



# MyNODC: National Oceanographic Data, Information and Knowledge Repository (MyDAS Project)

Dr. Dickson Lukose  
Artificial Intelligence Lab.

1<sup>st</sup> October 2015

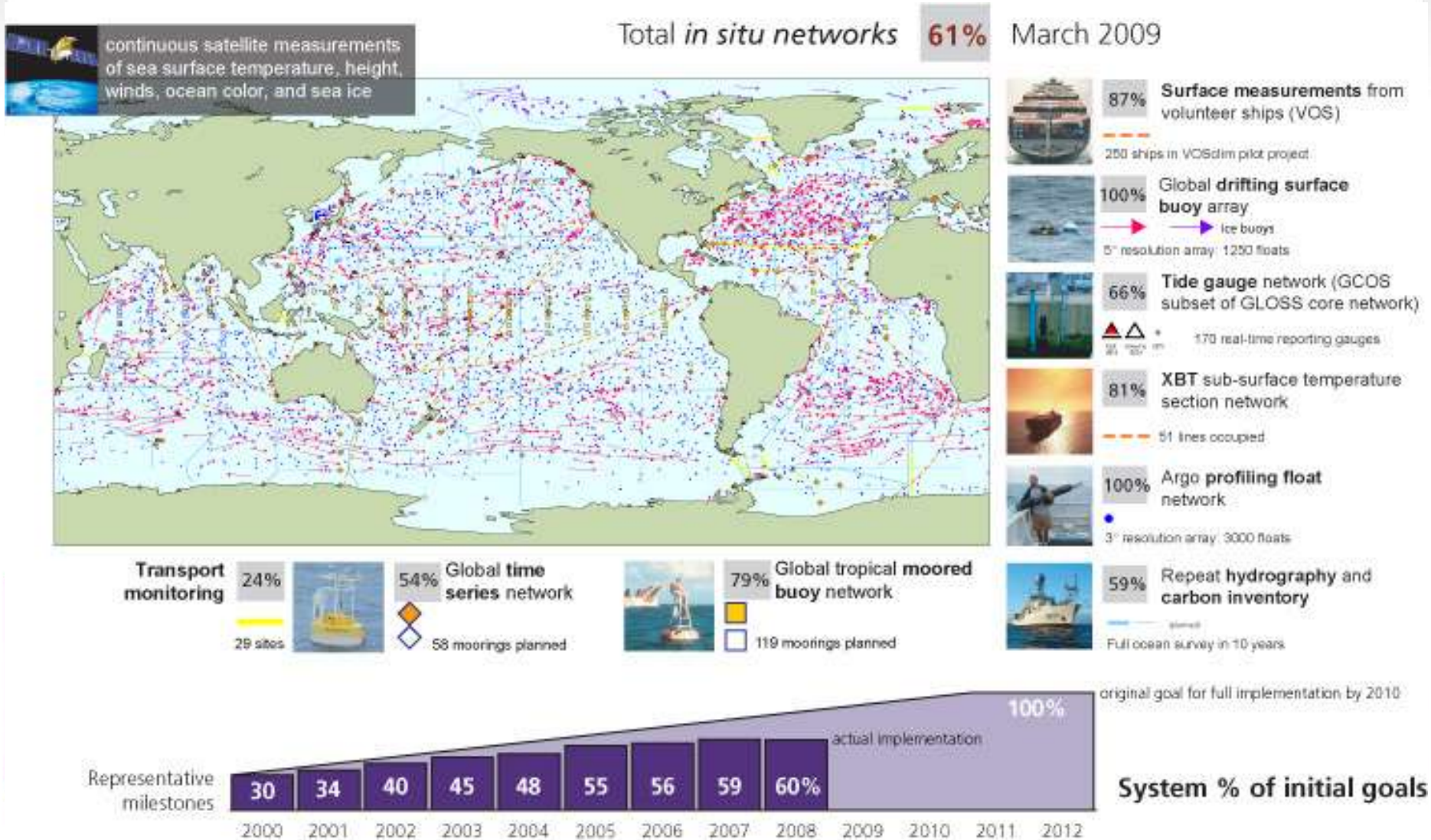


UNIVERSITI  
KEBANGSAAN  
MALAYSIA  
*National University  
of Malaysia*



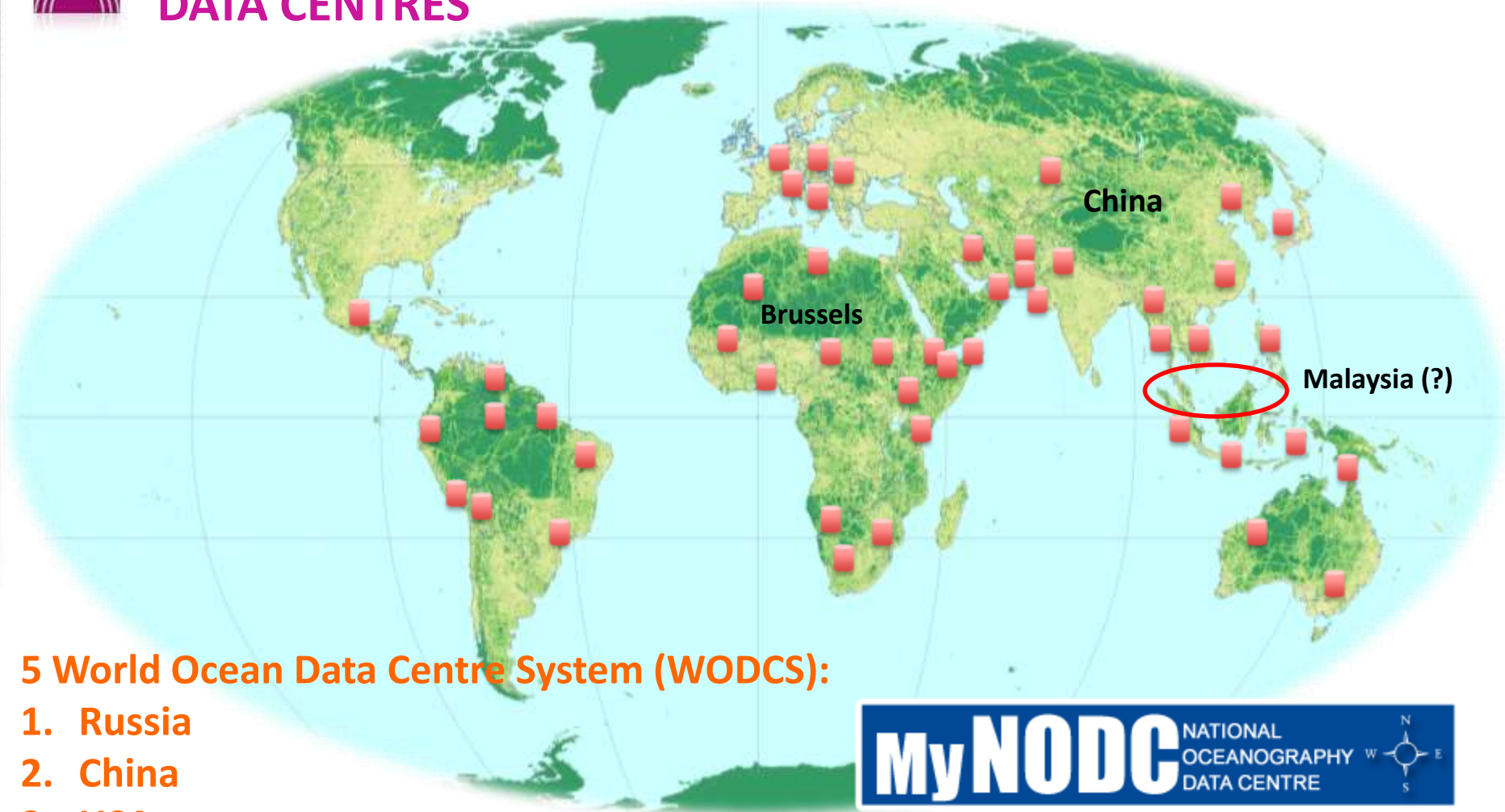
Innovation for Life™

*Degree of completion of the initial design targets for the ocean component of the Global Climate Observing System to be reported to the UN Framework Convention on Climate Change SBSTA (Bonn, June 2009).*





# IODE NETWORK OF NATIONAL OCEANOGRAPHIC DATA CENTRES



## 5 World Ocean Data Centre System (WODCS):

1. Russia
2. China
3. USA
4. Japan
5. Australia

■ - NODC





### Welcome to MyNODC Spatial Data Infrastructure

Ocean data and information are linked globally through World Ocean Data Centre and National Oceanographic Data Centre (NODC). Ocean data and information are linked globally through World Ocean Data Centre and National Oceanographic Data Centre (NODC). As a significant percentage of the oceanographic data is foreign, it acquires bilateral data exchanges between countries and programs such as Intergovernmental Oceanographic Commission (IOC) of UNESCO to obtain such information. Therefore the need for data storing encompass not only the international level, an organized regional database is also essential to implement the function of NODC as a whole.

