Single subqueries
Multiple subqueries
query
SELECT
var08
FROM
station as
INNER JO
WHERE
sdn_local_
ORDER BY
date_stat
Test
check
var01 CDI Partner
var02 Measuring area type
var03 Horizontal Datum
var04 Dataset name
var05 Dataset-id
var06 Revision date (dataset
var08 Abstract (dataset)
var09 Holding Centre (custo
var12 Platform
var15 Cruise name
var16 Cruise short name
var17 Cruise start date
var18 Station name
var19 Station short name
var20 Station start date
var21 Time resolution value
var22 Time resolution unit
var28 Start date (dataset)
var29 End date (dataset)
var30 Minimum depth of instr
var31 Maximum depth of instr
var34 Vertical datum
var35 Water depth
var36 Distributor
var45 Vertical resolution value
var46 Vertical resolution unit
var47 Horizontal resolution va
var48 Horizontal resolution ur
var80 EDMED Reference
Mikado 3.5.1 SDN V2 Automatic / Generate CDI 19139 : N:\projets\seadatacloud\Meetings\Training Workshops\2018-06 Training 1\Practic...
SeaDataNet CDI
Automatic
id
FI351997010120_00810_H13
count
81
100%
Automatic generation successful

Table de couplage

METADONNEES ISO19139

WHAT?	
Data set name	CHROME_MARS2016_FCMW
Discipline	Biological oceanography
Parameter groups	Other biological measurements
Discovery parameters	Flow cytometry parameters in water bodies
GEMET-INSPIRE themes	Oceanographic geographical features
Abstract	Water Samples were acquired and analyzed automatically using an autonomous flow cytometer (CytoSence of Cytobuoy b.v.) during the cruise between Marseille and Tunis from the 24th to the 25th of March 2016. This Flow cytometry dataset resolved the abundances of up to six phytoplankton functional groups based on size and pigment content. Quality control is made by the flow cytometer expert manually during the data processing
Related EDMED dataset	Marine Flow Cytometry Data from the Mediterranean Institute Of Oceanography (MIO), France (from 1993)
Data format	Ocean Data View ASCII input **Version** 0.4
Data set creation date	20160406
WHO?	
Originator	Mediterranean Institute of Oceanography - LUMINY (MIO) - UMR 7294 / 235 / 110
Data Holding centre	Mediterranean Institute of Oceanography - LUMINY (MIO) - UMR 7294 / 235 / 110
