



Upgrade Black Sea SCENE (UBSS) data management infrastructure and its relation with SeaDataNet and EMODNet

By

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EU FP6
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2006 - 2011
2011 - 2015

SeaDataNet has set up and is operating a pan-European infrastructure for managing marine and ocean data by connecting 40 National Oceanographic Data Centres (NODC's), national oceanographic focal points, and ocean satellite data centres, in Europe

Portal with harmonised services, data products and tools for users and data centres



SeaDataNet

Pan-European infrastructure for Ocean & Marine Data Management



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SeaDataNet

SeaDataNet

SeaDataNet has federated open digital repositories to manage, access and share data, information, products and knowledge originating from oceanographic fleets, new automatic observation systems and space sensors.

By use of standards for communication and new developments in information technology, in-situ and satellite marine data platforms are providing metadata, data and products as a unique virtual data centre.



The SeaDataNet partnership is assuring the archival and preservation of data for their re-use for new research, retention of unique observational data which is impossible to re-create; enhance existing data available for research projects as well for marine environment management, education, history and other uses

Tools

- Site map
- Contact
- All the news
- Links
- Print

Search

Advanced search

News

» Seadatanet Newsletter n°6 - March 2011

Content:

- Foreword
- SeaDataNet - present status and new features
- Geo-Seas project, extending SeaDataNet to marine geology and geophysics
- EMODNet Hydrography and Seabed mapping project
- EMODNet Chemistry project, underpinning the Marine Strategy Framework Directive implementation
- Upgrade Black Sea SCENE project - implementing SeaDataNet in the Black Sea countries
- New versions of SeaDataNet vocabularies and software tools
- SeaDataNet tools - NEMO & Mikado
- Vocabularies in SeaDataNet
- On-line visualization of gridded dataset in SeaDataNet using OceanBrowser
- ODV latest developments

<http://www.seadatanet.org>

Pan-European Directory Services

The SeaDataNet portal provides overviews of marine organisations in Europe and their engagement in research, scientific cruises, monitoring and data management for European waters and global oceans:

- **EDMO**: European Directory of Marine Organisations (>2200 entries)
- **EDMED**: European Directory of Marine Environmental Data sets (>3000 entries)
- **EDMERP**: European Directory of Marine Environmental Research Projects (>2500 entries)
- **CSR**: Cruise Summary Reports (>31500 entries)
- **EDIOS**: European Directory of Ocean-observing Systems (>270 programmes for the UK alone and many underway for other European countries)

These Directories are maintained by NODCs for their country and published at pan-European level

Pan-European Directory Services

All these Directories have been harmonised and mutually tuned in format, syntax and semantics (common vocabularies), a common XML editor (MIKADO), online CMS and online user interfaces.

EDMERP

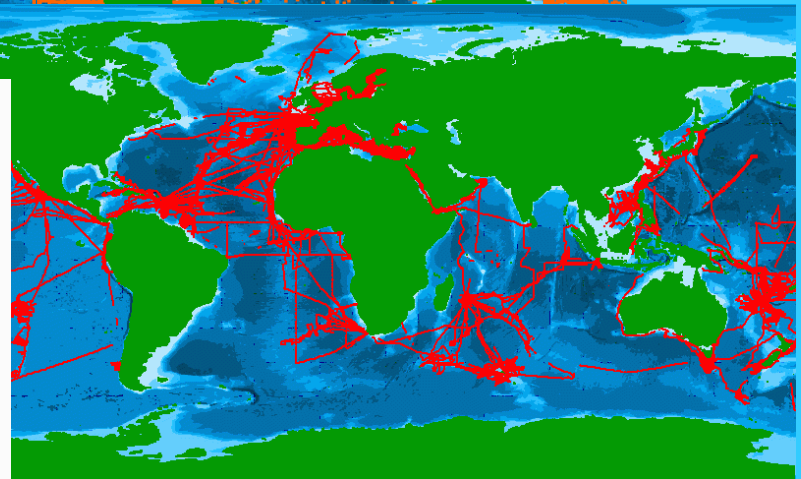
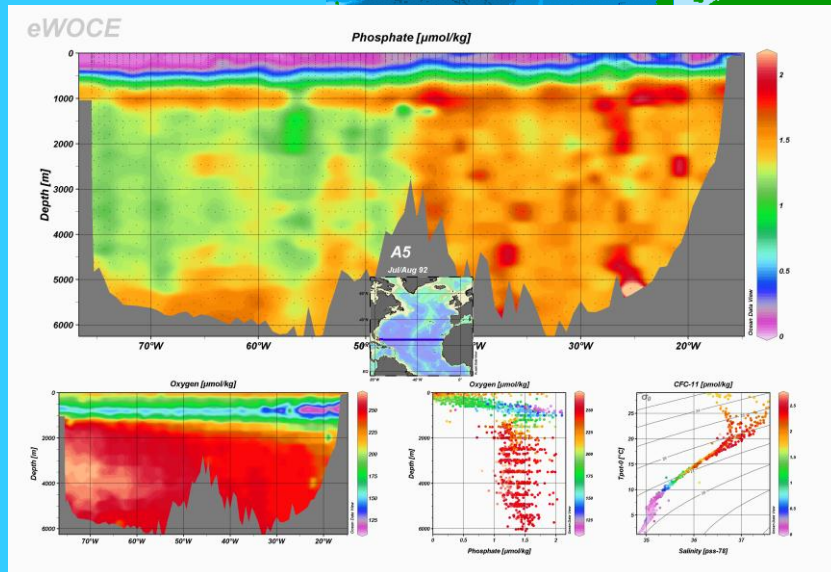
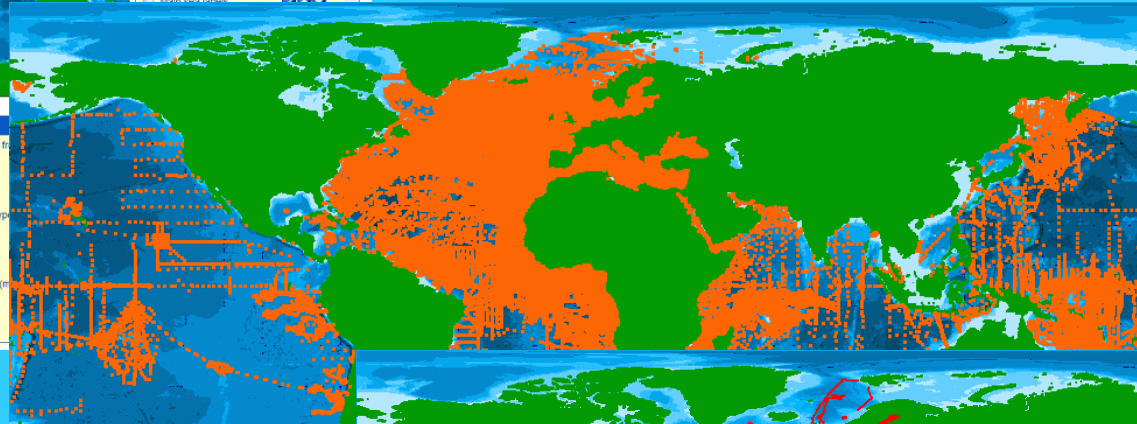
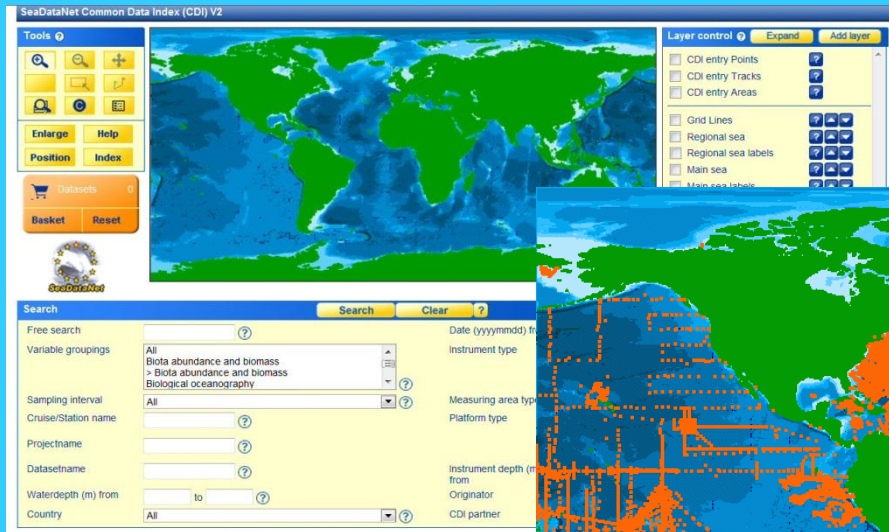
EDMO

