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# Closing Plenary

108th OGC Technical Committee  
Stuttgart, Germany  
Scott Simmons  
13 September 2018

# Gardels Award



# Agenda



- Thanks to Sponsors and Hosts
- Quorum confirmation
- Presentations
  - xxx
- TC Member presentations
  - Discussion Paper for Perspective Imagery standard – Jan Hjelmager
  - Pub Quiz results – Andreas Matheus
- TC Motions
  - PipelineML - Jan Stuckens
  - Moving Features XML Core Corrigendum – Nobu Ishimaru
  - CSW AP ISO Corrigendum – Scott Simmons
  - Statistical DWG ad hoc – Ian Coady
  - Abstract Spec Topic 2 / CRS SWG – Keith Ryden
  - EO Exploitation DWG – Scott Simmons for Nuno Catarino
  - Met Ocean WCS profile and extensions – Chris Little
- Upcoming TC Meetings
- TC Chair announcements and motions
  - 3DTiles
  - Inactive DWGs
  - Best and Community Practices
  - CRs vs. Issues
  - Singapore Location Powers event
- Working Group reports with motions: 3 to Z
- “Important Things” discussion

# Thanks to our sponsors

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# TC Member Presentations



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# Nation-wide oblique acquisition Capturing Denmark at an angle

108th OGC Technical Committee

Stuttgart, Germany

Andrew Flatman and Jan Hjelmager

Danish Nation Mapping Authority ([www.sdfe.dk](http://www.sdfe.dk))

13 September 2018

# What we have:



## Data

- 1.280.480 images – 400Tb (50Tb as jpeg)
- 4 Vexcel Osprey and 1 Leica RCD 30
- 35Mb per image (jpeg compressed)
- Data from 2017 – will be doubled in 2019
- Free data! For everybody – also business



# What we have:

## Distribution

- Oblivision ([great web viewer](#) – but proprietary protocol)
- The oblique images are free and open
- Well functioning web services
  - 25 mio hit a day
  - 50000 hit a minut the first day



# What we want:

- Point clouds and meshes
  - 3D City models
  - Sensor/data fusion with LiDAR, Nadir, etc.
- ...and so much more

## What we really want:

Opportunity for the private sector to build solutions on distributed data

# What we need:

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- Server side and client side de-coupled
- Distribution through an open standard !
- A draft best practice
  - If you want to participate please contact Jan Hjelmager (email: [jnh@sdfе.dk](mailto:jnh@sdfе.dk))





# TC Motions



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# PipelineML SWG

108th OGC Technical Committee  
Stuttgart, Germany  
Jan Stuckens  
13 September 2018

# Agenda

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- Quick History of PipelineML
- Unique Modeling Requirements
- Governing Design Principles
- Use Cases: categories and scoping
- Single-Schema/Modular UML Model
- Path forward

# Our History



- Early conceptual prototype of pipeline GML export in 2012
- Formed PipelineML SWG at TC DC in March 2014
- 2015-2016: rapid prototyping lifecycles of sample encodings to better understand our requirements
- 2016-2017:
  - Vision document: “Introduction to PipelineML”
  - Website
  - PML UML schema and packages
  - Componentry attribution + review
- 2017-2018:
  - Introduce lifecycle
  - Schema generation via Shape Change (xsd + Schematron)
  - Sample validations against generated schema
  - Multiple iterations (modifications to UML)

# Unique Modeling Requirements

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- Unique operating characteristics of pipeline industry
  - Highly volatile oil and gas product
  - High pressures (gas)
  - Difficult to access underground infrastructure
- Major use case:
  - Assess and mitigate risks to public, property, and environment
  - Beyond needs of other utility infrastructure systems
- Modeling requirements
  - Precise identification of componentry
  - Detailed componentry attributes
  - Location of individual components and welds

# Governing Design Principles

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- A common vernacular - controlled vocabularies with external reference code lists
- Interoperability: prefer rigidity over flexibility
- Absolute positioning of individual components (GPS) instead of legacy linear referencing
- Model data close to pipeline component physicality
- International standardization: gml, uom...
- Focus on format, not on the carrier



# Use Case Categorization



- We concluded our use cases fall into 3 broad categories:

## 1. Centerline Use Cases (Big Picture)

Right of Way Management, Foreign Line Crossings, Regulatory Reporting, Land Division, Emergency Response, High Consequences Areas (HCA), Public Awareness, One Call

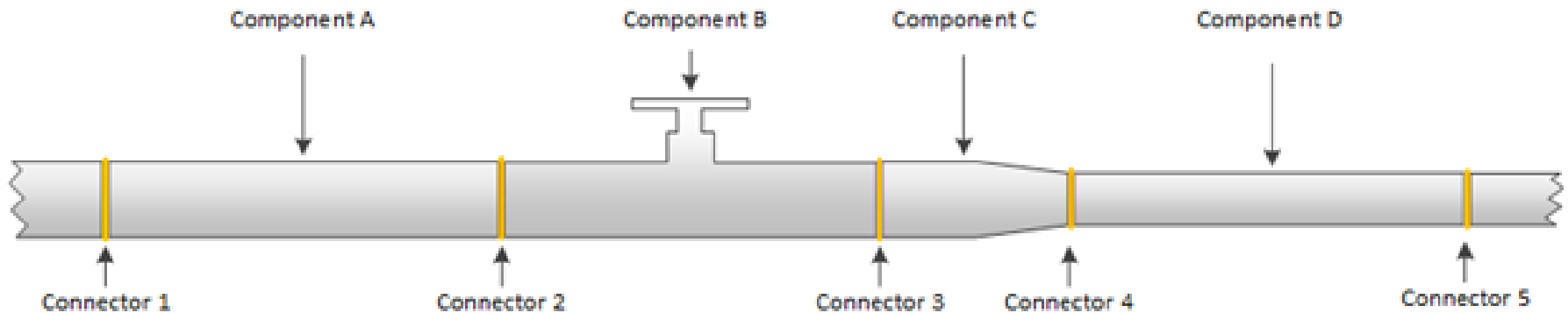


# Use Case Categorization



## 2. Component Use Cases (Intermediate Perspective)

New Construction, Component Rehabilitation, Component Data Management, Pressure Tests, Risk Assessments

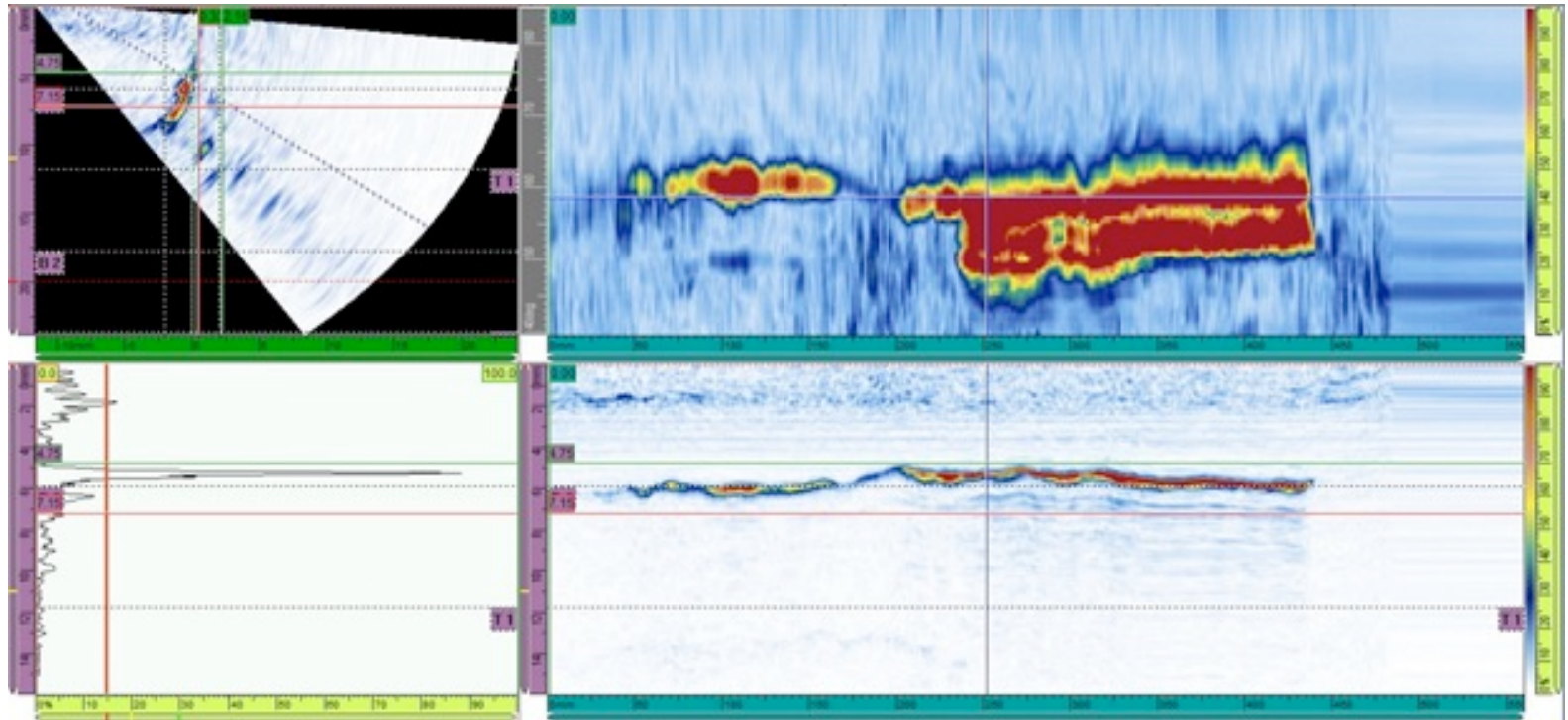


# Use Case Categorization



## 3. Anomalies Use Cases (Detailed Perspective)

ILI Tool Runs, Remediation Prioritization



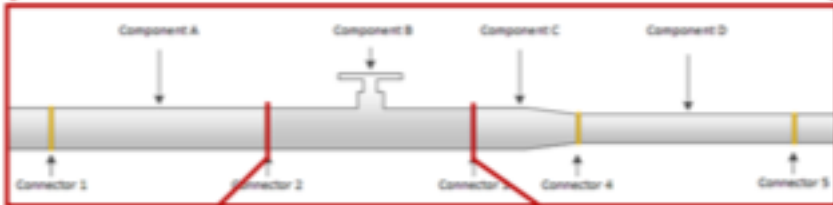
# Use Case Category Scoping



## Centerline Use Cases

Work toward harmonization with other OGC infrastructure work groups.

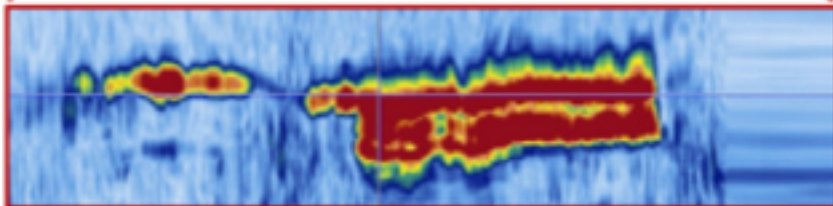
**Out of Scope**



## Component Use Cases

Specific needs of pipeline industry require definition of components schema.

**In Scope for 1.0**

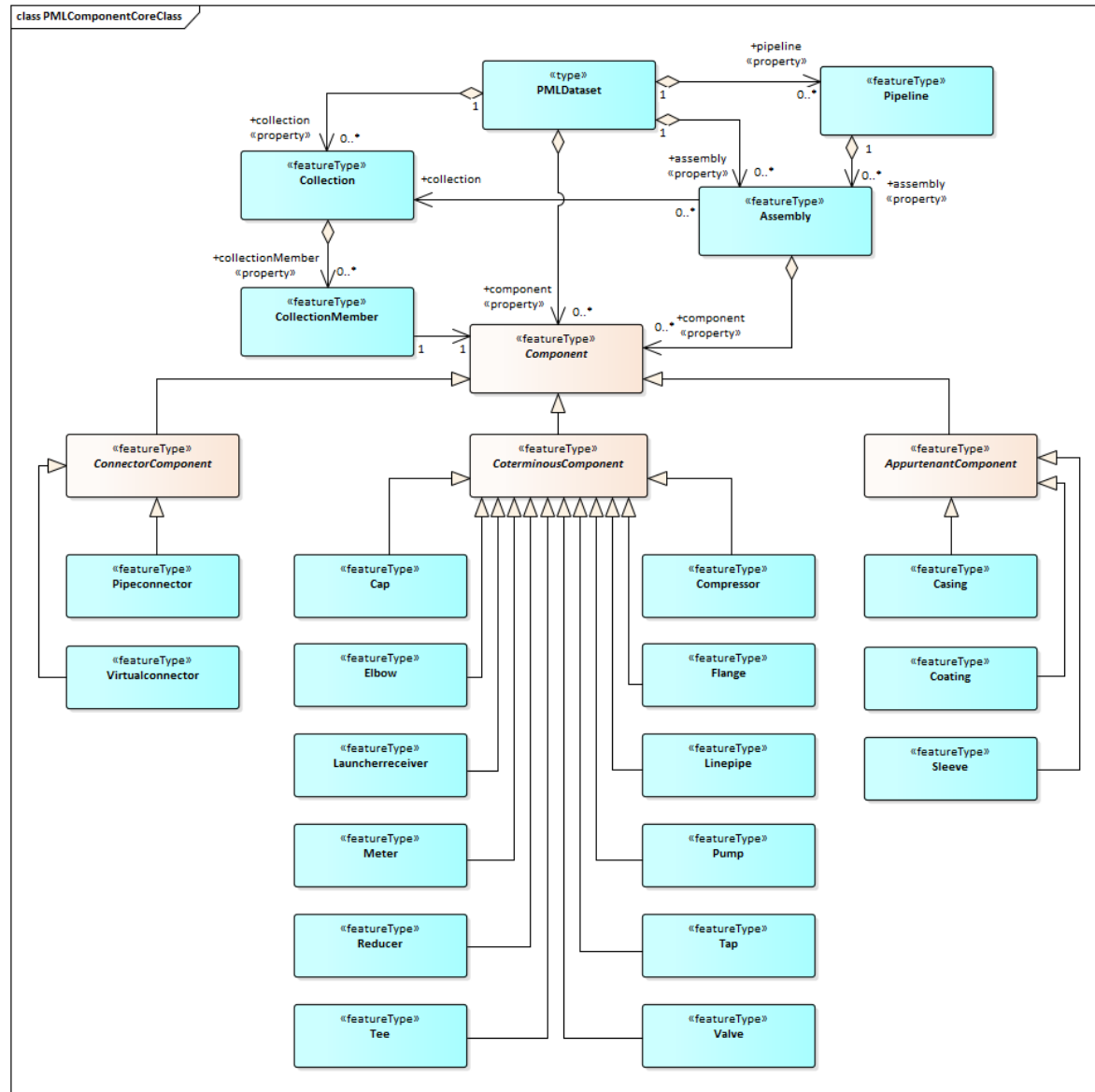


## Anomaly Use Cases

Specific needs of pipeline industry require definition of anomalies schema.