(c) Copyright 2010 MyNODC. All rights reserved.

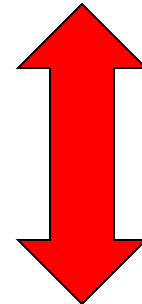
Don't show again

Agree

Disagree

Home

# INTEGRATION WITH IODE



The data **must** be:

- Free and unrestricted
- Non commercial

Need to establish:

1. **Meta-data.**
2. **Ontology to define standard vocabularies.**
3. **Data Exchange Language to being both human and machine understandable.**
4. **Cloud Computing to provide high computing power.**
5. **Subject headings.**



# MOSTI Flagship Programme

## FLAGSHIP PROGRAMME

### TITLE:

MyDAS - An Integrated Malaysian Oceanographic Data and Information Management System for Ocean Modeling and Forecasting



David Schrichte

*Chelonia mydas*

Proposal Submission: 2012



# Project Details

- Summary: Oceanographic knowledge management gateway comprised of :
  - Integrated Data, Information and Knowledge management framework,
  - Comprehensive Ocean Observation,
  - Data Collection and Assimilation,
  - Modeling, Simulation and Forecasting,
  - Archiving and Sharing platform.
- Duration: 36 months
- Research Areas: Cyber Security, Environment and Climate Change.
- Project Start Date: 1<sup>st</sup> September 2014



# Current Project Team

- ▶ Project Leader: Haji Shahrudin Bin Yusof
- ▶ Project Members      Project Proposal and Funding secured under the stewardship of **Prof Datuk Dr Nor Aieni Mokhtar**
- ▶ Foreign Experts