CSR

EDIOS

EDMED

SeaDataNet from data discovery to unified access to analysis



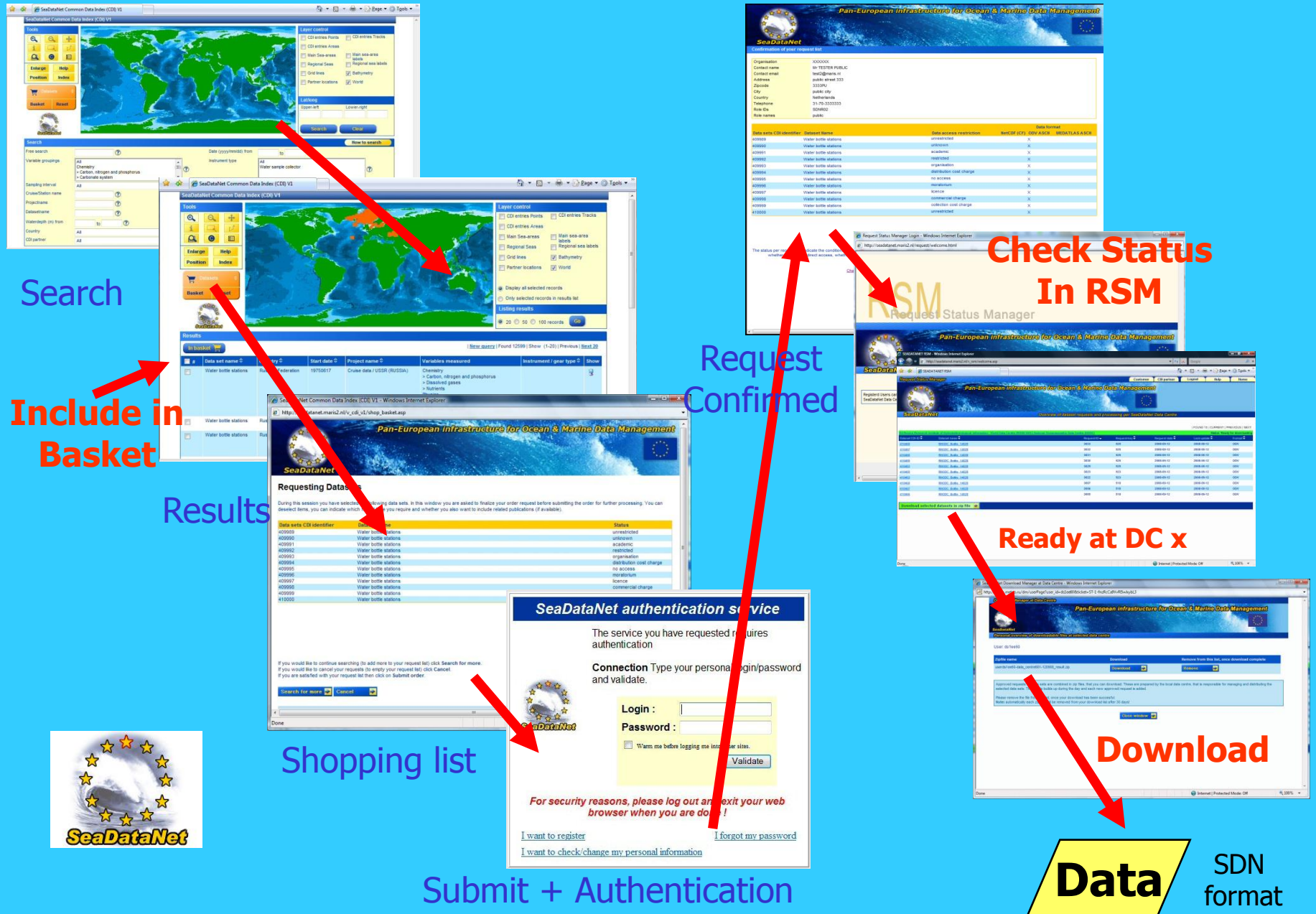
Common Data Index (CDI) Data Discovery and Access Service

- **CDI** is a fine-grained index to individual data measurements. The CDI Service provides users a highly detailed insight and unified access to the large volumes of marine and oceanographic data sets
- An intelligent middle tier connection is configured between the SeaDataNet portal and the local data management systems at each of the data centres.



