

Concerning NETMAR, WPS, Workflow and Semantics

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NETMAR Overview

- A 3-year EU FP7 project commencing 1st February 2010
- Partners
 - Norway NERSC (co-ordinators) and METNO
 - UK BODC and PML
 - Ireland CMRC
 - France IFREMER and CEDRE



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NETMAR Overview

- NETMAR objective is to produce a pilot European Marine Information System (EMIS)
- EMIS will search, download and integrate satellite, in situ and model data from ocean and coastal areas

NETMAR Overview

- EMIS will have a semantic framework coupled to ontologies that will identify and access diverse distributed data
- EMIS will enable further processing of such data to generate composite products and statistics
- EMIS will be configured to each use case application through workflows

NETMAR Overview

- NETMAR work packages of note
 - WP1 Use case specification
 - WP2 System architecture
 - WP3 Ontologies
 - WP4 Semantic Framework
 - WP5 Service networks
 - WP6 EMIS development

NETMAR and ICAN

- WP1 specifies six scenarios for different thematic applications for testing the NETMAR system
- ICAN is one of these scenarios
- In a nutshell the NETMAR objective will be to augment (possibly replace?) the ICAN prototype with an EMIS workflow

NETMAR and ICAN

- ICAN issues to be addressed by NETMAR
 - Dataset discovery
 - Connection of real-time information to CWA
 - Product discovery, dynamic generation and integration into CWA
 - Input into CWA from web-based Environmental Information System (EIS)
 - Incorporation of CWA multilingual datasets into EIS

NETMAR Glimpse Under the Hood

– Ontology Development

- Strategy will be to locate and utilise existing semantic resources
- Bridges, including mappings, will be developed to interface resources to NETMAR
- Multilingual functionality through harnessing existing technology
- ‘Last resort’ will be the development of new semantic content