**Future Extension**

# Our Single-Schema/Modular UML Model



# Path forward



To change as result of SWG discussion

1. Submit PML 1.0
2. Interoperability
3. Validation portal
4. Establish demo and reference data
5. Corrections of validation files: XSD and Schematron
6. Planning of new packages





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# **OGC® Moving Features Encoding Part I: XML Core [14-083r2] Corrigenda to 1.0.2 proposal**

108th OGC Technical Committee  
Stuttgart, Germany  
Akinori Asahara  
13 September 2018

# OGC Moving Features Scope toward integration of moving feature data



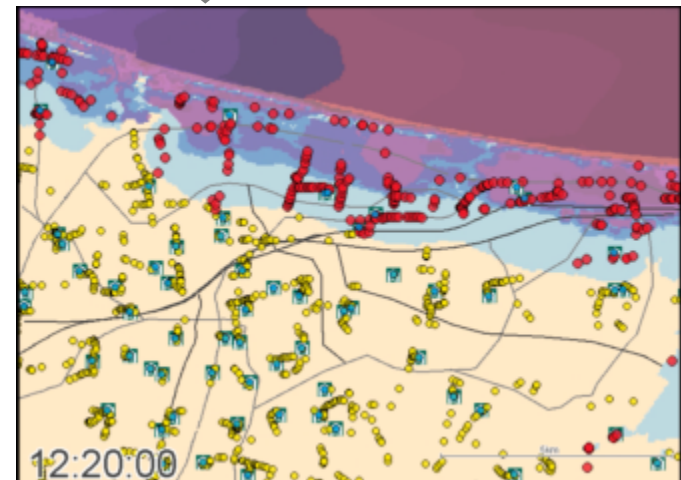
**Agent-based traffic simulation**



**Tsunami simulation**



**People evacuation simulation**



**DSS for disaster risk management**

# OGC Moving Features Specification Modularity



**Service Interface  
Specifi-  
cations**

**16-140r1 JSON (RESTful API)**  
(for handling moving feature data over HTTP)

**16-120r3 Moving Features Access**  
(guideline for implementing interfaces to support moving feature data)

**Encoding  
Specifi-  
cations**

**14-084r2 Simple  
CSV (compact  
encoding for  
massive moving  
points)**

**16-114r3 netCDF  
(compact binary  
encoding)**

**16-140r1 JSON**  
(for encoding trajectories, linestring,  
polygon with dynamic non-spatial  
attributes)

**14-083r2 XML Core (ver. 1.0.1)**  
(for encoding trajectories)

Corrigenda of this for 1.0.2

**Data  
Model**

**From ISO19141:2008**

**Moving Features 0D**  
(points)

**Moving  
Features  
1D/2D**  
(lines, curves,  
polygons, etc.)

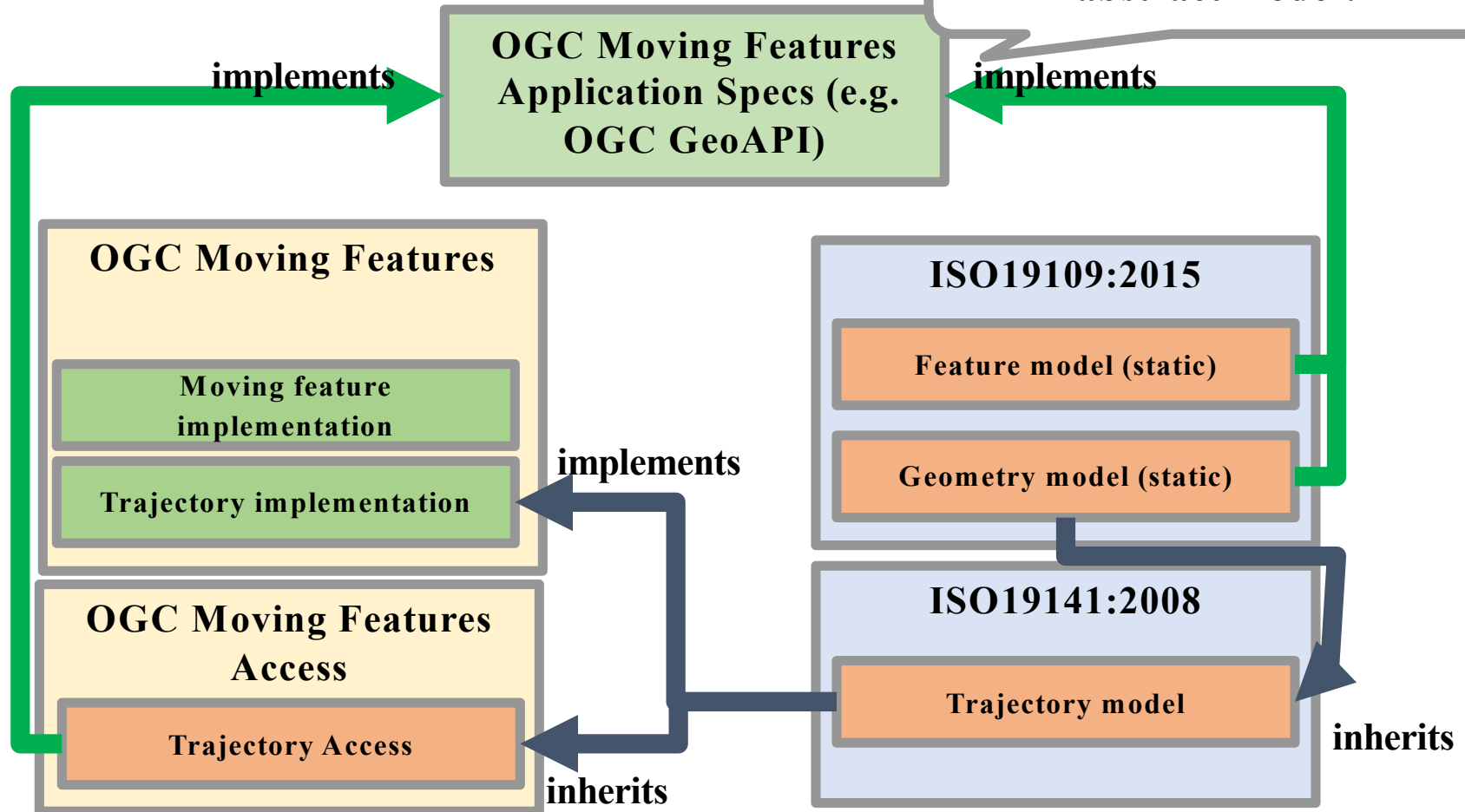
**Moving  
Features 3D**  
(cubes, spheres,  
3D model, etc.)

# Current state (problematic)



Any documents do not describe conceptual definition of Moving Feature!

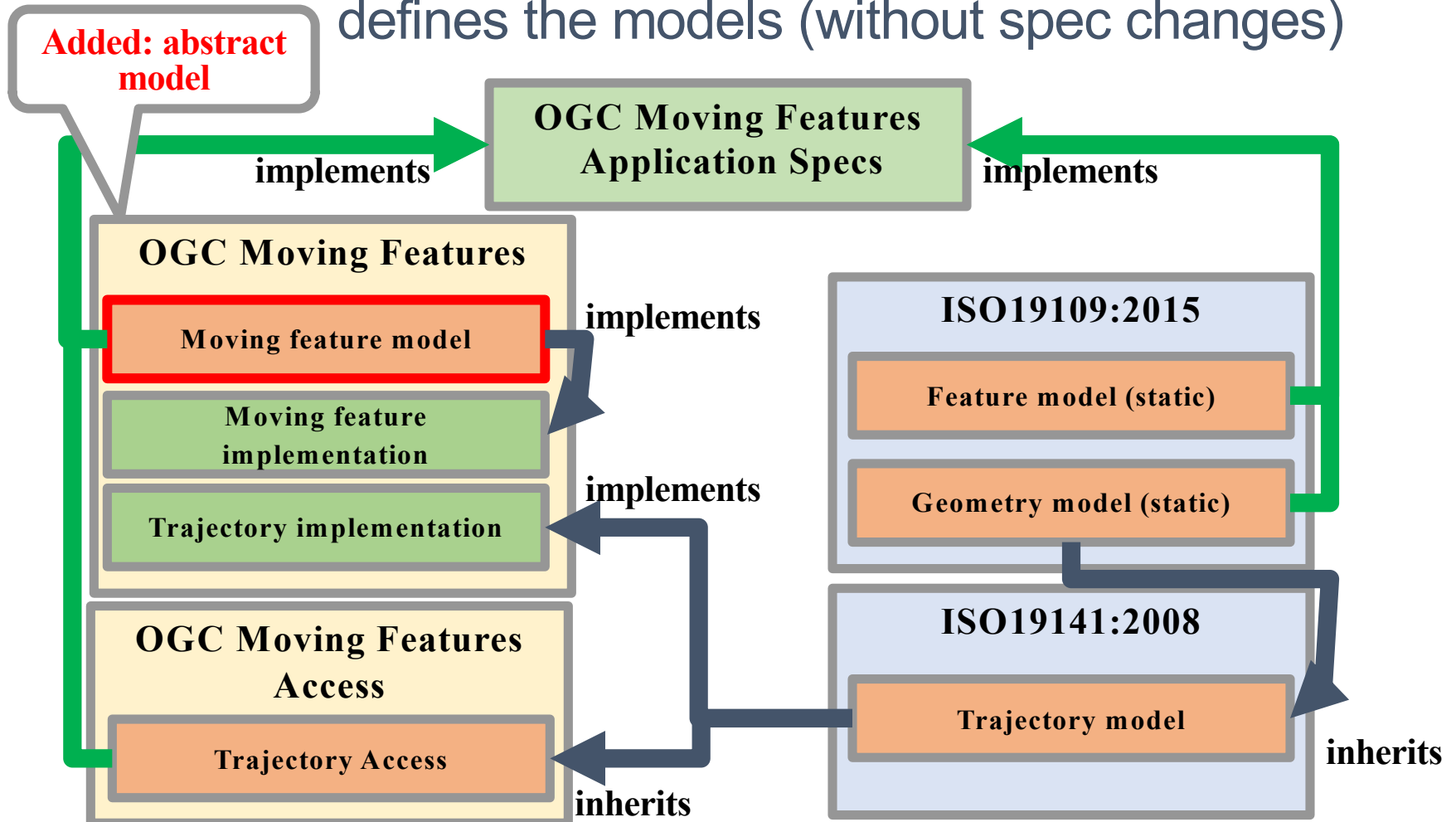
Where is the Moving Feature abstract model?



# The corrigenda objective



OGC Moving Feature XML Core specification defines the models (without spec changes)

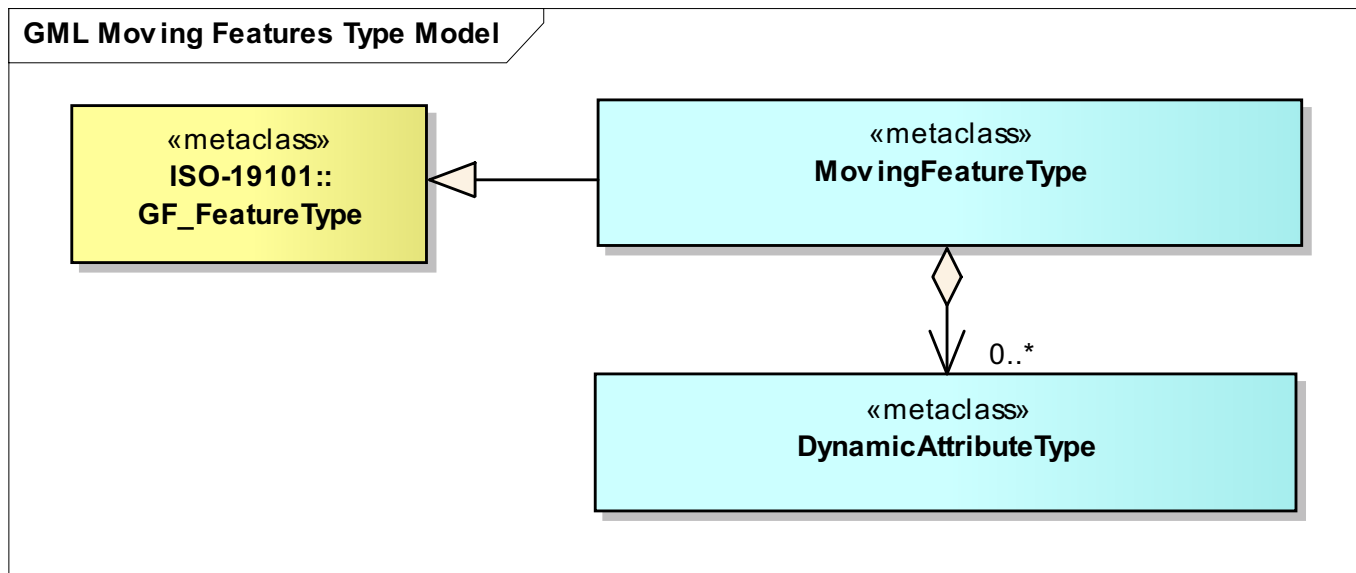


# What was changed?

## Conceptual model description



- The MovingFeatureType and DynamicAttributeType as type classes for Moving Features
- This diagram clarifies “a moving feature is defined as a feature having dynamic attributes (e.g. trajectory)”



**Conceptual model for the moving features**



# Corrigenda Draft of 1.0.2



The draft was posted as a pending document 18-075.

[See [https://portal.opengeospatial.org/files/?artifact\\_id=80513](https://portal.opengeospatial.org/files/?artifact_id=80513) ]

OGC 14-083r2.

