Closing Plenary

115th OGC Technical Committee

Virtual

Scott Simmons

22 June 2020

Agenda

- Thanks
- Quorum confirmation
- Invited presentation
  - Global Location Number (GLN) Standard: GS1
- TC Member presentations
  - European Open Science Cloud (EOSC): Joan Masó
  - Zarr as a potential Community standard: Ryan Abernathey
  - Maps for the Web Workshop: Gobe Hobona
  - Facelift on OGC website: Nadine Alameh
- TC Motions
  - Moving Features SWG recharter: Nobu Ishimaru
  - SymCore: Olivier Ertz
  - CDB 1.2: Carl Reed
  - MUDDI SWG: Carsten Rönsdorf
  - OGC API Charters, Resource Planning and Sprints: Gobe Hobona
- Upcoming TC Meetings
- TC Chair announcements and motions
- Working Group reports with motions: Z to 3
- "Important Things" discussion

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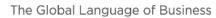# Thanks to our intended sponsor

Quorum confirmation

- confirmed

Invited Presentation

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*If applicable

GS1's Purpose

At GS1, we believe in the power of standards to transform the way we work and live.

We create a common foundation for business by uniquely identifying, accurately capturing, and automatically sharing vital information about products, locations, and assets.

We enable visibility through the exchange of authentic data.

We empower business to grow and to improve efficiency, safety, security, and sustainability.

Who we are

GS1 is...

- Neutral and not-for-profit

- User-driven and governed

- Global and local

- Inclusive and collaborative

We bring communities together.

What we do

We are in the business of progress.

GS1 brings industry leaders together to revolutionize the way they do business:

- Envision the future

- Solve an industry problem

- Engage their communities

- Exemplify best practices

Why we do it

GS1 helps companies of all kinds do business better:

- Access GS1 Standards

- Use services and tools

- Get education and training

- Connect with trading partners and peers

Our role is to advance our system of standards for everyone.
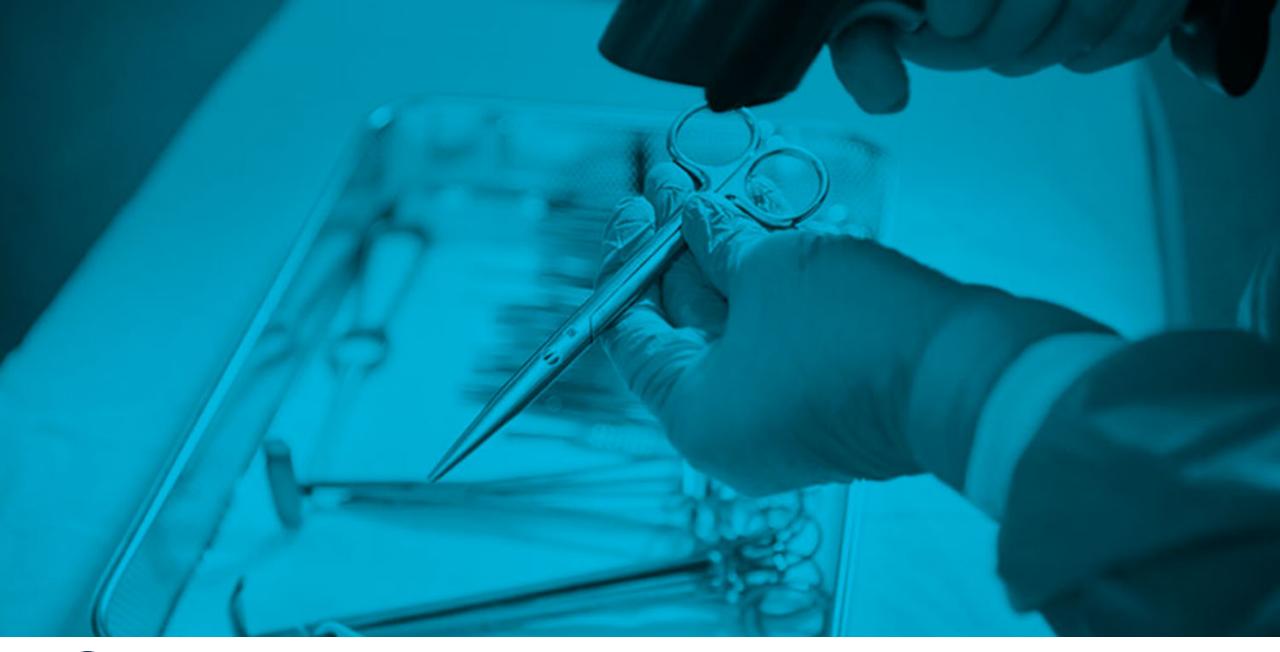
How GS1 and OGC fit together

GS1

- Persistent, unique identification standards that link to information on the who, what, when, and where of business
- Robust guidance and support for how identifiers are created, managed, and shared throughout the world

OGC

- Extensive standards for positioning and spatial geometries
- Existing solutions that can be leveraged now for highly complex geospatial issues

- Standards based solutions
- Global applicability
- Committed teams dedicated to solving problems
- Member and user need driven

- Serve overlapping industries and sectors
- Focus on innovation and future needs
- Looks to enable and enhance technologies
- Collaboration builds better results

