

**PML**

Plymouth Marine  
Laboratory



Marine Matters

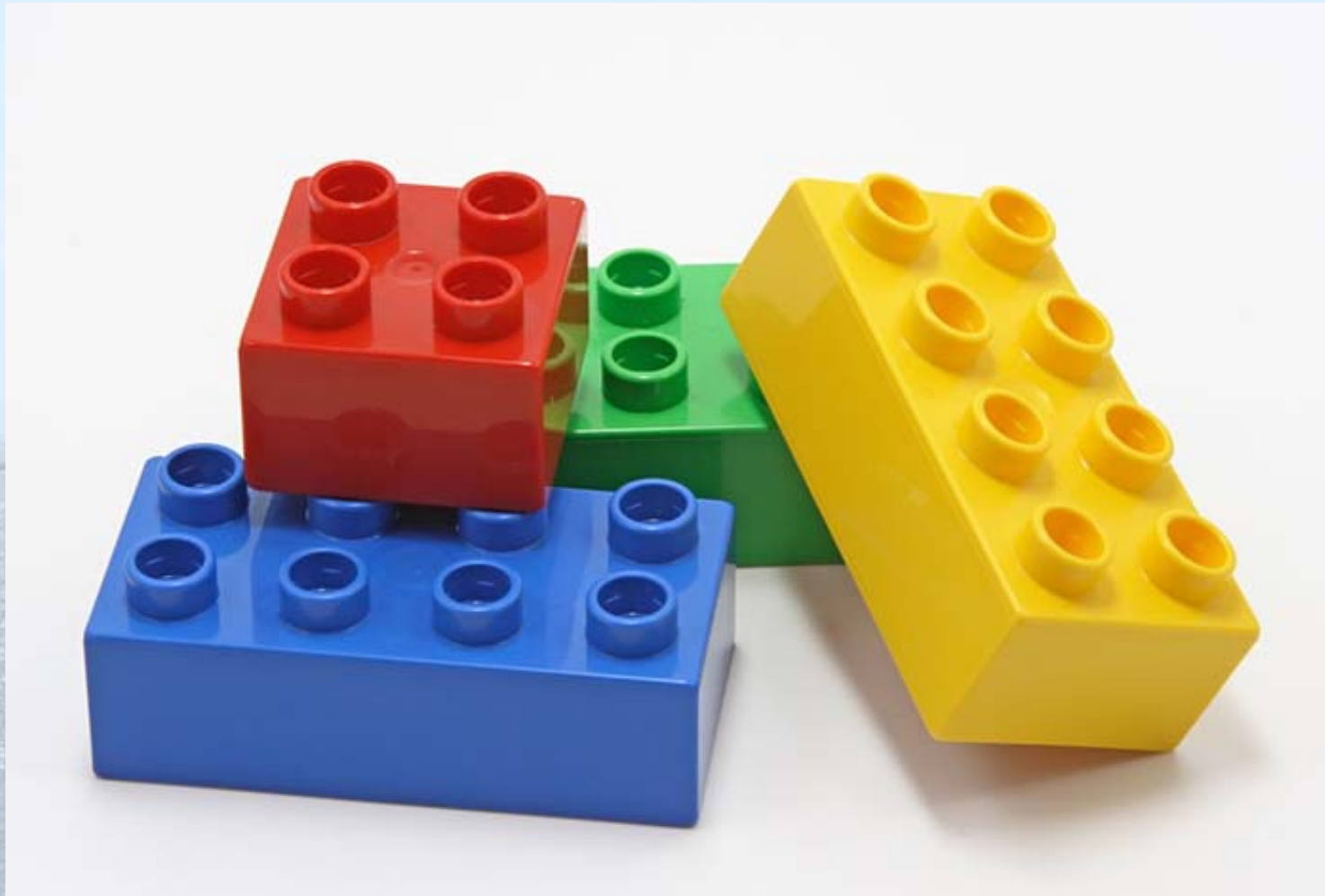
# NETMAR Services

Jorge de Jesus

Peter Walker

Mike Grant

EGU, Vienna, 2012



# Service Oriented Architecture – Nice building blocks

EGU, Vienna April 2012

# Interoperability

**(it can be a problem....)**

http://www.opengis.net/standards/wps

Home Standards Programs Participate OGC Blog Events About OGC Member Login

**Standards**

- OGC® Standards
  - Cat: ebRIM App Profile: Earth Observation Products
  - Catalogue Service
  - CityGML
  - Coordinate Transformation
  - Filter Encoding
  - GML in JPEG 2000
  - GeoAPI
  - Geographic Objects
  - Geography Markup Language
  - Geospatial eXtensible Access Control Markup Language (GeoXACML)
  - KML
  - Location Services (OpenLS)
  - NetCDF
  - Observations and Measurements
  - Open GeoSMS
  - Ordering Services Framework for Earth Observation Products
  - PUCK
  - SWE Common Data Model
  - SWE Service Model
  - Sensor Model Language
  - Sensor Observation Service
  - Sensor Planning Service
  - Simple Features
  - Simple Features CORBA
  - Simple Features OLE/COM
  - Simple Features SQL
  - Styled Layer Descriptor
  - Symbology Encoding

## Web Processing Service

### Web Processing Service

- Overview
- Downloads
- Official Schemas
- Related News