More generally, a moving feature is a feature which has dynamic attributes. The dynamic attributes indicate attributes changing dynamically. If the value type of a dynamic attribute is geometric point, it is a trajectory. Accordingly, the feature type models for the OGC Moving Features are defined as shown in Figure 3. MovingFeatureType inherits GF\_FeatureType and aggregates a group of DynamicAttributeType.

```
classDiagram
    class GF_FeatureType["<meta class>\nISO-19101:\nGF_FeatureType"]
    class MovingFeatureType["<meta class>\nMovingFeatureType"]
    class DynamicAttributeType["<meta class>\nDynamicAttributeType"]
    GF_FeatureType <|-- MovingFeatureType
    MovingFeatureType "1" *-- "0..*" DynamicAttributeType
```

Figure 3. Conceptual model for the moving features.

OGC 14-083r2.

### 6.3 XML Implementation

An XML data encoding is defined in model. Note that massive amounts of this format. Therefore, the data encoding illustrates an importing process for a dealing with massive numbers of moving features to be loaded into memory. Therefore, the model means that all information needed for the head of the document. Thus, the XML data is divided into a *header part* and a *body part*. The header part, which includes the movement information.

```
graph LR
    subgraph MovingFeaturesXML
        direction TB
        Header["Header part\n<meta>"]
        Body["Body part\n<foliation>"]
    end
    Header --> Out1[ ]
    Body --> Out2[ ]
```

Fig.

# Corrigenda Approval Motion



- The Moving Features SWG recommends that the OGC Technical Committee approve release of 18-075 “OGC® Moving Features Encoding Part I: XML Core 1.0.2” as an OGC Standard Corrigenda.
  - There was no objection to unanimous consent
  - Summary: The conceptual model diagram was added in this revision.



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# Catalogue Services Specification 2.0.2 – ISO Metadata Application Profile 1.0.2 Corrigendum

# Simple schema change



- The problem

- <http://schemas.opengis.net/csw/2.0.2/profiles/apiso/1.0.0/apiso.xsd>  
refers to

- [http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO\\_19139\\_Schemas/](http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/)

- which in turn refers to

- [http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO\\_19136\\_Schemas/gml.xsd](http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19136_Schemas/gml.xsd)

- which is GML 3.2.1, not the latest GML 3.2.\*

# Simple schema change

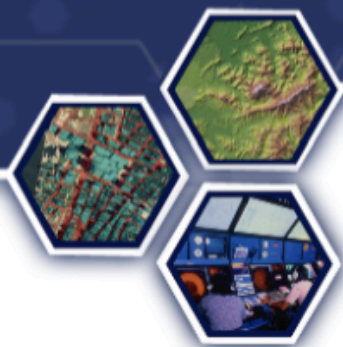


- The solution
  - Change in the standard the link to  
[http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO\\_19136\\_Schemas/](http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19136_Schemas/)  
to  
<http://schemas.opengis.net/iso/19139/20070417/>  
which always references the latest GML version

# Corrigendum Approval Motion



- The TC Chair recommends that the OGC Technical Committee approve release of [OGC 07-045r2] as a corrigendum version 1.0.2 of “OpenGIS® Catalogue Services Specification 2.0.2 - ISO Metadata Application Profile: Corrigendum.”
  - There was no objection to unanimous consent
- For further details, see the release notes in OGC 07-045r2
  - [https://portal.opengeospatial.org/files/?artifact\\_id=79189&version=1](https://portal.opengeospatial.org/files/?artifact_id=79189&version=1)



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# Statistics Domain Working Group *ad hoc*

108th OGC Technical Committee

Stuttgart, Germany

Ian Coady

13 September 2018

# The most important thing for this WG is...

---



Agreeing the charter for a Statistics Domain Working Group now that it has been through the public consultation process.



# Agenda

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- Background
- Review of activity since Orleans
- Statistical DWG – Public Consultation
- UN-Global Geospatial Information Management
- Topics of interest
- Moving forward

# Activity Summary



- Discussion topics
  - Statistics Domain Working Group charter document
  - Topics to be included within a Statistics DWG work programme
  - Engagement with the statistical community to ensure a critical mass for the Domain Working Group
- Coordination (ongoing and planned)
  - DGGS DWG, TJS SWG, EO Exploitation Platform DWG, Spatial Data on the Interest Group
  - ISO/TC 211 and ISO/TC 154
  - National Statistical Offices (through statistical events) (planned)

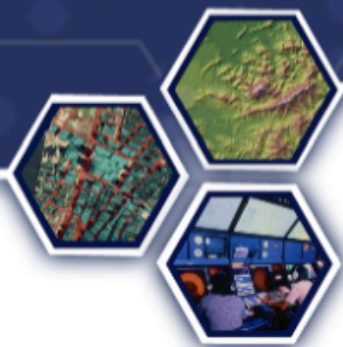
- Upcoming deliverables
  - Statistics Domain Working Group charter document
  - Vote on draft charter at 108<sup>th</sup> TC meeting
- Future meetings
  - 109<sup>th</sup> TC meeting (Charlotte)

# Key activities

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- To vote on the draft charter document for a Statistical Domain Working Group
- To define a work programme based on the issues raised during this and previous meetings. Topics to be included within a work programme can include but are not limited to:
  - discrete global grid systems,
  - disclosure/privacy,
  - linked data/semantics,
  - standards to support integration of statistics and geospatial (TJS, WFS),
  - GeoPackage,
  - data cubes,
  - data partitioning,
  - use of metadata to link statistics and geospatial data,
  - metadata granularity



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# CRS Joint SWG/DWG Meeting

108th OGC Technical Committee  
Stuttgart, Germany  
Keith Ryden  
13 September 2018

# The most important thing for this WG is...

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Completion of the updates to ISO 19111/OGC Topic 2 for dynamic datums.

# Agenda

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## SWG

- Abstract Spec Topic 2 revision – status
- CRS WKT revision – status

## DWG

- Presentation – does WKT need extending for data storage?
- CRS Registry change request process discussion

# Activity Summary



- Discussion topics
  - ISO 19111/OGC Topic 2 document status
  - CRS WKT document status and suitability of CRS WKT as an archival and formal reference description
  - CRS registries and the OGC Naming Authority

- Upcoming deliverables
  - Topic 2 to TC for approval for adoption vote.
  - CRS WKT presentation to OAB on 2018-09-18 for RFC (in parallel with ISO DIS ballot)

- Coordination (ongoing and planned)
  - OGC Naming Authority regarding CRS registries and communication
  - ISO for parallel processing of documents

- Future meetings
  - Naming Authority discussion to be scheduled with Gobe
  - OAB review of WKT document September 18
  - SWG meetings to be scheduled as need to address public comments on WKT

# Key activities

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- Public comment period for WKT update – SWG to be available to respond to any comments that come in.
- Coordination with Naming Authority to sort out work flow and operational issues with CRS registries and external requests.



# Update of Abstract Specification Topic 2 - Spatial Referencing by Coordinates

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- ISO 19111 and OGC Topic 2 – Spatial Referencing by Coordinates, are identical documents.
- These documents have been updated to accommodate advances in modern geodesy to include:
  - CRSs having a "dynamic datum" - the reference frame is Earth-fixed but coordinates on the crust change with time due to tectonic activity
  - 
  - enhanced capabilities for derived CRS definitions (such as a vertical CRS defined through a geoid model).

# Changes in this edition of Topic 2 are:



- inclusion of applicable modern geodetic terminology;
- extension to describe dynamic geodetic reference frames;
- extension to describe geoid-based vertical coordinate reference systems;
- extension to allow triaxial ellipsoid for planetary applications;
- extension to describe three-dimensional projected coordinate reference systems;
- addition of 'datum ensembles' to allow grouping of related realizations of a reference frame where for lower accuracy applications the differences are insignificant;
- clarification in the modelling of derived coordinate reference systems;
- remodeling of the metadata elements scope and extent;
- addition of requirements to describe coordinate metadata and the relationship between spatial coordinates.
- additional modelling of temporal coordinate reference system components sufficient for spatio-temporal coordinate referencing;
- consolidation of the provisions of Topic 2.1 (Spatial referencing by coordinates - Extension for parametric values) into this document;
- change in name from 'Spatial referencing by coordinates' to Referencing by coordinates', due to the inclusion of the non-spatial coordinate reference system subtypes of parametric (from 19111-2) and temporal.
- the correction of minor errors.



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# EO Exploitation Platform ad hoc

108th OGC Technical Committee  
Stuttgart, Germany  
Nuno Catarino  
10 September 2018

# Earth Observation Domain Working Group



This Earth Observation Domain Working Group defines the role for OGC activities within the Earth Observation Data Exploitation platform domain and provide an open forum for the discussion and presentation of interoperability requirements, use cases, pilots, and implementations of OGC standards in this domain.

The DWG is starting now, and will coordinate with several other relevant OGC SWGs as well as external WGs.

The expected outcomes of this SWG are to foster interoperability between platforms and platforms services by means of the OGC's body of standards.



©ESA

# Agenda

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- EO Exploitation Platform Charter.
- EO Exploitation Platform paper.



# Activity Summary



- Discussion topics
  - Review of the draft Charter
  - Discussion on the comments raised

- Upcoming deliverables
  - Next tasks of the DWG will mainly cover inputs for the OGC Best Practice, calling for inputs in:
    - Discovery and Access to EO using OGC standards
    - Processing of EO using OGC standards
    - Data and Sensor models using OGC standards
    - Consideration for Big Data and Cloud Computing

- Coordination (ongoing and planned)
  - The DWG is planning to have several co-chairs from different regions (Europe, US, Australia and Japan) to guarantee that we have a DWG meeting at each TC.

- Future meetings
  - Next TC



# **WCS.SWG, Coverage.DWG & Datacube.DWG Closing plenary**

108th OGC Technical Committee  
Stuttgart, Germany  
Chris Little for P. Baumann & S. Meißl  
13 September 2018

# Agenda

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- Coverages status brief (P. Baumann, 10min)
- OWS Evolution and WCS Impact (G. Percivall, 20min)
- CloudSat curtains served via CIS and WCS? Findings from Testbed 14 (S. Meissl, 20min)
- Updates from Datacube projects (P. Baumann, 20min)
- Data Cubes Paper (G. Percivall, 20min)
- Thoughts about WCS/SWE harmonization (K. Schleidt, P. Baumann, 20min)

Date: 2017-0210-15

External identifier of this OGC® document:

Internal reference number of this OGC® document: 15-045r6

Version: 1.0

Category: OGC® Interface Standard

Editors: Peter Trevelyan  
Paul Hershberg,  
Steve Olson  
Yan Genin  
Frederic Guillaud

### A MetOcean Application profile for WCS2.1

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Document type: OGC® Discussion Paper  
Document subtype:  
Document stage: Draft  
Document language: English

External identifier of this OGC® document:

Internal reference number of this OGC® document 17-086

Version: 0.2

Category: OGC® Interface Standard

Editors: Peter Trevelyan  
Paul Hershberg,  
Steve Olson

## MetOcean GetPolygon Extension for WCS2.1

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## **MetOcean GetCorridor Extension for WCS2.1**

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# WCS Met Ocean App Profiles & Extensions



**MetOcean Application Profile OGC ref 15-45r6**

[https://portal.opengeospatial.org/files/?artifact\\_id=77819&version=1](https://portal.opengeospatial.org/files/?artifact_id=77819&version=1)

**MetOcean GetPolygon Extension for WCS2.1 OGC ref 17-086r2**

[https://portal.opengeospatial.org/files/?artifact\\_id=76953&version=1](https://portal.opengeospatial.org/files/?artifact_id=76953&version=1)

**MetOcean GetCorridor Extension for WCS2.1 OGC ref 15-108r2**

[https://portal.opengeospatial.org/files/?artifact\\_id=75177&version=1](https://portal.opengeospatial.org/files/?artifact_id=75177&version=1)

**GetCapabilities** advertises which shapes (corridor or polygon) available.

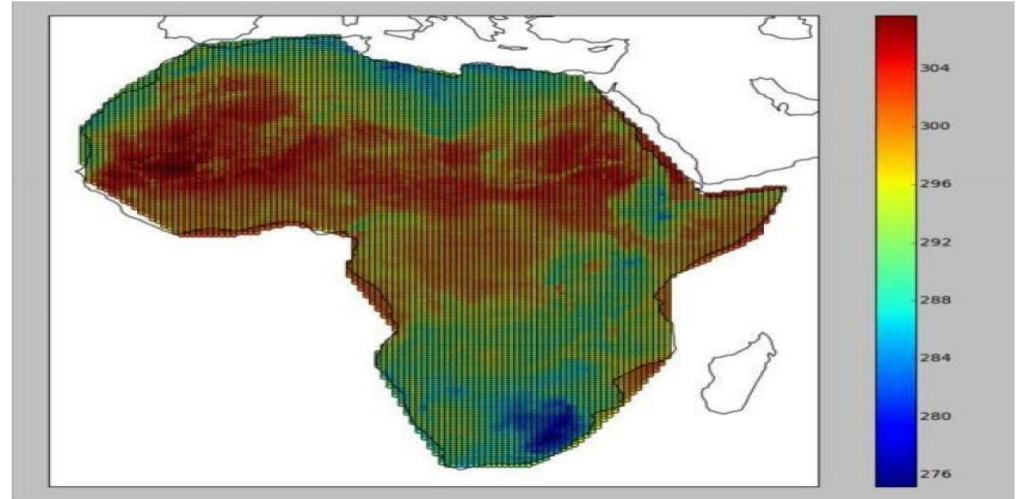
**Two new different operations to keep things (APIs) simple. and address various communities' needs.**

# 2 New Operations to Query MetOcean Coverages



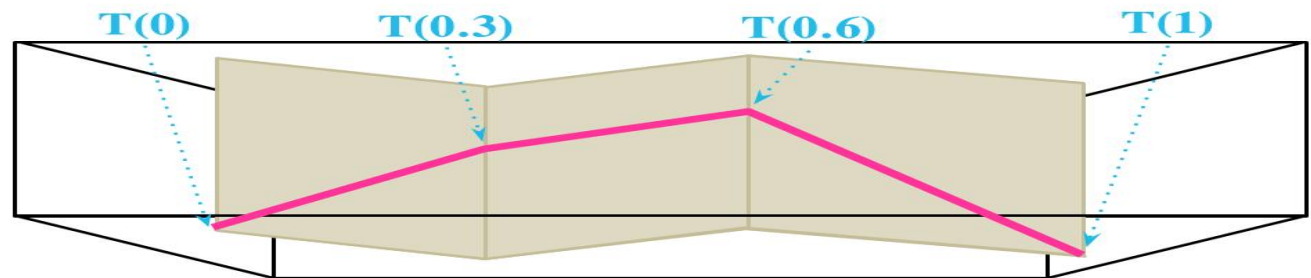
## GetPolygon

Extract Data over an Area or Volume



## GetCorridor

Extract Data for a Path or Trajectory



# Polygons and Corridors



## **Polygon:**

**uses GML lexicon to describe GetPolygon Operation (in X & Y) uses WCS/CIS/MetOcean lexicon for description in the Z & T**

