SeaDataNet : Tunisian marine data management

Soumaya LAHBIB (Marine Data Manager & Geomatics)

Sana BEN ISMAIL (Oceanographer) & Chérif SAMMARI (Head of LMM)

Institut National des Sciences et technologies de la Mer Salammbô - INSTM
Laboratoire du Milieu Marin / Marine Environment Laboratory

Sousse on, 22nd December 2014

E-mail: lahbib_soumaya@yahoo.fr
PLAN

I. Introduction

II. SeaDataNet Project

III. INSTM involvement in SDN

IV. Conclusion
Marine Data Management
• Barriers to re-use marine data
  • Format
  • Coordinate system
  • Standards
  • Policy exchange
  • Units
  • Parameter codes
  • Vocabulary
II. SeaDataNet

- SDN (2006 – 2011) FP6
- SDN II (2011 – 2015) FP7

Overview

- SDN is a standardized system for managing a large and diverse data sets collected by oceanographic fleets and automatic observation systems.
- SDN links 90 NODC from 35 countries riparian to all European seas.
- A major objective and challenge in SeaDataNet is to provide an integrated and harmonized overview and access to QC data and indexed data sets using a distributed network approach.
- SDN contributes to build research excellence in Europe and North Africa.
Marine Data Centres
(in situ NODCs and satellite DC providing Transnational access)

Metadata

Data

Observations

Cruise Summary Reports
CSR

Permanent Observing Systems
EDIOS

Marine Data Sets
General Descriptions
EDMED

Marine Research Organizations
EDMO

Data management

Marine Research Projects
EDMERP

Common Data Index
Detailed Description
CDI
Pre-processing and convert any ASCII format to SDN formats (ODV or Medatlas or NetCDF) for timeseries, profiles and trajectories observations.

Prepare XML metadata files for the SeaDataNet directories EDMED, CSR, EDMERP, CDI and EDIOS.

Handles all communication between the data centre system and the RSM service which is overseeing the processing and administration of all requests for data sets

Provides interactive exploration, analysis and visualization of oceanographic and other geo-referenced data sets
III. INSTM involvement in SDN

- **LMM equipment:**

  - **HANNIBAL R/V**
  - **Seabird 9**
  - **ADCP Sontek**

- **Work-packages:**
  - WP2.1: participation to plenaries meetings
  - WP3.2, 3.3: participation to trainings
  - WP4.3: installation of tools for metadata
  - WP5.2: installation of tools for data
1. Workflow

Data acquisition → ASCII files collection → Processing

- SDN format files
- CDI summary CSV file
- Coupling table

Check errors

SeaDataNet CDI

Accessible
1983 --> 1995:
by negotiation
1995 --> 2003

No Access
> 2003

INSTM server

MIKADO

Quality control
Quality control

- The QC procedures for oceanographic data management according to IOC, ICES/CIEM and EU recommendations include automatic and visual controls on the data and their metadata.

- Validation or correction is made manually to the QC flags and NOT to the data.

- In case of uncertainties, the data originator is contacted.

---

0 Pas QC
1 Bon
2 Hors stat
3 Douteux
4 Faux
5 Modif.
9 Défaut
**Cruise Header**

- **TI881995SA051**
- **15/05/1995 24/05/1995 Mediterranean Sea - Western basin**
- **Project = SALTO**
- **Regional Archiving = Ti**
- **Availability = P**
- **Data Type = H10**
- **Data Type = H21**
- **COMMENT**

**Station Header**

- **DATE = 15/05/1995**
- **TIME = 14:29**
- **LAT = N37.23°01’**
- **LON = E009°33’20”**
- **DEPTH = 122**
- **QC = 11111**
- **GLOBAL PROFILE QUALITY FLAG = 1**

