



SeaDataNet

PAN-EUROPEAN INFRASTRUCTURE
FOR OCEAN & MARINE DATA
MANAGEMENT

Sensor Web Enablement integration, demo

IFREMER, CSIC, OGS and MARIS

Objective reminder

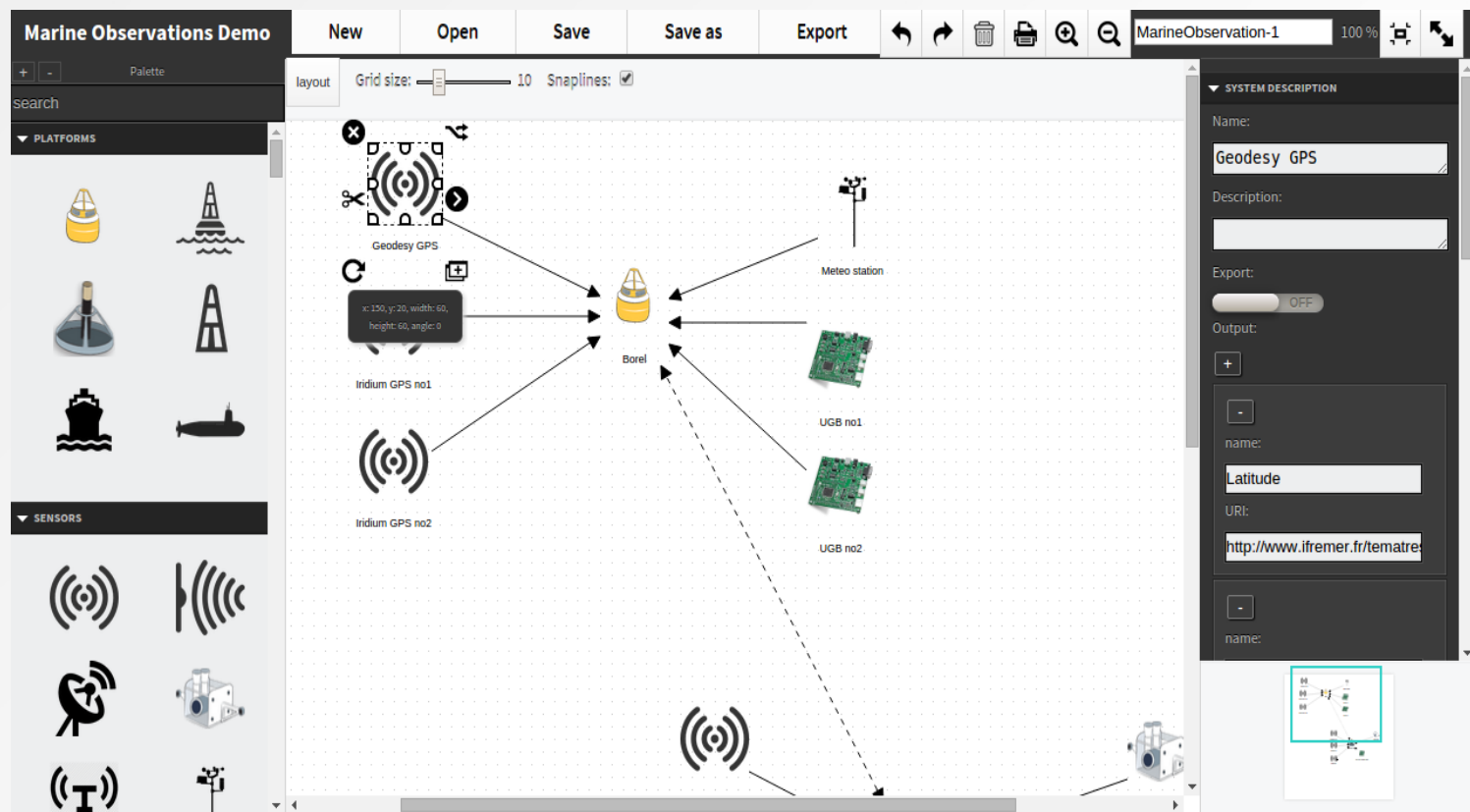
- **Edit/Create SensorML and O&M standard records**
- **Implement SOS services to access the standard records**
- **Integrate the services in the SDN infrastructure to bridge with near real time observation networks**

Edit/Create the records

- Difficulties: no on-the-shelf software available for version 2.0 of sensorML, O&M
- Opportunity: move edition from desktop function for data manager (as in mikado) to online functions for data providers
- Result: development of a marine observation system graphical editor : drawMySensor