**interpolate in Z & T dimensions, no interpolation in X & Y**

## **Corridor:**

**uses orientation Displacement semantics with direct multi-points**

**interpolate in the X and Y dimensions and subset in all 4 dimensions i.e., the corridor extent.**

# Motion



- The WCS.SWG recommends to the Technical Committee that the two specifications titled
  - WCS Corridor Extension
  - WCS Polygon Extensionbe renamed to
  - WCS MetOcean Application Profile Extension - Corridor
  - WCS MetOcean Application Profile Extension - Polygonrespectively, at the discretion of the TC Chair for timing.
- Votes:
  - Motion: Chris Little
  - Second: Eric Hirschorn
  - NOTUC



# Upcoming TC Meetings

# Technical / Planning Committee Meetings



Date	Location	Host/Sponsor
10-14 September 2018	Stuttgart, Germany	HFT Stuttgart
10-14 December 2018	Charlotte, NC USA	EPRI
Feb/March 2019	Singapore	
June 2019	Leuven, Belgium	
September 2019	Banff, Canada	
December 2019	Toulouse, France	
March 2020	Asia	

**Who wants to host or sponsor? We are particularly looking for sponsorship assistance (\$,€,£...) for upcoming meetings.**



# **TC Chair Announcements and Motions**

# Inactive DWGs



- Data Preservation – last met March 2016
- EM Spectrum – last met March 2017
- GML – last met June 2004
- UML – never met?
- WFS – last met June 2005
  
- Any objections to TCC starting a vote to make these DWGs inactive?
- NOTES:
  - Joan – EM Spectrum is still minimally active



# Best Practice and Community Practice



## 8.6 Best Practice and **Community Practice** Documents

OGC Members, TC subgroups, or Interoperability Initiatives may generate Best Practice (BP) **and Community Practice (CP)** Documents for the industry covering best practices related to the use of an OGC standard or other technology relevant to one or more OGC standards. These documents describe a technique or methodology that, through experience, implementation and research, has proven to reliably lead to a desired result. **In some cases, BPs or CPs may transition to full standards through the OGC RFC process.**

BP and CP documents have version numbers that shall start at 1.0.

**Best Practice:** a document describing the use of one or more OGC standards, typically to address a domain-specific topic or provide a solution to an interoperability challenge. Best Practices may also describe implemented extensions to or profiles of OGC standards.

**Community Practice:** a document describing implemented standards, specifications, or technologies that originate outside of OGC, but which are relevant to address interoperability requirements in the geospatial and related communities.

# Change Requests vs. Issues



- Per TC PnP Section 9.8
  - “A [Change Request Proposal] CRP allows for the formal documentation of a proposed change to an **existing, adopted** OGC standard or abstract specification.”
  - “CRP’s are used as the basis for new SWG work items. The SWG will only consider proposed changes and enhancements to an adopted implementation that have been documented using the CRP template.”
- GitHub Issues (or equivalent development tracking mechanisms) are recommended for work in progress
- Issues referring to “*existing, adopted*” standards should be logged as CRs



# OUR URBAN ENVIRONMENT

*Data, Interoperability and our Urban world*

25th & 26th September 2018

**TO BE FOLLOWED BY:**

*Integrated Digital Built Environment (IDBE)*

26th & 27th Sept

GeoWorks  
460 Alexandra Road  
Singapore, 119963

#LPUrbanEnviro

<http://www.locationpowers.net/upcomingevents/1809singapore/>

# CONVERSATION

As the world's population continues to urbanise , the available space for citizens to live safe and productive lives is under pressure. How do we find better ways to understand and use the space available in our urban communities while taking into account diverse and varied populations and landscapes? The capacity to collect and share high quality Location data is at the heart of understanding how we live, work and play in our urban environments and is key to helping us see the pathways to improving the lives of citizens.

This Location Powers event will explore areas such as transport, public safety , resilience and sustainability , building modelling, underground infrastructure, sensors and the IoT and the ever increasing world of big data and analytics. The event precedes meetings of the Integrated Digital Built Environment - a joint initiative of the OGC and buildingSMART international looking at how we bring into reality concepts , such as the Digital Twin, for our cities.

*#LPUrbanEnviro*

SUSTAINABILITY

RESILIENCE

BIM

IOT

EFFICIENCY

RESOURCES

# New standards and Best Practices since June



- OGC GML in JPEG 2000 (GMLJP2) Encoding Standard v.2.1 [OGC 08-085r8] as a new OGC standard
- OGC TimeseriesML 1.2 – XML Encoding of the Timeseries Profile of Observations and Measurements [15-042r5] as a new OGC standard
- OGC CDB 1.1 as a new OGC standard and associated Best Practice documents
- OGC Web Services Security [17-007r1] as a new OGC standard



# **WG Reports not to be briefed**

# Not being briefed today



- 3DIM DWG
- 3D Portrayal SWG
- Agriculture DWG
- AR ad hoc
- Aviation DWG
- Citizen Science DWG
- CITE SC
- Data Quality DWG
- D&I DWG
- DGGs DWG
- DGGs SWG
- DocTeam
- EDM/LEAPS DWG
- EO Metadata & Search SWG
- Future Directions
- GeoAI ad hoc
- GeoAPI SWG
- GeoScience DWG
- GIGS Summit
- Hydrology DWG
- IndoorGML SWG
- JAG
- Joint IDBE/LandInfra/Smart Cities
- Land Admin DWG
- Metadata and Catalog DWG
- Met Ocean DWG
- NAD ad hoc
- Naming Authority
- Joint OWS Common SWG / Architecture DWG
- OWS Common Security SWG
- OWS Context SWG
- Perspective Imagery DWG
- Point Cloud DWG
- QoSE DWG
- Security DWG
- Symbology Joint Meeting
- TimeSeries SWG
- TJS SWG
- UxS DWG
- WFS-FES SWG
- WMS SWG
- WPS SWG



3 – Z

# **WG Reports with TC Motions**





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# Blockchain and Distributed Ledger Technologies DWG ad-hoc

108th OGC Technical Committee  
Stuttgart, Germany  
10 September 2018

# The most important thing for this WG is...



Draft Charter for Establishing a Blockchain and Distributed  
Ledger Technologies Domain Working Group

# Agenda

---



- The draft charter status and motion
- Medici presentation
- Ideas for future IP initiatives

# Activity Summary



- Discussion topics

- The draft charter status and motion
- Discussion about the title, consensus to keep it as Blockchain and DLT
- Medici presentation
- Discussion about whether to place the DWG underneath the Security DWG
- Ideas for future IP initiatives

- Upcoming deliverables

- Electronic vote on Draft Charter
- Nominations for Chairs
- Vote for Chairs

- Coordination (ongoing and planned)

- Planned coordination with Security DWG
- ISO/TC 307, ITU-T, IJIS
- New America
- Government Blockchain Association

- Future meetings

- December 2018

# Key activities

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- September 2018 (this week)
  - Motion to request an electronic vote on the Draft Charter
- November 2018 (if motion passes)
  - Nominations for 2 Chairs via e-mail
- December 2018 (if motion passes)
  - Vote for 2 Chairs

# Request for an electronic vote to form the Blockchain and Distributed Ledger Technologies DWG



- **This vote will be requested once the public comment period ends and any comments are addressed.**
- The Blockchain and Distributed Ledger Technologies (BDLT) Adhoc session recommends that the OGC Technical Committee approve an electronic vote to approve the formation of a BDLT Domain Working Group.
- Background: At the Orleans TC meeting in March 2018, OGC held a workshop on BDLT. At the Fort Collins TC meeting in June 2018, initial drafting of a charter began during an ad-hoc session on BDLT. In July 2018, attendees of the previous workshop held a teleconference to advance the draft charter. The draft charter was uploaded to the Pending Documents register in July 2018.
  - Pending any final edits and review by the TC Chair
  - Motion: David Williams
  - Second: Marcus Alzona
  - NOTUC



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# **CDB SWG Closing Plenary Report**

108th OGC Technical Committee  
Stuttgart, Germany  
Carl Reed  
13 September 2018

# The most important thing for this WG is...



Defining and ‘kicking off’ an OGC Interoperability Experiment  
for encoding CDB vector data in GeoPackage



# Activity Summary



- Discussion topics
  - OGC CDB 1.1 Documents and Schema availability
  - Use of AsciiDocs as editor going forward
  - OGC IE for CDB/Geopackage
- Coordination (ongoing and planned)
  - ISG DWG for CDB 2.0 requirements and use cases
  - OAB for IE review

- Upcoming deliverables
  - Activity Plan for OGC IE CDB/Geopackage
- Future meetings
  - Monthly online SWG meetings
  - Monthly online working meetings to define, kick-off, and conduct OGC IE

# Document Approval Motion



- The CDB SWG recommends that the OGC Technical Committee approve release of OGC Document Number 18-077 OGC CDB and Geopackage Discussion Paper as an OGC Discussion Paper.
  - There was no objection to unanimous consent
- Development and preliminary exploration and testing of a potential OGC Best Practice providing for encoding of CDB vector data using the OGC Geopackage standard



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# CityGML SWG

108th OGC Technical Committee  
Stuttgart, Germany

Carsten Rönsdorf, Claus Nagel, Steve Smyth

13 September 2018

# Activity Summary



- Discussion topics
  - What we want to do
  - How we are going to do this

- Upcoming deliverables
  - CityGML 3.0 (Conceptual Model and Encoding)

- Coordination (ongoing and planned)
  - A lot

- Future meetings
  - tbd



# **“Important Things” discussion**

# Questions about other WG reports?

---



# Topics

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- Identify applicability of OGC standards to AR and determine whether a dedicated forum is needed for discussion of AR topics
- Discussion: Blockchain and Distributed Ledger Technologies Domain Working Group
- Validation of the design and architecture of the WFS 3.0 Core



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# Working Group Reports (no motions)

108th OGC Technical Committee  
Stuttgart, Germany  
Scott Simmons  
13 September 2018





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# 3D Information Management Domain Working Group

108th OGC Technical Committee  
Stuttgart, Germany

Carsten Roensdorf, David Graham, Jantien Stoter

12 September 2018, 13:00 – 14:30 PM

# The most important thing for this DWG is...



Presentations showed 3D-related activities across a number of projects. This time with attention for underground, rural areas (villages) and transport

# Agenda



- CityGML & Augmented Reality work in Testbed 14, 15 minutes, Jérôme Jacovella-St-Louis, Ecere Corporation
- Report of the MUDDI underground data workshop, Joshua Lieberman, Director Innovation Programs
- Refinement of Transport Module of CityGML (Road, Water) driven by use cases, Anna Labetski, Delft University of Technology
- Combined Underground Infrastructure Map - 3D considerations, Carsten Roensdorf, OS
- 3D city models as a Service for Smart Villages, Volker Coors, Hochschule für Technik Stuttgart

# Activity Summary



- Discussion topics
  - CityGML & Augmented Reality work in Testbed 14, 15
  - MUDDI – underground data integration model
  - Refinement proposal for Transport module for CityGML

- Upcoming deliverables

- Coordination (ongoing and planned)

- Future meetings
  - North Carolina



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# 3D Portrayal Service SWG

108th OGC Technical Committee  
Stuttgart, Germany  
V. Coors, G. Gesquière  
13 September 2018

# The most important thing for this WG is...



iTown: three.js based Framework for 3D GeoSpatial data  
Visualization supports 3D Tiles

<http://www.itowns-project.org/>

# Agenda

---



- TOP 1: Managing temporality with 3D Tiles (V. Jaillot, G. Gesquière)
- TOP 2: iTowns project (Mirela Konini, IGN France)
- TOP 3: Image based rendering beyond 3DPS getView (R. Gutbell, Fraunhofer IGD)
- TOP 4: Future perspectives of 3DP SWG (V.Coors, G. Gesquiere)
- TOP 5: AOB

# Activity Summary



- Discussion topics
  - iTown 3DPS support
  - 3D + Time
  - Hybrid scene and image-based rendering

- Upcoming deliverables

- Coordination (ongoing and planned)
- GitHub Space for 3DPS to share experience implementing 3DPS etc.
- Landing page for developers

- Future meetings
  - Web meeting will be announced once we have the GitHub space with content





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# Agriculture DWG

108th OGC Technical Committee  
Stuttgart, Germany  
Karel Charvat, Ingo Simonis  
13 September 2018

# The most important thing for this WG is...



Continued interest in particular in precision farming from software side needs to be matched from hardware manufacturer side to open access to raw data

# Agenda for Agriculture DWG

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- Overview of Agriculture pilots in DataBio
  - Karel Charvat
- EUXDAT and Big Data
  - Karel Charvat
- GEOSPATIAL BIG DATA PROCESSING IN HYBRID CLOUD ENVIRONMENTS
  - Ingo Simonis

# Activity Summary



- Discussion topics
  - Agriculture and precision farming
  - Interest beyond research projects
  - Communication with hardware manufacturers

- Upcoming deliverables
  - none

- Coordination (ongoing and planned)
  - Architecture DWG
  - EOEP DWG

- Future meetings
  - Charlotte, NC TC in December 2018



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# Augmented Reality ad hoc

108th OGC Technical Committee  
Stuttgart, Germany  
Scott Simmons  
13 September 2018

# The most important thing for this WG is...



Identify applicability of OGC standards to AR and determine whether a dedicated forum is needed for discussion of AR topics

# Agenda

---



- Background (5 mins)
- Use Cases (20 mins)
- Foundation (15 mins)
- Scope (5 mins)
- Participate (10 mins)

# Activity Summary



- Discussion topics
  - Established baseline understanding of terminology and OGC work to date
  - Considered use cases
  - Discussed next steps – DWG, SWG, another ad hoc?
- Upcoming deliverables
  - White Paper to be started by OGC staff
- Coordination (ongoing and planned)
  - 3DIM DWG, ISG DWG, MetOcean DWG (planned)
  - Joint OGC-W3C pilot (ongoing)
  - W3C Immersive Web group (planned)
- Future meetings
  - Next TC Meeting – ad hoc, possible tied to Testbed 14 presentations at Future Directions session





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# Aviation DWG

108th OGC Technical Committee  
Stuttgart, Germany

Hubert LEPORI, EUROCONTROL

13 September 2018

# The most important thing for this WG is...



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**→ Reviving the Aviation DWG ←**

108th OGC Technical Committee  
Stuttgart, Germany  
Hubert LEPORI, EUROCONTROL  
12 September 2018

**OGC**  
Making location count.

Copyright © 2018 Open Geospatial Consortium

# Agenda



## Short-term A-DWG activities



Updates on relevant Aviation-related initiatives

Use of OGC standards in Aviation - Examples

## Brainstorming



# Activity Summary



- Discussion topics

- SWIM, AIRM, AIXM, FIXM, IWXXM...
- UTM/ATM integration initiatives in Europe
- Examples of use of OGC techno.