TC Member Presentations

Cos4Cloud

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 863463

Co-designing Citizen Observatories Services for the European Open Science Cloud

https://cos4cloud-eosc.eu/

European Open Science Cloud
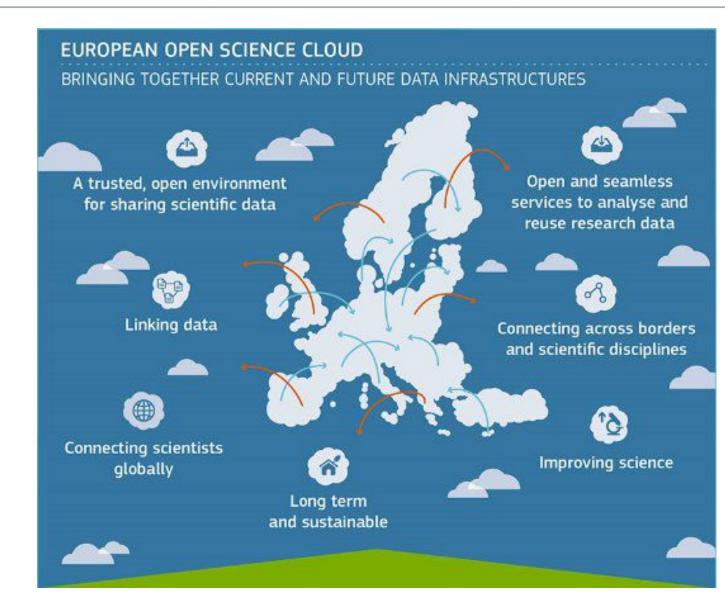
115th OGC Technical Committee

Virtual

Joan Masó

22 June 2020

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Making location count.

What is the EOSC

- It aims to be a safe environment for researchers to store, analyse and re-use data for research, innovation and educational purposes
- This universal entry point has the potential to help 1.7 million researchers and 70 million professionals in science, technology, humanities and social sciences to access a growing volume of open data
- It was launched in 2019 and it is in its infancy in terms of services available but it is growing fast

EUROPEAN OPEN SCIENCE CLOUD
BRINGING TOGETHER CURRENT AND FUTURE DATA INFRASTRUCTURES

A trusted, open environment for sharing scientific data

Open and seamless services to analyse and reuse research data

Linking data

Connecting across borders and scientific disciplines

Connecting scientists globally

Long term and sustainable
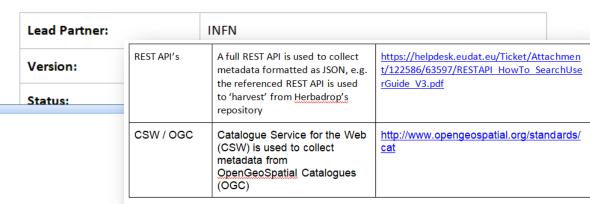
Improving science

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The role of OGC standards in EOSC

- EOSC is considering some standards to build the infrastructure
- But I'm not able to find almost any reference to OGC standards in the EOSC development documents
- Considering that a considerable number of disciplines in EOSC are related to Earth science, one would expect location to be important

EOSC-hub

D10.4 EOSC Hub Technical Architecture and standards roadmap v2

Lead Partner:	INFN		
Version:			
Status:			
REST API's	A full REST API is used to collect metadata formatted as JSON, e.g. the referenced REST API is used to 'harvest' from Herbadrop's repository	https://helpdesk.eudat.eu/Ticket/Attachment/122586/63597/RESTAPI_HowTo_SearchUserGuide_V3.pdf
CSW / OGC	Catalogue Service for the Web (CSW) is used to collect metadata from OpenGeoSpatial Catalogues (OGC)	http://www.opengeospatial.org/standards/cat

May
- 🚩 • 2nd version of PID Policy
- 🚩🟧 • Interoperability Framework draft version
- 🟠 • EOSC evaluation report

Jun
- 💲 • Funding model
- 🚩 • Metrics & certif
- 🚩🟧 • Legal Interoper
- 🟠 • SRIA draft versi