Stakeholders	Team Leaders	Responsibilities
National Oceanographic Directorate (NOD), MOSTI	Haji Shahrudin Bin Yusof	Coordinate research activities, publicity and awareness
MIMOS Bhd	Dr. Dickson Lukose	Develop MyDAS integrated modules
Universiti Malaysia Terengganu (UMT)	Assc. Prof. Dr Aidy	Oceanographic Data Collection
Universiti Kebangsaan Malaysia (UKM)	Prof. Dr. Fredolin Tangang	Oceanographic Modeling and Forecasting system



# Survey of Existing Systems



**British Oceanographic Data Centre**  
 NATIONAL OCEANOGRAPHIC DATA CENTRE

Home | Contact Us | Privacy | Site Map | Info System

Where to find data  
 Other resources  
 Delivery requests  
 Publication tools  
 Librarian  
 Information and  
 documentation  
 Field and formal  
 education  
 Submitting data to  
 BODC  
 Products and tools

National Oceanographic Database (NODE) data source

## Search

The interface allows access to all data series held in the National Oceanographic Database (NODE). Please use the search tab below together with the interactive map ([Open map help](#)) and the paginated table of results to find data sets of interest.

Choose a file format, select your data and add the data to your basket. Repeat the process on each page of results as required.

View your basket and proceed to the checkout to initiate your request. Automated access control procedures and delivery file preparation will begin following a successful checkout.



**OCEAN MONITORING AND FORECASTING**  
 PROVIDING PRODUCTS AND SERVICES TO THE OCEAN COMMUNITY

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ACCESS TO PRODUCTS  
 Search and download your dataset

SEARCH FOR  
 AREA  
 PARAMETERS  
 TIME COVERAGE  
 OBSERVATION/MODELS

OFFSHORE  
 ONSHORE

18.6 °C  
 MAXIMUM AIR TEMPERATURE IN  
 OCEANIC SURFACE LAYER

25 °C  
 MAXIMUM AIR TEMPERATURE IN  
 WETLANDS SURFACE LAYER

48  
 TEMPERATURE LATEST RECORD IN  
 THE UK 2014

-1.7 °C  
 MINIMUM AIR TEMPERATURE IN  
 WETLANDS SURFACE LAYER

MY OCEAN TRAINING / UK MET  
 OFFICE - EXETER 27 & 28 JULY 2014  
 TRAINING SESSION FROM 22:00hrs AND  
 FROM 08:00hrs 28th JULY 2014

ANY QUESTION?  
 Get help from our support team



**NOAA NATIONAL OCEANOGRAPHIC DATA CENTER (NODC)**  
 NATIONAL OCEANOGRAPHIC DATA CENTER

Home | About Us | Privacy | Site Map | Info System

Access Data | Submit Data | Public Outreach | About NODC

NOAA submits and distributes data

Access Data

NOOD Products  
 Search the Archives  
 Data Services  
 Data Formats & Codes  
 U.S. Roles & Data  
 Submit Data  
 Data (NODC) Tools  
 How do I find data that  
 submitted to NODC?  
 What happens to my data?  
 Data Submission Guidelines  
 Tools (Access) 3  
 Use NOAA Archive Services  
 NOAA Access to Information &  
 Catalog (NOAA) 2  
 Data System Overview

## Climatological Atlas of the Nordic Seas and Northern North Atlantic

Interannual Ocean A&S and Ice/Ice/Ice Data Series W1 - I2

Go to the Climatological Atlas (CATA) 2014

The mission of the National Oceanographic Data Center (NODC) is to provide scientific observations of marine data and information. [Back about NODC](#)

Review the Data Set

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**PODAAC**  
 Physical Oceanographic Data Archive Center

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Search

Advanced search for the archive data products

Parameters

Collection  
 Platform  
 Sensor  
 Spatial Coverage  
 Latency

Parameters

Parameter Name  
 Parameter Code  
 Parameter Type  
 Sensor  
 Platform  
 Spatial Coverage  
 Latency

Page of the Day  
 Highlight





# Geographical Areas

MyOcean	Podaac	BODC	NOAA
<ul style="list-style-type: none"><li>- Global Ocean</li><li>- Arctic Ocean</li><li>- Baltic Sea</li><li>- Atlantic-European</li><li>- North West Shelf-Ocean</li><li>- Atlantic-European South West Shelf-Ocean</li><li>- Mediterranean Sea</li><li>- Black Sea</li></ul>	<ul style="list-style-type: none"><li>- Alaska</li><li>- Antartic</li><li>- Antartica</li><li>- Arctic</li><li>- Atlantic Ocean</li><li>- Atlantic and Pacific</li><li>- Australia</li><li>- Baltic Sea</li><li>- Bering Sea</li><li>- Central America</li><li>- China</li><li>- Eastern Pacific Ocean</li><li>- Europe</li><li>- Global</li><li>- Greenland</li><li>- Indonesia</li><li>- Japan</li><li>- Mediterranean Sea</li><li>- North Africa</li><li>- North America</li><li>- North Sea</li><li>- North and Central America</li><li>- Northern Atlantic</li><li>- Oceania</li><li>- Pacific</li><li>- Pacific Ocean</li><li>- Siberia</li><li>- South Africa</li><li>- South America</li><li>- Southern Asia</li><li>- Tropics</li><li>- Western Pacific Ocean</li></ul>	<ul style="list-style-type: none"><li>- Alaska</li><li>- Antartic</li><li>- Antartica</li><li>- Arctic</li><li>- Atlantic Ocean</li><li>- Atlantic and Pacific</li><li>- Australia</li><li>- Baltic Sea</li><li>- Bering Sea</li><li>- Central America</li><li>- China</li><li>- Eastern Pacific Ocean</li><li>- Europe</li><li>- Global</li><li>- Greenland</li><li>- Indonesia</li><li>- Japan</li><li>- Mediterranean Sea</li><li>- North Africa</li><li>- North America</li><li>- North Sea</li><li>- North and Central America</li><li>- Northern Atlantic</li><li>- Oceania</li><li>- Pacific</li><li>- Pacific Ocean</li><li>- Siberia</li><li>- South Africa</li><li>- South America</li><li>- Southern Asia</li><li>- Tropics</li><li>- Western Pacific Ocean</li></ul>	<ul style="list-style-type: none"><li>- Arctic Region</li><li>- Gulf of Mexico</li><li>- GIN Seas (Greenland, Iceland, Norwegian)</li><li>- East Asian</li></ul>



