Surface Water IE
- Use Case: Cross Border Data Exchange

73rd OGC Technical Committee
Silver Springs, Maryland, USA
Surface Water IE (Cross Border)
June 16, 2010
Agenda

- Overall Goal
- Participants
- Architecture
- Deliverables
- Workplan (Outcome)
- Timeline and Actions
Overall Goal

- Test WaterML2.0 encoding with surface water data
- (Near) Real-time data exchange
- Regional focus: Rhine River (French: Rhin – German: Rhein)
- Technologies SOS, WFS and WMS
- Challenge: different administrative responsibilities and a lot of multilingual issues
Regional Focus: Rhine River
Participants: KISTERS (Germany)

- Will provide an SOS Service speaking WaterML 2.0 as part of the KISTERS Hydrological Information System WISKI 7.x. The SOS Service enables WISKI 7.x to publish but also to consume meta and time series data in WaterML 2.0 Format.
- This WISKI 7.x System will be implemented at the Service Centre Information Technology of the BMVBS for the purpose of this experiment.
  
  Note: Data from the Global Runoff Data Center will also made available through the WISKI 7.x version (see → Global Runoff Use Case).

- KISTERS will also contribute to the implementation of a catalog service.
- Participants include: Michael Natschke and Stefan Fuest.
Participants: 52°North

- Will contribute a SOS implementation supporting WaterML 2.0. This will include:
  (i) support for the deployment of the SOS implementation in order to allow other contributors to serve surface water data and to
  (ii) supply client APIs and components to access SWE services which can be used to build client applications.
- Depending on the specific requirements, 52° North can provide a catalogue technology for the discovery of sensors and the look up of observables/phenomena and their semantics.
- Participants include Simon Jirka, Arne Broering and associates.
Participants: International Office for Water – Sandre (France)

- Will test hydro quantity data exchange using WaterML 2.0 and deploying OGC webservices (WMS, WFS, SOS). Thus will contribute to the evolution on WaterML 2.0.
- Potential feedback on the French Water Information System will also be evaluated.
- Participants include Sylvain Grellet and associates.
Participants: Service Centre Information Technology of the BMVBS (Germany)

- Will provide surface water time series data of the German federal hydrometric network (quantity and quality) and surface water data from the Netherlands which is archived in the hydrological information system PEGELONLINE using SOS and WaterML2.0.
- Loading of WaterML2.0 XML-documents with the application "Altova MapForce" and experimentally performing transformations of these documents.
- Test and interoperability-check of the available WebServices with XMLSpy, Excel/InfoPath2007, gSOAP-toolkit and optionally .NET und Java.
- Test of the available WebServices against the WS-I 1.1 Basic Profile with the WS-I testing tools.
- Participants include Christian Michl, Dietmar Mothes and associates.
Participants: disy Informationssysteme GmbH (Germany)

- Will provide catalogue implementation for the description and discovery of services.
- Will provide an implementation of the 52° North web client
- Will host the experiment Website
- Provides an Issue Tracker for the Surface Water IE and for the WaterML2.0 development (as mentioned by Pete Taylor)
- Participants include Carsten Heidmann and associates
Architecture

Concept/Documentation:
- disy
- SANDRE
- 52north exploring horizons
- disy
- KISTERS

Technology:
- French Information System for Water (SIE)
  - already available
  - WFS
  - WMS

- WATERML 2.0 encoding
  - SOS
  - WFS
  - WMS

- WISKI 7.x / WISKI Web
  - already available
  - WFS
  - WMS

Data Sources:
- DLZ-IT BMVBS

Data available over www

Phase 1: Implementation of SOS only
Phase 2: Implementation of CSW
## Deliverables DLZ-IT and Sandre

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Technology</th>
<th>Data Sources</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure for PEGEL-ONLINE</td>
<td>C++ , Java, Oracle</td>
<td>DBMS PEGELONLINE</td>
<td>Data of the German federal hydrometric network (including Rhine data from the Netherlands)</td>
</tr>
<tr>
<td>Infrastructure for WISKI</td>
<td>C++ , Java, Oracle</td>
<td>DBMS WISKI</td>
<td>Testinstallation using the Wiski 7.x environment</td>
</tr>
<tr>
<td>Infrastructure for French Banque Hydro</td>
<td>Java, Oracle</td>
<td>French Water System</td>
<td>Hydrometric data</td>
</tr>
<tr>
<td>SOS Server Client Environment</td>
<td>Java</td>
<td>French Water System</td>
<td>Using 52°North SOS server and client development</td>
</tr>
</tbody>
</table>
# Deliverables 52° North and disy