Jul
- 💲 • 1st draft Iron Lady
- 🚩 • Interoperability Framework workshop

https://www.eoscsecretariat.eu/eosc-working-groups

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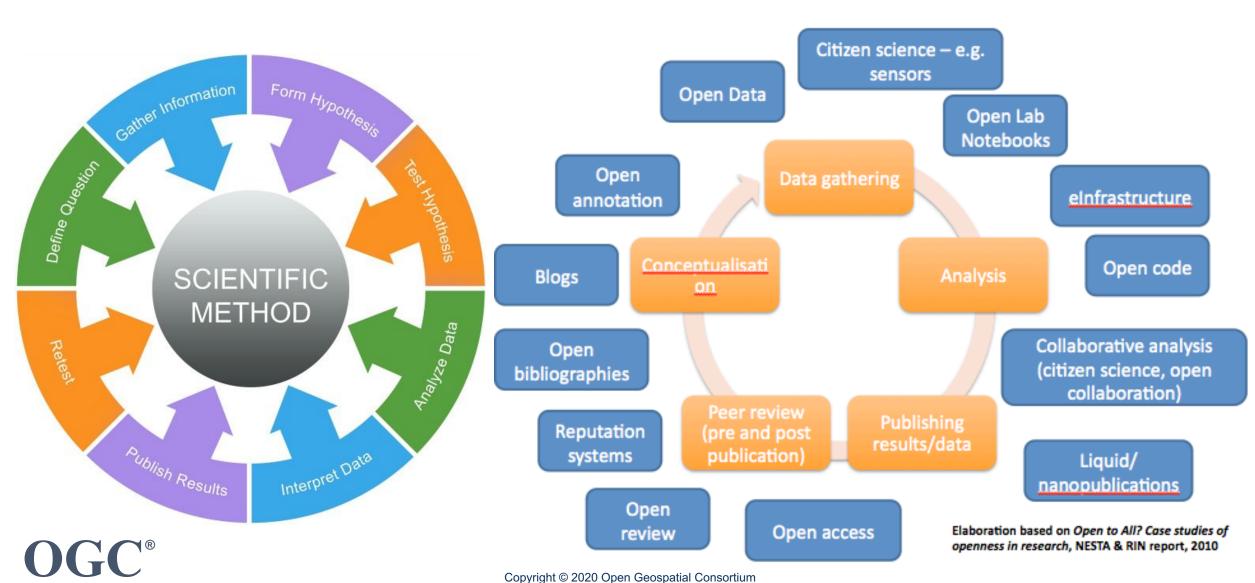OGC®

Are we sensible to the scientific needs?

- One (main?) aim of the OGC is to serve the need of the government and the industry. There are many universities but most are here from IT departments. But we are sensible to science demands too (e.g. Tech Trends, EO exploitation platform)
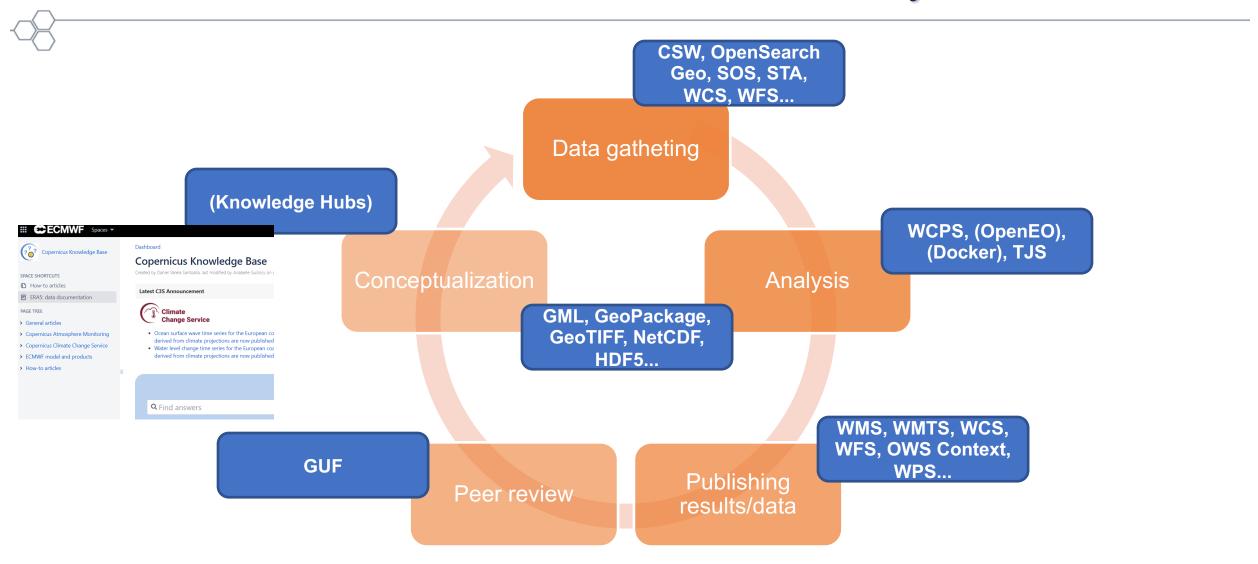
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The research cycle

Elaboration based on *Open to All? Case studies of openness in research*, NESTA & RIN report, 2010

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OGC standards in the research cycle

CSW, OpenSearch Geo, SOS, STA, WCS, WFS...

Data gatheting

(Knowledge Hubs)

Conceptualization

Analysis

WCPS, (OpenEO), (Docker), TJS

GML, GeoPackage, GeoTIFF, NetCDF, HDF5...

GUF

Peer review

Publishing results/data

WMS, WMTS, WCS, WFS, OWS Context, WPS...

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What we can do about it?

- Why EOSC has not considered OGC standards yet?
  - Work in terms of communication /participation with EOSC…

- Can we do better to support the scientific research cycle?
  - I propose to liaise with at least this 3 group to analyze what OGC can do about it
    - University DWG
    - Earth sciences DWG
    - Earth Observation Exploitation Platforms DWG
    - (with Tech-Trends)