**Data**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRES</strong></td>
<td><strong>TEMP</strong></td>
<td><strong>PSAL</strong></td>
<td><strong>DOX1</strong></td>
<td><strong>DEPH</strong></td>
<td><strong>QC</strong></td>
</tr>
<tr>
<td>4.0</td>
<td>17.749</td>
<td>37.095</td>
<td>5.32</td>
<td>4.0</td>
<td>11111</td>
</tr>
<tr>
<td>6.0</td>
<td>17.737</td>
<td>37.094</td>
<td>5.32</td>
<td>6.0</td>
<td>11111</td>
</tr>
<tr>
<td>8.0</td>
<td>17.733</td>
<td>37.094</td>
<td>5.32</td>
<td>7.9</td>
<td>11111</td>
</tr>
<tr>
<td>10.0</td>
<td>17.733</td>
<td>37.094</td>
<td>5.32</td>
<td>9.9</td>
<td>11111</td>
</tr>
<tr>
<td>12.0</td>
<td>17.690</td>
<td>37.093</td>
<td>5.33</td>
<td>11.9</td>
<td>11111</td>
</tr>
<tr>
<td>14.0</td>
<td>17.595</td>
<td>37.088</td>
<td>5.34</td>
<td>13.9</td>
<td>11111</td>
</tr>
<tr>
<td>16.0</td>
<td>17.161</td>
<td>37.083</td>
<td>5.38</td>
<td>15.9</td>
<td>11111</td>
</tr>
<tr>
<td>18.0</td>
<td>17.008</td>
<td>37.086</td>
<td>5.40</td>
<td>17.9</td>
<td>11111</td>
</tr>
<tr>
<td>20.0</td>
<td>16.901</td>
<td>37.086</td>
<td>5.41</td>
<td>19.9</td>
<td>11111</td>
</tr>
<tr>
<td>22.0</td>
<td>16.804</td>
<td>37.092</td>
<td>5.42</td>
<td>21.8</td>
<td>11111</td>
</tr>
<tr>
<td>24.0</td>
<td>16.724</td>
<td>37.097</td>
<td>5.44</td>
<td>23.8</td>
<td>11111</td>
</tr>
<tr>
<td>26.0</td>
<td>16.653</td>
<td>37.100</td>
<td>5.45</td>
<td>25.8</td>
<td>11111</td>
</tr>
<tr>
<td>28.0</td>
<td>16.528</td>
<td>37.102</td>
<td>5.46</td>
<td>27.8</td>
<td>11111</td>
</tr>
<tr>
<td>30.0</td>
<td>16.464</td>
<td>37.104</td>
<td>5.48</td>
<td>29.8</td>
<td>11111</td>
</tr>
<tr>
<td>32.0</td>
<td>16.420</td>
<td>37.106</td>
<td>5.49</td>
<td>31.8</td>
<td>11111</td>
</tr>
<tr>
<td>34.0</td>
<td>16.385</td>
<td>37.108</td>
<td>5.51</td>
<td>33.8</td>
<td>11111</td>
</tr>
<tr>
<td>36.0</td>
<td>16.351</td>
<td>37.109</td>
<td>5.53</td>
<td>35.7</td>
<td>11111</td>
</tr>
<tr>
<td>38.0</td>
<td>16.323</td>
<td>37.110</td>
<td>5.55</td>
<td>37.7</td>
<td>11111</td>
</tr>
</tbody>
</table>

**EDMO_CODE = 1232**

- **LOCAL_CDI_ID = TI881995SA051_00001_H10**
- **SURFACE SAMPLES =**

**COMMENT**

- **SDN parameter mapping**
  - `<subject>SDN:LOCAL:PRES</subject><object>SDN:P011::PRESPR01</object><units>SDN:P061::UPDB</units>`
  - `<subject>SDN:LOCAL:TEMP</subject><object>SDN:P011::TEMPPR01</object><units>SDN:P061::UPAA</units>`
  - `<subject>SDN:LOCAL:PSAL</subject><object>SDN:P011::PSLTZZ01</object><units>SDN:P061::UUUU</units>`
  - `<subject>SDN:LOCAL:DOX1</subject><object>SDN:P011::DOXYZZXX</object><units>SDN:P061::UMLL</units>`
  - `<subject>SDN:LOCAL:DEPH</subject><object>SDN:P011::ADEPZZ01</object><units>SDN:P061::ULAA</units>`