# Parameters

MyOcean	Podaac	BODC	NOAA
<ul style="list-style-type: none"><li>- Temperature</li><li>- Salinity</li><li>- Currents</li><li>- Sea Ice</li><li>- Sea Level</li><li>- Ocean Wind</li><li>- Ocean Optics</li><li>- Chemistry</li><li>- Ocean Biology</li><li>- Ocean Chlorophyll</li></ul>	<ul style="list-style-type: none"><li>- Atmospheric electricity</li><li>- Atmospheric Water Vapor</li><li>- Geodetics/Gravity</li><li>- Microwave</li><li>- Ocean Circulation</li><li>- Ocean Optics</li><li>- Ocean Pressure</li><li>- Ocean Temperature</li><li>- Ocean Waves</li><li>- Ocean Winds</li><li>- Radar</li><li>- Salinity/Density</li></ul>	<ul style="list-style-type: none"><li>- Acoustics</li><li>- Bathymetry and topography</li><li>- Currents (horizontal and vertical velocity, Lagrangian currents and water transport rates)</li><li>- Meteorology Radiosonde, Met. stations and data buoys</li><li>- Optical properties (pigments, turbidity, irradiance)</li><li>- Sea level</li><li>- Water column temperature and salinity</li><li>- Water column chemistry (nutrients, carbons, oxygen)</li><li>- Waves (statistics and spectra)</li></ul>	<ul style="list-style-type: none"><li>- Temperature</li><li>- Salinity</li><li>- Ocean Currents</li><li>- Sea Level</li><li>- Chlorophyll</li><li>- Oxygen</li><li>- Waves</li><li>- Plankton</li><li>- Nutrients</li><li>- Biology Data</li><li>- Satellite Data</li><li>- Profile Data</li><li>- pH</li></ul>



# Time Coverage

MyOcean	Podaac	BODC	NOAA
<ul style="list-style-type: none"><li>- Forecast</li><li>- Near Real-Time</li><li>- Multi-year (*)</li><li>- Time invariant products ( either from Observation or Modelling).</li></ul>	<ul style="list-style-type: none"><li>- Near Real Time(&lt; 12 hrs)</li><li>- Delayed Mode(&gt; 12 hrs)</li><li>- Historical (non-active)</li></ul>	<ul style="list-style-type: none"><li>- Multi-year (*)</li><li>- Time invariant</li></ul>	<ul style="list-style-type: none"><li>- Near Real-time</li><li>- Historical</li></ul>





# Data Formats

MyOcean	Podaac	BODC	NOAA
<ul style="list-style-type: none"><li>- netCDF</li></ul>	<ul style="list-style-type: none"><li>- netCDF</li><li>- HDF5</li></ul>	<ul style="list-style-type: none"><li>- BODC request (ASCII) format</li><li>- Ocean Data View(ODV)</li><li>- QXF (netCDF) format</li><li>- Climate and Forecast (netCDF) format</li></ul>	<ul style="list-style-type: none"><li>- netCDF</li><li>- GeoTIFF</li><li>- HDF4-SDS</li><li>- HDF5</li><li>- GZIP</li></ul>

# Observation/Models

MyOcean	Podaac	NOAA
<ul style="list-style-type: none"><li>- Model</li><li>- Satellite observation</li><li>- In-Situ observation</li></ul>	<ul style="list-style-type: none"><li>- Platform (satellite, In-Situ, buoy, etc.)</li><li>- Sensor</li></ul>	<ul style="list-style-type: none"><li>- Satellite</li><li>- Radar</li><li>- Model</li><li>- Weather balloon</li><li>- Paleoclimatology</li></ul>