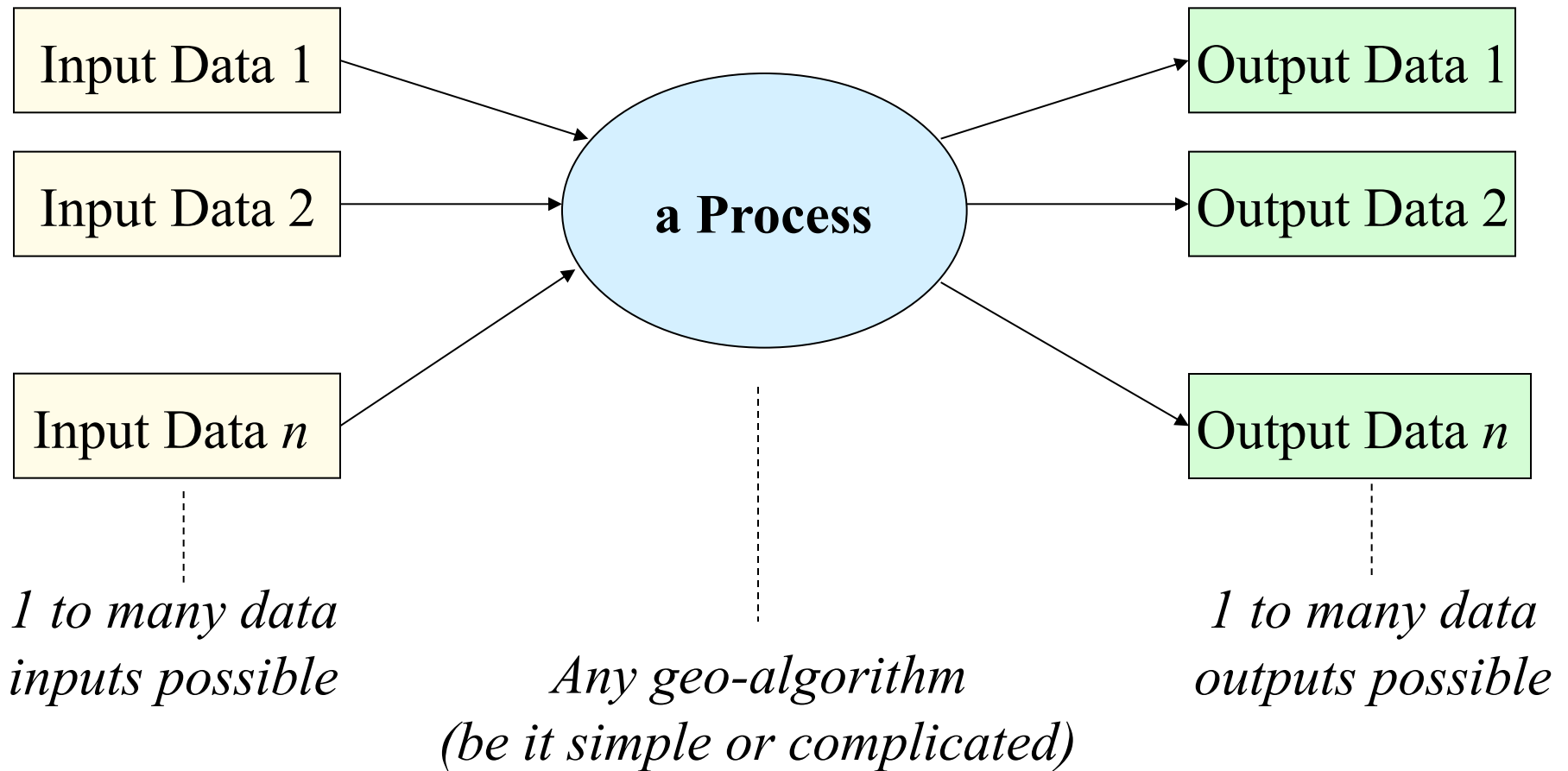
NETMAR Glimpse Under the Hood

- Fundamental technology for NETMAR will be workflow based on chained Web Processing Services (WPS)

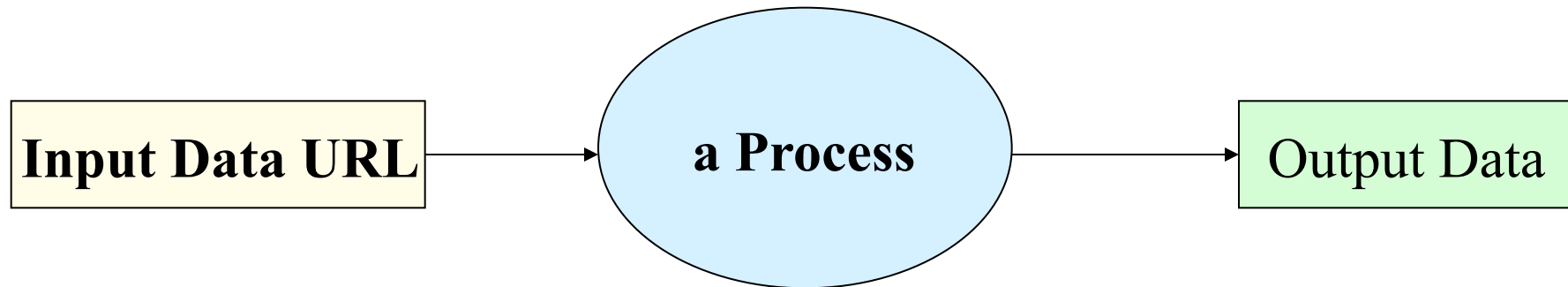
WPS: Overview

- Web Processing Service is an OGC Standard
- Originally named “Geoprocessing Service”
- It specifies a framework for geoprocessing of spatial data over the web