### 1) Overview

The OpenGIS® Web Processing Service (WPS) Interface Standard provides rules for standardizing how inputs and outputs (requests and responses) for geospatial processing services, such as polygon overlay. The standard also defines how a client can request the execution of a process, and how the output from the process is handled. It defines an interface that facilitates the publishing of geospatial processes and clients' discovery of and binding to those processes. The data required by the WPS can be delivered across a network or they can be available at the server.

### 2) Downloads

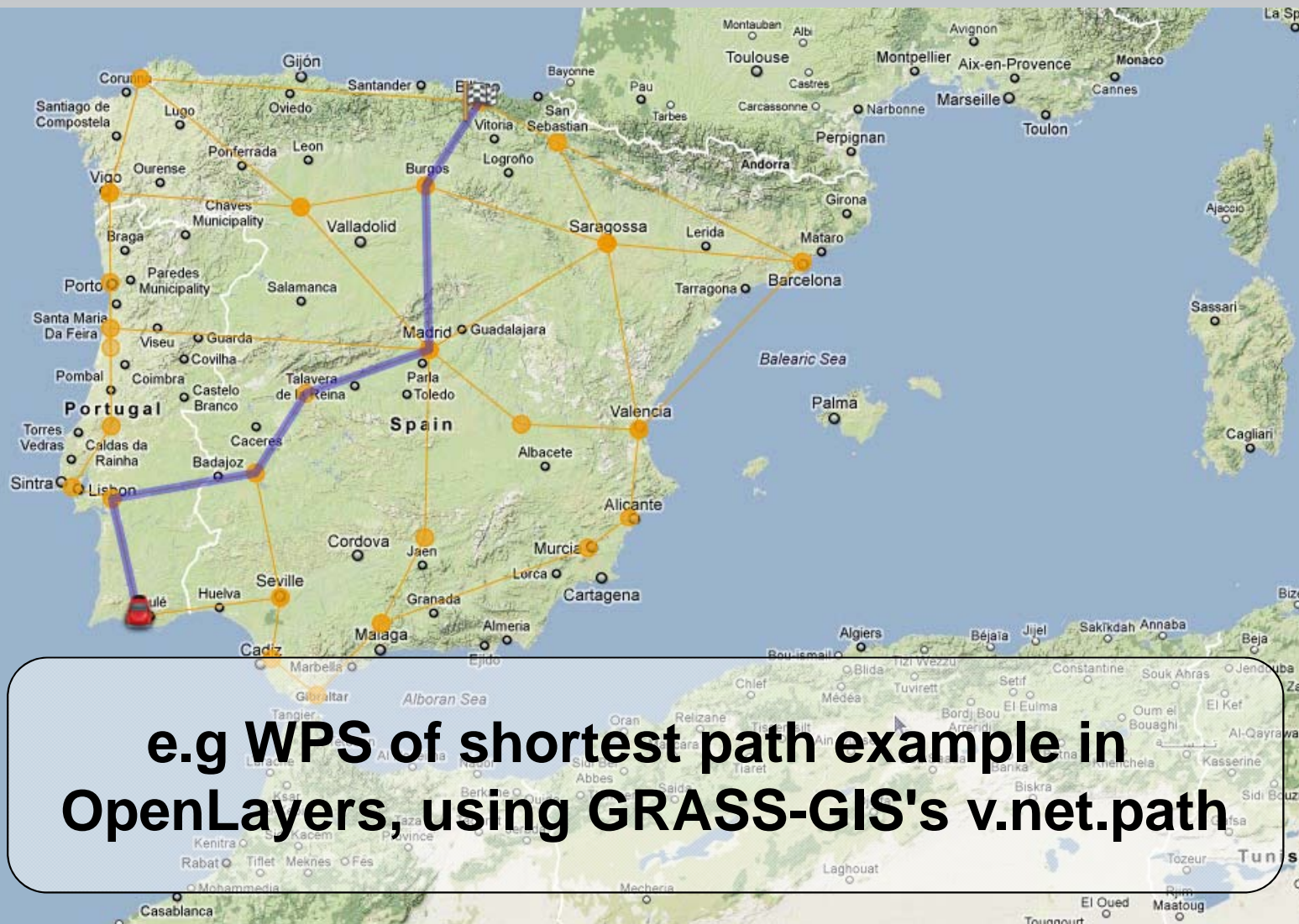
Version	Document Title (click to download)	Document #	Type
1.0.0	<a href="#">Web Processing Service</a>	05-007r7	IS
	<a href="#">Corrigendum for OpenGIS Implementation Standard Web Processing Service (WPS)</a>	08-091r6	ISC
	<a href="#">1.0.0 (0.0.8)</a>		
	<a href="#">Web Processing Service Best Practices Discussion Paper</a>	12-029	DP
0.4	<a href="#">Web Processing Service</a>	05-007r4	D-RFC
0.3.0	<a href="#">Web Processing Service</a>	05-007r2	D-DP
0.2.1	<a href="#">Web Processing Service</a>	05-007	D-DP
0.9.1	<a href="#">Discussions, findings, and use of WPS in OWS-4</a>	06-182r1	DP
	<a href="#">OWS-7 Web Processing Service Profiling Engineering Report</a>	10-059r2	PER