- Upcoming deliverables

- Plan to promote the GML profile for Aviation to OGC best practice

- Coordination (ongoing and planned)

- Opportunities for OGC to take part in the **EUSCG**
- Opportunities for OGC A-DWG members to support the evolution of the EUROCONTROL SWIM specifications
- OGC at 4<sup>th</sup> ICAO 4th Standards Roundtable
- Opportunities for further A-DWG - UxS DWG coordination

- Future meetings

- During the next TC



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# CitSci DWG

108th OGC Technical Committee  
Stuttgart, Germany  
Joan Masó  
13 September 2018

# The most important thing for this WG is...

---



Several activities on CitSci standards are active. It is perfect timing for an OGC role.

CitSciE is on Friday

# Agenda (only 45 minutes)

---



- Citizen Science COST action status. Project metadata community standard draft . Sven Schade (JRC-ISPRA)
- DCAT Application Profiles and the role for CitSic (Without slides) Rob Atkinson
- Citizen Science Interoperability Experiment objectives and activity plan. Let's start tomorrow (literally). Joan Masó (CREAF) (not done due to lack of time)

# Activity Summary



- Discussion topics
  - The role of the standards in the CitSci domain
  - The role of profiles in the CitSci domain

- Upcoming deliverables
  - CitSciE

- Coordination (ongoing and planned)
  - Data Quality
  - Non Authoritative Data
  - Sensor people in general

- Future meetings
  - CitSciE
  - next TC Meeting





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# Compliance Interoperability & Testing Evaluation (CITE) Sub-Committee (SC)

108th OGC Technical Committee

Stuttgart, Germany

Chuck Heazel

13 September 2018

# The most important thing for this WG is...

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OWS Common Security compliance test for clients is available

WFS 3.0 Core compliance test is available

# Agenda

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- OGC Validation Tools – Status Report (lat/lon)
- Testing DGIWG Catalog 2.0 - Dirk Stenger
- Testing WFS 3.0 - Dirk Stenger
- Secure Client Test - Sarah Saeedi
- Compliance Engineering Report - Andrea Aime
- Implementing a Secure Client (demo) - Michael Leedahl



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# Data Quality DWG

108th OGC Technical Committee  
Stuttgart, Germany

Matt Beare, Sam Meek, Ivana Ivanova

13 September 2018

# The most important thing for this WG is...

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To understand the utility of data quality for non-authoritative (crowdsourced) data to make it usable for decision makers. This can be achieved by interacting and reaching out to other groups within the Technical Committee.

# Agenda



1. Sam Meek - Chair's Introduction (5 mins)
2. Matt Beare - Recap on recommendations from previous meetings (15 mins)
3. Ivana Ivánová - Update on Testbed 13 DQ Feedback to ISO and engagement logistics (15 mins)
4. Alison Parker - Presentation on the state of data quality in citizen science and why it poses unique challenges (30 mins)
5. Sam Meek – A few words on LandSense (5-10 minutes)
6. Open Discussion - Drivers/scope for identifying data quality needs to enable the 'informed' use of crowd-sourced data (30 mins)
7. Sam Meek - Closing remarks and thoughts on "topic of the session" for closing plenary (10 mins)

# Activity Summary



- Discussion topics
  - Earth 2020 new Citizen Science project. The topics included how to engage users.
  - How the LandSense project is advancing the work of COBWEB and including Geospatial User Feedback.

- Upcoming deliverables
  - none

- Coordination (ongoing and planned)
  - NAD Ad-hocs to continue
  - Potential to replicate W3C to create a citizen science summit for a Best Practices effort.

- Future meetings
  - Data Quality DWG will likely present at Charlotte with invited speakers with an in person attendance at the next European TC.

# Planning Ahead



## December '18 - Charlotte, North Carolina, USA

OGC TC/PC - December 10th, 2018 - December 14th, 2018

[Read More...](#)

What activities to pursue for forthcoming TCs?

## February/March '19 OGC TC/PC Meetings - Singapore (dates to be confirmed)

OGC TC/PC - February 25th, 2019 - March 1st, 2019

[Read More...](#)

Presentations to continue/kick-start any of the noted themes?

## June '19 OGC TC/PC Meetings - Leuven, Belgium (dates to be confirmed)

OGC TC/PC - June 17th, 2019 - June 21st, 2019

[Read More...](#)

## September '19 OGC TC/PC Meetings - Banff, Alberta, Canada

OGC TC/PC - September 9th, 2019 - September 13th, 2019

[Read More...](#)

Should we have targets to encourage progress?





## Goals

- Develop controlled vocabularies to refer to different aspects of citizen science data quality
- Integrate citizen science data in air quality, water quality, biodiversity, human health, and pollution into data portals.

(photo: compilation of images from iNaturalist)



# Utilisation of Artificial Intelligence and Machine Learning Techniques



- In many situations, a human is required to identify or verify the *content* of images.
- AI algorithms often have to be trained to understand parameters for what is in the image.
- The AI algorithms can be offloaded to a remote service such as Clarifai, or maybe brought in house using technology like TensorFlow.
- There is still some way to go, an AI algorithm will likely recognise the top image opposite, but will struggle with the bottom image.





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# Defence & Intelligence DWG

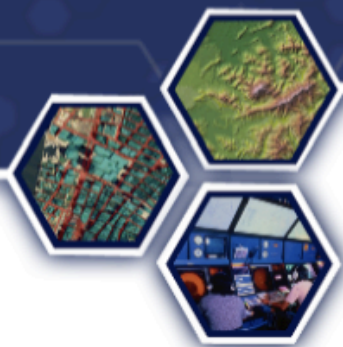
108th OGC Technical Committee  
Stuttgart, Germany  
Lucio Colaiacono  
13 September 2018

# Agenda



1. Web Video Map Tracks (WebVMT) Rob Smith Away team , SDWIG
2. "AI use cases: Sign-in with Face recognition and River monitoring application.". Chih-Wei Kuan Feng Chia University Taiwan
3. OGC Luis Bermudez updates on:
  - Geospatial to the Edge Plugfest
  - Processing, Exploitation, and Dissemination Concept Development Study
  - Testbed 14 Compliance work (Secure Client, WFS 3.0, and DGIWG CAT 2.0.2)





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# DGGS Domain Working Group

108th OGC Technical Committee  
Stuttgart, Germany  
Matthew Purss  
13 September 2018

# The most important thing for this WG is...



Fostering the increased awareness and implementation of DGGS across the academic, private and public sectors. A number of Government led initiatives are currently being planned (or are underway) to improve the integration of socio-economic and spatial information – using DGGS as a core capability.

# Agenda



- Presentation: “Hexagonal Grids in the Uber Marketplace” – Isaac Brodsky (Uber) 10-15 min
- Presentation: “DGGS Initiatives in Canada” – Perry Peterson (Digital Earth Solutions) 10-15 min
- Presentation: “DGGS Initiatives in New Zealand” – Robert Gibb (Manaaki Whenua – Landcare Research New Zealand) 10-15 min
- Presentation: “DGGS Initiatives in China” – Jin Ben (Zhengzhou Institute of Surveying & Mapping) 10-15 min
- Presentation: “DGGS Initiatives in Australia” – Matthew Purss (Geoscience Australia) 10-15 min
- Discussion: General discussion on presentations and strategies to continue the growth of the global DGGS community

# Activity Summary



- Discussion topics

- Uber's experience implementing a DGGS into their core business.
- New Zealand's DGGS initiative to integrate statistics and spatial data.
- China's DGGS initiatives under the Digital Belt and Road program.
- Australia's DGGS initiatives to integrate statistics and spatial data

- Upcoming deliverables

- Publication of DGGS content/topics in the upcoming Manual for Digital Earth.

- Coordination (ongoing and planned)

- Coordination with other working groups of the "coverages related cluster" of DWGs to ensure synergies between the related standards activities of these groups.

- Future meetings

- 10 October Teleconference
- December TC Meeting Face-to-face

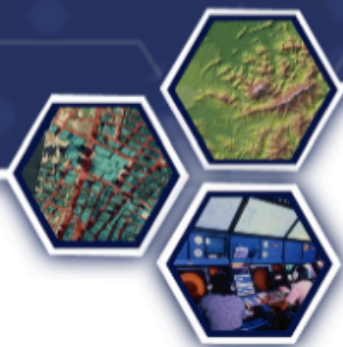


# Key activities

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- Establishing and publishing an OGC DGGS Registry of OGC Compliant DGGS implementations is a key activity of this working group.
- Elaborating the requirements for the codification of a generic DGGS API Language and higher dimensional DGGS. The DGGS SWG will be tasked with drafting work around these topics as they are progressed.
- Advocating for the increased implementation of DGGS across all industry sectors.



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# DGGS Standards Working Group

108th OGC Technical Committee  
Stuttgart, Germany  
Matthew Purss  
13 September 2018

# The most important thing for this WG is...

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Developing and publishing the OGC Registry of DGGS implementations.

# Agenda

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- Presentation: “DGGS Initiatives in China” – Jin Ben (Zhengzhou Institute of Surveying & Mapping) 10-15 min
- Update on ISO engagements related to DGGS
  - Status of pairing Topic 21 between OGC and ISO
  - ISO 19123-1 update
  - Other ISO Standards to watch from a DGGS perspective

# Activity Summary



- Discussion topics

- Engagement with ISO regarding DGGs
- First cut, exposure draft of the OGC DGGs Registry was demonstrated and discussed.

- Upcoming deliverables

- Version 1.0 of the OGC DGGs Registry for consideration by TC during the December TC Meeting.
- ISO NWIP Ballot to publish OGC Topic 21 as an ISO Standard (at the Draft International Standard level) – requires endorsement/approval from JAG and ISO PMG

- Coordination (ongoing and planned)

- Coordination with other working groups to ensure synergies between the related standards activities of these groups.

- Future meetings

- 26 September Teleconference
- December TC Meeting Face-to-face



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# DocTeam

108th OGC Technical Committee  
Stuttgart, Germany  
Scott Simmons  
13 September 2018

# The most important thing for this WG is...

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Cleaning up OGC document/file type list and improving document metadata

# Agenda

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- Document metadata – Scott Simmons



# Activity Summary



- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Discussion topics<ul style="list-style-type: none"><li>– Should OGC staff develop more guidance for document metadata on the portal?</li><li>– Should more metadata tags be mandatory?</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Upcoming deliverables<ul style="list-style-type: none"><li>– OGC staff to improve document type list, figure out how to deal with old document types</li></ul></li></ul> |
| <ul style="list-style-type: none"><li>• Coordination (ongoing and planned)</li></ul>   | <ul style="list-style-type: none"><li>• Future meetings<ul style="list-style-type: none"><li>– next TC Meeting</li></ul></li></ul>   |



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# EDM DWG Report

108th OGC Technical Committee  
Stuttgart, Germany  
Don Sullivan  
13 September 2018

# The most important thing for this WG is...

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One thing that important for this WG is following closely the Disasters Pilot Concept Development Study workshop's outcomes.

# Agenda



- Brief by OGC staff on the second Disasters Pilot Concept Development workshop in Washington DC, and a status on the next workshop.
- Brief by Rob Smith on WebVMT: Video Location Sync For The Web
- Brief from Jaci Knudsen on language in the 2017 NDAA for DOD that mandates the usage of open standards in lieu of Mil-Stds and government unique standards.
- Brief from Karen Moe (remote) on ESIP Disaster Cluster

# Activity Summary



- Discussion topics
  - None carried over

- Upcoming deliverables
  - N/A

- Coordination (ongoing and planned)
  - RDA
  - ESIP
  - CEOS/NASA

- Future meetings
  - next TC Meeting

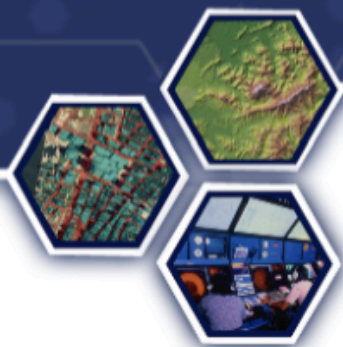
# Key activities



- Follow Disasters Concept Development Study



- Coordinate WebVMT Concept Incubation At W3C SDW IG



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# EO Product Metadata and OpenSearch SWG Report

108th OGC Technical Committee  
Stuttgart, Germany  
Uwe Voges (con terra)  
13 September 2018

# The most important thing for this WG is...

---



Migration of CEOS Conformance Test Environment for  
OpenSearch-EO to OGC



# Agenda

---



- Status Reports
  - SWG EOPMOS (Voges)
  - OGC 13-026r9 (Voges, conterra)
  - OGC 17-003 + 17-047 (Coene, Voges)
  - OpenSearch Conformance Test Document (della Vecchia)
- Discussion future direction of OpenSearch-EO

# Activity Summary



- Discussion topics

- Finalisation of OpenSearch-EO 1.1.
- Migration of CEOS Test Environment for OS-EO to OGC validation environ.
- Collection MD GeoJSON encoding
- Future: Transformation of hybrid (XML/JSON) approach into pure JSON (OpenAPI service description)

- Upcoming deliverables

- **After solving comments will resubmit candidate standard (Doc 13-026r9, 17-003, 17-047) back to TCC (lately end of 2018)**

- Coordination (ongoing and planned)

- CEOS/WGISS/NASA
- OGC Common/Architecture
- OWS Context

- Future meetings

- Bi-weekly telcos to fix outstanding comments
- WGISS-46 meeting in October
- One of next TC meetings (tbd)



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# Future Directions: Unmanned Systems (UxS)

108th OGC Technical Committee  
Stuttgart, Germany  
Gobe Hobona  
13 September 2018

# The most important thing for this WG is...



The increasing role of geospatial technologies in Unmanned Systems, as well as the potential need and opportunities for standardization in geospatial aspects of such systems.