WPS: Overview



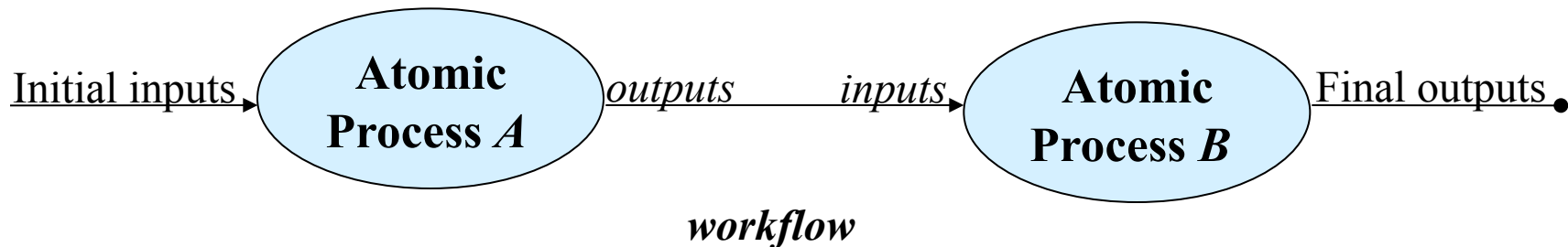
WPS: Overview



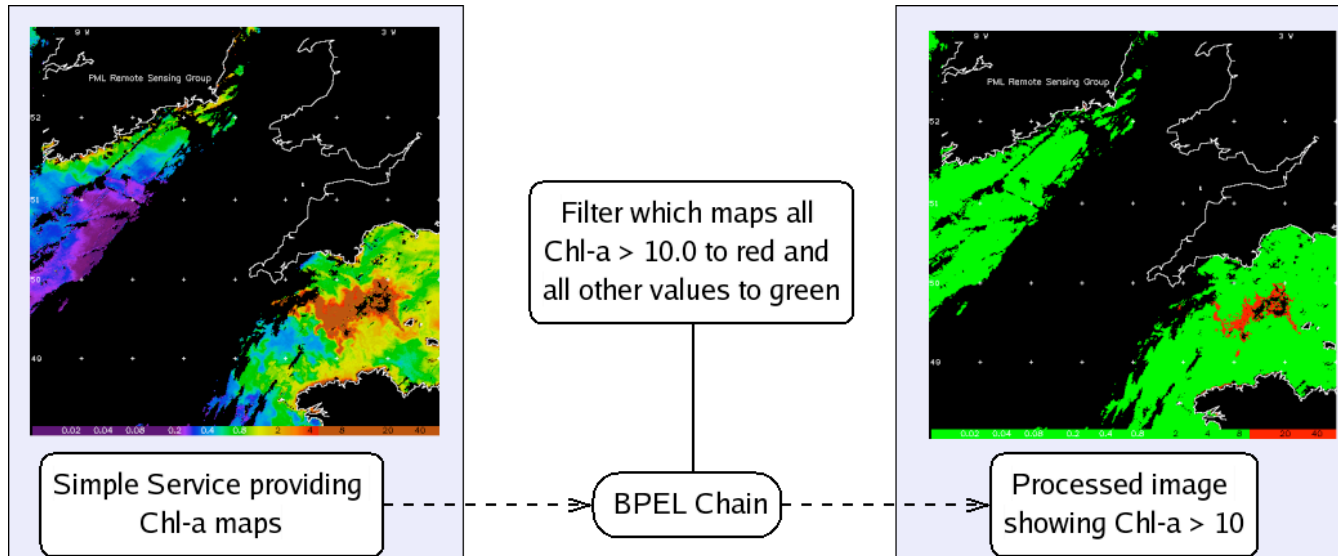
- Input data is typically in URL form
- Therefore, can input data from:
 - OGC WMS / WFS / WCS web services
 - Flat files published at a URL
 - etc.

Service chaining with WPS

- A WPS process is normally an atomic function
 - It performs a specific geospatial calculation
- Service chains
 - WPS processes can be incorporated into workflows
 - e.g. using BPEL workflow engine, etc.
(*BPEL: Business Process Execution Language*)
- Technology developed in EU FP6 InterRisk project



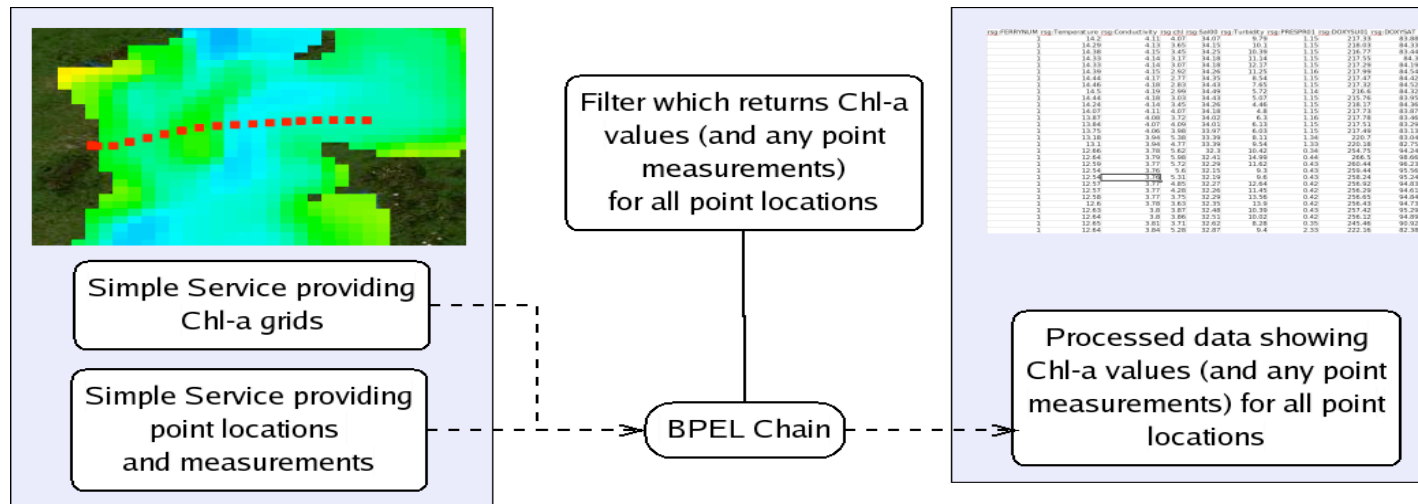
Service chaining using WPS and BPEL workflow engine



➤ InterRisk WPS Use Case 1 (PML, UK): Demarcation of waters exceeding Chl-a threshold level

- Input: PNG image (chlorophyll satellite map from a WMS)
- Process: mask input PNG according to a threshold
- Output: processed PNG image showing Chl-a > 10

Service chaining using WPS and BPEL workflow engine



➤ InterRisk WPS Use Case 2 (PML, UK): Extraction of map data at locations of in situ sampling

- Input 1: PNG image (chlorophyll satellite map from a WMS)
- Input 2: sample locations (Chl-a measurements from WFS)
- Process: merge inputs & extract Chl-a values at locations
- Output: spreadsheet containing merged Chl-a values

WPS in NETMAR

- NETMAR will build upon InterRisk experiences
- NETMAR will use a semantic framework based on ontologies to ‘glue’ the definition, semantics, workflows, etc. of WPS processes