

SeaDataCloud

Temperature and Salinity

data collections

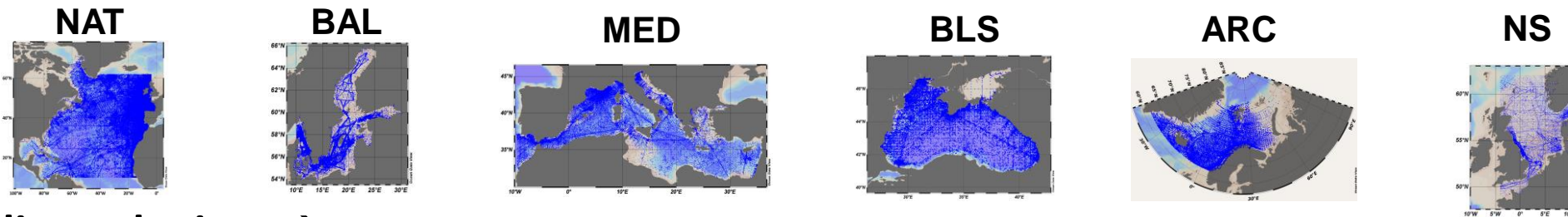
S. Simoncelli (INGV)

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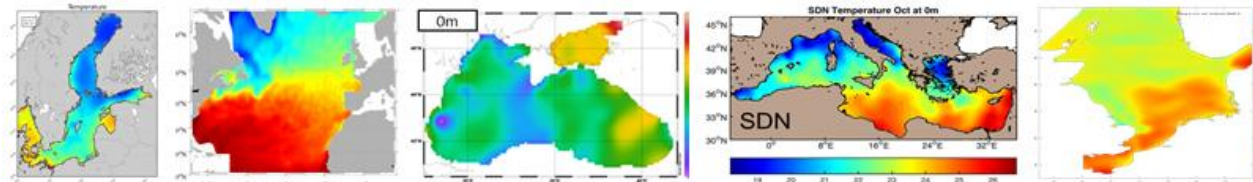
C. Coatanoan (Ifremer), V. Myroshnychenko (METU), Ö. Bäck (SMHI), H. Sagen (IMR), S. Scory (RBINS), R. Schlitzer (AWI), M. Fichaut (Ifremer), D. Schaap (MARIS)

GOAL: to provide the best **data products** from SeaDataNet at **regional and global scale** and serve diverse user communities (op. oceanography, climate, marine environment, institutional, academia)

- 1. Aggregated data sets EU marginal seas** → historical temperature and salinity data harvested from the central CDI and validated by regional leaders