# Agenda

---



- Introduction
  - Gobe Hobona (OGC)
- A NASA Perspective on UxS
  - Don Sullivan (NASA)
- Geospatial databases for autonomous navigation
  - Jean-Baptiste Henry (Thales)
- Oceanids command and control (C2) data system – Using data and software standards for the automation of data processing and data delivery
  - Justin J.H. Buck (British Oceanographic Data Centre)

# Activity Summary



- Discussion topics

- Evolution of UAVs in scientific research
- Examples of case studies of UAS that use OGC standards
- How certified geospatial databases could support autonomous navigation
- Automation of data processing and data delivery for UUVs and USVs

- Upcoming deliverables

- Summary to be briefed to the OAB
- Lessons to inform related DWGs e.g. UxS DWG, Agriculture DWG, D&I DWG etc.
- Selection of future topics from the OGC Technology Trends Github site

- Coordination (ongoing and planned)

- OGC Architecture Board (OAB)
- ANSI
- IEEE
- ISO

- Future meetings

- Next TC meeting (Charlotte, NC)

# Some of the Key Points



- Platforms
  - Need to consider how we bring together the volume of data produced by UxS, from transmission to fusion requirements
  - In some cases demonstrators can have 12 or more UAVs running from 3 or more systems, how might OGC standards support this?
  - Metadata plays a key role in describing observations from UUVs and USVs
- Data and Information
  - To master the whole chain of information, we need to consider how geospatial databases might be certified in support of UxV operation (similar to S-57 and S-100)
  - Some of the challenges include the frequency of the dates/timestamps of collection, as well as density of the data
- Potential Next Steps
  - **Initiative sponsors** should consider incorporating unmanned platforms such as UAVs, UGVs, USVs and UUVs into OGC innovation initiatives
  - **OGC staff** should coordinate with other SDO's e.g. ANSI, ISO and others
  - **UxS DWG** should consider standardization of approaches towards certified geospatial databases



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# GeoAI Ad hoc

108th OGC Technical Committee  
Stuttgart, Germany  
Kyoung-Sook Kim  
13 September 2018



# The most important thing for this WG is...



- **Public comment on draft charter for GeoAI DWG**
  - Start on 4 Sept. 2018 UTC (Closing Date: 25 September 2018 UTC)
  - New DWG will aim to improve interoperability of geospatial data in Artificial Intelligence, Deep Learning, and Machine Learning applications
  - Charter: <https://portal.opengeospatial.org/files/80493>
  - Change Request:  
<http://www.opengeospatial.org/standards/requests/175>



The GeoAI DWG will aim to investigate the feasibility and interoperability of OGC standards to use and re-use geospatial data in AI applications, as well as describe gaps and issues that could lead to new geospatial standardization within the GeoAI domain community.

# Agenda



**14:45 - 16:15, Wed. Sept 12 @ 1/111**

- Introduction
- Summary of OGC Summit on SensorThings API (Thomas Usländer, Fraunhofer IOSB)
- Machine learning for geospatial vector data (Rein van t Veer, VU University Amsterdam)
- Sharing models and data to train machine learning algorithms using OGC (David Petit, Deimos Space)
- PntML Data Platform (Kyoung-Sook Kim, AIST)
- Discussion (Liaison ISO/JTC1/SC42)

# Activity Summary



- Discussion topics
  - Full processing chain from IoT data to decision making
  - Vector geometry models in ML/DL
  - Sharing models and training data
  - Gaps in OGC standards for ML/AI
  - Liaison ISO/JTC1/SC42
  - AI Infrastructure

- Upcoming deliverables
  - **OGC 18-054r1 Artificial Intelligence for Geoinformatics (GeoAI) DWG Charter**

- Coordination (ongoing and planned)
  - **ISO/IEC JTC1 SC42**
  - OGC WGs, Testbed14

- Future meetings
  - December '18 - Charlotte, North Carolina, USA



# **GeoAPI SWG**

108th OGC Technical Committee

Stuttgart, Germany

Martin Desruisseaux

13 September 2018

# The most important thing for this WG is...



GDAL/Proj.4 (the library behind MapServer, PostGIS, QGIS) started a major upgrade of their “referencing by coordinates” engine, thanks to a crowdfunding. Their new set of classes take inspiration from GeoAPI and follow closely ISO 19111:2018 draft. Their new API seems close to what could be a “GeoAPI in C++”.

# Agenda



- Introduction (what is OGC GeoAPI)
- Report on GDAL/Proj.4 new C/C++ API based on ISO 19111
  - The context
  - How close this new API is from GeoAPI
  - Discussion on implementation constraints
- Python API on the cloud
  - Difference between OpenEO and GeoAPI
  - DataCube experiment at CNES
- Presentation of GeoAPI 3.1/4.0 specification proposal
- Varias
  - Representative for OGC-NA
  - Ask OGC-NA to register a namespace to PyPI

# Activity Summary



- Discussion topics

- Browse new Proj C++ API for checking conformance to ISO 19111
- Ask OGC N-A to consider registering a namespace in Python

- Upcoming deliverables

- Specification draft in progress
- GeoAPI 3.1 / 4.0 with content currently on GitHub, after completion of work in progress
- GeoAPI 3.2 / 4.1 will add coverage from ISO 19123

- Coordination (ongoing and planned)

- Keep in touch with the developer of Proj.4 upgrade, to see if we can extract a "GeoAPI in C++" from this work

- Future meetings

- <next TC Meeting>



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# GeoScience DWG Closing Plenary Report

108th OGC Technical Committee  
Stuttgart, Germany  
Mickaël Beaufils  
13 September 2018



# The most important thing for this WG is...



Need for geoscience data standardization is strong.

Interest for BoreholeIE and wish to go for the 3D model IE.

Civil engineering require standards for geotechnics and envisage extending IFC standard with geoscience information.

This topic shall be discussed in IDBE WG for a bSI / OGC coordination.

# Agenda

---



- GeoScienceDWG welcome
- BoreholeML presentation
  - Gerd Arns-Krogmann, BGR : Federal Institute for Geosciences and Natural Resources of Germany)
- GeoValML presentation
  - Eberhard Kunz, BAW : Federal Waterways Engineering and Research Institute of Germany)
- Discussion

# Activity Summary



- Discussion topics
  - Presentations of german initiatives for borehole description (BoreholeML) and geotechnical engineering data (GeoValML)

- Upcoming deliverables

- Coordination (ongoing and planned)
  - 3D Model IE next steps: charter writing?

- Future meetings
  - Singapore March 2019?



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# GeoSemantics DWG

108th OGC Technical Committee  
Stuttgart, Germany  
Linda van den Brink  
13 September 2018

# The most important thing for this WG is...

---



One thing that is most important for this WG. Examples....  
Something happening in the WG? Coordination occurring or  
needed with another WG? Work with a broader implication  
for the OGC? Major accomplishment?

# Agenda



- Lindsay Frost - NGSI-LD API
- Jean Brodeur – update on ISO/DIS 19150-4 Geographic information - Ontology, Part 4: Service ontology. This standard is coming soon and is intended to support discovery and access of geographic information Web services on the Semantic Web.
- Rob Atkinson - revisiting HY\_Features OWL
- Rob Atkinson – content negotiation by profile in a linked data context
- Linda van den Brink – National ontology and linked data guidelines for geospatial data
- Linda van den Brink - Spatial Data on the Web Interest Group update

# Activity Summary



- Discussion topics
  - UML vs OWL modeling

- Upcoming deliverables
  - <document to review by WG, OAB, TC, etc.>
  - <document to Pending>
  - <vote in progress>

- Coordination (ongoing and planned)
  - <other WG>
  - <other SDO>
  - <other organization>

- Future meetings
  - <web meeting>
  - <next TC Meeting>
  - <special forum or conference>



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# GIGS Summit ISG DWG

108th OGC Technical Committee  
Stuttgart, Germany  
David Graham  
13 September 2018



# The most important thing for this WG is...

---



Finding, recruiting, attracting some/more representatives of the “G” in ISG...the gaming community that is involved in training and rehearsal

# Agenda

---



- 1:00pm - 2:30pm [0700-0830 EDT]
  - Introductions; summit objectives
  - Background; how did we get here?
  - Viewpoint from US Department of Defense
- 2:45pm – 4:15pm [0845-1015 EDT]
  - OGC Discussion Paper: Leveraging CDB with GeoPackage
  - OGC Innovation Program Activities
  - Towards GIGS Big Data Architecture
  - Some Big Ideas
- 4:30pm – 6:30pm [1030-1200 EDT]
  - Update from the CDB Standards Working Group
  - Other OGC standards relevant to the ISG Domain Working Group
  - CDB 2.0 Discussion: re-imagining a standards-based solution

# Activity Summary

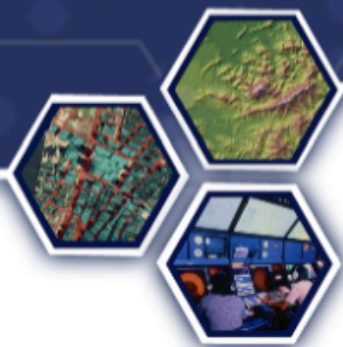


- Discussion topics
  - ‘forming the ISG community’
  - US DOD viewpoint (SOCOM, JS J7)
  - Current US DOD JCTD planning
  - CDB 2.0
  - Big Data and CDB / GIGS

- Upcoming deliverables
  - Planning for Charlotte meeting

- Coordination (ongoing and planned)
  - Outreach to gaming community involved in training and rehearsal
  - NATO MSG(s)
  - DOD and other military components who are not OGC members (yet)
  - CDB SWG / OGC/Geopackage IE

- Future meetings
  - Summit or at least two full sessions at December (Charlotte) TC/PC



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# Hydrology Domain Working Group

108th OGC Technical Committee  
Stuttgart, Germany  
Tony Boston  
13 September 2018

# The most important thing for this WG is...

---



Publishing HY\_Features Online  
as linked data with associated code lists

ELFIE 1 project completed.  
Engineering Report to be finalized

Ninth Hydrology DWG workshop in Geneva  
to strengthen links between OGC and WMO  
and use of WaterML2 standards  
by WMO member countries

# Agenda

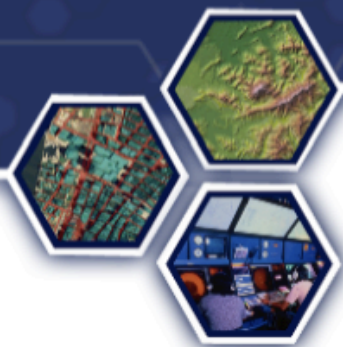


1. [ELFIE update](#) (Dave Blodgett)
2. HY\_Features model online (Rob Atkinson)
3. [Groundwater Information Networks endpoints](#) for testing by WMO CHy (Sylvain Grellet)
4. [Ninth Hydrology DWG workshop](#) 2018 (Tony Boston)
5. Any other business

# Key activities



- **ELFIE projects**
  - ELFIE 1 completed early 2018
  - Engineering Report being finalized for next TC meeting, December 2018
  - ELFIE 2 project envisaged for 2019
  - Australian Government LOC-I project to update hydrology data (Geofabric) with HY\_Features Online consistent with ELFIE 2 scope
- **HY\_Features Online model being made available via CMS and REST services**
  - URL patterns to support UML, XSD, ISO, SKOS and RDFS model forms
  - Hosted by OGC at URI such as (not yet stable):  
[https://www.opengis.net/def/hy\\_features/ontology/hyf](https://www.opengis.net/def/hy_features/ontology/hyf)
  - Services need to be reviewed by HY\_Features SWG
  - URIs need to be ratified through the OGC-NA process
  - Planned production release for early 2019 then documented as WaterML2: Part 5 – HY\_Features – OWL encoding



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# IndoorGML SWG Meeting Report

108th OGC Technical Committee  
Stuttgart, Germany

Ki-Joune Li, Pusan National University

13 September 2018



# Agenda



- IndoorGML 2.0 plan by Sisi Zlatanova
- presentations
  - Connecting indoor-outdoor via IndoorGML by Kyoung-Sook Kim
  - Surface as a space by Ki-Joune Li – delayed to the next teleconference due to time limit
- discussion
  - geometries of cell space and cell space boundary in UML and XSD
  - establishment of indoor spatial information working group in ISO/TC211
- Announcements
  - IPIN/ISC Indoor Map Subcommittee meeting
  - IndoorGML SWG meeting in Charlotte, December 2018

# Activity Summary



- Discussion topics
  - Cell Space Geometry  
gml:Solid vs. gml:Abstract Solid,  
gml:Surface vs. gml:AbstractSurface
  - ...
  - Implementation vs. Expressive power
  - Further discussion at the next  
teleconference

- Upcoming deliverables

- Coordination (ongoing and planned)
  - Setting up a team for NWIP to  
ISO/TC211: Sisi Zlatanova, Wenxiu  
Gao, Ki-Joune Li, and one more  
expert from CityGML SWG(?)
  - Planning to prepare NWIP by the  
end of this year

- Future meetings
  - Teleconference to continue the  
discussion within a month
  - Meeting for preparing IndoorGML 2.0



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# ISO/TC 211 – OGC JAG Report

108th OGC Technical Committee  
Stuttgart, Germany  
Jean Brodeur  
13 September 2018

# The most important thing for this WG is...

---



Coordination between ISO/TC 211 and OGC  
projects

# Agenda



Monday  
10 September 2018

## Agenda

14:45

1. **Welcome** → Co-Chairs
2. **Roll call of members** → Members  
Introduction of members
3. **Approval of agenda** → Members
4. **Nomination of OGC co-chair(s)** → Scott Simmons
5. **ISO/TC 211 related projects – Status updates**
  - ISO 19107 → John Herring
  - ISO 19123-1, Geographic information - Schema for coverage geometry and functions - Part 1 → Liping Di
  - ISO 19152, Geographic information - Land Administration Domain Model (LADM) → Chris Body
6. **ISO/TC 211 – OGC joint projects – Status updates**
  - ISO 19111, Geographic information - Referencing by coordinates & ISO 19162, Geographic information - Well-known text representation of coordinate reference systems → Roger Lott
  - ISO 19123-2, Geographic information - Schema for coverage geometry and functions - Part 2: Coverage implementation schema → Peter Baumann
  - ISO 19125 (Features and geometries) → John Herring
  - ISO/DIS 19136-1, Geographic information - Geography Markup Language (GML) - Part 1: Fundamentals → Clemens Portele
  - ISO 19156, Geographic information - Observations and measurements → Simmon Cox
  - ISO 19168-1, Geographic information - Web feature services - Part 1: Core → Clemens Portele/Peter Vretanos
  - DGGs → Matt Purss/Robert Gibb
7. **Other** → Co-Chairs, Members
8. **Report to the plenary** → Co-Chairs

Close

16:15

# Nomination of OGC co-chair(s)

---



- Motion to nominate:
  - Matt Purss (Australia), and
  - Robert Gibb (New Zealand)
- no objection to unanimous consent.