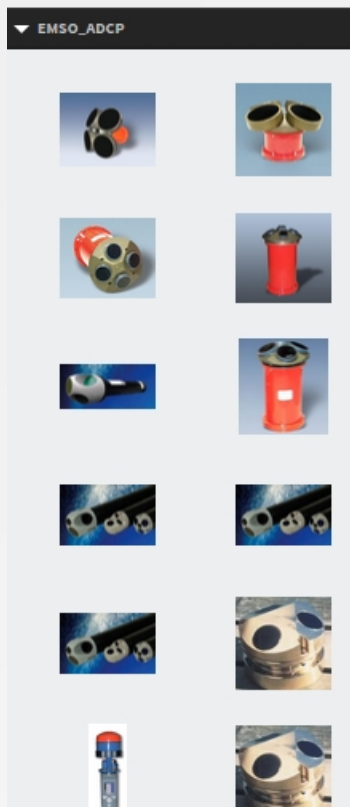
Draw My Sensor

<http://snanny.ifremer.fr/webgraphiceditorDemo/>



Draw My Sensor : preloaded sensor models

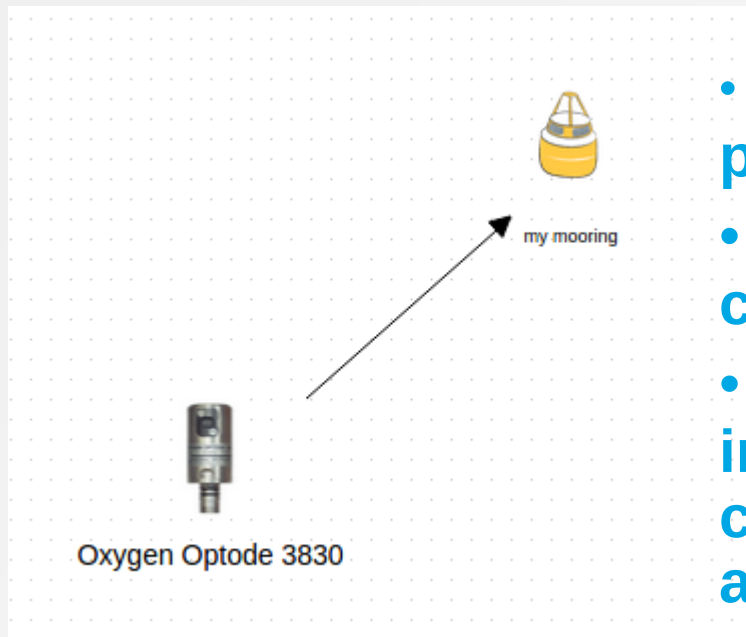
<http://snanny.ifremer.fr/webgraphiceditorDemo/>



- Sensor models descriptions are extracted (sensorML format) from EMSO sensor model directory (aka fixo3 yellow pages) :
<http://www.esonetyellowpages.com/>
- List of preloaded models is extensible (configuration).
- Description of the sensor model are provided as “sml:typeOf” information on the sensor instance description.

Draw My Sensor : draw and links components of your system

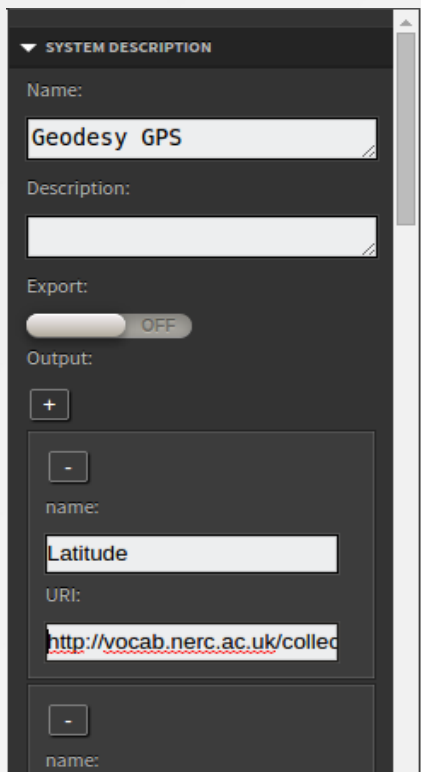
<http://snanny.ifremer.fr/webgraphiceditorDemo/>



- Drag and drop icons of sensor or platform model to create instances
- Link them together to describe complex systems.
- Links are oriented and means input/output relationship, type of connexion may be wired or not (e.g. acoustic).