**Working Donkey !!!**

Submit a Change Request, Requirement, or Comment for this OGC standard.

### 3) Official Schemas

<http://schemas.opengis.net/wps>



**Contact:**

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Provider: Plymouth Marine Laboratory

Group: Remote Sensing Group

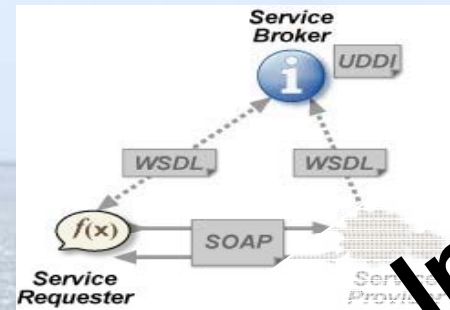
Site: <http://rsg.pml.ac.uk>

e.g WPS of shortest path example in  
OpenLayers, using GRASS-GIS's v.net.path

<http://rsg.pml.ac.uk/wps/example/index.html>



**GeoInformatics**



```

SOAP Envelope
<soap:Envelope
  xmlns:soap="http://schemas...">
  SOAP Header
  <soap:Header>
  Optional header parts
  </soap:Header>
  SOAP Body
  <soap:Body>
  SOAP Message Payload
  Optional SOAP Faults
  </soap:Body>
</soap:Envelope>
  
```

**Generic Informatics**



PyWPS



```
<?xml version="1.0" encoding="I
<definitions name="AktienKurs";
  targetNamespace="http://loca
  xmlns:xsd="http://schemas.xmlsoap.or
  xmlns="http://schemas.xmlsoap.org/wsd
<service name="AktienKurs">
  <port name="AktienSoapPort" binding
  <soap:address location="http://loc
  </port>
  <message name="Aktie.HoleWert">
    <part name="body" element="xsd:Tra
  </message>
  ...
</service>
</definitions>
```

WSDL

Automatic WPS description (I/O) into WSDL

So what happens now ??? We have a generic service description compatible with lots of systems

Now we can use generic orchestration platforms on WPS !!!!

Taverna Workbench 2.3.0

File Edit Insert View Workflows Advanced Help

Design Results myExperiment Service Catalogue

Service panel

Filter:  Clear

Import new services

- Available services
  - Service templates
  - Local services
  - WSDL @ <http://rsg.pml.ac.uk/wps/generic.cgi?WSDL>

Workflow explorer Details Validation report

- input
  - IceClassMapResult
  - textResult
- ExecuteProcess\_r.colors
  - DataInputs
  - attachmentList
  - ProcessOutputs
- ExecuteProcess\_r.colors\_DataInputs
  - a
  - color
  - e
  - g
  - input
  - n
  - output
- ExecuteProcess\_r.colors\_ProcessOutputs
  - input
  - outputResult
- Workflow1
  - image
  - stats
- Workflow15

Workflow19 from /home/jesus/Downloads/\_untitled\_194053.t...