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Notes

- Setup special session on this topic in September

Ryan Abernathey

Zarr as a potential Community standard

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Gobe Hobona

Maps for the Web Workshop

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Nadine Alameh

Facelift on OGC website

TC Motions

Moving Features SWG Report
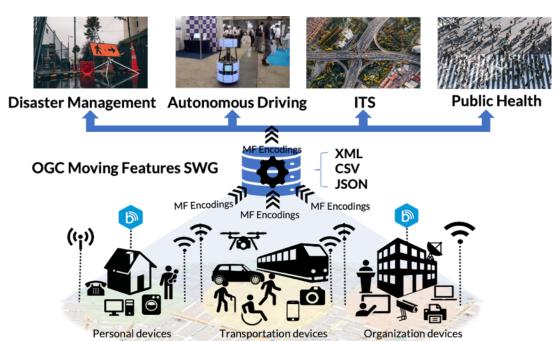# TC Briefing

115th OGC Technical Committee

Virtual

Kyoung-Sook Kim, Mahmoud Sakr, Nobuhiro Ishimaru

22 June 2020

General Introduction of the amendment of Moving Features SWG Charter Document

- Moving Features Standards Working Group Charter [OGC 13-016]
  - Development a candidate of OGC standard for moving feature: this candidate standard, called tentatively "**OGC Moving Features Encoding Standard**" will provide an <u>encoding format for exchanging moving feature data</u>
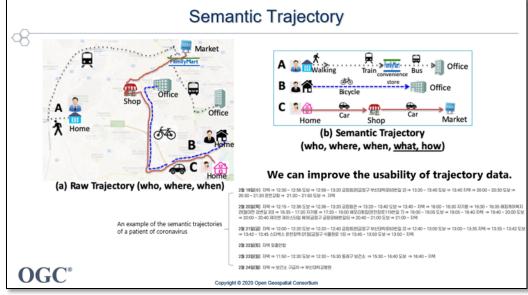

- Moving Features Standards Working Group Charter Amendment [OGC 20-053]
  - **Data models and encoding formats** to exchange the moving features data including <u>GNSS- logged, network-constrained, semantic, and region-based moving features</u>.
  - **Service interfaces** based on the emerging <u>OGC APIs and SQL</u>, such as a moving feature service, process service, and so on.
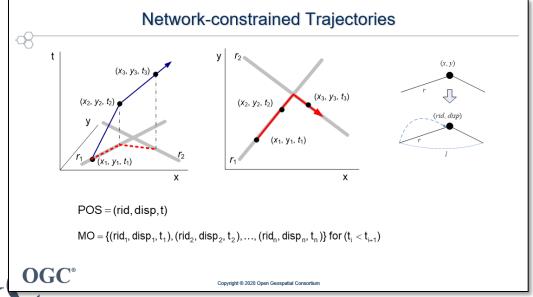 - **Data quality and validation** of moving feature data.

| Type	13-016 Charter	Current Situation	20-053 Amended Charter
Data model and Encoding format	Simple Trajectory (TemporalTrajectory in ISO 19141:2008)	TemporalTrajectory + Prism model (JSON)	+ Network-constrained Trajectory (Linear Referencing?) + Semantic Trajectory
	Rigid features	Rigid features + Non-rigid features (Partially)	+ Moving Regions
Service interfaces	-	Abstract specification (Moving Features Access)	+ Implementation specification (OGC API? SQL?)
Other	-	-	+ Validator (Conformance Test?)
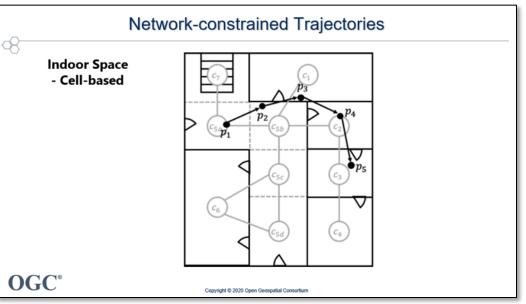
Planned New Work Items (1/2)

- Extending data models and encodings
  - From Simple Trajectory to Network-constrained Trajectories and Semantic Trajectories

$$POS = (rid, disp, t)$$

$$MO = \{(rid_1, disp_1, t_1), (rid_2, disp_2, t_2), \ldots, (rid_n, disp_n, t_n)\} \text{ for } (t_i < t_{i+1})$$
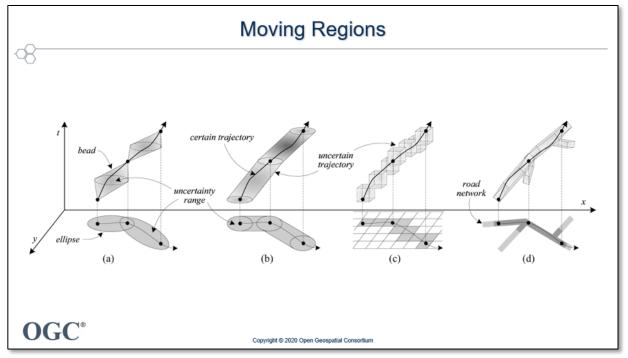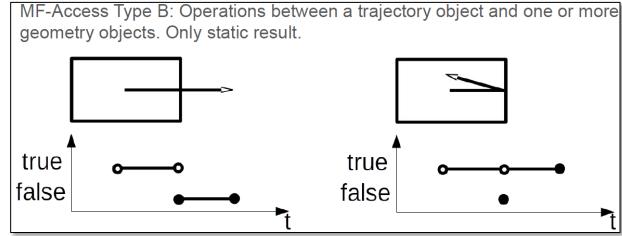
Planned New Work Items (2/2)

- Extending data models and encodings (continued)
  - From Rigid Features to Moving Regions

- Implementation of Moving Features Access Specification
  - SQL (e.g. PostGIS Temporal Operations)
  - OGC API compliant specification

- Moving Features data Validator

Moving Regions

MF-Access Type B: Operations between a trajectory object and one or more geometry objects. Only static result.