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# Land Administration

108th OGC Technical Committee  
Stuttgart, Germany  
Christiaan Lemmen  
13 September 2018

# The most important thing for this WG is...

---



Finalize a comprehensive Land Admin White Paper by the  
end of September



# Agenda



- Opening
- Introduction of the participants (5 min)
- Goals of the DWG (5 min)
- Update ISO: status of the New Working Item Proposal (5 min)
- Update UN GGIM Meeting (8th session) New York August 2018 (5 min)
- INTERLIS 3 International standardization & LADM (5 min)
- White Paper Land Administration (15 min)
- Reaction Mark Reichardt (10 min)
- Voting (5 min)
- Closing

# Activity Summary



- Discussion topics
  - Update on related activities
  - Plan for White Paper: need to address comments from participants in session

- Upcoming deliverables
  - White Paper

- Coordination (ongoing and planned)

- Future meetings
  - TC 211 meeting in Wuhan, China, Nov 2018



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# Joint LandInfra / IDBE / Smart Cities DWG Meeting Report

108th OGC Technical Committee  
Stuttgart, Germany  
Dimitri Sarafinof  
13 September 2018

# The most important thing for Smart Cities DWG is...

---



Quote:

"If I have been able to see farther than others, it was because I stood on the shoulders of giants" – Isaac Newton

Purpose:

Create a curated package of knowledge (best practices and playbooks) to support Smart Cities initiatives to “build on the shoulders of giants”.

Reach out to Smart Cities to promote the package

# The most important thing for LandInfra DWG is...

---



- The most important thing for LandInfra DWG is to redefine the scope as it now is based on continuation of LandXML. Implementations need to be supported and work on version 2.0 started.

# Agenda

---



- Intro – agenda (5 min)
- IDBE update – Carsten (15 min)
- MINnD UC8-GT : Geotechnical data standardization and management for BIM and Smart Cities - Mickael Beaufils (20 min)
- Report from ISO work - Leif Granholm (15 min)
- MUDDI Workshop outcomes – George Percivall (15 min)
- Discussions

# Activity Summary



- Discussion topics

- Purpose of the group(s)

- Create a package of knowledge which communicates the value of geospatial information and standards to Smart Cities
    - Outreach to cities
    - Provide support for LandInfra implementations

- Upcoming deliverables

- Coordination (ongoing and planned)

- 3D and the Built Environment cluster (3DIM, E&U, IDBE SC, Interoperable Simulation and Gaming, Land Admin, LandInfra, Point Cloud)
  - SensorThings API SWG
  - ISO/IEC JTC 1 WG 11

- Future meetings

- Future joint meeting at next TC



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# Metadata & Catalog DWG Report

108th OGC Technical Committee  
Stuttgart, Germany  
Frédéric Houbie, Lieven Raes  
13 September 2018



# The most important thing for this WG is...

---



Revival of Metadata & Catalogue topics

# Agenda



1. Election of Byron as co-chair
2. Discussion on the draft charter of the DWG
3. Status of the work on extending the GeoDCAT-AP document with examples of implementations and recommendations (Lieven Raes, AGIV)
4. UK GEMINI 2.3, a national INSPIRE compliant metadata profile (Peter Parslow, OS UK)
5. ISO 19139-3 mapping for CSW (T. Habermann)
6. Moving ahead with GEOSS API (Bart De Lathouwer, OGC)

# Activity Summary



- Discussion topics
  - Anything related to metadata (existing and evolutions)
  - Anything related to Cataloguing

- Upcoming deliverables
  - Charter

- Coordination (ongoing and planned)
  - WFS3 SWG
  - Any other group linked to metadata & cataloguing (all in fact)

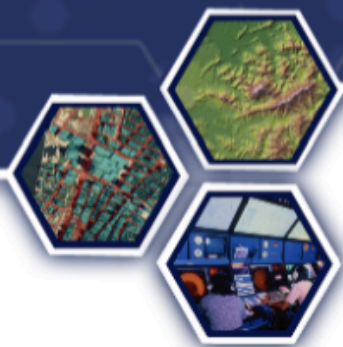
- Future meetings
  - Charlotte, NC

# Key activities

---



- Prepare charter
- Invite Google and USGS at the next TC to talk about AmeriGEOSS initiative



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# Met Ocean Domain Working Group Report

108th OGC Technical Committee

Stuttgart, Germany

Chris Little, Frédéric Guillaud

13 September 2018

# The most important thing for this WG is...



Easily discoverable convenience APIs for retrieving Met-Ocean data patterns/Discrete Sampling Geometries/resources extracted from n-D coverages, with easily discoverable ways of drilling down to other more specific services with easily constructing URIs.

# Met Ocean DWG Agenda



- Welcome, Introductions, Meetings, technology struggles, Chair [5 mins]
- Simple Observation Features Pilot - Proof of Concept for O&M Simple Feature Encodings & WFS3, Ilkka Rinne [20mins]
- Proposed Pressure Depth CRS in OGC Registry, Kathi Schleidt [10mins]
- Met Ocean API with WFS3 approach - Principles, Pete Trevelyan [10min]
- Open API definitions - status, discussions, All [50min]
- Any Other Business [5min]

# Activity Summary



- Discussion topics

- Registry and register processes and deliverables for OGC NA and other authoritative registries and registers
- Weather on the Web APIs

- Upcoming deliverables

- Processing of Public Comments on WCS Met Ocean Profile and Extensions in next few weeks
- Experience and proof of concept of using WFS3 with Simple Feature encodings, by Dec 2018

- Coordination (ongoing and planned)

- WCS to process public comments on WCS Met Ocean Profile and Extensions
- W3C SDWIG
- RDA WG on Data and Metadata Granularity, Siri Johda Singh Khalsa

- Future meetings

- European Graphical Operational Workstations workshop, Oct 2018
- Weather on the Web Workshop, Dec 2018
- OGC TC Charlotteville, Dec 2018



# Key activities

---



Kathi Schleidt's requirements for a parametrized CRS for Pressure Depth for oceanographers was reviewed.

Subsequent discussion highlighted the lack of processes within the NA, DWGs and SWGs for the oversight of registers, their entries, delegated responsibilities, and the deliverables required on resolving a CRS by appropriate subject matter experts.

A need to allow the OGC NA Registry to delegate to other external authoritative registers, was also identified.



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# Non Authoritative Data (NAD)

108th OGC Technical Committee  
Stuttgart, Germany  
Joan Masó  
13 September 2018

# The most important thing for this WG is...



We are creating a to get a public GitHub repository for collaborating on the development of any documents such as best practices, service interfaces.

# Agenda

---



- Citizen Science and Data Quality. (Alison Parker Woodrow Wilson International Center for Scholars)
- Citizen Science Interoperability Experiment objectives and activity plan. Let's start tomorrow (literally). Joan Masó (CREAF) (in 2 minutes only)

# Activity Summary



- Discussion topics
  - Different aspects of Data quality
    - Quality assessment
    - Quality improvement
    - Quality plan
    - Data Management principles
    - Quality documentation
    - Quality communication
- Upcoming deliverables
  - We should decide in the content we how like to create first
- Coordination (ongoing and planned)
  - Data quality
  - CitSci DWG
  - Sensors in general
- Future meetings
  - next TC Meeting?



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# OGC Naming Authority

108th OGC Technical Committee  
Stuttgart, Germany  
Gobe Hobona  
13 September 2018

# The most important thing for this WG is...

---



The Work Plan for 2018 Q4 and 2019 Q1 was discussed. This will include, amongst others, building of a Sensor Model and Parameter Register, building of a DGGS Register, review of the CRS Register etc.

# Agenda

---



- OGC Definitions Server update
- Request for Review by SWGs/DWGs
- 2018/19 work plan for the OGC-NA
- Recent definitions proposals
- Search for new co-chairs



# Activity Summary



- Discussion topics
  - OGC Definitions Server update
  - Request for Review by SWGs/DWGs
  - 2018/19 work plan for the OGC-NA
  - Recent definitions proposals
  - Search for new co-chairs
    - Nominations for 2 new co-chairs via e-mail by September 30th

- Upcoming deliverables
  - DGGs Register
  - Sensor Model and Parameter Register
  - Vote for 2 new co-chairs

- Coordination (ongoing and planned)
  - Chair to send requests for review to WGs via their OGC-NA reps: Hydro, CRS, WFS, SWE

- Future meetings
  - Next TC meeting (Charlotte, NC)



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# Joint OWS Common SWG & Architecture DWG

108th OGC Technical Committee

Stuttgart, Germany

Gobe Hobona, Joan Masó

13 September 2018

# The most important thing for this WG is...

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The need for all future OGC web services to be based on a set of common guidelines; we have recovered the need for OWS Common!

# Agenda – Day 1



- Introduction
  - Gobe Hobona, Joan Masó
- OWS Common
  - Joan Masó (CREAF) & Preston Rodrigues (HFT Stuttgart)
- OpenAPI
  - Chuck Heazel
- Draft WFS 3.0 standard
  - Clemens Portele (Interactive Instruments GmbH)
- Sensor Things API Part 1 & 2
  - Steve Liang & Tania Khalafbeigi (SensorUp/University of Calgary)
- Discussion

# Agenda – Day 2



- OGC Web API Guidelines
  - Chuck Heazel
- WMTS 1.0 standard (RESTful)
  - Joan Masó (CREAF)
- Draft WPS 2.0 REST /JSON binding
  - Benjamin Pross (52 North)
- Draft WCS REST Protocol Extension (Slide Read Out)
  - Peter Baumann (Jacobs University)
- Discussion
- Action

# Activity Summary



- Discussion topics
  - Key features of OpenAPI
  - Progress on and plan for development of WFS3.0
  - An overview of the SensorThings API Parts
  - How to be best access coverages that are the result of functions
- Upcoming deliverables
  - OGC Web API Guidelines (initiated by OAB)
  - JSON Best Practices
- Coordination (ongoing and planned)
  - OAB
  - SWGs: WFS, WPS, OWS Common, SensorThings API, WMTS, WCS
  - All other W\*S
- Future meetings
  - Next TC Meeting (Charlotte, NC)



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# OWS Common - Security SWG

108th OGC Technical Committee  
Stuttgart, Germany  
Andreas Matheus  
13 September 2018

# The most important thing for this WG is...



Finalizing the OGC Web Services Security standard



# Agenda



- 1) Registration and resolving of URNs and URLs and the authentication codes used by the OGC Web Services Security standard.
- 2) Review of comments received during the TC voting for the OGC Web Services Security standard:  
[https://portal.opengeospatial.org/files/?artifact\\_id=80553](https://portal.opengeospatial.org/files/?artifact_id=80553)

# Activity Summary



- Discussion topics
  - How can the URIs and URNs from the standard be implemented by the OGC Naming Authority
  - What to do with the final comments
- Upcoming deliverables
  - OGC Web Services Security standard (document requires finalization of used URIs or URNs)
- Coordination (ongoing and planned)
  - OGC Naming Authority
- Future meetings
  - Telecom
  - TC Dec. 2018



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# OWS Context SWG

108th OGC Technical Committee

Stuttgart, Germany

<Name of presenter>

13 September 2018

# The most important thing for this WG is...



OWS Context is being used by a number of other groups (e.g. **EO Product Metadata and OpenSearch SWG**). We need to support their needs. The link to standards such as **GeoPackage** to support off-line use cases is also critical.

# Agenda



- Presentation/Discussion of Outstanding Change Requests (Pedro Goncalves)
  - OWS Context Conceptual Model Issues
  - OWS Context Atom Encoding Issues
  - OWS Context GeoJSON Encoding Issues
- OWS Context/GeoPackage Integration Issues
  - Suggested Proposal for OWS Context in GeoPackage
    - Referencing GeoPackage from OWS Context
    - Putting an OWS Context inside a GeoPackage

# Activity Summary



- Discussion topics
  - OWS Context Conceptual Model Issues
  - OWS Context Atom Encoding Issues
  - OWS Context GeoJSON Encoding Issues
  - Suggested Proposal for OWS Context in GeoPackage

- Upcoming deliverables
  - OWC Conceptual Model (Corrigenda)
  - OWC Atom Encoding (Corrigenda)
  - OWC GeoJSON Revision

- Coordination (ongoing and planned)
  - Support for **EO Product Metadata and OpenSearch SWG**
  - Collaboration with GeoPackage SWG for 'joint' standard (to be agreed).

- Future meetings
  - Bi-weekly telecons (see OGC Schedule)



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# Perspective Imagery DWG

108th OGC Technical Committee  
Stuttgart, Germany  
Eric Hirschorn  
13 September 2018

# The most important thing for this WG is...

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The Danish Mapping Agency has proposed that they develop a prototype solution for storing, organizing, and distributing perspective imagery collections that would be based on open geospatial standards. The DWG has in turn agreed that if this system is successful, it will be used as a basis of our work.



# Agenda

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- Purpose and scope of the Perspective Imagery DWG
- Current topics of discussion
- Status
- Presentation from Danish Mapping Agency on use cases

# Activity Summary



- Discussion topics

- Danish Mapping Agency proposal to develop a prototype solution
- EXIF interior orientation parameters: they represent lens distortion models, but which model? Does this imply hardcoded (hence undesirable) sensor model elements?
- Suitability of EO-WCS for distribution of perspective imagery collections.

- Coordination (ongoing and planned)

- Discussion with experts on EO-WCS, including with Stephan Meissl
- OGC D&I, SWE, and UxS (for sensor models)

- Upcoming deliverables

- Discussion Paper describing the activities of the DWG, with recommendations towards standards work.
- New charter for the DWG based on the DP

- Future meetings

- Charlotte, NC TC in December 2018

# Key activities



- Danish Mapping Agency is to present their proposal to develop a prototype solution at the Closing Plenary.
- Danish Mapping Agency presented a draft DP with some technical features and capabilities described that a successful perspective imagery collection solution would require.
- The chair gave an introductory briefing on the DWG, i.e. purpose, goals, topics of discussion, and TC- imposed constraints, followed by a discussion of the role of referenceable grids in OGC perspective imagery and how their use would make clearer which OGC standards would be of use for a perspective imagery distribution system.



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# Point Cloud DWG Report to TC

108th OGC Technical Committee  
Stuttgart, Germany  
Stan Tillman, Hexagon  
13 September 2018

# The most important thing for this WG is...



A new survey has been announced to the Point Cloud community. The results of this survey will feed into an Engineering Report (ER) by Howard Butler and that ER will be the basis for defining the work of the DWG in the near future.