- A shopping basket allows users to submit a shopping request for multiple data providers in one go and to follow its processing by each of the providers *via* an online transaction register.
- Users need to register once to agree with the SeaDataNet Data Policy and licence. Their registration is also technically required to enable processing of requests for data of various natures to multiple data providers over time.

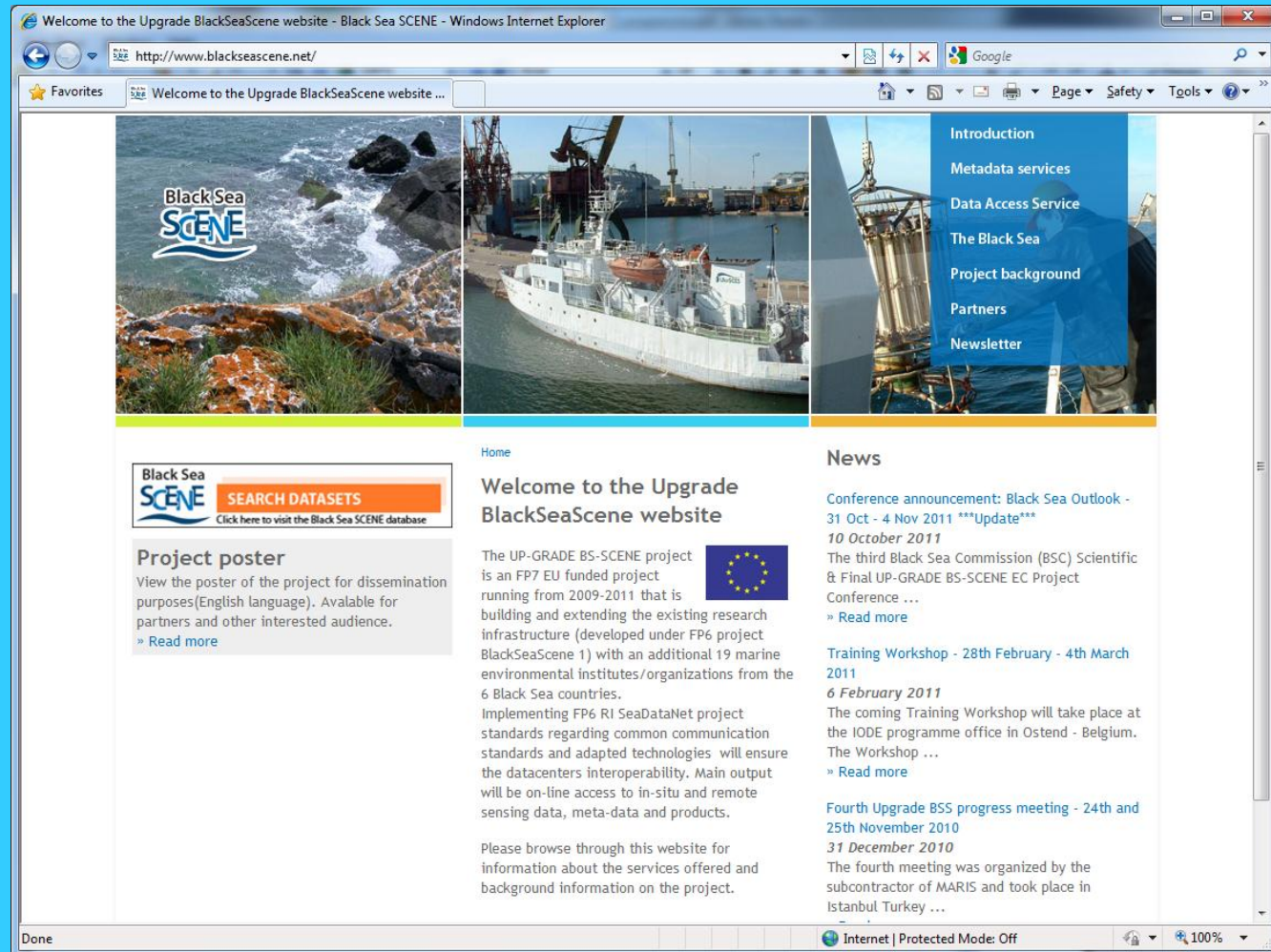
SeaDataNet CDI – Data retrieval and downloading



SeaDataNet Expansion

- SeaDataNet standards and tools are being adopted by other EU-funded projects:
 - **Up-Grade Black Sea SCENE project**, (2009 – 2011) involving 6 NODCs and 35 other data holding institutes from the 6 Black Sea countries, to provide metadata and data access and to strengthen their national NODC networks. EU-funding 3.4 Million Euro.
 - **CASPINFO project**, (2009 – 2011) involving 12 institutes and private industry from the Caspian Sea region, to provide metadata and data access and to build their capacity for data management and user services. EU-funding 0.8 Million Euro.
 - **Geo-Seas project**, (2009-2012) involving 24 geological and geophysical data centres from 16 European countries (EuroGeoSurveys), to provide metadata and data access. EU-funding 4.9 Million Euro.
 - **EuroFleets project**, (2009-2012) involving 24 research institutes and data centres from 17 European countries, to optimise the management of research vessels and to streamline the flow of data from the research cruises to the data centre infrastructure. EU-funding 7.2 Million Euro.
- In each project several SeaDataNet partners are participating for transfer of knowledge & expertise, to secure interoperability and to achieve crossfertilisation leading to upgrading of the SeaDataNet standards and tools as well as enriching of the services.