Motion for Moving Features SWG Charter Amendment

- The Moving Features SWG recommends that the OGC Technical Committee approve the Amended Moving Features SWG Charter Document [OGC 20-053].
  - Add reference to coordination with EDR API SWG
  - There was no objection to unanimous consent

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Joint Session
Portrayal DWG
SLD/SE SWG

115th OGC Technical Committee / Virtual

Matt Sorenson (Strategic Alliance Consulting Inc.)

Olivier Ertz (HEIG-VD)

22 June 2020

Quick history and strategy

- in the **continuity** of SE 1.1 (indeed SLD and SE are distinct topics)
- received tons of CR asking to **enrich** cartographic capabilities
- not possible to "just **XMLize**" into the existing XML Schemas
- no explicit **extension points** to ensure that the whole thing will stand upright
- communities pushing for other **encodings** - tired of XML > JSON, CSS wanted

- ➢ rewind the story and think modular (modular spec)
  - ➢ one core, many extensions
  - ➢ one conceptual model, many encodings

Testbeds about portrayal, styles and symbology

- OGC Testbed-(12)13: Portrayal Engineering Report (17-045)

  *"representing portrayal information using **semantic-based technologies**" (vs SLD/SE 1.1 spec document-centric) – "share information on the web" (see also [18-029] chapter 5.1 - §5)*

- OGC Testbed-14: Symbology Engineering Report (18-029)

  *"began **an assembly of many visions** on various requirements from linkable portrayal information to multiple-pass rendering symbolizer composition"*

- OGC Testbed-15 Encoding and Metadata Conceptual Model for Styles Engineering Report (19-023)
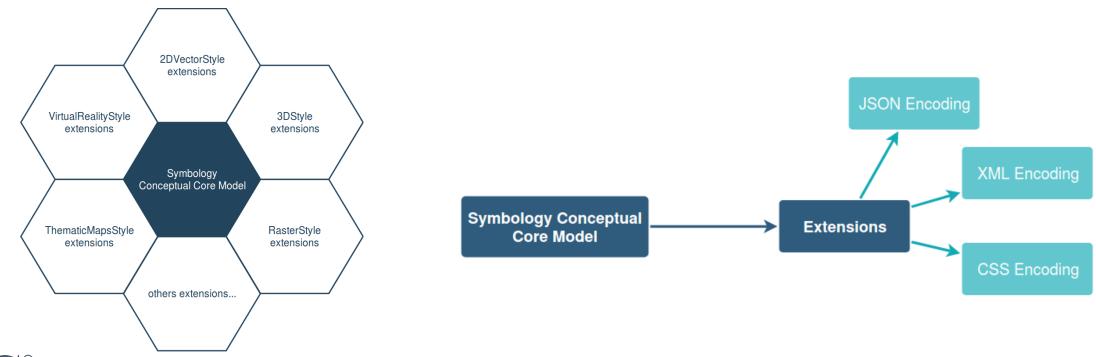
  *"the organization of the model into these three components, makes it complementary with the Symbology Core draft specification (18-067r2). This organization minimizes overlap and duplication between the two models in order to **facilitate future convergence** between them"*
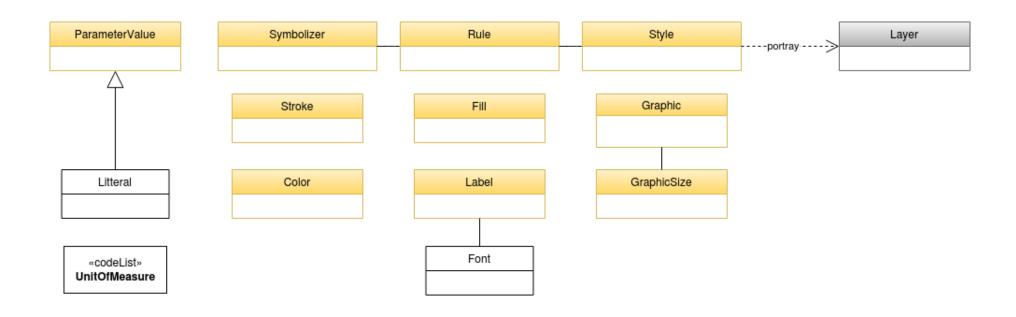
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SymCore approach

- provide the **flexibility** required to achieve adequate **symbology rules** for a variety of information communities; e.g. aviation symbols, weather symbols, thematic maps, etc