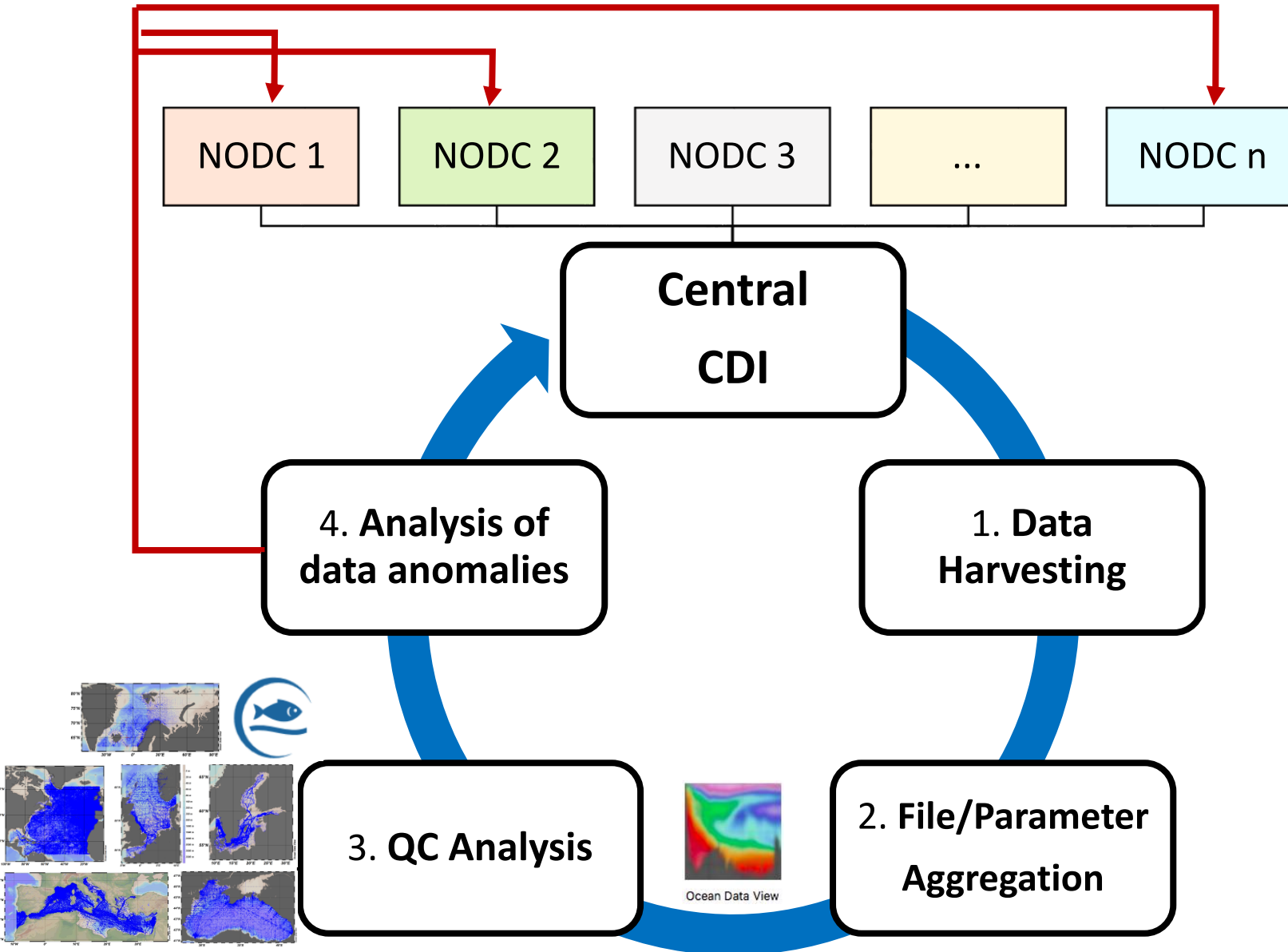


- 2. Climatologies** → gridded fields obtained through DIVA mapping tool and representing the climate of the ocean at **regional and global scale**



- 3. New data products** → multi-platform and multi-disciplinary approach combining in situ (e.g. gliders, Argo, ships, drifters, fixed platforms) and remote sensed observations, Ocean Monitoring Indicators for tracking ocean mechanisms and/or climate modes and trends

Quality Control Strategy (QCS)



GOAL: to improve the quality of SeaDataNet database content and create the best data products

→ **iterative approach** to facilitate the **upgrade** of the database and **versioning** of data products

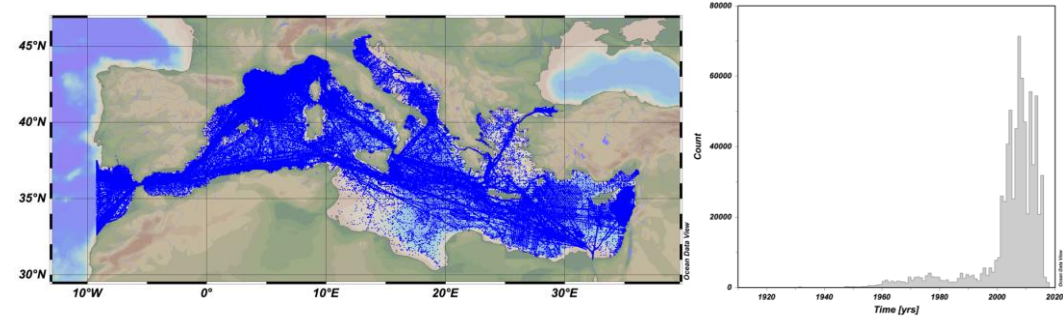


Ocean Data View

Quality Control Analysis

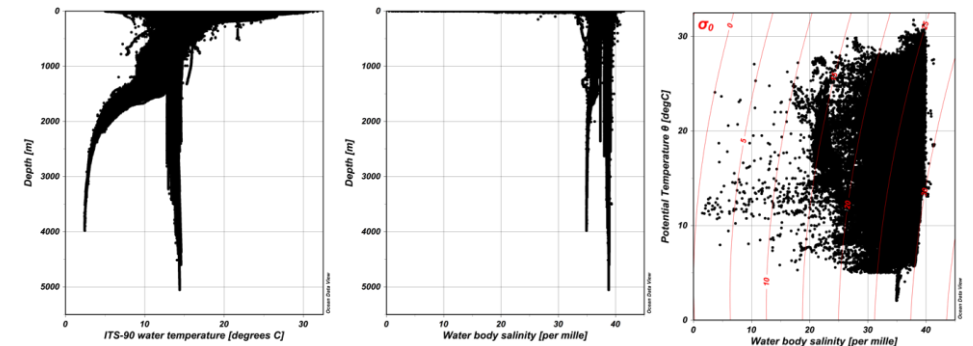
Common guidelines

1. Spatial data distribution
2. Temporal data distribution (annual, seasonal and monthly)
3. Quality Flags statistics
4. Scatter plots of good/probably good (QF1/QF2) observations
5. Gross range check
6. Analysis of QF0 data (not checked) to disclose good data
7. Visual check to identify wrong profiles (spikes, outliers)
8. Identification of stations on land
9. Identification of wrong/missing data (time, measurements)
10. Stability check



par	# stations	%	# samples
total	739784		
T	737102	99,6	41223938
S	667232	90,2	28518744
TS	665388	89,9	28119926