Upgrade Black Sea SCENE (UBSS) infrastructure project



www.blackseascene.net

Objectives UBSS

- To build up the **national NODC networks** in the 6 Black Sea countries through capacity building in marine data management and by interconnecting the data centres at national and Pan-European level
- To achieve **interoperability** between the data centers in the network by adopting and implementing the standards and software tools as developed and implemented in the SeaDataNet infrastructure project
- To populate the Black Sea SCENE data and information infrastructure providing **on-line access** to marine data, meta-data and data products of the Black Sea
- To adopt standardized methodologies for **data quality checking** to ensure the quality, compatibility and coherence of the data issuing from so many sources
- To qualify as the Black Sea data management infrastructure for the Black Sea Commission to support the implementation of the Bucharest Convention => **towards sustainability!**

Partners UBSS

51 partners from

- Ukraine (10)
- Russian Federation (8)
- Turkey (7)
- Romania (3)
- Bulgaria (7)
- Georgia (6)



together with

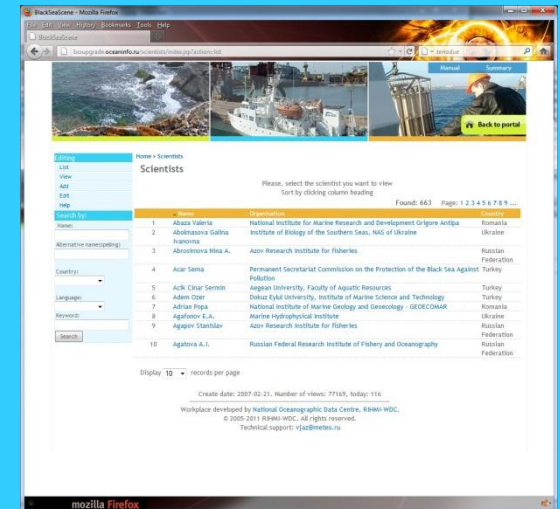
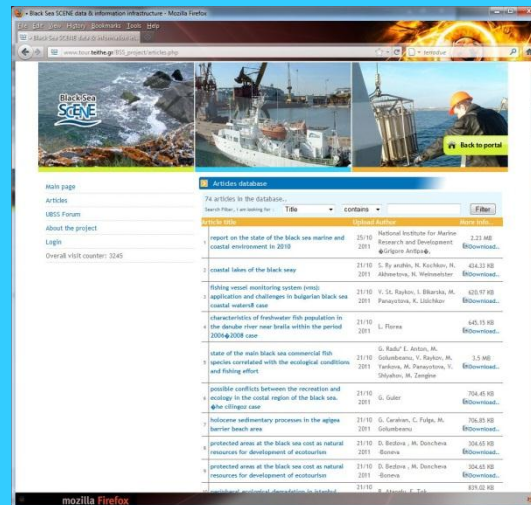
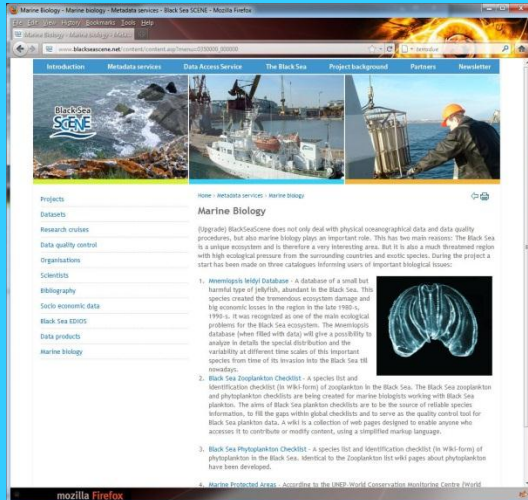
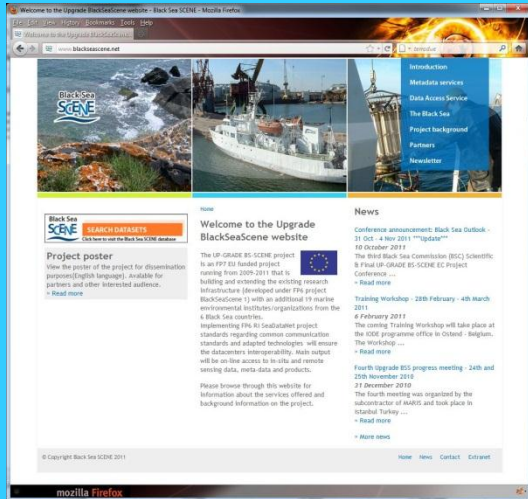
- 7 partners from EU member states
- 1 associated state
- 2 international associations/bodies.

Partners UBSS

MARIS (NL)	IBES (BE)	IMWM (PL)	MSH (NL)
FIED (UK)	MHI (UA)	USRIEP (UA)	ONU (UA)
MSU (RU)	SIO-RAS (RU)	IL-RAS (RU)	IKI-RAS (RU)
RIHMI-WDC (RU)	METU-IMS (TR)	SNU-FF (TR)	BSTU (TR)
IO-BAS (BG)	TUV (BG)	IFR (BG)	NIMRD RO)
GeoEcoMar (RO)	TSU (GE)	CMP (GE)	IG-GAS (GE)
HNODC- HCMR (EL)	IBSS (UA)	SOI (RU)	BSNN (BG)
GIH-GAS (GE)	GAMMA (GE)	GWMI (GE)	TVNU (UA)
IGS (UA)	UHI-MB (UA)	YugNIRO (UA)	IGE (RU)
CDNZ (RU)	UMG-GI (BG)	CLGE-BAS (BG)	NIMH-BAS (BG)
DDBRA (RO)	DEU-IMST (TR)	IU-FF-IMS (TR)	AU-FAF (TR)
BENA (EL)	BSCS (TR)	IOC-IODE (BE)	UkrSCES (UA)
DHMO (UA)	OC-UCY (CY)		