Project name	Continuous High Resolution Observation of the MEditerranean sea
HOW TO GET THE DATA?	
Data Distributor	Mediterranean Institute of Oceanography - LUMINY (MIO) - UMR 7294 / 235 / 110
Database reference	CYTOBASE-MIO
Access/ordering of data	web data access with registration
Internet access/ordering	
Access restriction	unrestricted

DONNEES ISO 19139

```
//<sdn_reference xlink:href="http://seadatanet.maris2.nl/v_cdi_v3/print_xml.asp?edmo=3078&identifier=FA35112015_0S354_FCMW" xlink:role="isDescribedBy" xlink:type="SDN:L23::CDI" sdn:scope="3078:FA35112015_0S354_FCMW"/>
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//SDN_parameter_mapping
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//<subject>SDN:LOCAL:DEPH</subject><object>SDN:P01::ADEPZZ01</object><units>SDN:P06::ULAA</units>
//<subject>SDN:LOCAL:SamplingEffort</subject><object>SDN:P01::VOLWBSMP</object><units>SDN:P06::MCUB</units><instrument>SDN:L22::TOOL1209</instrument>
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//
```

Cruise	Station	Type	YYYY-MM-DDThh	Longitude [	Latitude [di	LOCAL_CDI_	EDMO_code	Bot. Depth	DEPH [m]	QV:SEADAT	time_ISO8601	[YYYY-MM	QV:SEADAT	SamplingEf	QV:SEADAT	sdn_Cluste	QV:SEADAT	sdn_Cluste	QV:S
OSCAHR_FC	S353	*	2015-11-06T08:20	6.70789	43.1613	FA35112015	3078	0	4	1	2015-11-06T08:20:00.000		1	0.407412	1	Synechococ	1	SDN:F02::F0	
									4	1	2015-11-06T08:24:00.000		1	4.25089	1	Eukaryote p	1	SDN:F02::F0	
									4	1	2015-11-06T08:20:00.000		1	0.407412	1	Prochlorocc	1	SDN:F02::F0	
									4	1	2015-11-06T08:24:00.000		1	4.25089	1	Eukaryote r	1	SDN:F02::F0	
									4	1	2015-11-06T08:24:00.000		1	4.25089	1	Microphyto	1	SDN:F02::F0	
OSCAHR_FC	S354	*	2015-11-06T08:40	6.65519	43.1374	FA35112015	3078	0	4	1	2015-11-06T08:44:00.000		1	4.13939	1	Microphyto	1	SDN:F02::F0	
									4	1	2015-11-06T08:40:00.000		1	0.405988	1	Synechococ	1	SDN:F02::F0	
									4	1	2015-11-06T08:44:00.000		1	4.13939	1	Eukaryote p	1	SDN:F02::F0	
									4	1	2015-11-06T08:40:00.000		1	0.405988	1	Prochlorocc	1	SDN:F02::F0	
									4	1	2015-11-06T08:44:00.000		1	4.13939	1	Eukaryote r	1	SDN:F02::F0	

LOCAL_CDI_ID; MODUS; FORMAT; FILE NAME ; MAPPING

```
LOCAL_CDI_ID; MODUS; FORMAT; FILE NAME ; MAPPING