The diagram illustrates a workflow with two sub-workflows:

- Workflow15 (top):** Starts with a process node 'ExecuteProcess\_getIceClassMapsAsAr\_list'. It has two input ports: 'dateReg' and 'colorTable'. The process outputs to 'lineFeeder', which then feeds into 'ExecuteProcess\_getIceClassMapsAsAr\_list\_ProcessOutputs'. This process outputs to 'Split\_string\_into\_string\_list\_by\_regular\_expression', which then feeds into 'filterDate'. 'filterDate' outputs to 'Filter\_List\_of\_Strings\_by\_regex', which outputs to 'listDate'.
- Workflow1 (bottom):** Starts with three input ports: 'n\_value', 'p\_value', and 'a\_value'. These feed into 'ExecuteProcess\_r\_stats\_DataInputs', which outputs to 'ExecuteProcess\_r\_stats'. 'ExecuteProcess\_r\_stats' outputs to 'ExecuteProcess\_r\_stats\_ProcessOutputs', which outputs to 'stats'.

Data flows connect the two workflows:

- 'listDate' from Workflow15 feeds into 'ExecuteProcess\_getIceClassMapsAsArGeoTIFF\_DataInputs'.
- 'ExecuteProcess\_getIceClassMapsAsArGeoTIFF\_DataInputs' feeds into 'ExecuteProcess\_getIceClassMapsAsArGeoTIFF'.
- 'ExecuteProcess\_getIceClassMapsAsArGeoTIFF' outputs to 'ExecuteProcess\_getIceClassMapsAsArGeoTIFF\_ProcessOutputs'.
- 'ExecuteProcess\_getIceClassMapsAsArGeoTIFF\_ProcessOutputs' feeds into 'ExecuteProcess\_r.colors\_DataInputs'.
- 'ExecuteProcess\_r.colors\_DataInputs' feeds into 'ExecuteProcess\_r.colors'.
- 'ExecuteProcess\_r.colors' outputs to 'ExecuteProcess\_r.colors\_ProcessOutputs'.
- 'ExecuteProcess\_r.colors\_ProcessOutputs' feeds into 'Decode\_Base\_64\_to\_byte\_Array'.
- 'Decode\_Base\_64\_to\_byte\_Array' outputs to 'statsResult', 'textResults', and 'imageResult'.





- Home
- Users
- Groups
- Workflows
- Files
- Packs
- Services
- Topics

classification ice All Search

Home »

## Search results for "classification ice"

Search filter terms

Sort by: Rank

Showing 3 results. Use the filters on the left and the search box below to refine the results.

Filter by category

- Workflow 2
- User 1

Filter by type

- Taverna 2

Filter by tag

- classification 2
- ice 2
- nersc 2
- analysis 1
- color 1
- dates 1
- filter 1
- grass 1
- pixel 1
- regular expres... 1

Filter by user

- Jorgejesus 2

classification ice Search

**Taverna 2** **Ice Class Map pixel analysis (NERSC) (v1)** [View](#)

**Created:** 02/11/11 @ 10:08:05 | **Last updated:** 02/11/11 @ 10:10:50

**Credits:** Jorgejesus [Download \(v1\)](#) [Manage](#)

**License:** Creative Commons Attribution-Share Alike 3.0 Unported License

**Original Uploader** Jorgejesus

**NERSC ice classification workflow.** Available images for a specific date will be fetched from the WPS service, and their color table changed to allow for a user to easily identify specific areas. Statistical analysis also run using the r\_stats module. Workflow uses a list of image, the list will flow thru the workflow for process resulting in multiple outputs

**Rating:** 0.0 / 5 (0 ratings) | **Versions:** 1 | **Reviews:** 0 | **Comments:** 1 | **Citations:** 0

**Viewed:** 15 times | **Downloaded:** 7 times

**Tags (7):** analysis | classification | color | grass | ice | nersc | pixel

**Taverna 2** **date filter for ice Class Map service (NERSC) (v1)** [View](#)

**Created:** 02/11/11 @ 10:05:35 | **Last updated:** 04/11/11 @ 10:27:00

[Download \(v1\)](#)