UBSS Achievements after 3 years

- UBSS institutes have populated the SeaDataNet metadata services with Black Sea entries for **EDMED** (665), **EDMO** (261), **EDMERP** (519), **CSR** (430) and **EDIOS** (13)
- UBSS institutes have set up and populated information services for **scientists** (663), **bibliography** (3169) and **socio-economic data**
- UBSS institutes have populated the **CDI Data Discovery and Access Service** to give information about and access to > 150.000 Black Sea data sets from 35 connected data centres from the Black Sea region
- UBSS portal gives access to **Mnemiopsis Leidyi Database** of BSC
- **Black Sea Data Quality Control manuals** have been developed and are adopted by the Black Sea Commission for physical, chemical, biodiversity, and phytoplankton data
- Dedicated **UBSS user interfaces** to the metadata services and data access service have been built by Black Sea partners on top of the underlying SeaDataNet backbone infrastructure



[Projects](#)[Datasets](#)[Data quality control](#)[Organisations](#)[Scientists](#)[Bibliography](#)[Socio economic data](#)[Black Sea EDIOS](#)[Data products](#)[Marine biology](#)[Home](#) > [Metadata services](#)

Metadata services

The project duration of Upgrade BlackSeaScene is 3 years, identical to project duration of BlackSeaScene I. During BlackSeaScene I a number of metadataservices, mainly catalogues, have been developed to support the research in and around the Black Sea. The services are closely related to the services developed within SeaDataNet, but their interface is developed by the BlackSeaScene partners specifically for BlackSeaScene purposes.

The services under BlackSeaScene I are so-called Version 0 (V0) releases, that will now - under Upgrade BlackSeaScene - be upgraded to Version 1 services. The main difference is that the metadataformats will be better supported by SeaDataNet vocabularies, more ISO19115 compliant, and the interfaces make improved use of webservices and OGC standards. The V1 services will be released from 2009-2011.

The metadata services are aimed to make Black Sea scientific information and data easier traceable by scientists and the general public and can be divided in:

- [EDMED](#) - Marine and Environmental Dataset catalogue

UBSS Discover information supported by map services

Marine Environmental Datasets — Black Sea SCENE Web Application - Mozilla Firefox

Bestand Bewerken Beeld Geschiedenis Bladvijzers Extra Help

http://subsite.blackseascene.net/blackseascene/edmed.jsp

Meest bezocht Aan de slag Laatste nieuws

Marine Environmental Datasets — BL...

Marine Environmental Datasets

Map Tools

Lon: 42.0 Lat: 44.2

Layer Selection

Default Base Map

Search By

Title:

Time Period, From:

Time Period, To:

Centre:

Country:


Bulgaria

Originator:

Originator Country:

Sea Area:

Parameters:



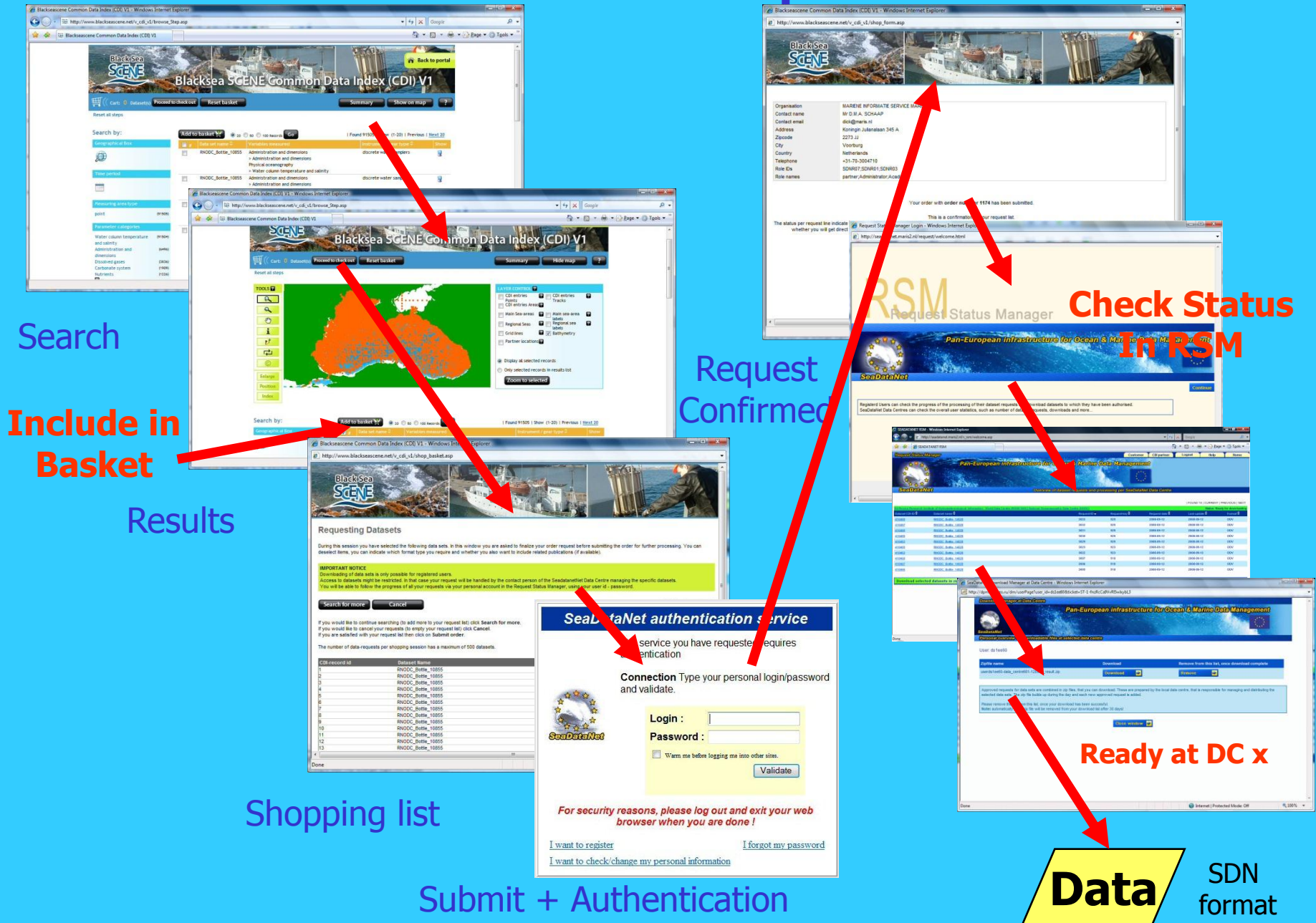
Prev Sel Next Sel Per Page: 5 10 20 50 Found: 30