# Technology Platforms

Mi-Semantic

Mi-Doc

Mi-Crypto

Mi-Guard

Mi-Cloud

NetCDF Viewer

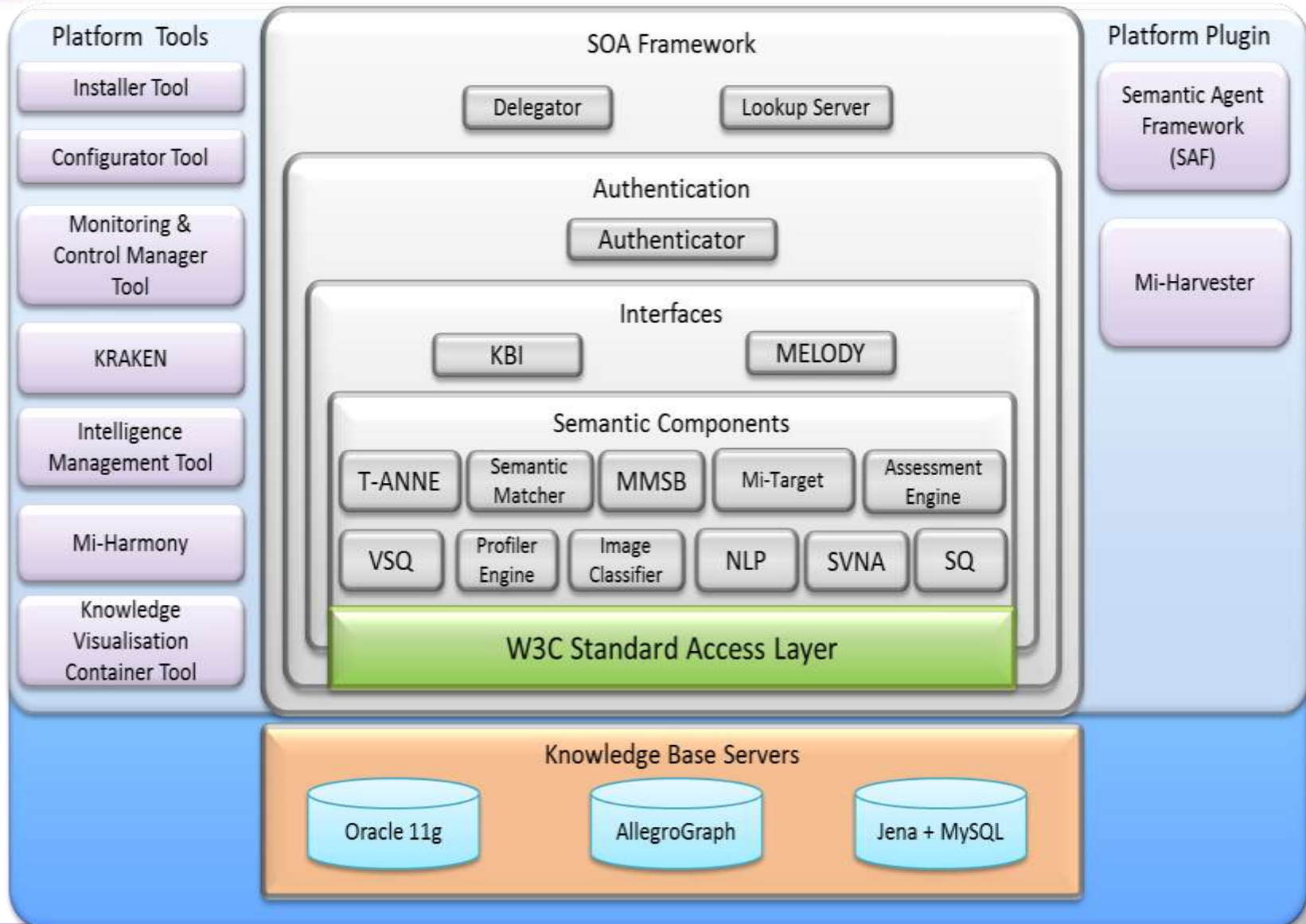
Mi-UAP

OpenGIS