%	QF0	QF1-2	Q3-4
dpt	3.0→0	96.9→99.8	0.1
T	2.7→0	97.0→99.8	0.3
S	4.5→0	94.6→99.2	0.9
dpt&T&S	3.0	94,4	0.3



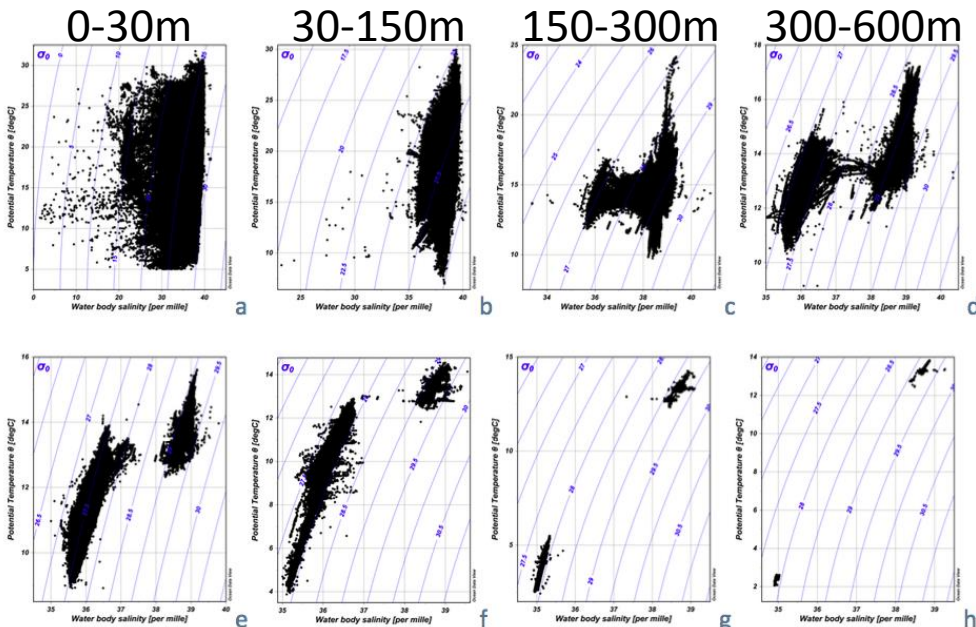
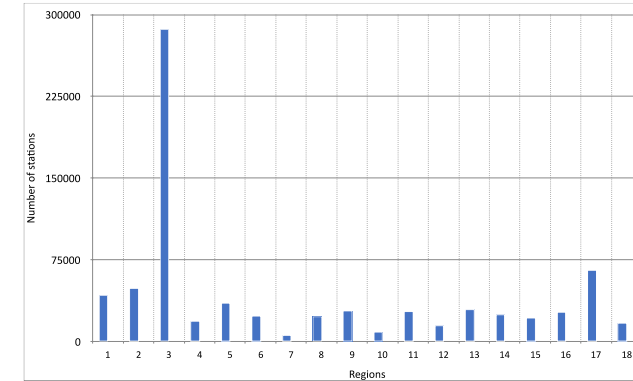
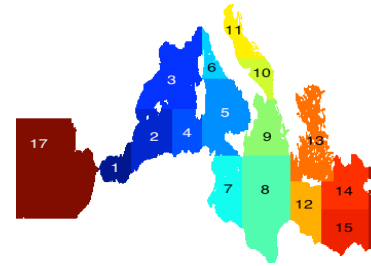