Title	Begin	End	Centre	Country
Multi-parametric Meteorological and Oceanographic Data Set for Bulgarian coastal zone	2006		Bulgarian National Oceanographic Data Centre(BGODC), Institute of Oceanology	Bulgaria
Cetaceans Data-set	1992	2002	Institute of Fishery Resources (IFR)	Bulgaria

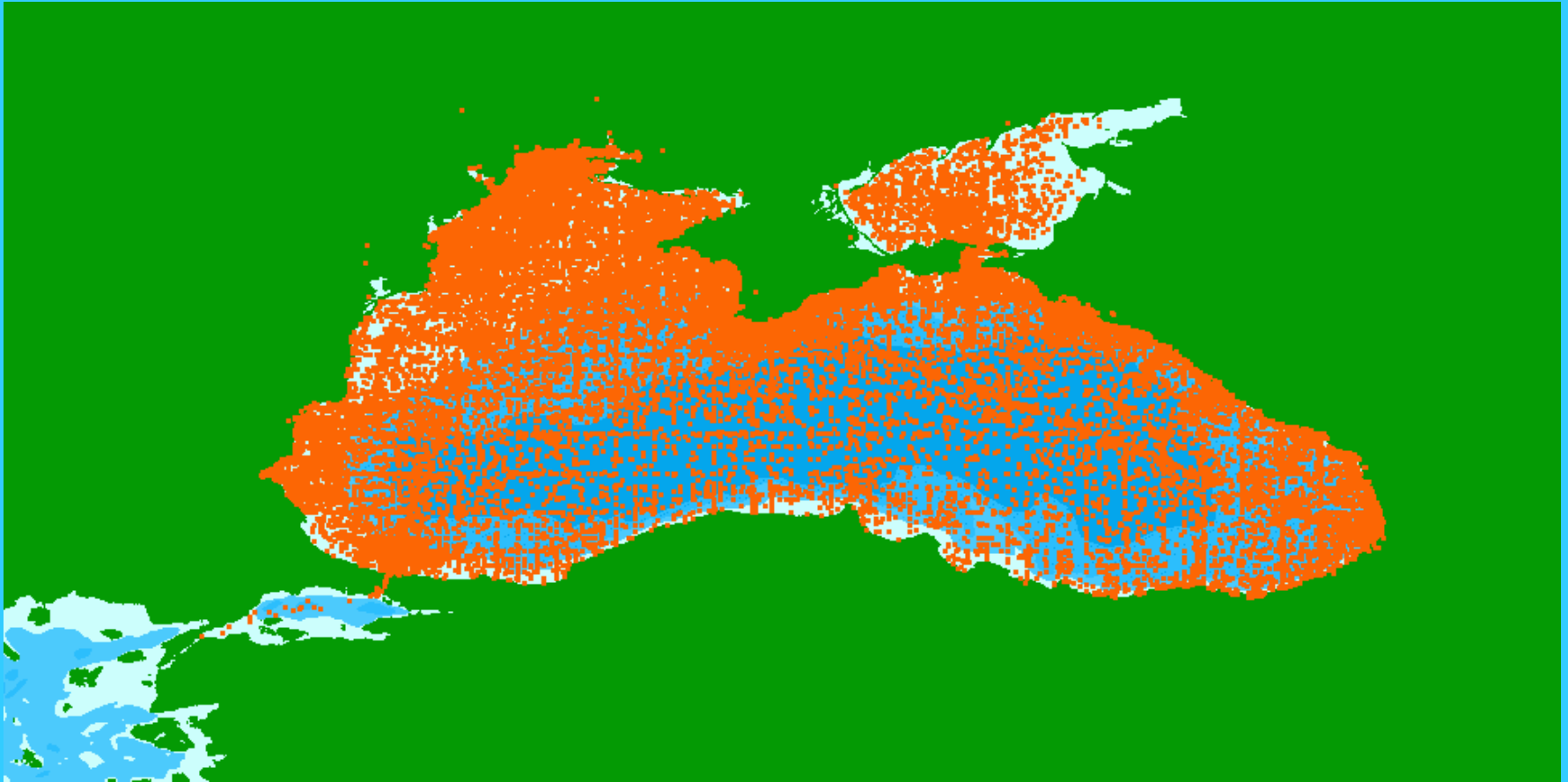
Klaar Lucky9 Designs mbmkrisna@yahoo.com http://www.getpersonas.com/en-US/ga McAfee