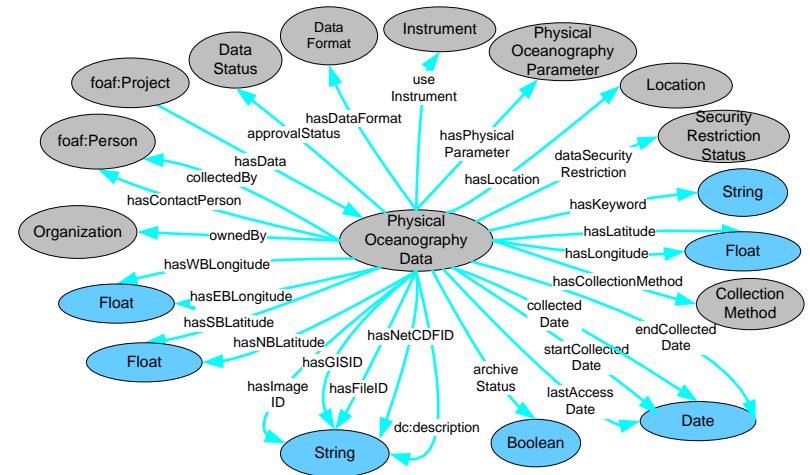
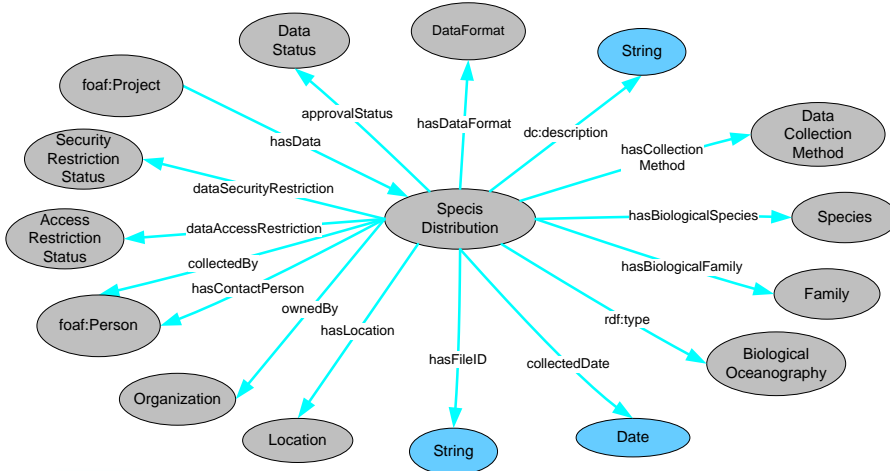
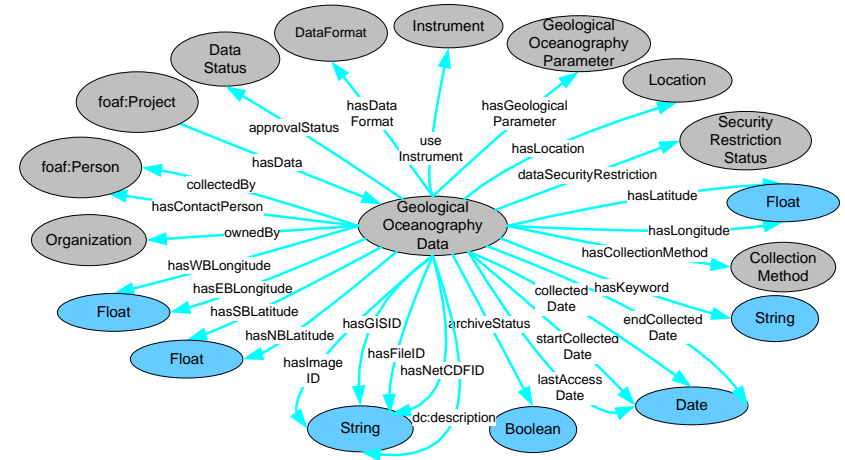
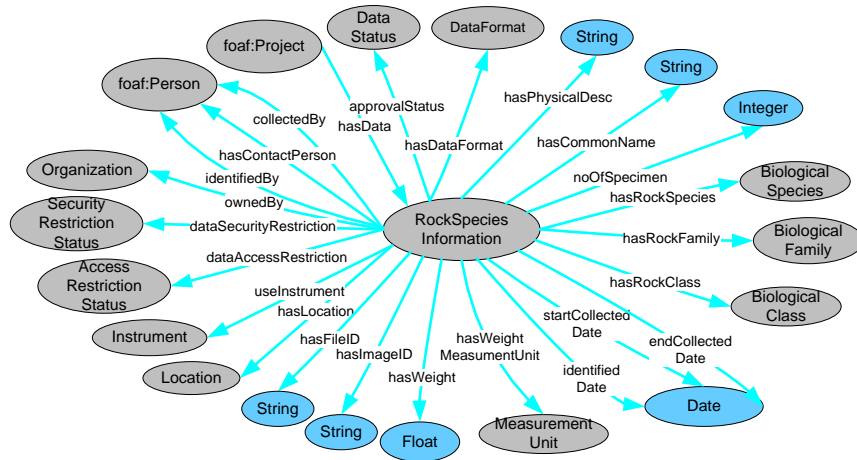