Ocean Data View

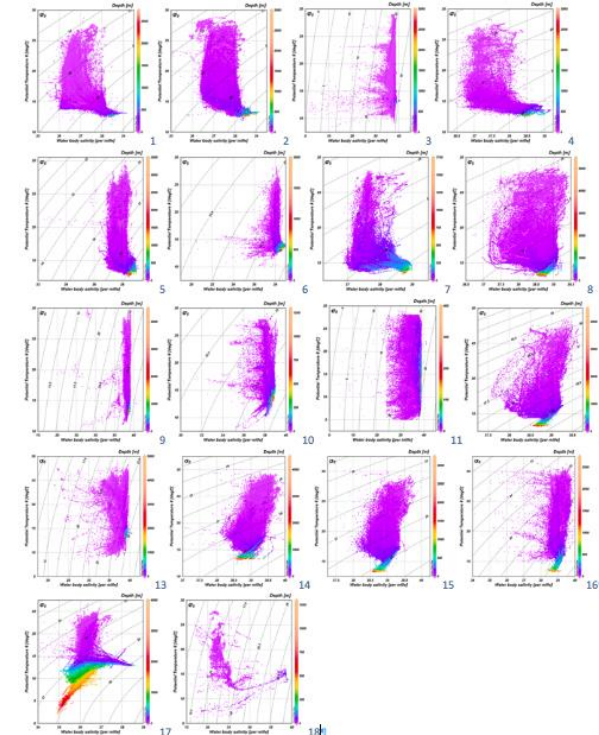
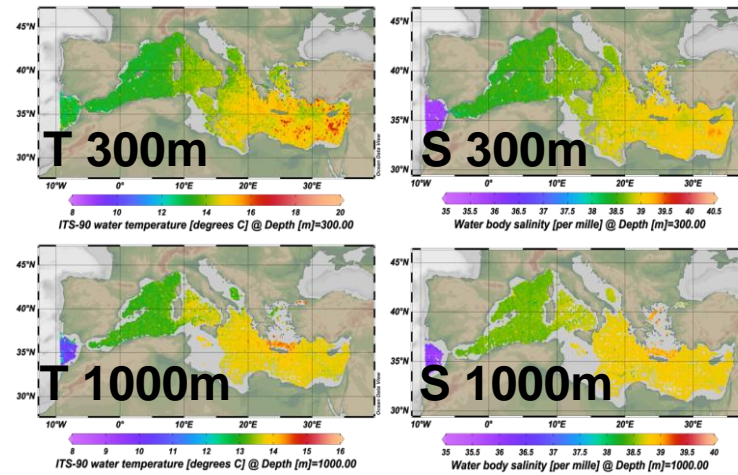
Quality Control Analysis

Specific checks per

- **areas** (similar hydrodynamic characteristics)
- **layers** (surface, intermediate, bottom)
- **time periods** (decades or specific periods)
- **Instrument type** (consistency issue of historical data)



600-1000m 1000-2000m 2000-3000m 3000-5500m





ODV5.0

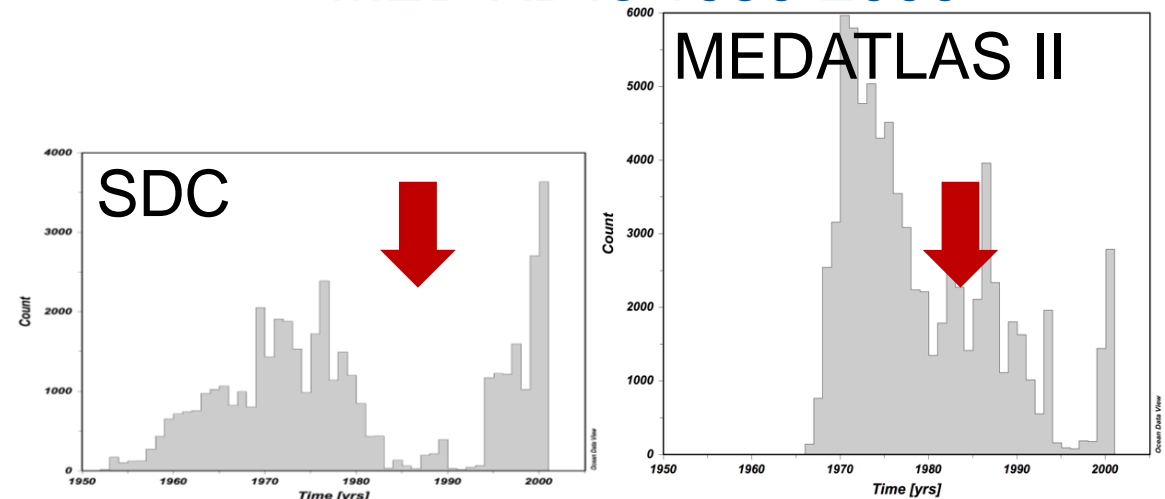
Ocean Data View

Metadata Analysis

- New **data distributors/originators statistics** → QC filtering by EDMO code → detection of systematic (format, flagging) errors
- New **instrument type statistics** → analysis of monitoring space-time coverage → detection of data omissions

Instrument/Gear Type	# stations	%
CTD	52031	7
bathythermograph	56558	8
discrete water sampler	32258	4
thermosalinograph	555269	75
thermistor chains	22	0
continuous water sampler	1577	0
salinity sensor; water temperature sensor	19852	3
salinometers	100	0
salinity sensor	143	0
water temperature sensor	1	0
none info	21973	3

MED XBTs 1950-2000



Data Omission

!!!Actions needed to ingest missing XBTs!!!

!!!Actions needed to complete crucial metadata information!!!