- **LOCAL_CDI_ID = TI881995SA051_00001_H10**

- **SURFACE SAMPLES =**

**COMMENT**

- **EDMO_CODE = 1232**
- **LOCAL_CDI_ID = TI881995SA051_00001_H10**
- **SURFACE SAMPLES =**

**Data**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRES</strong></td>
<td><strong>TEMP</strong></td>
<td><strong>PSAL</strong></td>
<td><strong>DOX1</strong></td>
<td><strong>DEPH</strong></td>
<td><strong>QC</strong></td>
</tr>
<tr>
<td>4.0</td>
<td>17.749</td>
<td>37.095</td>
<td>5.32</td>
<td>4.0</td>
<td>11111</td>
</tr>
<tr>
<td>6.0</td>
<td>17.737</td>
<td>37.094</td>
<td>5.32</td>
<td>6.0</td>
<td>11111</td>
</tr>
<tr>
<td>8.0</td>
<td>17.733</td>
<td>37.094</td>
<td>5.32</td>
<td>7.9</td>
<td>11111</td>
</tr>
<tr>
<td>10.0</td>
<td>17.733</td>
<td>37.094</td>
<td>5.32</td>
<td>9.9</td>
<td>11111</td>
</tr>
<tr>
<td>12.0</td>
<td>17.690</td>
<td>37.093</td>
<td>5.33</td>
<td>11.9</td>
<td>11111</td>
</tr>
<tr>
<td>14.0</td>
<td>17.595</td>
<td>37.088</td>
<td>5.34</td>
<td>13.9</td>
<td>11111</td>
</tr>
<tr>
<td>16.0</td>
<td>17.161</td>
<td>37.083</td>
<td>5.38</td>
<td>15.9</td>
<td>11111</td>
</tr>
<tr>
<td>18.0</td>
<td>17.008</td>
<td>37.086</td>
<td>5.40</td>
<td>17.9</td>
<td>11111</td>
</tr>
<tr>
<td>20.0</td>
<td>16.901</td>
<td>37.086</td>
<td>5.41</td>
<td>19.9</td>
<td>11111</td>
</tr>
<tr>
<td>22.0</td>
<td>16.804</td>
<td>37.092</td>
<td>5.42</td>
<td>21.8</td>
<td>11111</td>
</tr>
<tr>
<td>24.0</td>
<td>16.724</td>
<td>37.097</td>
<td>5.43</td>
<td>23.8</td>
<td>11111</td>
</tr>
<tr>
<td>26.0</td>
<td>16.653</td>
<td>37.100</td>
<td>5.45</td>
<td>25.8</td>
<td>11111</td>
</tr>
<tr>
<td>28.0</td>
<td>16.528</td>
<td>37.102</td>
<td>5.46</td>
<td>27.8</td>
<td>11111</td>
</tr>
<tr>
<td>30.0</td>
<td>16.464</td>
<td>37.104</td>
<td>5.48</td>
<td>29.8</td>
<td>11111</td>
</tr>
<tr>
<td>32.0</td>
<td>16.420</td>
<td>37.106</td>
<td>5.49</td>
<td>31.8</td>
<td>11111</td>
</tr>
<tr>
<td>34.0</td>
<td>16.385</td>
<td>37.108</td>
<td>5.51</td>
<td>33.8</td>
<td>11111</td>
</tr>
<tr>
<td>36.0</td>
<td>16.351</td>
<td>37.109</td>
<td>5.53</td>
<td>35.7</td>
<td>11111</td>
</tr>
<tr>
<td>38.0</td>
<td>16.323</td>
<td>37.110</td>
<td>5.55</td>
<td>37.7</td>
<td>11111</td>
</tr>
<tr>
<td>40.0</td>
<td>16.364</td>
<td>37.109</td>
<td>5.54</td>
<td>39.7</td>
<td>11111</td>
</tr>
<tr>
<td>42.0</td>
<td>16.569</td>
<td>37.112</td>
<td>5.44</td>
<td>41.7</td>
<td>11111</td>
</tr>
<tr>
<td>44.0</td>
<td>16.566</td>
<td>37.116</td>
<td>5.43</td>
<td>43.7</td>
<td>11111</td>
</tr>
</tbody>
</table>
## 2. INSTM catalogues