### New/Upload

Workflow GO



Jorgejesus

- My Profile [edit]
- My Messages
- My Memberships
- My History
- My News

### My Stuff

2 Friends | 1 Group | 12 Workflows

#### Friends

- Antarch
- Yehia El-khatib

#### Groups

- PyWPS

#### Workflows

### My Favourites

0 favourites

**The WPS tool box looks empty, where are the processes ?!?!?**



## DYI

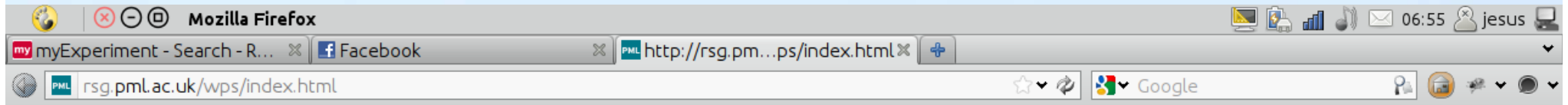
[http://wiki.rsg.pml.ac.uk/pywps/Main\\_Page](http://wiki.rsg.pml.ac.uk/pywps/Main_Page)

**Get GIS and algorithms from other projects !!!**



## **GRASS GIS**

<http://code.google.com/p/wps-grass-bridge/>



Welcome to PML's WPS service

Please, use the chached versions (WSDL and DescribeProcess all)

### WPS services structure

- GRASS Raster services
- GRASS Vector services
- Generic services

### GetCapabilities:

- GRASS Raster services
- GRASS Vector services
- Generic services

### DescribeProcess (all) cached [08 Feb 2012]

- GRASS Raster services
- GRASS vector services

### DescribeProcess (all)

**150 WPS services**

**[Http://rsg.pml.ac.uk/wps/index.html](http://rsg.pml.ac.uk/wps/index.html)**



**Ohhh the blocks don' fit!!! 0\_0**

This XML file does not appear to have any style information associated with it. The document tree is shown below.