FAZZ012014_0013F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0013F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0003F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0003F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0016F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0016F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0012S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0012S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0004S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0004S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0007S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0007S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0019F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0019F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0008F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0008F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
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FAZZ012014_0018S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0018S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0001F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0001F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0008S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0008S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0018F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0018F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0019S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0019S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0003S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0003S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0016S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0016S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0004F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0004F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0001S_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0001S_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
FAZZ012014_0012F_FCMW;2;ODV;select * from MIKADO_BERRE where sdn_local_cdi_id='FAZZ012014_0012F_FCMW' order by date_stat; Time_series_odv_mapping_FCMW.xml
```

Mapping

```xml
<?xml version="1.0" encoding="UTF-8"?>
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<root>
  <updated>2018-01-29T10:48:00</updated>
  <codes type="odv">
    <!--
    <code from="" to="SDN:LOCAL:Cruise" local="nom_cruise" />
    <code from="" to="SDN:LOCAL:Station" local="num_stat" />
    <code from="" to="SDN:LOCAL:Type" local="Type" />
    <code from="" to="SDN:LOCAL:YYYY-MM-DDThh:mm" local="date_stat" />
    <code from="" to="SDN:LOCAL:Longitude, degrees_east" local="long_stat" />
    <code from="" to="SDN:LOCAL:Latitude, degrees_north" local="lat_stat" />
    <!--
    <!-- Bot. Depth [m]  (If not given, value is set to 0)  -->
    <code from="" to="SDN:LOCAL:Bot. Depth, m" local="bot_depth" /><!--
   <!--- <code from="" to="sdn_reference" local="sdn_local_cdi_id" />--><!--
    <code from="SDN:P01::DTUT8601, SDN:P06::TISO" to="SDN:LOCAL:time_ISO8601, YYYY-MM-DDThh:mm" local="date_analyse" qflag="QV_date_analyse" instrument="COL_ins
    <code from="SDN:P01::ADEPZZ01, SDN:P06::ULAA" to="SDN:LOCAL:DEPTH, m" local="depth" qflag="QV_depth"/>
    <code from="SDN:P01::VOLWBSMP, SDN:P06::MCUB" to="SDN:LOCAL:vol_ech, m^3" local="vol_ech" qflag="QV_vol_ech" instrument="COL_instrument"/>
    <code from="SDN:P01::NMCLFL02, SDN:P06::UUUU" to="SDN:LOCAL:sdn_ClusterName" local="sdn_ClusterName" qflag="QV_cluster_name" type="INDEXED_TEXT" instrument=
    <code from="SDN:P01::IDCLFL02, SDN:P06::UUUU" to="SDN:LOCAL:sdn_ClusterNameID" local="sdn_ClusterNameID" qflag="QV_ClusterNameID" type="INDEXED_TEXT" instru
    <code from="SDN:P01::SDBIOL01, SDN:P06::NCM3" to="SDN:LOCAL:abundance, cell/cm^3" local="abundance" qflag="QV_abundance" instrument="COL_instrument"/>
    <code from="SDN:P01::FLRAREAA, SDN:P06::USPC" to="SDN:LOCAL:moy_tot_FLR, a.u./cell" local="moy_tot_FLR" qflag="QV_moy_tot_FLR" instrument="COL_instrument"/>
    <code from="SDN:P01::FLRARESD, SDN:P06::USPC" to="SDN:LOCAL:FLR_TOTAL_SD, a.u./cell" local="sd_tot_FLR" qflag="QV_sd_tot_FLR" instrument="COL_instrument"/>
    <code from="SDN:P01::FLOAREAA, SDN:P06::USPC" to="SDN:LOCAL:moy_tot_FLO, a.u./cell" local="moy_tot_FLO" qflag="QV_moy_tot_FLO" instrument="COL_instrument"/>
    <code from="SDN:P01::FLOARESD, SDN:P06::USPC" to="SDN:LOCAL:sd_tot_FLO, a.u./cell" local="sd_tot_FLO" qflag="QV_sd_tot_FLO" instrument="COL_instrument"/>