Black Sea EDMED

UBSS CDI – Data Access example

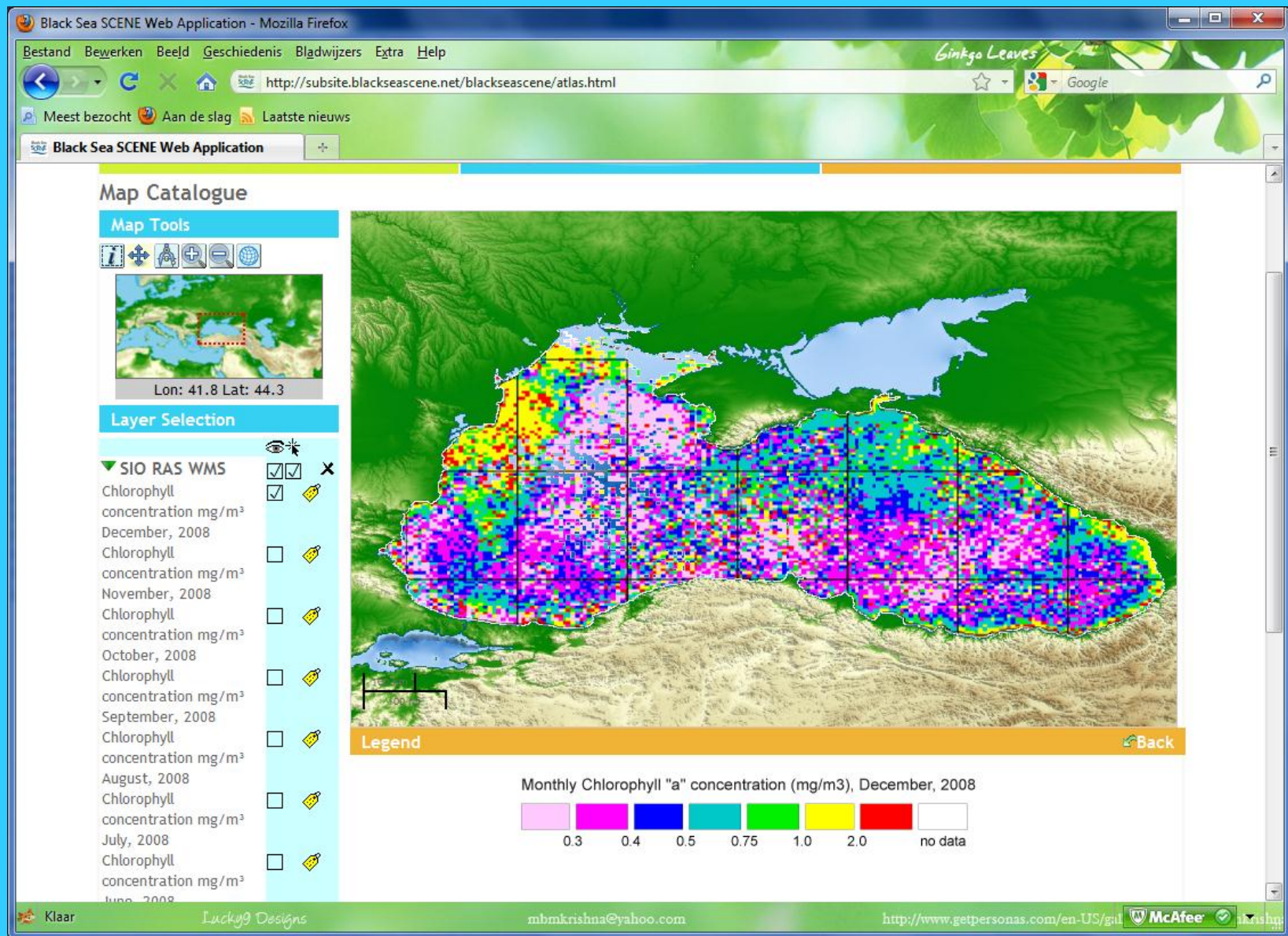


UBSS CDI – Data Coverage



CDI coverage for Black Sea from Black Sea institutes: >
150.000 CDI entries from **35** Data Centres (of which 6
NODCs) from the Black Sea countries

Viewing of partners products via WMS services



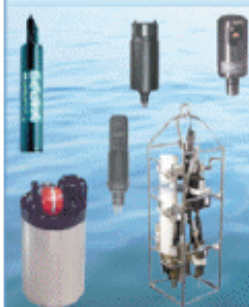
SeaDataNet, UBSS and EMODnet

- EU has adopted a new Marine Strategy Framework Directive (MSFD) including an initiative for an overarching **European Marine Observation and Data Network** (EMODnet)
- EMODnet can be considered as a network of existing and developing European observation systems, linked by a data management structure covering all European coastal waters, shelf seas and surrounding ocean basins’.



Essential Components of an Observation Network

Sensors to measure continuously and autonomously physical, chemical and biological parameters



- salinity, temperature
- turbidity, oxygen
- chlorophyll, nutrients
- pH, alkalinity
- bathymetry
- primary production

Platforms or structures anchored on the seabed, floating in the water column or drifting at the sea surface, and remote sensing from satellites.



- buoys, floats
- gliders
- mooring
- AUVs, lander
- FerryBox
- cabled networks
- remote sensing
- living Argo

Sampling and consecutive laboratory analyses from research ships, or shore, including water, sediments and biota (phytoplankton, bacteria, zooplankton, fish)



- inorganic trace compounds
- gases, e.g. CO₂, CH₄, DMS
- organic micropollutants
- abundance & function of biota
- food web
- HABs

Communication systems to transfer in real-time data from sensors to the network and to the land stations



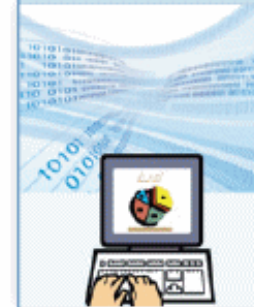
- satcom
- GSM, GPRS
- fibre optics
- acoustics

Data collection and management system for direct control of data quality, and data storage systems to enable data analysis and use for model applications



- data bases
- quality control
- data standards

Software and web based information tools to analyse data for trends, compliance to EU directives, to distribute and disseminate data to end users



- analysis
- Presentation
- web
- GIS

- SeaDataNet has qualified itself as leading infrastructure for the EMODnet data management component and is undertaking several preparatory EMODnet projects:
 - **Chemistry** – focus on the groups of chemicals required for monitoring the MSFD for establishing Good Environmental Status – cooperation with EEA, ICES and Regional Conventions
 - **Hydrography** – to produce and deliver a higher resolution digital bathymetry for European seas
 - **Physics** – together with MyOcean and EuroGOOS Regions to give wide access to operational metocean data, real-time and archives
- The **Geology** lot is producing harmonised seabed maps (WMS). The SeaDataNet infrastructure is adopted via the Geo-Seas project to give overview and access to the underlying geological and geophysical data sets.
- SeaDataNet is data partner in the **Biology** lot and a closer technical relation is foreseen in the SeaDataNet II project.