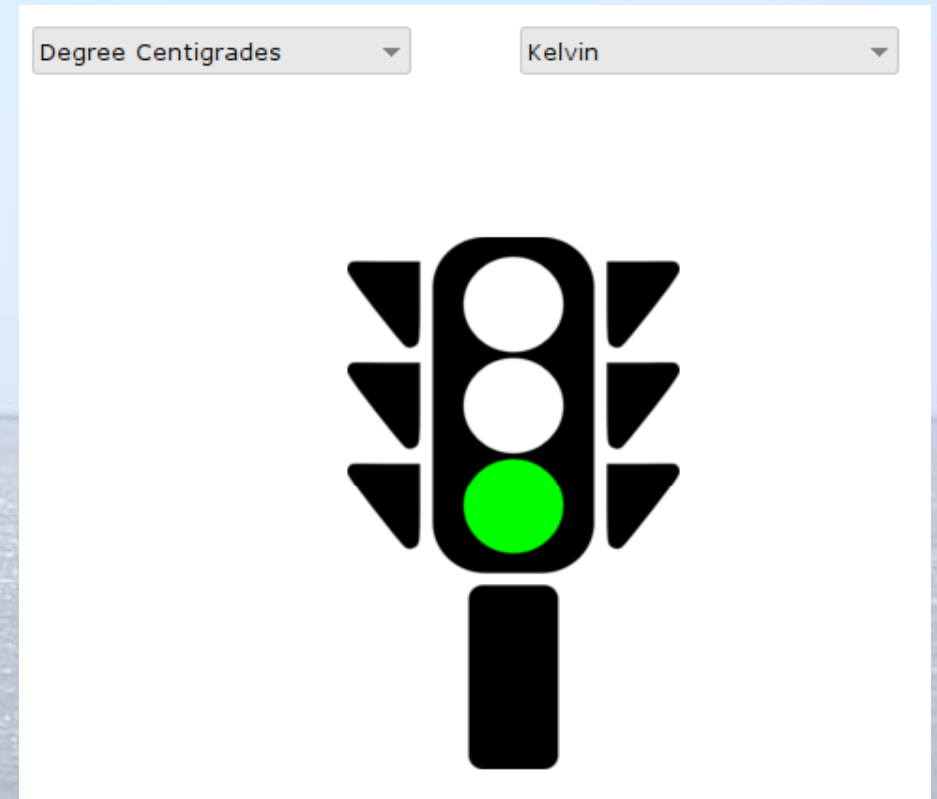
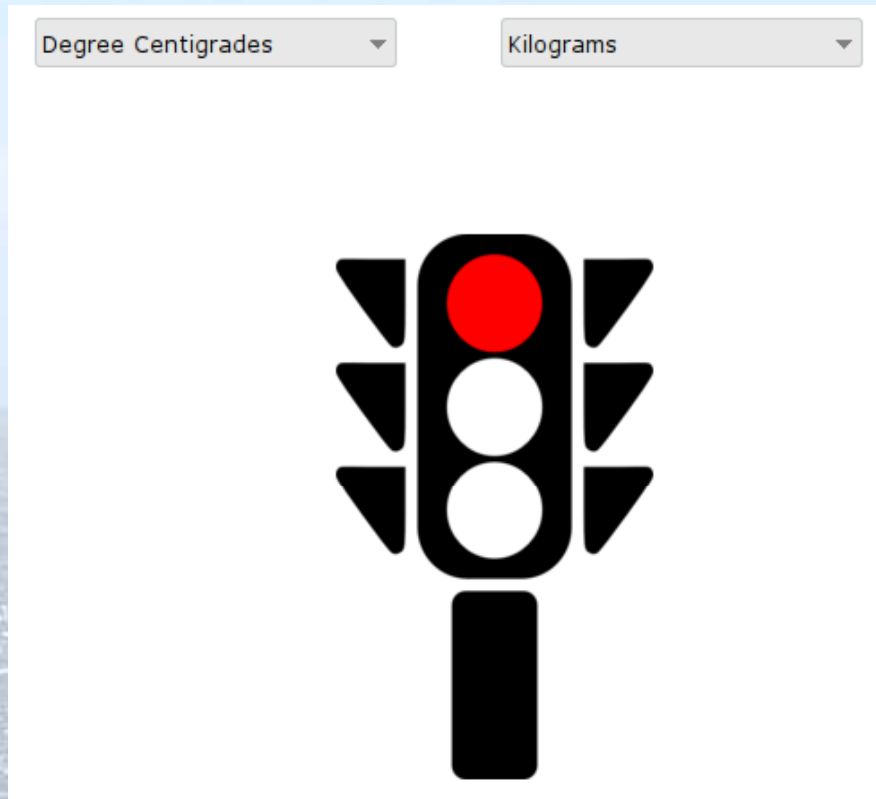
```

- <wps:ProcessDescriptions xsi:schemaLocation="http://www.opengis.net/wps/1.0.0 http://schemas.opengis.net/wps/1.0.0/wpsDescribeProcess_response.xsd" service="WPS" version="1.0.0" xml:lang="en-CA">
- <ProcessDescription wps:processVersion="0.1" storeSupported="true" statusSupported="true">
  <ows:Identifier>temperatureConverter</ows:Identifier>
  <ows:Title>
    Simple Temperature Converter, Centigrades to Kelvin
  </ows:Title>
  <ows:Abstract>
    Simple Temperature Converter, Centigrades to Kelvin
  </ows:Abstract>
  <ows:Metadata xlink:title="Temperature" xlink:href="http://vocab.nerc.ac.uk/collection/P24/current/KELVIN"/>
- <DataInputs>
  <input minOccurs="1" maxOccurs="1">
    <ows:Identifier>in</ows:Identifier>
    <ows:Title>Temperature input value</ows:Title>
  <ows:Abstract>
    Temperature input value that will be transformed from C into K
  </ows:Abstract>
  <ows:Metadata xlink:title="Degrees Celsius" xlink:href="http://vocab.nerc.ac.uk/collection/P06/current/UPAA"/>
- <LiteralData>
  <ows:DataType ows:reference="http://www.w3.org/TR/xmlschema-2/#float">float</ows:DataType>
  <ows:AnyValue/>
  <DefaultValue>0.0</DefaultValue>
  </LiteralData>
</Input>
</DataInputs>
- <ProcessOutputs>
  <Output>
    <ows:Identifier>out</ows:Identifier>
    <ows:Title>Temperature output value</ows:Title>
    <ows:Abstract>Returned temperature in Kelvin</ows:Abstract>
  </Output>
  </ProcessOutputs>

```

**Http://rsg.pml.ac.uk/wps/generic.cgi?temperatureConverter**

**Semantics may help !!!**



<http://rsg.pml.ac.uk/rest/test.html>

<http://rsg.pml.ac.uk/rest/index.html>



# Questions ?!