Draw My Sensor : describe properties of the components

<http://snanny.ifremer.fr/webgraphiceditorDemo/>



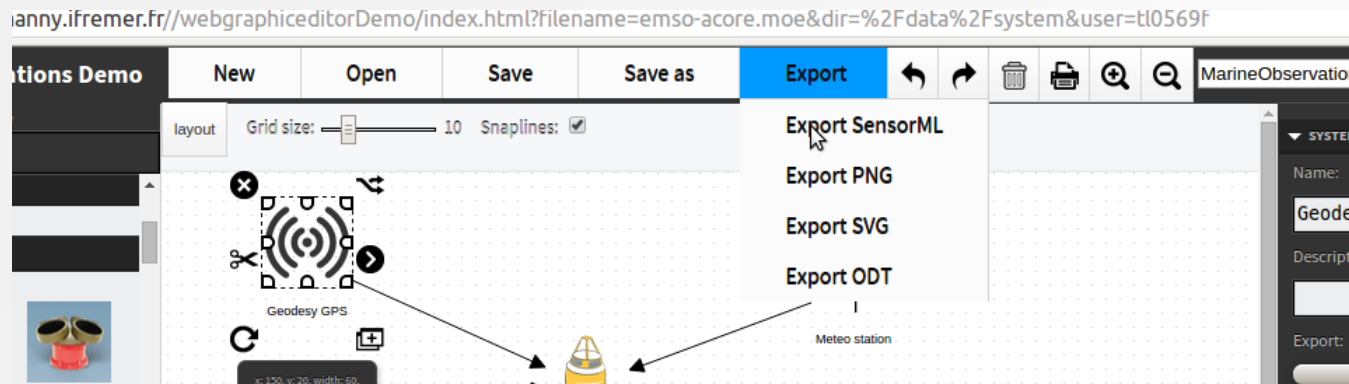
The screenshot shows a web form titled 'SYSTEM DESCRIPTION'. It contains the following fields and controls:

- Name:** A text input field containing 'Geodesy GPS'.
- Description:** A text input field.
- Export:** A toggle switch currently set to 'OFF'.
- Output:** A section with a '+' button to add new output parameters.
- Output List:** A list of output parameters, each with a '-' button to remove it. The first item is:
 - name:** 'Latitude'
 - URI:** 'http://vocab.nerc.ac.uk/collec'

- Name, description, identifiers and properties, outputs parameters, location, contact, events
- Free Text information
- Vocabularies references from URI (linked data).
- Autocompletion provided

Draw My Sensor : save and export

<http://snanny.ifremer.fr/webgraphiceditorDemo/>



- Save on disk or on ifremer cloud (test)
- Export in report (pdf, doc)
- Export in SensorML

SOS services deployed

protocol	operation	Format of answer
SOS	describeSensor	sensorML
	getObservation	O&M

- 52°North SOS services: Deployed at OGS and IFREMER with E2M3A mooring and EMSO-Azores deep sea observatory: manages properly O&M and time series results
- Temporarily unsuccessful attempt to use 52°N Sensor Registry to manage sensorML in SOS services
- Alternate SOS services also implemented in CSIC and IFREMER

Integration with SDN, namely CDI portal

- **Difficulty:**

- Diversity of available implementation available for SOS services (IFREMER, CSIC, OGS).
- Diversity of observation types (time series, profiles, trajectories)