# Mi-Semantics (Semantic Technology Platform)

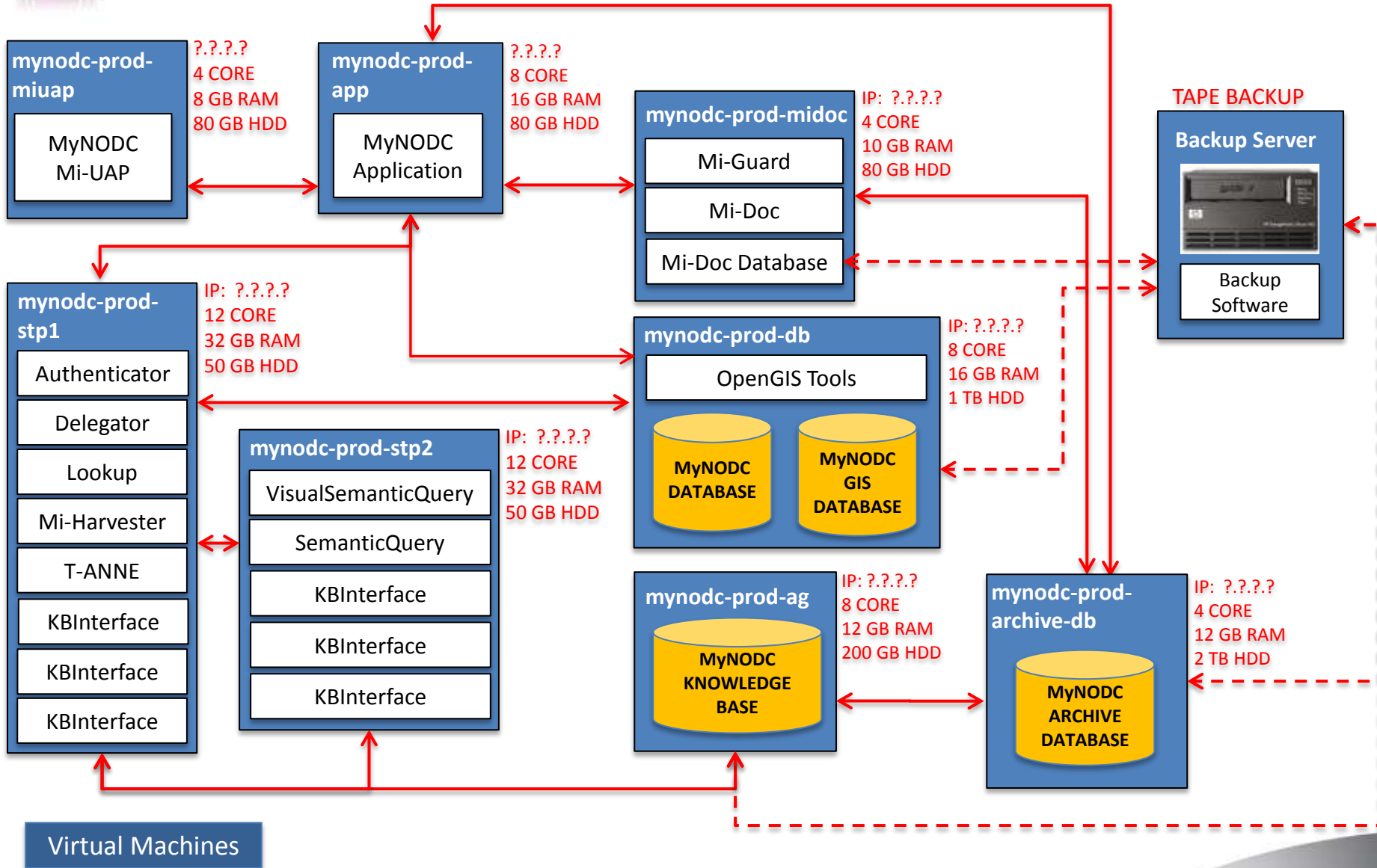


# Design: Oceanography Ontology





# Production Environment (NOD)







# Landing Page



[About Us](#) [National Role](#) [Search](#) [Visualisation](#) [Data Management](#)



## About Us

The National Oceanography Directorate (NOD) provides the National Stewardship in Marine Scientific Research within the Malaysian waters in her Exclusive Economic Zone.



### News and Events

RSS

- International Training Course on Ocean Colour Remote Sensing - Data, Processing and Applications  
August 14, 2014
- 11th Advanced Phytoplankton Course  
August 07, 2014
- News: INOS Malaysia establishes ADU  
July 07, 2014
- News: World Oceans Day Celebration 2014  
May 15, 2014
- News: CT-Marching to Manado  
April 23, 2014

### Facebook

MyNODC

### Twitter

MyNODC  
15 March at 22:00  
MyNODC Prototype Design



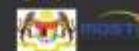
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[Contact Us](#)

 National Oceanography Directorate,  
Ministry of Science, Technology and Innovation,  
Level 5, Block CA, Complex U, Federal Government  
Administrative Centre, 62992 Putrajaya, Malaysia.

 Tel: +603 - 8885 6301/82  
Fax: +603 - 8883 3308  
 Email: [reg.nodc@mimob.gov.my](mailto:reg.nodc@mimob.gov.my)

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# Data Upload

Manual Metadata Entry | Upload Multiple Metadata

Link to a project:  Yes  No

Please select a Project:

Project Title	
Organisation Name	
Project Leader	
Project Member	
Funded By	
Description	

Fill up all required fields (\*)

Identification Information

Metadata/Data Owner

Data Collector

Topic Category

Spatial Domain

Security Constraint

Data File Information

Manual Metadata Entry | Upload Multiple Metadata

Link to a project:  Yes  No

Please select a Project:

Project Title	Project 2
Organisation Name	ORG
Project Leader	Project2 Leader
Project Member	Project2 Member
Funded By	Project2 Fund
Description	Project2 Description

Fill up all required fields (\*)

Identification Information

Metadata / Data Owner			
Organisation	Organisation	Project Code	11111
Name	Group 1	Country	Malaysia
Address	Sebangsari	Telephone No.	1234567890
Latitude	Address	Fax	1234567890
City	City	Email	www@ORG1.com
State	State Capital	Contact Website	www.ORG.com

Data Collector

Topic Category

Spatial Domain

Security Constraint

Data File Information

UPLOAD CANCEL

Manual Metadata Entry | Upload Multiple Metadata

Link to a project:  Yes  No

Please select a Project:

Project Title	Project 2
Organisation Name	ORG
Project Leader	Project2 Leader
Project Member	Project2 Member
Funded By	Project2 Fund
Description	Project2 Description

Select metadata file to upload:

UPLOAD MULTIPLE FILE CANCEL

Index	Title	Select File?	
1	Metadata 1	Yes	<input type="text" value="Choose File / No file chosen"/>
2	Metadata 2	No	<input type="text" value="Choose File / No file chosen"/>

UPLOAD DATABASE FILE CANCEL

Data Upload

Data Upload Approval

Table Metadata

Link to a project:  Yes  No

Please select a Project:

Project Title	Project 1
Organisation Name	ORG
Project Leader	Project1 Leader
Project Member	Project1 Member
Funded By	Project1 Fund
Description	Project1 Description

Identification Information

Metadata/Data Owner

Data Collector

Topic Category

Spatial Domain

Security Constraint

Data File Information

APPROVE CANCEL



# Semantic Search

## Search

Enter your search here   [Help](#)

Linked Open Data

Found 4 matching results Page: |<< 1 / 5 >>|

### Data (2)

**[An Expedition on Biological Project](#)**  
This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area.  
*Biological (Chlorophyll: Chlorophyll-a surface)*  
Date: 11/02/2007  
Source: UMT (<http://www.umt.edu.my/>) [more details](#)

---

**[A SIMULATION OF SEA SURFACE HEIGHT OUTPUT FROM PRINCETON OCEAN MODEL AND TIDE GAUGE MEASUREMENT](#)**  
This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area.  
*Physical (Temperature, Salinity)*  
Date: 11/02/2007  
Source: JABATAN METEOROLOGI (<http://www.met.gov.my>) [more details](#)