EMODnet geographic areas



Hydrography	North Sea	Celtic Seas, Channel, Mediterranean sea, NW Atlantic
Geology	North Sea	Baltic and Celtic Seas
Biology	North Sea	Bay of Biscay and the Iberian Coast
Chemistry	North Sea	Black Sea + Med spots
Physics	North Sea	All other European seas
Habitats	North Sea	Baltic, Celtic Seas and the Western Mediterranean

EMODNet effects



- The EMODnet pilots and associated research projects stimulate a wider uptake of SeaDataNet standards and contribute to enriching the standards and services as well as expanding the infrastructure with more data sets and more data providers
- UBSS plays an important role in identifying and giving access to chemical data sets for the Black Sea region for the EMODNet Chemistry pilot
- EMODnet is management and policy driven which also provides an excellent opportunity for SeaDataNet and its regional component UBSS to upgrade its status from project to sustained operational infrastructure.

EMODnet Chemistry



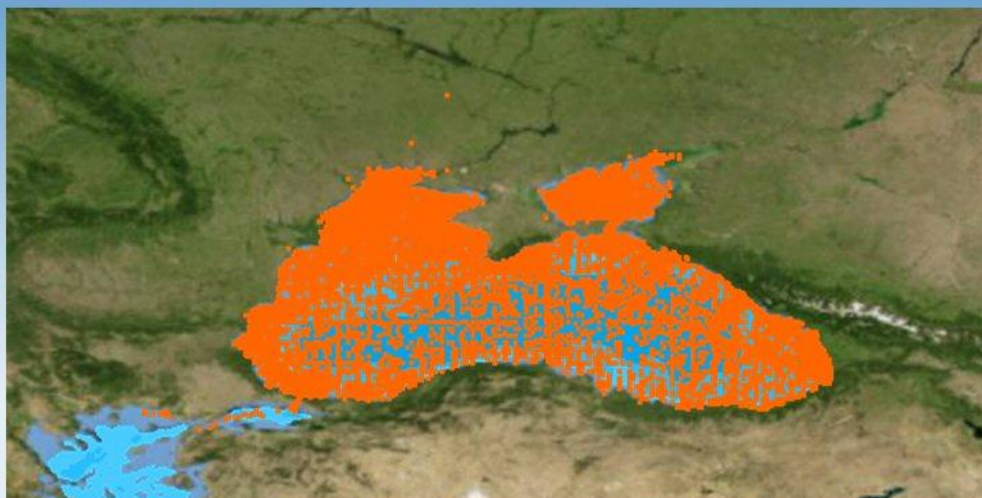
EMODnet
 European Marine Observation and Data Network

Pilot portal for Chemistry
 Data Discovery and Access Service

Tools

Enlarge Help
 Position Index

Datasets 0
 Basket Reset



Layer control
Expand Add layer

☐ Grid Lines
 ☐ Regional sea
 ☐ Regional sea labels
 ☐ Main sea
 ☐ Main sea labels
 ☒ Bathymetry
 ☒ Blue Marble
 ☒ World

Display all selected records
 Only selected records in results list

Listing results
 20 50 100 records Go

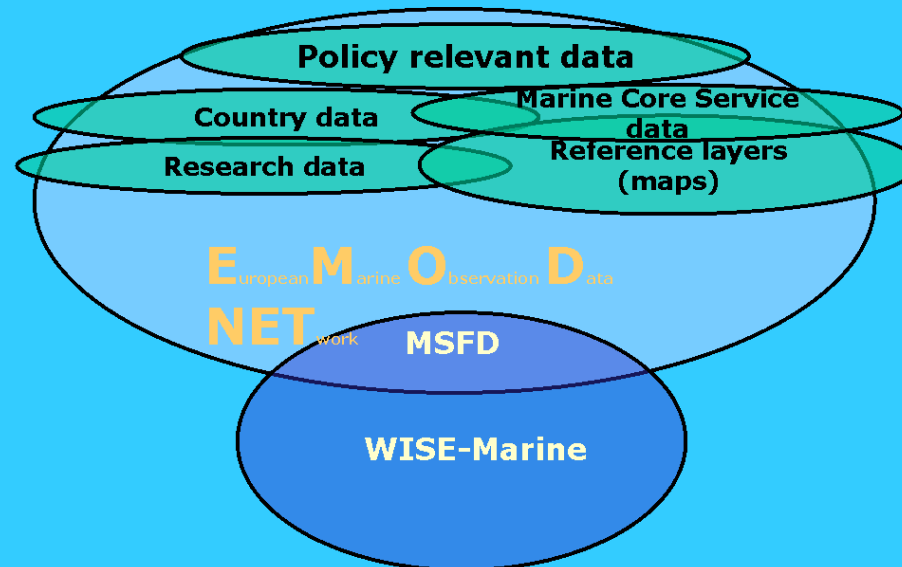
Add to basket
 Summary
 Zoom to selected
 Export result
 Store query
 Refine query
 New query
 Found 49783
 Show (1-20)
 Previous
 Next 20

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<input type="checkbox"/>	CTD_Krapec1 data set	Bulgaria	20100903	Chemical oceanography > Nutrients > Carbon, nitrogen and phosphorus > Dissolved gases Physical oceanography > Water column temperature and salinity	CTD, spectrophotometers	
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<input type="checkbox"/>	CTD_Albenia data set	Bulgaria	20100903	Chemical oceanography > Nutrients > Carbon, nitrogen and phosphorus > Dissolved gases	CTD, spectrophotometers	

EMODNet opportunities



- Additional funding (18 MEuro) has been arranged for coming 2 years for more data pilots and extending and operating existing pilots.
- Moreover EMODnet has the promise of a substantial and structural funding from 2014 onwards for the data management component and the observation systems.
- In addition discussions are ongoing with EEA and EU DG Environment for adopting the EMODNet infrastructure as part of the MSFD reporting by interfacing with the WISE-Marine system



Conclusions

- SeaDataNet operates and further develops a data management infrastructure based upon NODCs that is adopted by many research projects and monitoring initiatives and as core data management component in the EMODNet pilots
- Associated projects and EMODnet pilots stimulate expansion of the number of connected data centres and increase of data population, which is very relevant for users of data
- The **UBSS infrastructure** is a regional component of the infrastructure for the Black Sea region and is underpinning the NODC national networks in the Black Sea countries
- The next phase of the EMODNet developments including working towards serving MSFD implementation will provide direct opportunities for Black Sea partners for deepening and strengthening the UBSS infrastructure and its services