- participate to high level **styling interoperability** without encoding dependencies
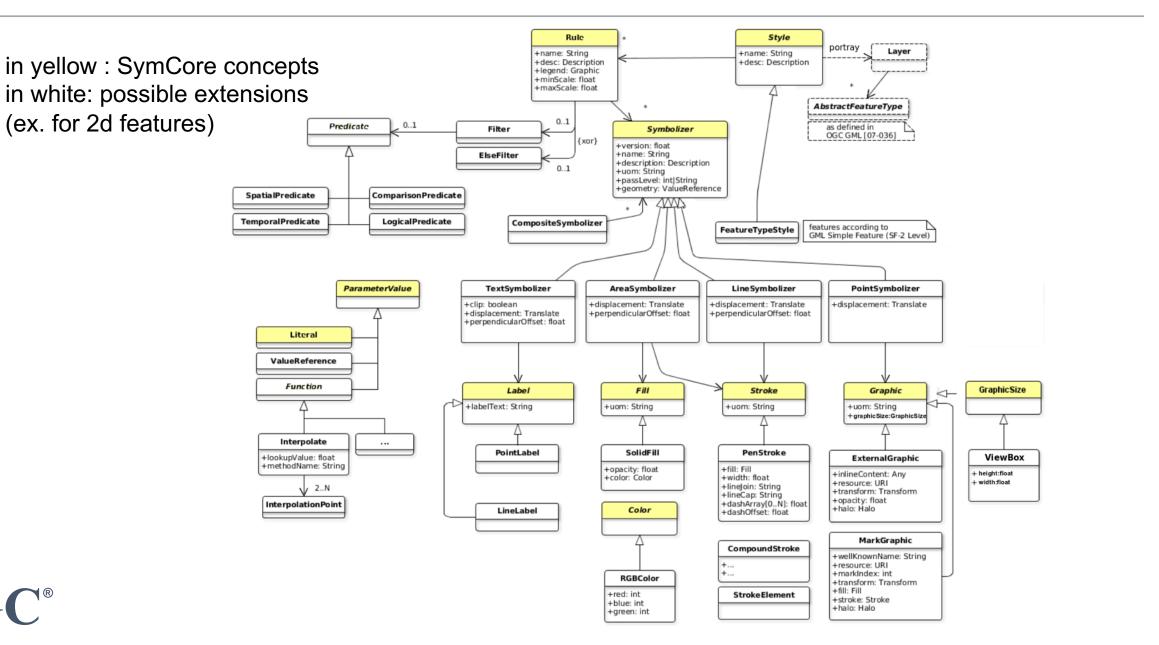

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Symbology Core Conceptual model

- ➢ The model contains a minimal set of abstract classes representing explicit extension points of the model.
- ➢ Note, that this document does not define any extensions.

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SymCore Conceptual model + concrete extensions

in yellow : SymCore concepts
in white: possible extensions
(ex. for 2d features)

Request of an electronic vote

- The SLD/SE SWG recommends that the OGC Technical Committee approve an electronic vote to approve release of [OGC 18-067r2] "OGC Symbology Conceptual Model: Core part" as an OGC Adopted Standard.

  ➢ There was no objection to unanimous consent

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CDB Version 1.2 Presentation to OGC Members

CDB Version 1.2 - Update
David Graham and Carl Reed
On Behalf of the CDB SWG and CDB User Community
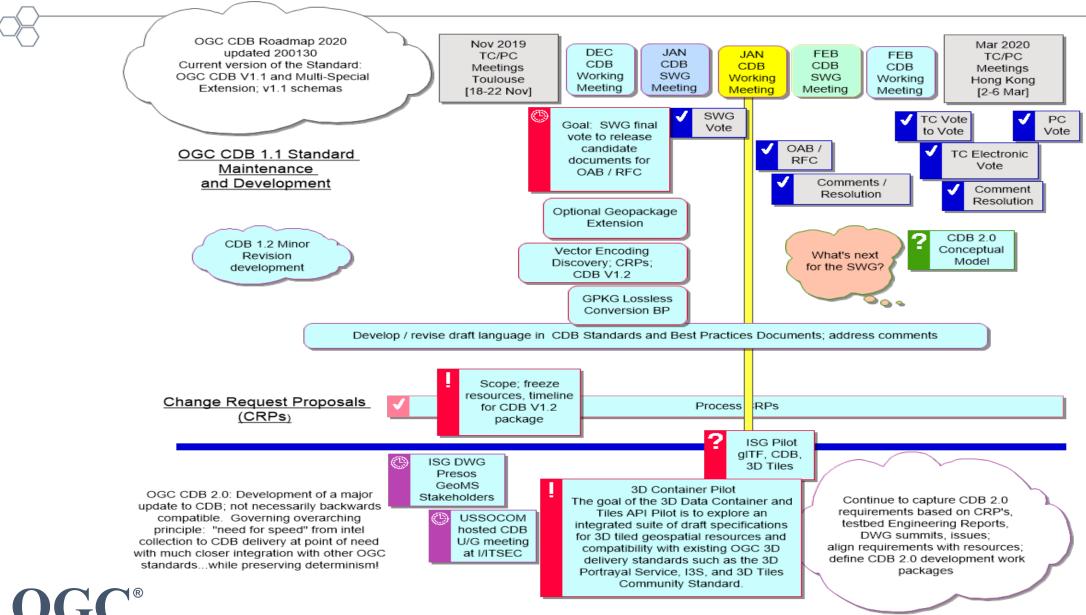22 June 2020

Agenda

- Quick Overview of the CDB SWG Roadmap

- Documents-in-progress review
  - Optional GeoPackage Extension
  - Conversion to GeoPackage Best Practices Document
  - CDB Substantive Changes
  - General CDB minor revisions

- Note - CRP freeze was the Toulouse Meeting

- Special Note: CDB 1.2 is fully backwards compatible with Versions 1.1 and 1.0.