Metadata Analysis

- New **data distributors/originators statistics** → QC filtering by EDMO code → detection of systematic (format, flagging) errors
- New **instrument type statistics** → analysis of monitoring space-time coverage → detection of data omissions

Instrument Info	Probe	# stations	%
"		26162	46
'SDN:P01::ADEPZZ01 SDN:L22::TOOL0262 SDN:L33::011 SDN:P01::TEMPET01 SDN:L22::TOOL0262'	T-5 XBT	1239	2
'SDN:P01::ADEPZZ01 SDN:L22::TOOL0263 SDN:L33::041 SDN:P01::TEMPET01 SDN:L22::TOOL0263'	T-7 XBT	9995	18
'SDN:P01::ADEPZZ01 SDN:L22::TOOL0263 SDN:L33::041 SDN:P01::TEMPPR01 SDN:L22::TOOL0263'	T-7 XBT	14	0
'SDN:P01::ADEPZZ01 SDN:L22::TOOL0435 SDN:L33::001 SDN:P01::TEMPET01 SDN:L22::TOOL0435'	T-4 XBT	16732	30
'SDN:P01::ADEPZZ01 SDN:L22::TOOL0592 SDN:L33::710 SDN:P01::TEMPET01 SDN:L22::TOOL0592'	XCTD-2	6	0
'SDN:P01::ADEPZZ01 SDN:L22::TOOL0718 SDN:L33::061 SDN:P01::TEMPET01 SDN:L22::TOOL0718'	T-10 XBT	2126	4



!!!Actions needed to complete crucial metadata information!!!

Results: database progresses

Cruises			Stations			Samples (data)		
SDN2_V2	SDC_V1	±%	SDN2_V2	SDC_V1	±%	SDN2_V2	SDC_V1	±%
Mediterranean Sea								
			212887	734957	+245,%	26625173	42294299	+59%
Black Sea								
1723	2284	+32.6%	96487	137723	+43%	2696215	4240346	+57%
Arctic Sea								
1075	1956	+82%	266291	731286	+175%	19681474	24203161	+23%
Baltic Sea								
						11100238	13780801	+24%
North Atlantic								
			1807266	9091773	+403%			
North Sea								
			115 596	162 452	+41%	6670529	7817193	+17%

- Data population statistics per sea basin show a progressive increase of available data
- Data quality also improved thanks to the introduction of additional checks by regional experts (sub-regions, depth layers, iso-surfaces)
- QF statistics after QC present very high percentages of good data (QF1,2) ~99% MED; 98-99% BLS; ~99% ARC; ~99% BAL; 98-99% NS 96(S)-99% NAT
- **metadata statistics** about data distributors/originators highlighted systematic (format, flagging) errors and allow monitoring the EU data sharing landscape per sea basin
- **instrument type statistics** highlighted metadata and data omissions and suggested the need of systematic data reprocessing

Product Information Document (PIDoc)

PIDocs contains the specifications about:

- Product's characteristics (format, space-time coverage, resolution)
- Quality (validation methodology and results)
- Product's usability
- **new metadata statistics** about data distributors and data originators
- instrument type statistics

PIDocs have DOI and are available through the product landing page

→ **Big effort to produce/revise and publish PIDocs**

→ **major improvement to increase user confidence and products uptake**



SDC_DATA_TS_V1 release (June 2018)



PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

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- PRODUCTS**
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PRODUCTS

SeaDataNet provides aggregated datasets (ODV collections of all SeaDataNet measurements of temperature and salinity by sea basins) and climatologies (regional gridded field products based on the aggregated datasets) for all the European sea basins.

[Read more](#)

Aggregated datasets

Climatologies

Documentation

**SDC_DATA_TS_V1
EU basins (DOI)
and
Product Information
Documents
(DOI)**

**gridded
climatologies
(DOI)**

SeaDataNet2

- First aggregated dataset V1.1
- Regional climatologies V1.1
- Second aggregated dataset V2

catalogue

Products Catalogue

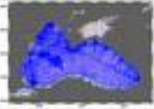
SeaDataCloud

CATALOG MY DOWNLOADS

Results 1 to 6 on 6 : 20 by page - Sort by: Popularity -

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Black Sea - Temperature and salinity Historical Data Collection SeaDataCloud V1




The SeaDataCloud Temperature and Salinity Historical Data Collection for the Black Sea includes open access in situ data on temperature and salinity of water column in the Black Sea (and a little in the Sea of Azov) for period 1968 – 2017. The data were retrieved...

Source: SeaDataNet

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Mediterranean Sea - Temperature and salinity Historical Data Collection SeaDataCloud V1

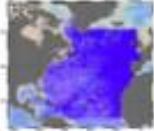


SDC_MED_DATA_TS_V1 SeaDataCloud Temperature and Salinity data collection for the Mediterranean Sea contains all open access temperature and salinity in situ data retrieved from SeaDataNet infrastructure at the end of October 2017. The data span between -9.25 and...