    <code from="SDN:P01::FWSAREAA, SDN:P06::USPC" to="SDN:LOCAL:moy_tot_FWS, a.u./cell" local="moy_tot_FWS" qflag="QV_moy_tot_FWS" instrument="COL_instrument"/>
    <code from="SDN:P01::FWSARESD, SDN:P06::USPC" to="SDN:LOCAL:sd_tot_FWS, a.u./cell" local="sd_tot_FWS" qflag="QV_sd_tot_FWS" instrument="COL_instrument"/>
    <code from="SDN:P01::SWSAREAA, SDN:P06::USPC" to="SDN:LOCAL:moy_tot_SWS, a.u./cell" local="moy_tot_SWS" qflag="QV_moy_tot_SWS" instrument="COL_instrument"/>
    <code from="SDN:P01::SWSARESD, SDN:P06::USPC" to="SDN:LOCAL:sd_tot_SWS, a.u./cell" local="sd_tot_SWS" qflag="QV_sd_tot_SWS" instrument="COL_instrument"/>
  </codes>
</root>
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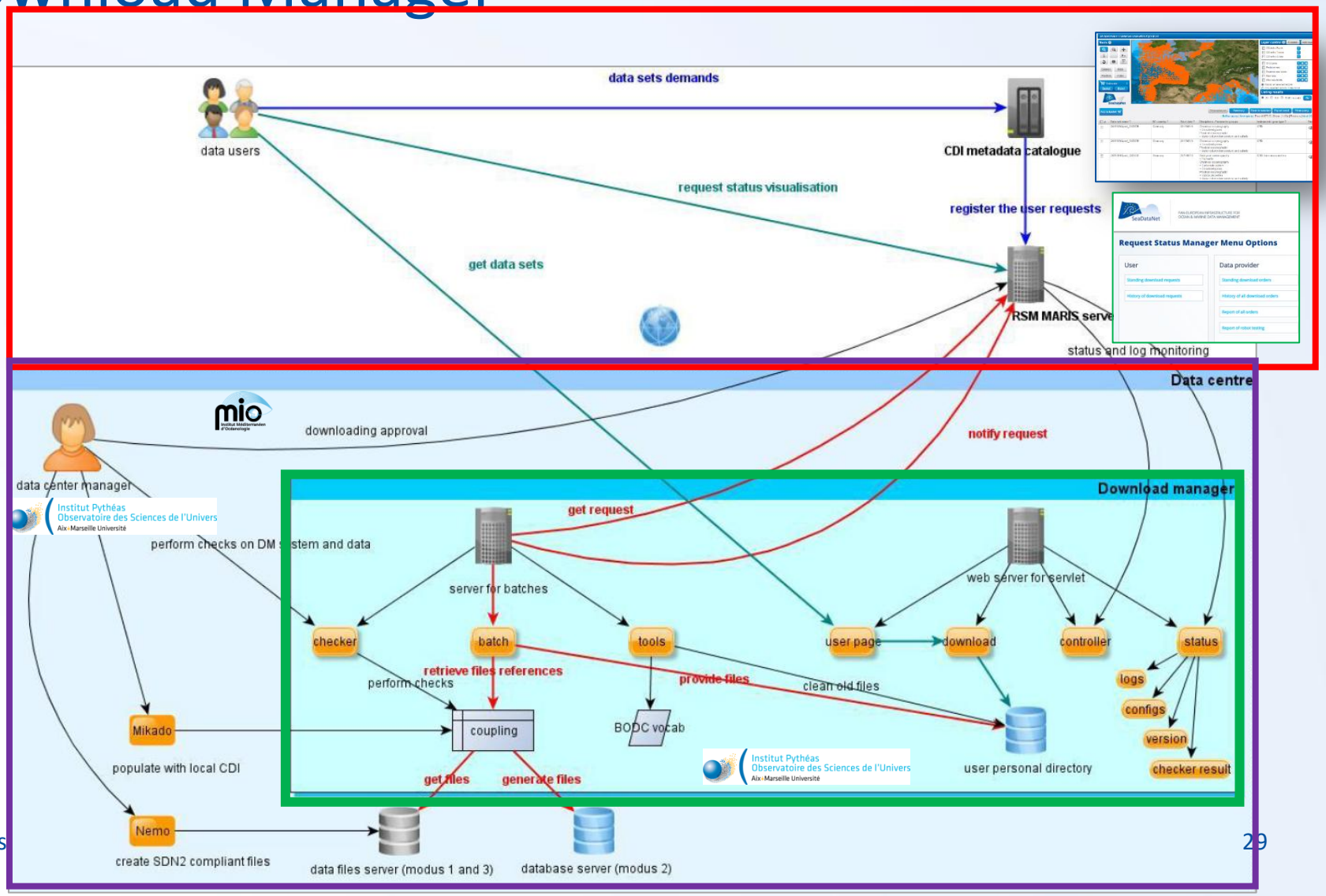
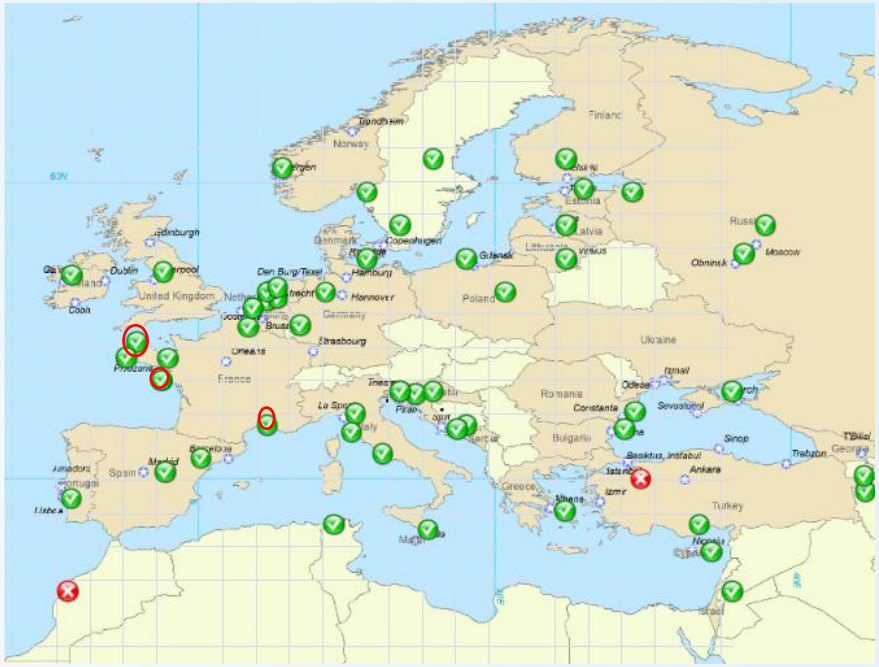
SeaDataCloud

Download Manager

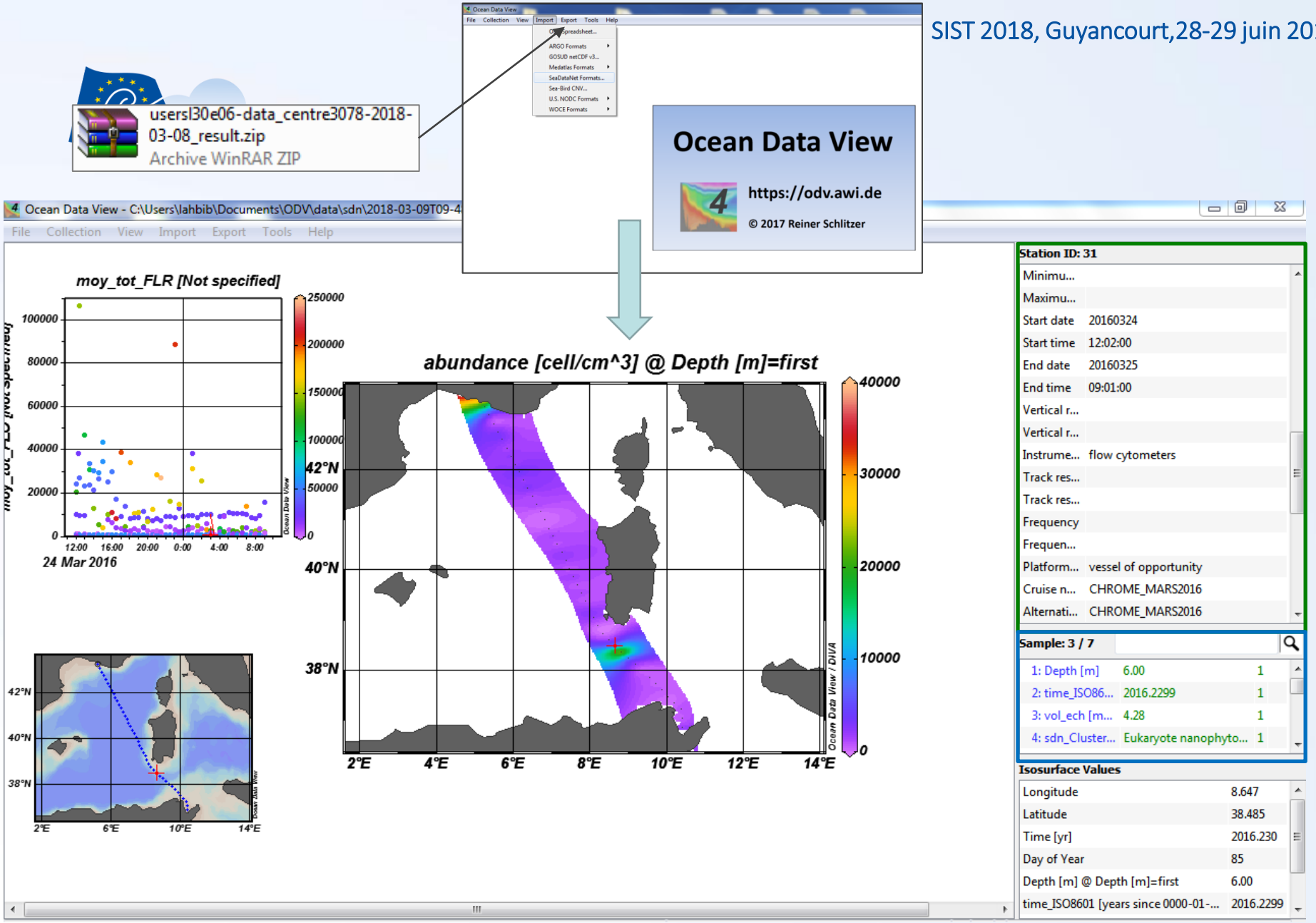


Centres de données (NODC) Nagios

Mai 2017



Mai 2018


usersl30e06-data_centre3078-2018-03-08_result.zip
Archive WinRAR ZIP
Ocean Data View
https://odv.awi.de
© 2017 Reiner Schlitzer
Ocean Data View - C:\Users\lahbib\Documents\ODV\data\sdn\2018-03-09T09-4
File Collection View Import Export Tools Help
moy_tot_FLR [Not specified]
24 Mar 2016
abundance [cell/cm^3] @ Depth [m]=first
Station ID: 31
Minimu...
Maximu...
Start date 20160324
Start time 12:02:00
End date 20160325
End time 09:01:00
Vertical r...
Vertical r...
Instrume... flow cytometers
Track res...
Track res...
Frequency
Frequen...
Platform... vessel of opportunity
Cruise n... CHROME_MARS2016
Alternati... CHROME_MARS2016
Sample: 3 / 7
1: Depth [m] 6.00 1
2: time_ISO86... 2016.2299 1
3: vol_ech [m... 4.28 1
4: sdn_Cluster... Eukaryote nanophyto... 1
Isosurface Values
Longitude 8.647
Latitude 38.485
Time [yr] 2016.230
Day of Year 85
Depth [m] @ Depth [m]=first 6.00
time_ISO8601 [years since 0000-01-... 2016.2299

Conclusion

- SeaDataNet est en maintenance continue: nouveaux outils, mises à jour, VRE, Cloud (EUDAT)
- Avantage: bonnes pratiques de gestion de données marines, outils ISO et support tech.
- Données FCM “données nouvelles” ont intégrée pour la première fois SDN (i.e: HF Radar, micro-plastique/Microlitter)

Merci pour votre attention