

INSPIRE CONFERENCE 2017
Workshop/Seminar proposal

TITLE DETAILS

Workshop title: Integration of O&M data in the INSPIRE SDI - Benefits, challenges and prospects.

Workshop length: 3 hours.

Workshop type: *Brainstorming/tutorial*

Expected number participants: 50

WORKSHOP FACILITATOR DETAILS

Name: Kathi Schleidt, Alessandro Sarretta, Paolo Tagliolato, Simon Jirka, Sylvain Grellet, Alessandro Oggioni, Mickael Beaufils, Conor Delaney, Jose Miguel Rubio Iglesias, Alexander Kotsev (on behalf of MIWP-7a)

Address: Robert Hamerling Gasse 1/14

Phone: +43 650 89 234 26

Email: Kathi@datacove.eu

WORKSHOP DESCRIPTION INCLUDING LEARNING OBJECTIVES

Within the INSPIRE framework, data pertaining to observations or measurements of environmental phenomena, often collected through sensors, are to be provided in addition to spatial features; these are usually consolidated in monitoring networks specifically designed to address various environmental issues and related policies. The Environmental Monitoring Facilities (EF) data model describes environmental monitoring facilities as spatial objects in the context of INSPIRE, it includes observations and measurements (O&M) linked to the environmental monitoring facilities, together with relevant metadata on the measurement methodology and process.

The OGC Sensor Observation Service (SOS) has been identified as well suited for the provision of O&M encoded data; last December the technical guidance document for the implementation of SOS as an INSPIRE download service were finalized. In addition, the guidelines for the usage of O&M within INSPIRE have been updated to version 3. Both of these documents will be presented, including necessary extensions to the OGC service specifications.

Almost one year has passed since the adoption of the technical guidance for SOS and O&M in INSPIRE. Thus, it is time to investigate a broad spectrum of interdependent topics, including (i) feedback from implementers, (ii) challenges related to the currently existing technical guidance documents and the maturity of available technology, and (iii) an outlook for the future of observation data in INSPIRE considering the rapidly changing technological scenery. Within this context, the main focus of this workshop will be on the integration of SOS services with established INSPIRE download services such as WFS; the utilization of Web Processing Services (WPS) or interactive environments (e.g. Virtual Research

INSPIRE CONFERENCE 2017
Workshop/Seminar proposal

Environments - VRE, interactive computational environments, etc.) for enrichment of O&M data shall also be taken into account. O&M based data architectures and information flows will be discussed, as well as referencing between service types, illustrating how INSPIRE data stemming from SOS and WFS services can be integrated to complex applications for a wide range of environmental domains. Server and client implementations from various environmental domains will be presented and discussed, including a perspective towards open science solutions.

Based on feedback gained during the workshop we will also work on prioritizing next steps on various pending issues, ranging from (i) known deficits within the underlying OGC standards, (ii) development and uptake of new standards such as JSON encoding, and (iii) the new OGC SensorThings API standard.

The primary learning objectives of the workshop are:

- understanding how O&M data models and SOS standards fit into the wider INSPIRE architecture;
- envisioning the types of applications that can be created utilizing O&M and SOS;
- learning and discussing about examples and concrete issues on the implementation of INSPIRE based Environmental Monitoring Facilities data services.

DESCRIPTION OF TARGET WORKSHOP AUDIENCE

Persons interesting in providing observation and measurement data under INSPIRE, as well as those interested in creating applications based on these services.

WORKSHOP REQUIREMENTS

AV requirements: Projector and beamer; availability of portable microphones to let attendees to participate in the discussion.

Room setup

Instructions for participants:

- A laptop is not required for attendees, but it can be useful in case they are interested to search related documentation on-the-fly.
- Pre-workshop preparation: It will be desirable that attendees will think in advance about relevant implementation examples and issues related to the EF, O&M and SOS models and standards.

DETAILED WORKSHOP AGENDA

Structurally the workshop is organized around the following interdependent topics:

- 1. Feedback and possible update roadmap on INSPIRE Guidance Documents pertaining to O&M and SOS**

INSPIRE CONFERENCE 2017
Workshop/Seminar proposal

The following finalized documents will be discussed, the requirements to the base OGC and ISO standards will be detailed:

- Technical Guidance for implementing download services using the OGC Sensor Observation Service and ISO 19143 Filter Encoding
- D2.9 Guidelines for the use of Observations & Measurements and Sensor Web Enablement-related standards in INSPIRE

Particular emphasis in this part of the workshop will be put on the feedback from implementers. Selected use-cases will be covered through flash presentations.

2. Integration of Observations with other spatial features

In this section we will describe various architectural options for designing an information system integrating SOS services with other INSPIRE services such as Web Feature Service (WFS) as well as Web Processing Services (WPS). This will include a clear overview of data relationships and information flows, and describe methods for implementing these URI based interlinkages. Examples will be provided from various environmental domains, illustrating the entire chain from data provision over data processing steps to visualization.

Available software solutions for O&M data provision, processing and visualization will be presented and discussed, as well as the utilization of O&M across atypical domains such as soil, biodiversity and noise.

3. Known deficits in OGC standards - next steps towards thematizing in OGC

In the process of working with O&M as well as SOS, certain deficits have been identified within the OGC standards. These will be explained and discussed, possible steps to mitigate these issues clarified. Known issues include:

- getObservationById clarifications – not clear what the id references pertaining to time series
- use of SWE data arrays with sos:GetObservationResponse, further standardization required

4. Next steps in Guidance Documentation (D2.9 and SOS)

While the finalization of version 3 of the Guidance document D2.9 marks a major milestone in the uptake of sensor web technology within INSPIRE, there are various topics that must be further analyzed for uptake within INSPIRE. These will be discussed and prioritized with the participants, and include:

- SensorML 2.0 handling
- Integration with OGC TimeSeriesML 1.0 standard
- JSON Encoding and RESTful architecture for INSPIRE observation data

INSPIRE CONFERENCE 2017
Workshop/Seminar proposal

- Event handling and asynchronous transactions
- Potential usage of OGC SensorThings API as an INSPIRE download service
- Alignment of data citation with Research Data Alliance activities
- Semantic integration