Source: SeaDataNet

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North Atlantic Ocean - Temperature and Salinity Historical Data Collection SeaDataCloud V1

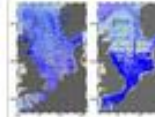


The SeaDataCloud TS historical data collection v1 for the North Atlantic Ocean, includes open access in situ data on temperature and salinity of water column in the North Atlantic Ocean from 10°N to 62°N, including the Labrador Sea. The data were retrieved...

Source: SeaDataNet

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North Sea - Temperature and salinity Historical Data Collection SeaDataCloud V1

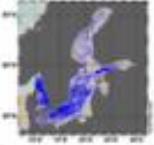


The data collection of the North Sea is divided in two datasets : the discrete collection and the trajectories collection. The Discrete SeaDataCloud Temperature and Salinity Historical Data Collection for the North Sea includes open access in situ data on temperature...

Source: SeaDataNet

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Baltic Sea - Temperature and salinity Historical Data collection SeaDataCloud V1




The SeaDataCloud Temperature and Salinity historical data collection for the Baltic Sea includes open access in situ data on temperature and salinity of water column. The data were retrieved from the SeaDataNet infrastructure at the end of 2017. Data have been quality...

Source: SeaDataNet

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Arctic Ocean - Temperature and salinity Historical Data Collection SeaDataCloud V1



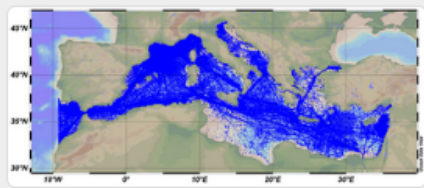
SeaDataCloud Temperature and Salinity historical data collection for the Arctic Ocean, including revised quality flags after quality control with ODV. The dataset format is ODV binary collections. You can read, analyse and export from the ODV application provided by Alfred...

Source: SeaDataNet

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Products Catalogue

Mediterranean Sea - Temperature and salinity Historical Data Collection SeaDataCloud V1



SDC_MED_DATA_TS_V1 SeaDataCloud Temperature and Salinity data collection for the Mediterranean Sea contains all open access temperature and salinity in situ data retrieved from SeaDataNet infrastructure at the end of October 2017. The data span between -9.25 and 37 degrees of longitude, thus including an Atlantic the Marmara Sea. It covers the time period 1900-2017. Data have been quality checked using ODV 5.0 software. Quality Flags of anomalous data have been revised using basic QC procedures. The dataset format is ODV binary collections...

Source: SeaDataNet

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ARCHIMER Ifremer's institutional repository

SeaDataCloud Temperature and Salinity Historical Data Collection for the Mediterranean Sea (Version 1)

Type: Report
Date: 2018
Language: English
Ref.: Product Information Document (PIDoc)
Copyright: SeaDataCloud
Author(s): Simoncelli Simona, Myroshnychenko Volodymyr, Coatanooan Christine
DOI: 10.13155/57036
Publisher: SeaDataCloud
Version: 2

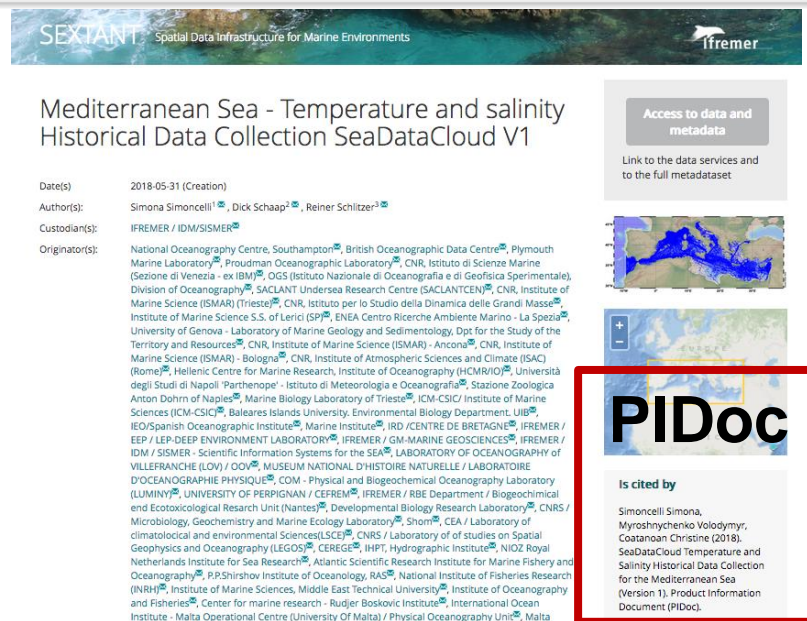
Abstract: The first release of SeaDataCloud Temperature and Salinity Historical Data Collection for the Mediterranean Sea (SDC_MED_DATA_TS_V1) includes open access in situ data of water column temperature and salinity between -9.25 and 37 degrees of longitude, thus including an Atlantic box and the Marmara Sea. The collection has been obtained harvesting all measurements contained within SeaDataNet infrastructure at the end of October 2017 belonging to 27 data providers (distributors) 111 data originators. The dataset format is Ocean Data View (ODV) binary collection. The quality control of the data has been performed using ODV 5.0 software. Data Quality Flags have been revised following SeaDataNet2 project QC procedures in conjunction with the visual expert check. The number of the Temperature and Salinity profiles (stations) in the collection is 739784.