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>SOS Server</td>
<td>Java</td>
<td>DBMS PEGELONLINE</td>
<td>Based on the regular SOS, serving WaterML2.0</td>
</tr>
<tr>
<td>SOS Client</td>
<td>Java</td>
<td>SOS Server</td>
<td>Enhancement of existing SOS client</td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td>CSW</td>
<td>Java</td>
<td>./</td>
<td>Basic implementation, using the ISO AP 1.0 specification</td>
</tr>
<tr>
<td>Webclient for SOS</td>
<td>Java</td>
<td>SOS Server</td>
<td>Provide a server with an installation of the 52° North web client</td>
</tr>
</tbody>
</table>
## Deliverables Kisters

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Technology</th>
<th>Data Sources</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>WISKI 7 database</td>
<td>ORACLE/ MSSQL</td>
<td>German federal hydrometric network</td>
<td>Basic structures of measurement stations and meta data</td>
</tr>
<tr>
<td>KiTSM server</td>
<td>JAVA</td>
<td>WISKI 7 Database</td>
<td>Manage time series data, publish and consume data through SOS (WaterML2 to be implemented).</td>
</tr>
<tr>
<td>WISKI 7 Client</td>
<td>C++</td>
<td>KiTSM</td>
<td>Data delivered through SOS can be accessed (SOS/WaterML2 consumption to be implemented).</td>
</tr>
<tr>
<td>WISKI Web Pro</td>
<td>Ajax/Dojo</td>
<td>KiTSM</td>
<td>Web frontend of WISKI/KiTSM System allowing data consumption from the KiTSM System but also from other SOSs (enhancements necessary).</td>
</tr>
<tr>
<td>SOS Service/ WaterML 2.0</td>
<td>JAVA</td>
<td>- KiTSM for data publishing</td>
<td>SOS service implementation into the KISTERS Server Architecture (requires development).</td>
</tr>
</tbody>
</table>
## Workplan Part 1

### Data Type: Station

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
<th>Technology</th>
<th>Data Sources</th>
<th>Outcome</th>
<th>Party in Charge</th>
</tr>
</thead>
</table>
| Station   | Provides location of the available hydrometric stations | WMS, WFS | France: French Banque Hydro  
Germany: DBMS PEGELONLINE, DBMS WISKI | Display available hydrometric stations on a map (WaterML2.0 encoded information will be available to describe the monitoring) | France: IOW-Sandre  
Germany: DLZ-IT, Kisters |
## Workplan Part 2

### Data Type: Observation

<table>
<thead>
<tr>
<th>Observation</th>
<th>Each station provided in the station use case can provide access to its related observation</th>
<th>SOS</th>
<th>France: French Banque Hydro, Germany: DBMS PEGELONLINE, DBMS WISKI</th>
<th>Display available observations at one hydrometric station</th>
<th>France: IOW-Sandre, Germany: Kisters, 52° North</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Series</td>
<td>Accessing all time series from an Observation</td>
<td>SOS</td>
<td>France: French Banque Hydro, Germany: DBMS PEGELONLINE, DBMS WISKI</td>
<td>Display (chart) and download hydrometric time series</td>
<td>France: IOW-Sandre, Germany: Kisters, 52° North</td>
</tr>
</tbody>
</table>

### Data Type: Time Series

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<tr>
<td>Accessing all time series from an Observation</td>
</tr>
<tr>
<td>France: French Banque Hydro, Germany: DBMS PEGELONLINE, DBMS WISKI</td>
</tr>
</tbody>
</table>
# Workplan Part 3

## Data Type: Observation using CSW

| Catalogue Observation | Accessing all observation from a CSW based catalogue | CSW-SOS | France: French Banque Hydro  
Germany: DBMS PEGELONLINE, DBMS WISKI | All observations that correspond to a specific query in the CSW (visualization and download possible) | France: IOW-Sandre  
Germany: Kisters, DLZ-IT, disy |
|-----------------------|-----------------------------------------------------|---------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------|
| Catalogue Time Series (in discussion) | Accessing all time series from a CSW based catalogue | CSW-SOS | France: French Banque Hydro  
Germany: DBMS PEGELONLINE, DBMS WISKI | All time series that correspond to a specific query in the CSW (visualization and download possible) | France: IOW-Sandre  
Germany: Kisters, DLZ-IT, disy |

## Data Type: Time Series using CSW
Time line and Actions

Time Line:
• Coordination Meeting (June/July)
  – Link German and French activities
• Revised Workplan Meeting (early September)
  – Status of implementations and needed actions
  – End September (running pilot?)

Immediate Actions:
• SOS service with WaterML2.0 encoding (-> WaterML2.0 group)
• Webpage for IE (for every use case or one together, -> responsibilities)
• Data storage and data layers
Further Information

- Website (will be launched within the next few weeks): http://crossborder-ie.disy.net

- Experiment Lead:
  Chris Michl (michl@grapevine.com.au)
  Carsten Heidmann (carsten.heidmann@disy.net)
Thank You

Carsten Heidmann
Christian Michl
Dietmar Mothes
Sylvain Grellet
Simon Jirka
Arne Broering
Michael Natschke
Stefan Fuest