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Current CDB SWG Roadmap

OGC CDB Roadmap 2020
updated 200130
Current version of the Standard:
OGC CDB V1.1 and Multi-Special
Extension; v1.1 schemas

OGC CDB 1.1 Standard
Maintenance
and Development

CDB 1.2 Minor
Revision
development

Nov 2019
TC/PC
Meetings
Toulouse
[18-22 Nov]

DEC
CDB
Working
Meeting

JAN
CDB
SWG
Meeting

JAN
CDB
Working
Meeting

FEB
CDB
SWG
Meeting

FEB
CDB
Working
Meeting

Mar 2020
TC/PC
Meetings
Hong Kong
[2-6 Mar]

Goal: SWG final
vote to release
candidate
documents for
OAB / RFC

SWG
Vote

TC Vote
to Vote

PC
Vote

OAB /
RFC

TC Electronic
Vote

Comments /
Resolution

Comment
Resolution

Optional Geopackage
Extension

Vector Encoding
Discovery; CRPs;
CDB V1.2

What's next
for the SWG?

CDB 2.0
Conceptual
Model

GPKG Lossless
Conversion BP

Develop / revise draft language in CDB Standards and Best Practices Documents; address comments

Change Request Proposals
(CRPs)

Scope; freeze
resources, timeline
for CDB V1.2
package

Process CRPs

ISG Pilot
glTF, CDB,
3D Tiles

ISG DWG
Presos
GeoMS
Stakeholders

OGC CDB 2.0: Development of a major
update to CDB; not necessarily backwards
compatible. Governing overarching
principle: "need for speed" from intel
collection to CDB delivery at point of need
with much closer integration with other OGC
standards...while preserving determinism!

USSOCOM
hosted CDB
U/G meeting
at I/ITSEC

3D Container Pilot
The goal of the 3D Data Container and
Tiles API Pilot is to explore an
integrated suite of draft specifications
for 3D tiled geospatial resources and
compatibility with existing OGC 3D
delivery standards such as the 3D
Portrayal Service, I3S, and 3D Tiles
Community Standard.

Continue to capture CDB 2.0
requirements based on CRP's,
testbed Engineering Reports,
DWG summits, issues;
align requirements with resources;
define CDB 2.0 development work
packages

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Current Voting Members
Just to give idea of Member participation

1. David Graham, CAE
2. Steve Liang, UCalgary
3. Roger Brackin, Envitia*
4. Glen Johnson, VATC*
5. Dan Maxwell, KadSci
6. Steve Smyth, OpenSitePlan
7. Hermann Brassard, Presagis
8. Ryan Franz, FSI Visuals
9. Patrice Le Leydour, Thales
10. Chris Little, UK Met Office

11. Lance Marrou, Leidos
12. Carl Reed
13. Tracey Birch, SOFWERX*
14. Susan Raymie, US SOCOM
15. Kevin Bentley, Cognitics
16. Nacho Sanz-Pastor, Aechelon*
17. Lance Moss, Collins Aerospace
18. Sam Chambers, Joint Staff J7
19. David Ronnfeldt, Dept of Defense Australia*
20. Shehzan Mohammed, Cesium*
21. Roy Rathbun, NGA

Total Voting Members: 21
Total Active Voting Members: 16
Quorum: 8

* Indicates currently 'inactive'

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Documents Sources

– Document Links:

- Active .adoc format documents on the CDB Github repos accessible through the CDB project on the portal
  - 15 Repos ☺
  - Release Notes: https://github.com/opengeospatial/cdb-release-notes

- Volume 13: Optional GeoPackage extension document is here:
  - https://portal.ogc.org/files/?artifact_id=93397&version=1

- Some CDB V1.2 documents in Pending zip file
  - https://portal.ogc.org/files/?artifact_id=93410&version=1
  - Note: Volumes that have substantive changes are also loaded on pending as individual files.

- Volume 14: Shapefile to GeoPackage Conversion Best Practices
  - https://portal.ogc.org/files/?artifact_id=93399&version=1

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New Documents

Volume 13: OGC CDB Rules for Encoding CDB Vector Data as GeoPackages

- New CDB volume.

- Normative but optional extension

- Based on work and knowledge gained in the CDB Vector Data in GeoPackage Interoperability Experiment [19-007]
  - https://docs.opengeospatial.org/per/19-007.html

- Defines the requirements and provides CDB specific guidance on using GeoPackage containers in a CDB data store.
  - Requirements in this Volume reference Requirements classes and requirements in GeoPackage 1.2 and CDB 1.2.
  - Only the GeoPackage SRS/CRS requirements are profiled (restricted) to be consistent with CDB CRS requirements.
  - This first use of GeoPackage in CDB is confined to vector datasets only

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For example for GeoPackage

7.2.1. GeoPackage Requirements - core

The following requirement captures all of the core GeoPackage requirements that need to be implemented in order to be a fully compliant GeoPackage for use in a CDB data store. Please note that GeoPackage Requirements 10 and 11 on Coordiante Reference Systems has been profiled to be consistent with the mandatory requirements in the CDB standard.