File	Pages	Size	Access
Publisher's official version	32	1 MB	Open access

Full Text

How to cite
Simoncelli Simona, Myroshnychenko Volodymyr, Coatanooan Christine (2018). SeaDataCloud Temperature and Salinity Historical Data Collection for the Mediterranean Sea (Version 1). Product Information Document (PIDoc). <https://doi.org/10.13155/57036>

Landing Page



SEXTANT Spatial Data Infrastructure for Marine Environments

Mediterranean Sea - Temperature and salinity Historical Data Collection SeaDataCloud V1

Date(s): 2018-05-31 (Creation)
Author(s): Simona Simoncelli, Dick Schaap, Reiner Schitzer
Custodian(s): IFREMER / IDM/SISMER
Originator(s): National Oceanography Centre, Southampton; British Oceanographic Data Centre, Plymouth Marine Laboratory; Proudman Oceanographic Laboratory; CNR, Istituto di Scienze Marine (Sezione di Venezia - ex IIBM); OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale), Division of Oceanography; SACLANT Undersea Research Centre (SACLANTCEN); CNR, Institute of Marine Science (ISMAR) (Trieste); CNR, Istituto per lo Studio della Dinamica delle Grandi Masse; Institute of Marine Science S.S. of Lerici (SP); ENA Centro Ricerche Ambiente Marino - La Spazio; University of Genova - Laboratory of Marine Geology and Sedimentology, Dpt for the Study of the Territory and Resources; CNR, Institute of Marine Science (ISMAR) - Ancona; CNR, Institute of Marine Science (ISMAR) - Bologna; CNR, Institute of Atmospheric Sciences and Climate (ISAC) (Rome); Hellenic Centre for Marine Research, Institute of Oceanography (HCMRI/O); Università degli Studi di Napoli "Parthenope" - Istituto di Meteorologia e Oceanografia; Stazione Zoologica Anton Dohrn di Napoli; Marine Biology Laboratory of Trieste; ICM-CISIC Institute of Marine Sciences (ICM-CISIC); Balears Islands University, Environmental Biology Department; IIB; IEO/Spanish Oceanographic Institute; Marine Institute; IRD /CENTRE DE BRETAGNE; IFREMER / EEP / LEP-DEEP ENVIRONMENT LABORATORY; IFREMER / GM-MARINE GEOSCIENCES; IFREMER / IDM / SISMER - Scientific Information Systems for the SEA; LABORATORY OF OCEANOGRAPHY OF VILLEFRANCHE (LOV) / OOV; MUSEUM NATIONAL D'HISTOIRE NATURELLE / LABORATOIRE D'OCEANOGRAPHIE PHYSIQUE; COM - Physical and Biogeochemical Oceanography Laboratory (LUMINY); UNIVERSITY OF PERPIGNAN / CERFAC; IFREMER / RBE Department / Biogeochemical and Ecotoxicological Research Unit (Nantes); Developmental Biology Research Laboratory; CNRS / Microbiology, Geochemistry and Marine Ecology Laboratory; Shom; CEA / Laboratory of climatological and environmental Sciences(LSCE); CNRS / Laboratory of studies on Spatial Geophysics and Oceanography (LEGOS); CEREGE; IHPT; Hydrographic Institute; NIOZ Royal Netherlands Institute for Sea Research; Atlantic Scientific Research Institute for Marine Fishery and Oceanography; P.P.Shirshov Institute of Oceanology, RAS; National Institute of Fisheries Research (NIVR); Institute of Marine Sciences, Middle East Technical University; Institute of Oceanography and Fisheries; Center for marine research - Rudjer Boskovic Institute; International Ocean Institute - Malta Operational Centre (University of Malta) / Physical Oceanography Unit; Malta

Access to data and metadata
Link to the data services and to the full metadataset

PIDoc

Is cited by
Simoncelli Simona, Myroshnychenko Volodymyr, Coatanooan Christine (2018). SeaDataCloud Temperature and Salinity Historical Data Collection for the Mediterranean Sea (Version 1). Product Information Document (PIDoc).