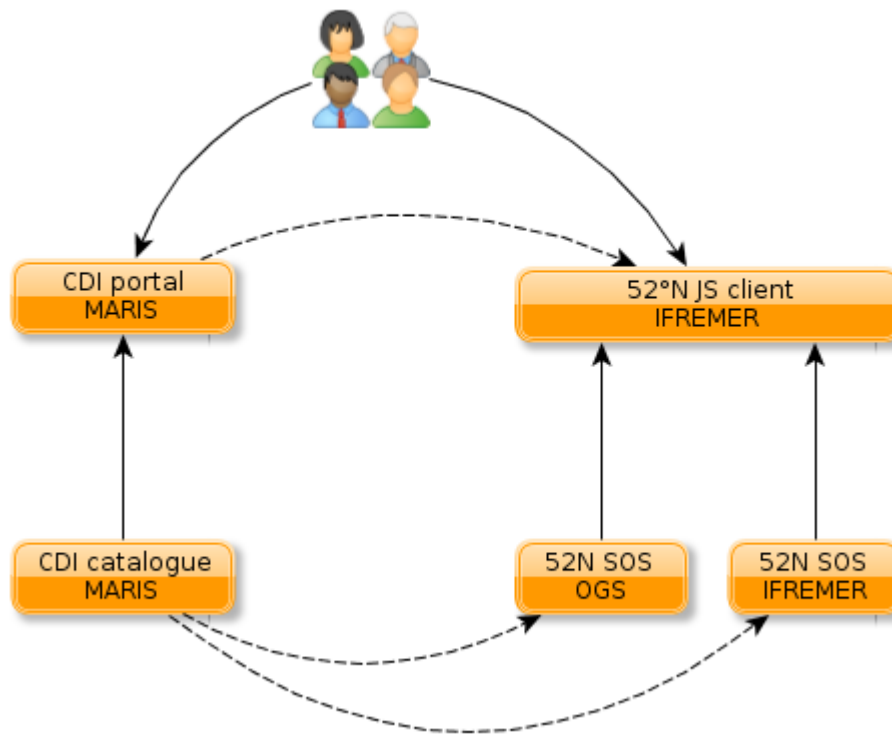
- **Opportunity:**

- Good looking 52°North client for time series only
- Interesting restful API provided by 52°N SOS server (promoted in ODIP)
- 100% on-the-shelf solution (good for sustainability).

- **Results: 2 partners integration (OGS, IFREMER)**



Underlying architecture



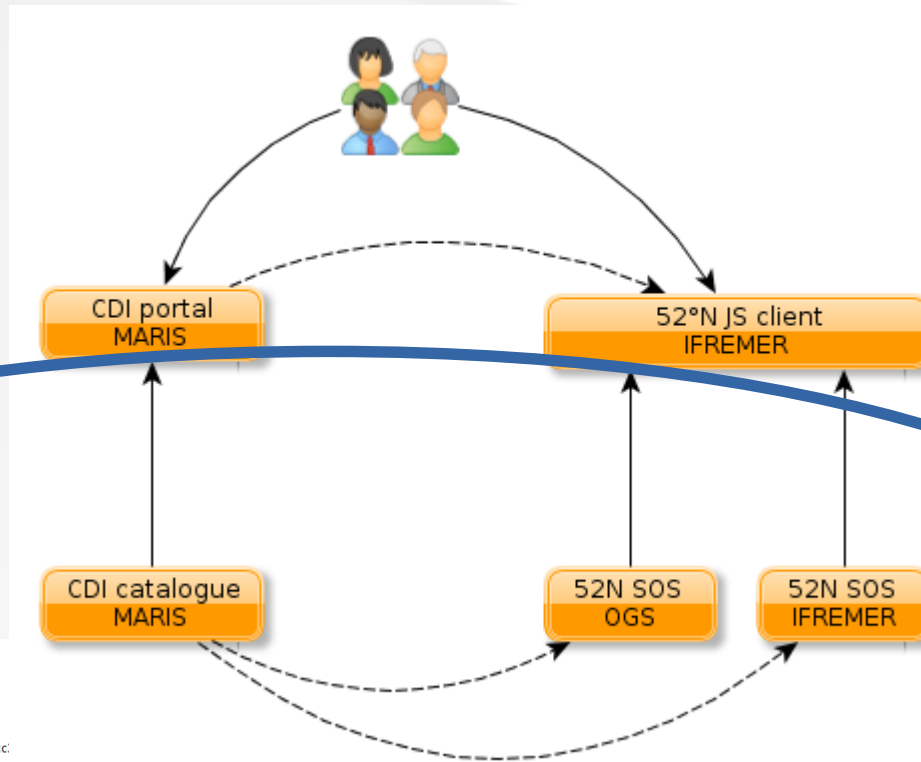
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▼<gmd:MD_DigitalTransferOptions>
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</gco:CharacterString>
</gmd:description>
▼<gmd:function>
▼<gmd:CI_OnlineFunctionCode>
```

NODC point of view

- Deploy 52°N SOS server
- Upload time series description and datasets in the server
- Update CDI records with time series URI in 52°N SOS Server through mikado

Underlying architecture

Web services stuff



```

</gmd:transferOptions>
<gmd:transferOptions>
  <gmd:MD_DigitalTransferOptions>
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        <gmd:function>
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```