---

### Document (2)

**[SEASONAL CIRCULATIONS IN THE MALAY PENINSULA EASTERN CONTINENTAL SHELF FROM A WAVE-TIDE-CIRCULATION COUPLED MODEL.](#)**  
This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area.  
*Author: Juneng, L., Latif, M.T., Tangang, F*  
Date : 2011  
Source: UKM (<http://www.ukm.gov.my>) [more details](#)

---

**[MODELING STORM SURGES ASSOCIATED WITH SUPER TYPHOON DURIAN IN SOUTH CHINA SEA](#)**  
This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area. This is the description area.  
*Author: Loy, K., Sinha, P., Juneng, L., Tangang F.T., Husain, M*  
Date : 2011  
Source: UKM (<http://www.ukm.gov.my>) [more details](#)





# Details Page – Download Data

**Metadata Details** Visualise in GIS Map

---

**Project Detail**

Project Title : Scientiifc Expedition Series 1 - 2012

Organisation Name : UMT

Project Leader : Prof. Akmal Hakim

Project Member : 1. Saiful Amri  
2. Fareez Rizwan

Funded By : ScienceFund NOD

Description : **Download link will sent to your registered email.** Universiti Malaysia

OK

---

**Metadata Owner**

Name of Collector	: Saiful Amri	Organisation	: UMT
Position	: Researcher	Address	: UMT
Email	: name@email.com	City	: Kuala Terengganu
Telephone Numer	: 03-343554	State	: Terengganu
Fax Number	: 03-343435	Postal Code	: 57000
Contact Website	: <a href="http://www.gov.my">http://www.gov.my</a>	Country	: Malaysia

---

**Data Collector**

---

**Identification Information**

---

**Spatial Domain**

---

**Dataset**

---

Interested of this dataset ? [Click here to Download](#)



The screenshot displays the MyNODC National Oceanographic Data Centre website. The main content area features a map of Malaysia with a heatmap overlay. The heatmap shows a concentration of data points in the southern part of the country, with colors ranging from blue (low) to red (high). The interface includes a navigation menu at the top with links for Home, About Us, National Role, Search, Visualisation, and Data Management. On the left, there are buttons for Forecast and Data View. On the right, there are filters for Select Oceanography Type (Biological, Chemical, Geological, Physical), Select Location (South China Sea, Straits of Malacca), and Select Time Frame (From and To date pickers). There are also buttons for View on Map and Reset.



# Outreach Programmes

**Objective:**

- To create awareness
- To encourage utilisation of MyNODC
- To encourage participation in MyNODC events

**Strategies:**

- Launch of new features
- PR (press release, TV, Radio)
- Roadshow/Exhibition
- Workshop

**Objective:**

- To build strong partnership
- To exchange data
- To leverage on established process

**Strategies:**

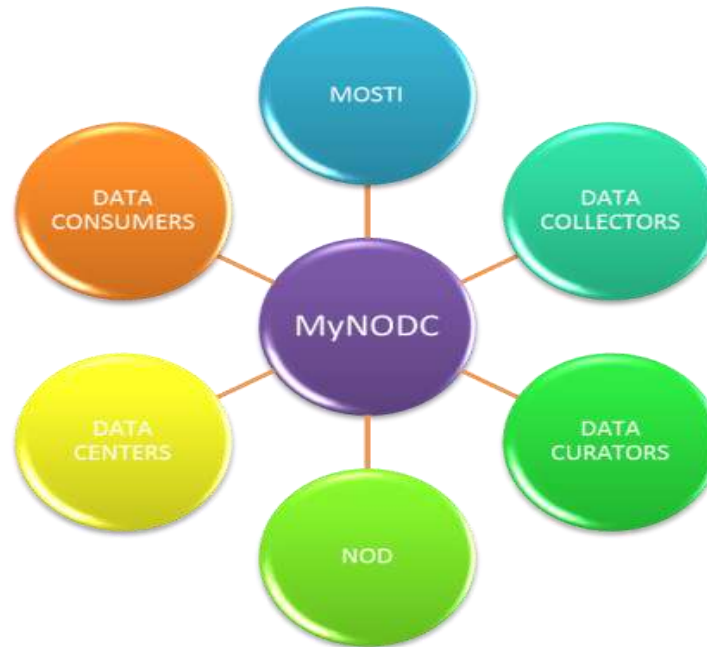
- Direct informational meetings
- Serve on related committees
- Participate in national, regional and international events

**Objective:**

- To create awareness
- To obtain buy-in and high level buy intervention
- To use management dashboard for Funding monitoring

**Strategies:**

- Focus group presentation and demo



**Objective:**

- To operate, maintain, enhance MyNODC
- To ensure freshness of data

**Strategies:**

- Active involvement in outreach program
- Transfer of Technology

**Objective:**

- To create awareness
- To solicit data
- To encourage collaboration and sharing
- To ensure freshness of content

**Strategies:**

- Workshop
- Focus group clinics
- Nationwide Roadshow/Exhibition

**Objective:**

- To create awareness
- To establish data management policy
- To clean and provide additional metadata

**Strategies:**

- Workshop
- Focus group clinics
- Nationwide Roadshow/Exhibition



# Scheduled Outreach Activities (Jan'16 to Mar'16)

Location	Number of Outreach Activity	Location	Number of Outreach Activity
Penang	2	Kota Bharu	1
Kuala Terengganu	2	Kota Kinabalu	1
Ipoh	1	Sandakan	1
Kuala Lumpur	3	Miri	1
Melaka	1	Kuching	1
Johor Bahru	1		
Kuantan	1		



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THANK YOU

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