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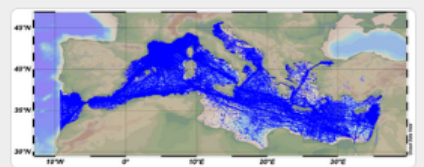
How to cite

Simoncelli Simona, Myroshnychenko Volodymyr, Coatanooan Christine (2018). SeaDataCloud Temperature and Salinity Historical Data Collection for the Mediterranean Sea (Version 1). Product Information Document (PIDoc). <https://doi.org/10.13155/57036>

How To Cite

Simoncelli Simona, Dick Schaap, Reiner Schitzer (2018). Mediterranean Sea - Temperature and salinity Historical Data Collection SeaDataCloud V1. <http://doi.org/10.12770/2698a37e-c78b-478b-eb0b-ec536c4cb4b3>

Mediterranean Sea - Temperature and salinity Historical Data Collection SeaDataCloud V1



SDC_MED_DATA_TS_V1 SeaDataCloud Temperature and Salinity data collection for the Mediterranean Sea contains all open access temperature and salinity in situ data retrieved from SeaDataNet infrastructure at the end of October 2017. The data span between -9.25 and 37 degrees of longitude, thus including an Atlantic box and the Marmara Sea. It covers the time period 1900-2017. Data have been quality checked using ODV 5.0 software. Quality Flags of anomalous data have been revised using basic QC procedures. The dataset format is ODV binary collections...

Source: SeaDataNet



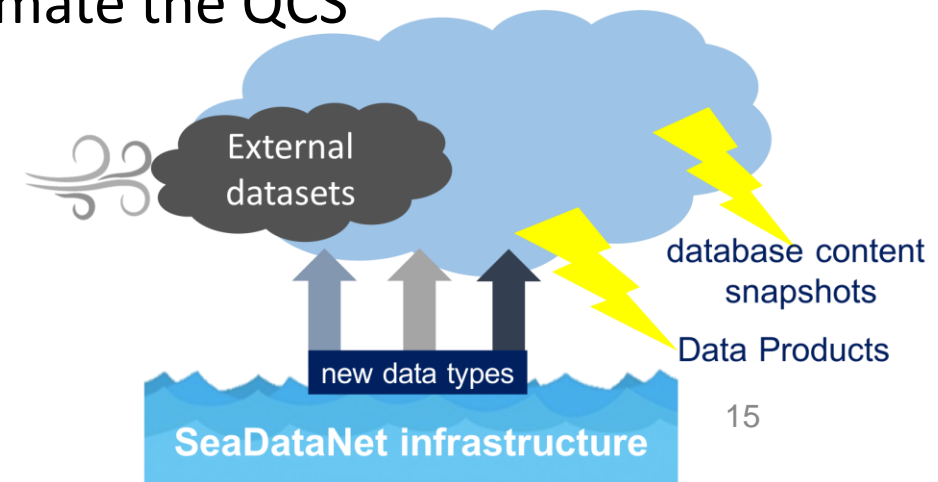
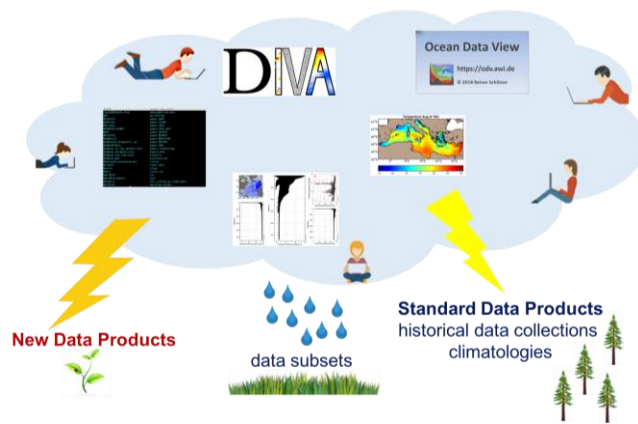
- SDC_MED_DATA_TS_V1
- Water_body_salinity
- ITS-90_water_temperature
- + Add all 3 layers to the map



Visualization

Conclusions

- Introduction of **PIDocs** represented a very good progress
- SDC_DATA_TS_V1 publication → *data set paper* and submission of SDN QCS as Ocean Best Practice a
- **Metadata analysis** will be extended to all the regional seas in the next QCS loop
- Hunting of **data omissions** will be intensified
- **QC analysis per data type** will continue to assure data consistency
- **Integration with external datasets** (WOD2018, CMEMS) for climatology production (upcoming milestone)
- **SDC Cloud environment** will soon optimize and automate the QCS



Thanks to

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Örjan Bäck, SMHI

Helge Sagen, IMR

Serge Scory, RBINS

Reiner Schlitzer, AWI

Michèle Fichaut, IFREMER

Dick Schaap, MARIS

