WaterInnEU, WaCoDiS, MuDaK-WRM

Simon Jirka

Hydrology Domain Working Group
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WaterInnEU

• H2020 Coordination and Support Action
• March 2015 - February 2017
• Applying European market leadership to river basin networks and spreading of innovation on water ICT models, tools and data
• Two main developments
  – WaterInnEU Marketplace
  – RiBaSE pilot
WaterInnEU - Marketplace

- WaterInnEU Marketplace

Products & Services

Product of the Month
CORES-A1

The CORES-A1 is an unmanned robotised boat for ambient monitoring of coastal and inland water. The station is provided with appropriate navigation and measurement equipment, is managed remotely from the shore, and transmits the data in real time. The station provides cost effective sampling from the aquatic environment and direct... Read more

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You can also:

- Take a course to help you implement a specific product
- Join our community to add your own product or organisation, find support or join a discussion
- Go to the forum to see the latest debates on river basin management
- Subscribe for alerts to get informed about the latest changes depending on your requirements
WaterInnEU - RIBASE

• RIBASE: RIver BAasin Standards intEroperability pilot
• Pilot for testing OGC Web Services for the integration of water-related information and models
• RiBaSE is designed for testing:
  – The adaptability of common spatial standards to water applications
  – The best suitable connection between these standards
  – The application of WaterML in a general geospatial framework

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<th>Acronym</th>
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<td>netCDF CF</td>
<td>Network Common Data Form</td>
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<td>SAS draft</td>
<td>Sensor Alert Service</td>
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<td>SOS 2.0</td>
<td>Sensor Observation Service</td>
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<td>Web Processing Service</td>
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WaterInnEU - RIBASE

Severn

Scheldt

Maritsa
• Flood scenario
  – Severn
  – SOS by National River Flow Archive (NRFA) hosted in the Centre for Ecology & Hydrology (CEH)
WaterInnEU - RIBASE

• CCREAF WPS server
  – HAND (Height Above the Nearest Drainage) integrates additional ArcGIS functionalities
  – TauDEM (Terrain Analysis Using Digital Elevation Models) prepares a non time-dependent DTM from DEM
  – MiraMon cgi WPS derives flooded area for a selected date/time depending on water level measurements in stations by a SOS or pre-downloaded WaterML/CSV data
  – MiraMon model integrates the r.inund.fluv (GRASS) and spatialization procedure to the HAND method.
WaterInnEU - RIBASE

• Pub/Sub Component
  – RESTful component implemented by 52° North based on the OGC Pub/Sub standard
  – Publish: polygons (flooded Areas) are published from WPS to Pub/Sub component
  – Subscribe: Users can subscribe with a point-of-interest → notifications are sent, if the point intersects a flooded area
WaterInnEU - RIBASE

WPS Setup and Configuration

This is the basic configuration-tab. To use Web Processing functionalities you first have to choose an available service and also specify its version. With each re-selection (WPS or version), a GetCapabilities request will be executed. The capabilities response is then used to update the application and enable the remaining tabs. The tabs 'GetStatus' und 'GetResult' are permanently blocked for version 1.0.0.

Change Language

English

Please choose a WPS from the list:

http://www.ogc.uab.cat/cgi-bin/WaterInnEU

Add WPS URL

Select the desired WPS service-version:

WPS Capabilities

This area gives an overview of general information about the chosen Web Processing Service. An overview of all processes can be accessed from the 'Processes' tab.

Identification

Provider

Operations

GetCapabilities
GET URL
http://www.ogc.uab.cat/cgi-bin/WaterInnEU?M=GetCapabilities

POST URL
http://www.ogc.uab.cat/cgi-bin/WaterInnEU?M=GetCapabilities

DescribeProcess
GET URL
http://www.ogc.uab.cat/cgi-bin/WaterInnEU?M=DescribeProcess

POST URL
http://www.ogc.uab.cat/cgi-bin/WaterInnEU?M=DescribeProcess

Execute
GET URL
http://www.ogc.uab.cat/cgi-bin/WaterInnEU?M=Execute

POST URL
http://www.ogc.uab.cat/cgi-bin/WaterInnEU?M=Execute

WPS Processes

This area provides you with information about the selected process, divided into common information and the 'inputs' and 'outputs' of the process.

Available Processes

Flood areas generation from a DTM and from measurements and stations provided

General Information

Title
Flood areas generation from a DTM and from measurements and stations provided (Option 1)

Identifier
Mirational Inundation Parameter 1

Description
Flood areas generation at specified data from a DTIM and from measurements and stations indicated by the user (Option 1). The point station measurements are spatialized through Thiessen polygons.

Process Version
1

Available Output Transmission Modes

Asynchronous: "async-execute"

Available Job Execution Modes

Asynchronous: "async-execute"

Success! The DescribeProcess request for the currently selected process was successful.
WaterInnEU - RIBASE

WaterInnEU WPS test

Execute a process (WPS)

Operation to execute:
Flood areas generation from a DTM and from measurements and provided stations

Input parameters:
Option:
3

River Basin identifier:
Maritsa

Date-time in ISO format:
2016-05-28T00:00:00.000
The exchange of open hydrological information in standard formats and interoperable services works.

More interoperable data sources are desirable.

Data provision by SOS service in WaterML 2.0 is the recommended option for allowing to chain automatic procedures and applications.

Additional efforts are needed to support WPS but it offers advantages in terms of modularity, reusability, and interoperability.

The preparation of non-time dependent processing data is recommended for efficiency.

WaCoDiS

- Combination of heterogeneous data sources and existing interoperable web-based information systems
- Connection to the Copernicus infrastructure and the extension of INSPIRE-compliant Sensor Web technology to deal with big raster data
- Innovative analyses of high temporal resolution Sentinel-1 and Sentinel-2 Copernicus satellite data that contributes to the exploration of heavy rain effects on agricultural areas
- Integration of in-situ and satellite data into domain-oriented models to optimize the simulation of pollutant flows
- https://wacodis.fbg-hsbo.de/
WaCoDiS

Domain Applications

Water Industry Associations

Suppliers

Agricultural Sector

Public

Analytics Services (Environmental Monitoring)

Business Models (material input etc.)

...
WaCoDiS

• Current status: Architecture development
• Important challenges:
  – Integrating remote and in-situ measurements
  – Processing infrastructure
  – Event-based workflows
• Multidisciplinary Data Acquisition: The Key for a globally applicable Water Resource Management

• Main goals
  – Identification of all relevant parameters influencing the long-term behavior of a reservoir
  – Development of a minimum monitoring concept
  – Reduction of complexity and data demand of given model approaches
  – Development of a globally applicable tool for surface water resources
Build a central observation data exchange system
Visualise water quality data and campaigns
Integrate in-situ measurements with remote sensing data
Wrap models in inter-operable web processing services
MuDaK-WRM

- Huge variety of heterogeneous data sets (~ 70)
- In-situ, UAV and satellite measurements
- Spatial:
  - Vector: point
  - Raster: 0.5 m – 10 m – 20 m
- Temporal:
  - Instant
  - Period: 30 sec – hourly – weekly – monthly – annual
- Various measurement units
- Typically of relevance for several partners
Thank you for your Attention!

jirka@52north.org