User point of view

Data Distributor

Access/ordering of data

Internet access/ordering

Access restriction

Additional services

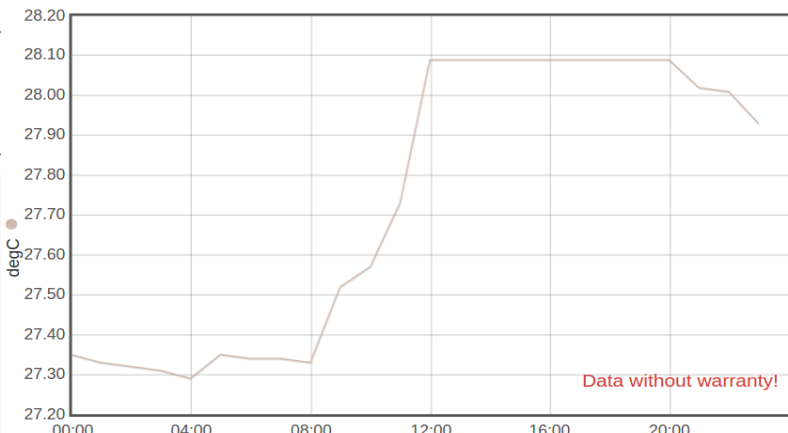
OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale), Division of Oceanography

web data access with registration

 by negotiation

Website	Reference	Distribution method	Data size
☒ Operational Time series visualisation of parameter	Electrical conductivity of the water body	52n-sos-restful-ts-api	
☒ Operational Time series visualisation of parameter	Temperature of the water body	52n-sos-restful-ts-api	
☒ Operational Time series visualisation of parameter			
☒ Operational Time series visualisation of parameter			

 Diagram



degC

28.20
28.10
28.00
27.90
27.80
27.70
27.60
27.50
27.40
27.30
27.20

00:00 04:00 08:00 12:00 16:00 20:00

22.07.15 - 22.07.15

★ Favorites

 Settings

 Map view

Legend

E2M3A ☆

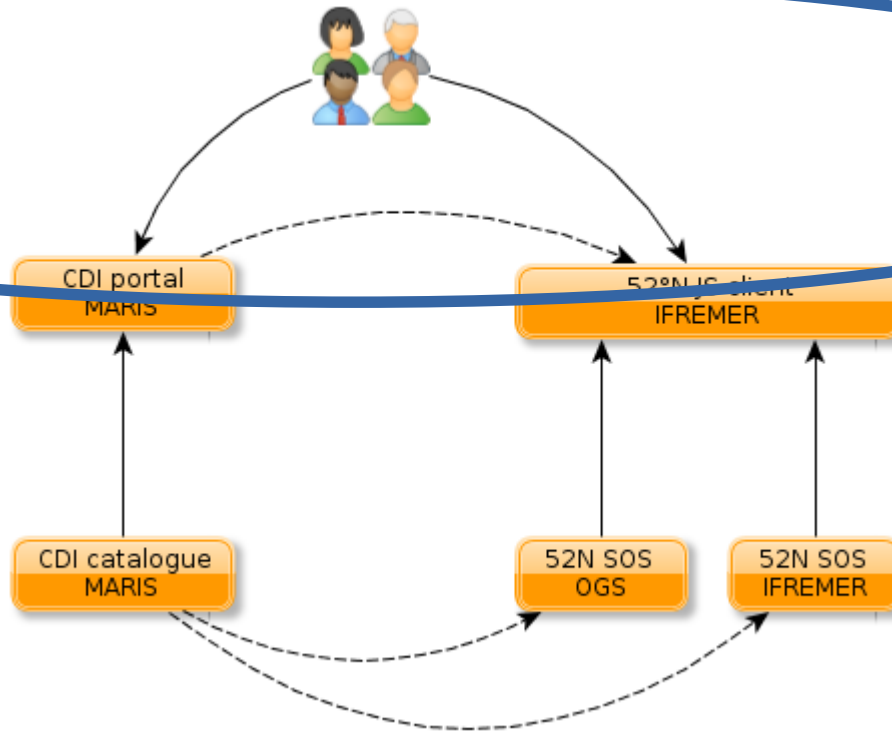
<http://vocab.nerc.ac.uk/collection/P01/current/TEMPPR01> (degC)

urn:ogc:object:feature:Sensor:OGS:CT_10597_E2M3A

Underlying architecture

Real life web experience



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<gmd:transferOptions>
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```



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Perspectives

- Improve user friendly experience (logos, less click, browser compliance).
- Extend the demo:
 - Vertical profiles and trajectories
 - Sensor and system descriptions
 - Re-merge with core SWE standards
- Work goes on in:
 - Eurofleet2, ODIP2, JERICO-NEXT, NEXOS, Fixo3 ATLANTOS, EMSO-DEV...
 - Ingestion system, SDN3, ifremer/csic/ogs internal business...
 - And on the clouds !