<table>
<thead>
<tr>
<th>Catalogue</th>
<th>Total number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDMED</td>
<td>1</td>
</tr>
<tr>
<td>EDMERP</td>
<td>33</td>
</tr>
<tr>
<td>EDMO</td>
<td>1</td>
</tr>
<tr>
<td>EDIOS programmes</td>
<td>0</td>
</tr>
<tr>
<td>EDIOS Series</td>
<td>0</td>
</tr>
<tr>
<td>CSR</td>
<td>96</td>
</tr>
<tr>
<td>CDI</td>
<td>867</td>
</tr>
</tbody>
</table>
Partners with less than 1000 CDI entries
2. Data Dissimination (How to request data)

http://www.seadatanet.org/

http://seadatanet.maris2.nl/v_cdi_v3/search.asp
Access to data (CDI) : step 1 data discovery
Access to data (CDI) : step 1 data discovery
Access to data (CDI) : step 1 data discovery

<table>
<thead>
<tr>
<th>Data set name</th>
<th>Country</th>
<th>Start date</th>
<th>Disciplines - Parameter groups</th>
<th>Instrument / gear type</th>
<th>Show</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU8820D9GH031 2009</td>
<td>Tunisia</td>
<td>20090316</td>
<td>Administration and dimensions &gt; Administration and dimensions &gt; Chemical oceanography &gt; Dissolved gases &gt; Physical oceanography &gt; Water column temperature and salinity</td>
<td>CTD</td>
<td></td>
</tr>
<tr>
<td>TU8820D9GH031 2009</td>
<td>Tunisia</td>
<td>20090316</td>
<td>Administration and dimensions &gt; Administration and dimensions &gt; Chemical oceanography &gt; Dissolved gases &gt; Physical oceanography &gt; Water column temperature and salinity</td>
<td>CTD</td>
<td></td>
</tr>
<tr>
<td>TU8820D9GH031 2009</td>
<td>Tunisia</td>
<td>20090317</td>
<td>Administration and dimensions &gt; Administration and dimensions &gt; Chemical oceanography &gt; Dissolved gases &gt; Physical oceanography &gt; Water column temperature and salinity</td>
<td>CTD</td>
<td></td>
</tr>
</tbody>
</table>
Access to data (CDI) : step 2 shopping
Access to data (CDI) : step 2 shopping

### REQUESTING DATASETS

During this session, you have selected a number of data sets. You can search and shop for more, up to 10,000 data sets, or continue the shopping dialogue by submitting your request list and having it processed. When submitting your request, you will have to log in with your user registration details or register yourself first. Thereafter, you can submit your request for further processing. You will then be notified by e-mail where and when you can follow the processing of your request list. This will be arranged by the Request Status Manager (RSM) service, which also requires you to log in with your user registration details.

**IMPORTANT NOTICE**

Downloading of data sets is only possible for registered users. Access to data sets might be restricted. In that case, your request will be handled by the contact person of the Data Centre managing the specific data set. You will be able to follow the progress of all your requests via your personal account in the Request Status Manager (RSM), using your user registration details.

If you would like to continue searching (to add more to your request list) click **Search for more**.

If you would like to cancel your requests (to empty your request list) click **Cancel**.

If you are satisfied with your request list, then click on **Submit order**.

The number of data requests per shopping session has a maximum of 10,000 data sets.

<table>
<thead>
<tr>
<th>CDI record id</th>
<th>Dataset Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>15684035</td>
<td>TU8810069041</td>
<td>unrestricted</td>
</tr>
<tr>
<td>15684036</td>
<td>TU8810069041</td>
<td>unrestricted</td>
</tr>
<tr>
<td>15684037</td>
<td>TU8810069041</td>
<td>unrestricted</td>
</tr>
<tr>
<td>15684038</td>
<td>TU8810069041</td>
<td>unrestricted</td>
</tr>
<tr>
<td>15684039</td>
<td>TU8810069041</td>
<td>unrestricted</td>
</tr>
</tbody>
</table>
Access to data (CDI) : step 2 shopping
Access to data (CDI) : step 2 shopping