# Agenda

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- Relational database Space Filling Curve (SFC) interface specification for point clouds
  - Peter van Oosterom, TU Delft
- Point Cloud Encoding for Indexed 3D Scene Layer
  - Keith Ryden, Esri
- Indoor Mapping and Navigation Pilot
  - Scott Serich, OGC
- Any extra time will be used to discuss future work.
  - Stan Tillman, Hexagon

# Activity Summary



- Discussion topics
  - Relational database Space Filling Curve (SFC) interface specification for point clouds
  - Point Cloud Encoding for Indexed 3D Scene Layer
  - Indoor Mapping and Navigation Pilot
  - A new Point Cloud survey

- Upcoming deliverables
  - Conduct the Point Cloud Survey
  - Review the Testbed Engineering Report

- Coordination (ongoing and planned)
  - Various other working groups
  - Owners of the Community Standards

- Future meetings
  - Next meeting in North Carolina, USA



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# QoSE DWG

108th OGC Technical Committee  
Stuttgart, Germany  
Ilkka Rinne  
13 September 2018



# The most important thing for this WG is...

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We have been doing great work, as proved the QoSE TB-14 activity! Also a good number of 20 people attending the QoSE DWG session.

But we lack the active members with work time to contribute. Idea of making the QoSE DWG a sub-group of the Architecture DWG was raised and discussed, but did not gain enough support among the meeting participants.

# Agenda

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1. Approval of the minutes of the last meeting
  - Minutes of the QoSE DWG online meeting on 14<sup>th</sup> April 2018
2. Presentation: OGC Testbed-14 WMS QoSE Engineering Report: Work in Progress; Guy Schumann (ER lead editor), Remote Sensing Solutions Inc.
3. Review of QoSE DWG work programme items for 2018
4. Discussion about merging with the Architecture DWG
5. Any other business

# Activity Summary



- Discussion topics

- Both the QoE DP guidance and the QoS service metadata capabilities are being tested in the TB-14. This is great achievement for the WG.
- Need to communicate the existence of the WG to OGC members in order to get more active members.

- Upcoming deliverables

- First draft of the QoS metrics to be send to OGC-NA for review & publication.

- Coordination (ongoing and planned)

- Suggestion to have a joint meeting with the Data Quality DWG in the December TC.

- Future meetings

- Next online meeting 9<sup>th</sup> October
- Face-to-face meeting in Charlotte TC in December

# Key activities



- The following DWG activities were confirmed for the rest of the 2018:
  - QoS metrics and metadata
    - Recommend QoS metrics for OGC Web Services based on the QoS survey results
    - Declared QoS as service metadata (current OGC W\*S standards and WFS 3)
  - QoE Discussion Paper / Best Practice
    - Follow-up and dissemination of the QoE Discussion Paper
    - Prepare for drafting of QoE Best Practice based on all the feedback from the Testbed 14 and other sources.
- The Quality of Experience work will activate when the TB-14 ER is available (initial content in October, final by the December TC).
- TB-14 feedback also required to evaluate to practicality of the QoS service metadata (capabilities extensions)
  - Try to get a presentation from GeoSolutions implementing team in one of the online or face-to-face meetings: what works, what needs improvement.
- Ilkka to send the initial list of QoS metrics to the OGC-NA (Rob Atkinson) for review.



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# Security DWG

108th OGC Technical Committee  
Stuttgart, Germany  
Andreas Matheus  
13 September 2018

# The most important thing for this WG is...

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Testbed 14 Security ER review

# Agenda



- Testbed-14: Security Engineering Report (Juan Jose Doval and Hector Rodriguez, DEiMOS Space S.L.U.)
- Secure Client Compliance Thread in OGC Testbed 14 (Sara Saeedi, University of Calgary)
- WFS 3.0 security (Chuck)
- Digital Signatures in ISO Metadata - A LandSense use case (Andreas Matheus, Secure Dimensions)

# Activity Summary



- Discussion topics
  - Security in Testbed 14

- Upcoming deliverables
  - Review Testbed Security ERs

- Coordination (ongoing and planned)
  - none

- Future meetings
  - TC Dec. 2018





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# SensorML-2.0 SWG

108th OGC Technical Committee  
Stuttgart, Germany  
Eric Hirschorn  
13 September 2018

# The most important thing for this WG is...

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The SWG passed a motion that the RFC in Pending Documents [OGC 18-070] be recommended to the OAB for a minor revision to the SensorML-2.0 standard.

# Agenda for SensorML-2.0 SWG



- Concise Specification of an Array of Encoded Values for SensorML 2.0
  - Eric Hirschorn
- Aligning SensorML with ISO 19130
  - Yuqi Bai
- SensorML-SWG 2.0 currently only has 1 voting member
  - Johanness Echterhoff
  - Scott Simmons request: ask for new voting members

# Activity Summary



- Discussion topics

- Adding voting members to the SWG, because currently there is only one (Johannes Echterhoff)
- Making the SensorML-2.0 SWG more active and relevant as an integral part of the SWE Umbrella.
- Contributions for the “OGC Name Type Specification – Sensor Models and Parameters” [OGC 18-042r4]

- Coordination (ongoing and planned)

- Perspective Imagery DWG
- Coverages DWG
- WCS SWG
- SWE Umbrella SWG

- Upcoming deliverables

- OGC 18-070 in Pending Documents has been recommended by a motion for processing by the OAB
- Discussion Paper describing how to create SensorML-2.0 sensor models that may be used with the ReferenceableGridCoverage Extension and GMLJP2 2.1

- Future meetings

- Charlotte, NC TC in December 2018



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# SWE DWG Report

108th OGC Technical Committee

Stuttgart, Germany

Steve Liang

13 September 2018

# The most important thing for this WG is...



Promote and share the innovative works from the SWE community to OGC as well as other relevant communities.

# Agenda

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- Simple Observation Features Pilot
  - Ilkka Rinne
- Current Sensor Web Projects: COLABIS, WaCoDiS, MuDaK-WRM
  - Simon Jirka
- Updates on Smart Citizens for Smart Cities project, a project funded by NRCan, GeoConnections
  - Steve Liang



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# Symbology Joint

108th OGC Technical Committee  
Stuttgart, Germany  
Lucio Colaiacono  
13 September 2018



# The most important thing for this WG is...



Interesting discussion about the possibility to decouple  
feature attributes encoding rules and symbols

Comments will be provided to the SLD/SE abstract model  
under revision now..

# Agenda

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- Draft Paper of SLD/SE SWG presentation Chris Little
- Modeling, Portrayal and Quality of Service (MoPoQ) Testbed 14  
ER presentation about symbology Sara Saeedi
- Discussion



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# Timeseries SWG Closing Plenary Report

108th OGC Technical Committee  
Stuttgart, Germany  
Paul Hershberg  
13 September 2018

# The most important thing for this WG is...



## CURRENT

### **-- The PC has approved Version 1.2 of TimeseriesML standard:**

- ✓ On 11 August 2018, the TC voted to recommend the following standard with 20 YES, 14 ABSTAIN, and 0 NO votes:

OGC TimeseriesML 1.2 – XML Encoding of the Timeseries Profile of Observations and Measurements [15-042r5]

- ✓ This will allow the NWS to encode their popular NDFD web service in TSML moving forward, providing important weather information in an international standard, and improving interoperability.

## FUTURE

### **-- Moving forward, an important consideration is for the Timeseries SWG to communicate with:**

- ✓ ISO19123 (Coverages) – editing currently
- ✓ ISO19111 (conceptual schema for the description of spatial referencing by coordinates)
- ✓ ISO19156 (O&M) – editing currently (O&M SWG reforming also)
  - Specifically, there is concern these abstract models are causing problems with implementations (i.e. CIS1.1, 15-042, etc). We would like to make sure there is communication into that implementation level feedback while the editing processes are occurring.

# Agenda



## 1. Prior Action Items (Orleans. Fort Collins) – Updates

- Restablishing O&M SWG
- TimeseriesML Version 1.2 Status --> Passed as a new standard

## 2. Version 1.3 Proposal → *Count in Irregular timeseries*

## 3. NWS NDFD Web Service example using TSML 1.2

## 4. NASA Use Cases Status

- SWE ?
- Presentation by Doug Ertz of UNAVCO.

## 5. Harmonize any differences in TimeseriesML/O&M with the WCS Coverage model within OGC – Update

- CIS1.1's incompatibility with Timeseries Conceptual Model (15-043)

## 6. Future Work

# Activity Summary



- Discussion topics

- Move on to publishing recently passed Timeseries Ver 1.2 (currently doing). Showcased NWS NDFD web service example using TSML Ver 1.2 encoding
- Propose, for Ver 1.3, to handle time step count in reg spaced segments
- Discussed communicating NASA's complex use cases with other OGC groups, specifically the SWE DWG, for feedback.
- Doug Ertz of UNAVCO presented his NASA use case. Discussion on whether his need for richer TSML metadata vs SWE's ability to handle multiple elements per time step would win out. Mentioned JSON encoding of TSML may help with this issue.

- Coordination (ongoing and planned). Discussed need for harmonization of Timeseries with WCS Coverages. Also, continuing need for discussions with:
  - WCS SWG (CIS1.1) (*Peter Baumann*)
  - O&M; new SWG; ongoing edits to ISO19156
  - Coverages; ongoing edits to ISO19123
  - ISO19111 (spatial referencing by coordinates)
  - Temporal and MetOcean DWG's
  - NASA ESDS TSWG

- Upcoming deliverables

- None

- Future meetings

- NASA ESDS TSWG Telcos (monthly)
- OGC – Charlotte, NC, Dec '18
- OGC – Singapore, Feb-Mar '19



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# TJS SWG

108th OGC Technical Committee

Stuttgart, Germany

Timo Aarnio

13 September 2018

# The most important thing for this WG is...



Revision of the TJS standard using OpenAPI and a modular architecture



# Agenda

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- Current status of the revision work - Pekka Latvala
- Ideas and discussion points for future development - Timo Aarnio

# Activity Summary



- Discussion topics

- Status and plans
- Requirements for core
- Possible & needed extensions

- Upcoming deliverables in 2019

- TJS 2.0 Part 1 – Core
- Possible extensions

- Coordination (ongoing and planned)

- National pilot in Finland

- Future meetings

- None planned but online meetings possible if wanted



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# **UxS DWG Report**

108th OGC Technical Committee  
Stuttgart, Germany  
Marcus Alzona, Don Sullivan  
13 September 2018

# Agenda

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Steve Smyth:

IRA Ambushes Preserving Irish Sites from 1919-1923

Don Sullivan, for the coordinating Committee :

Drone Data Week – IDW, Botswana

# Key activities



Ambushes, an important element of Irish culture.

#Drones4Good@IDW in Botswana!





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# WFS/FES SWG

108th OGC Technical Committee  
Stuttgart, Germany  
Clemens Portele  
13 September 2018

# The most important thing for this WG is...

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Validation of the design and architecture  
of the WFS 3.0 Core

# Agenda



- Status update
  - Part 1 - Core (Clemens Portele)
  - ISO 19168-1 (Panagiotis Vretanos, Clemens Portele)
  - Guide (Chuck Heazel)
- WFS 3.0 Extensions / API extensibility with other OGC NextGen services
  - WFS 3.0 Extensions vs. API extensibility with other OGC NextGen services (Clemens Portele)
  - Part 2 - CRS support (Panagiotis Vretanos)
  - Testbed 14: Map support (Panagiotis Vretanos)
  - Vector Tiles Pilot: Mapbox and GeoJSON vector tiles (Panagiotis Vretanos)
  - MetOcean extensions (Peter Trevelyan)
- Skipped, running out of time:
  - Testbed 14: Complex Feature Handling - 3D, rich queries, etc. (Clemens Portele)
  - Testbed 14: Geometry Simplification (Clemens Portele, Panagiotis Vretanos)
  - Simple Transactions (Clemens Portele)



# Activity Summary



- Discussion topics

- Status and plans
- Extensions to WFS 3.0 Core
- Extensions with other resources based on the same architecture

- Upcoming deliverables in 2019

- WFS 3.0, Part 1 – Core
- WFS 3.0, Part 2 – CRS by reference
- WFS 3.0 Guide (informative)

- Coordination (ongoing and planned)

- Testbed 14
- Vector Tiles Pilot
- Architecture DWG
- ISO/NP 19168-1
- STAC

- Future meetings

- Bi-weekly web-meetings
- Discuss filtering / complex feature handling in one of the upcoming
- Inform ISO project team at the TC 211 meeting in November
- SWG meeting in Charlotte in December



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# WMS

108th OGC Technical Committee  
Stuttgart, Germany  
Joan Maso  
13 September 2018

# The most important thing for this WG is...



We are going for WMTS 3.0 OpenAPI+TileMatrixSet abstract

# Agenda



- Status of the TileMatrixSet standard candidate and list of requests coming from the RFC period (Joan Masó, UAB-CREAF)
  - <https://portal.opengeospatial.org/wiki/WMS1x4swg/TileMatrixSet>
- Doing WMTS as Open API (Joan Masó, UAB-CREAF)
  - <https://portal.opengeospatial.org/wiki/WMS1x4swg/WmtsWebApi>
- Using WMS to do personalized visualization and analysis at screen resolution (Joan Masó, UAB-CREAF) (No time left to present)

# Activity Summary



- Discussion topics
  - WMTS 3.0 Open API yaml document draft

- Upcoming deliverables
  - Review the set of comments received for TMS abstract.
  - Produce the schemas for the XML and JSON

- Coordination (ongoing and planned)
  - OWS Common
  - WFS 3.0

- Future meetings
  - next TC Meeting
  - Some phone calls to address the TMS comments



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# WPS/Workflow

108th OGC Technical Committee  
Stuttgart, Germany  
Benjamin Pross, Stan Tillman  
13 September 2018

# The most important thing for this WG is...



REST/JSON Binding

# Agenda



- Update on the Master Thesis on WPS orchestration, Diogo Rafael Lopes Ferreira, Instituto Superior Técnico
- Update on the Testbed-14 Workflows ER, Sam Meek, Helyx
- Update on the WPS REST/JSON Binding, Benjamin Pross, 52° North
- AOB



# Activity Summary



- Discussion topics
  - Workflows
  - REST/JSON Binding

- Upcoming deliverables

- Coordination (ongoing and planned)
  - Architecture DWG

- Future meetings
  - Telecon (TBA)
  - TC meeting December