Sousse on, 22nd December 2014
Access to data (CDI) : step 3 downloading

Overview of your download requests and processing per Data Centre

<table>
<thead>
<tr>
<th>Data centre</th>
<th>Country</th>
<th>Approval pending</th>
<th>Ready for user action</th>
<th>User action completed</th>
<th>Access denied</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNEP-WCMC Environmental Protection and Research</td>
<td>Italy</td>
<td>3</td>
<td>23</td>
<td></td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>Institut National des Sciences et Technologies de la Mer – INSTM</td>
<td>Tunisia</td>
<td></td>
<td>40</td>
<td>1</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td>OCEA Centro Ricerche Ambiente Marino – La Spezia</td>
<td>Italy</td>
<td>2</td>
<td>123</td>
<td></td>
<td></td>
<td>125</td>
</tr>
<tr>
<td>OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale), Division of Oceanography</td>
<td>Italy</td>
<td></td>
<td>120</td>
<td>143</td>
<td></td>
<td>263</td>
</tr>
</tbody>
</table>
Access to data (CDI) : step 3 downloading

<table>
<thead>
<tr>
<th>User name</th>
<th>User role</th>
<th>Waiting for automatic processing</th>
<th>To be discussed</th>
<th>Ready for user action</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khalid KHALILUIN</td>
<td>SDNR01;SDNR03;SDNR07</td>
<td>4</td>
<td></td>
<td></td>
<td>213</td>
</tr>
<tr>
<td>Flavien Ghexenge</td>
<td>SDNR03;SDNR07</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td><a href="mailto:nasser.lahrib@ymail.com">nasser.lahrib@ymail.com</a></td>
<td>SDNR03;SDNR07</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td><a href="mailto:khalid_soemiu@yahoo.fr">khalid_soemiu@yahoo.fr</a></td>
<td>SDNR03;SDNR07</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>
Access to data (CDI) : step 3 downloading

<table>
<thead>
<tr>
<th>Dataset ID</th>
<th>Data ID</th>
<th>LOCAL_CDI_ID</th>
<th>Request-ID</th>
<th>Request-key</th>
<th>Request date</th>
<th>Last update</th>
<th>Format</th>
<th>Approved for downloading</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1585235</td>
<td>T082063S101_00011_H10</td>
<td>T082063S101_00011_H10</td>
<td>6639455</td>
<td>9478</td>
<td>2014-11-28</td>
<td>2014-11-28</td>
<td>ODV</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>1585237</td>
<td>T082063S101_00010_H10</td>
<td>T082063S101_00010_H10</td>
<td>5639454</td>
<td>9478</td>
<td>2014-11-28</td>
<td>2014-11-28</td>
<td>ODV</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
Access to data (CDI) : step 4 viewing (ODV+DIVA)

Sousse on, 22nd December 2014
Access to data (CDI) : step 4 viewing (ODV+DIVA)
Access to data (CDI) : step 4 viewing (ODV+DIVA)
INSTM Requested data
Monitoring INSTM Server

State History For Service 'INSTM Download Manager' On Host '41.229.139.105'

- Ok: 250 days, 15 hours, 14 minutes
- Warning: 0 days, 0 hours, 0 minutes, 0 seconds
- Unknown: 0 days, 0 hours, 0 minutes, 0 seconds
- Critical: 15 days, 20 hours, 28 minutes
- Indeterminate: 0 days, 0 hours, 0 minutes, 0 seconds

Sousse on, 22nd December 2014
Monitoring INSTM Server
IV. Conclusion

- Update the Tunisian marine data management process used by LMM
- Whatever the marine instrument used, it is important to manage, standardize, harmonize data and make them interoperable ==> Perrenity and validity
- Technical support from European partners skilled on marine data management
- LMM set up data and metadata policy exchange
- ISO certification from IOC/IODE will be made soon
- Data management can be realized for biological, geophysical, and chemical data
- Looking forward to setting-up a Pan-North African Infrastructure for oceanographic and marine data management project or an ODIP, …
شكرا على اهتمامكم