Requirement 3 GeoPackage Core	http://www.opengis.net/spec/cdb/1.0/geopackage/geopackage-core Any CDB structured GeoPackage *SHALL* be compliant with GeoPackage Requirements 1 through 16 inclusive. Please see Requirement 4 of this standard for a restriction (profile) on GeoPackage Requirements 10 and 11 - Spatial Reference Systems (aka coordinate reference systems in CDB).

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Example for Mandatory CDB requirements

CDB Attribution

Attributes are used to describe one or more real or virtual characteristics of a feature. Features can be assigned a variable number of attributes. The following requirements from the core document and related informative discussion in Volume 1 Core describe the CDB compliant usage of attributes in a CDB datastore.

Important Note: Each attribute is uniquely defined by an attribute identifier. In database terminoly this would be a column name or heading in a database table. This attribute identifier is a "case-sensitive" character string of 10 characters or less. Further, the 10 character must be a unique literal string so that all columns in a table have unique names.

Requirement 11 Tiled Vector Datasets Attribution	http://www.opengis.net/spec/cdb/1.2/geopackage/cdb-core-tiled-vector-datasets-attribution Any CDB structured GeoPackage that encodes vector features *SHALL* be compliant with CDB Core Tiled Vector Datasets Requirements 112 through 116 inclusive. These requirements are documented in the CDB Core Requirements Class 5.7.1.2 CDB Attribution (112-116).

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Volume 14: OGC CDB Guidance on Conversion of CDB Shapefiles into CDB GeoPackages (Best Practice).

- New CDB Volume

- Also grounded in the CDB Vector Data in GeoPackage Interoperability Experiment [19-007]

- Complements and is consistent with Volume 13

- Provides rules and guidance for transforming CDB structured Shapefiles into CDB structured GeoPackages that are compliant with the requirements and conformance classes as defined in Volume 13.

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Substantive Changes

CR 573: CDB Primary Alternate Terrain Elevation problems

- Issue: The way that CDB's Primary Alternate Terrain Elevation dataset was defined in CDB Version 1.1 and earlier causes problems with standard open source libraries used to read and process terrain data.

- Solution: The SWG agreed that the solution is to separate the elevation values from the offset values and store them in separate image files within the TIFF file (layered tiff). This approach allows the offset values to remain 8-bit, allow a floating point elevation value, and remain compatible with open-source libraries.

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CR 617: How to discover the file format used to encode a dataset in a CDB Data Store

- A requirement resulting from adding GeoPackage

- Issue: CDB 1.1 and earlier supported a single (hard-coded) file format per dataset. To allow other file formats to be used in a CDB Data Store, the need to explicitly specify the file format that is used to physically store the components of a given dataset is required.

- Datasets.xml is expanded to indicate the encoding format used to encode the dataset and its components. The related .xsd and .xsl schema files were also updated.

- Easily Extensible

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From datasets.xsd

The current enummeration of supported data types in a CDB data store are:

```xml
<xs:simpleType>
  <xs:restriction base="xs:string">
    <xs:enumeration value="GeoPackage"/>
    <xs:enumeration value="JPEG 2000"/>
    <xs:enumeration value="GeoTIFF"/>
    <xs:enumeration value="TIFF"/>
    <xs:enumeration value="Shapefile"/>
    <xs:enumeration value="OpenFlight"/>
    <xs:enumeration value="XML"/>
    <xs:enumeration value="SGI"/>
  </xs:restriction>
</xs:simpleType>
```

Note	This Change Request superceded CDB CR 499: Update the CDB Datasets.xml file with a directory path type.

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Other changes as documented in the Change Log

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Change Log

Table 1. Change Log

Source	Identifier	Type	Section	Description	Purpose
Editor	NA	A	All volumes	Change all cover page to reflect Version 1.2	Consistency
SWG Decision	NA	A	All volumes	Intro material. Updated list of CDB Volumes	Consistency
Editor	NA	A	Vol 1 Core, Front Material	Add paragraph on how to submit comments and questions	Usability
CR	507	S	Lights.xml Schema	Added specific FAA obstruction light types. Added missing taxiway clearance lights	Change Request 507
Editor	NA	A	Vol 0 Guide, Clause 6	Fix URL references to other CDB topic volumes	Clarity
Editor	NA	A	Vol 0 Guide, Clause 6	Change LOD to LoD, fix typos	Consistency
CR	545	A	Vol 1 Core, Clause 1.4.4	Added GeoPackage extension and version numbers	Change Request 545
CR and SWG	545	A	Vol 1 Core, Clause 4	Added missing URLs and update for GeoPackage. Remove "Behavior of Prior Versions" column from table and add note after the table.	Change Request 545
CR	549	S	Vol 1 Core, Clause 5.8.3	In CDB, it is not clear what the relationship is between GeoSpecific model LODs and their XML Descriptor files. Requirement 129 was modified to fix ambiguity	Clarity

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And

CR	617	S	Dataset.xsd Schema	CR 617 How to discover the file format used to encode a dataset in a CDB Data Store (See description in Substantive changes section.	CR 617
CR	617	S	Dataset.xml Schema	Each dataset code now has a "crosswalk" between the code and the corresponding encoding format. A complete ennumeration of the CDB dataset codes can be found in Annex Q, Volume 2 Model and Physical Structure: Informative Annexes.	CR 617
Editor	NA	A	Table in Clause 1.4.3.2	Update table that identifies the files stored in the metadata folder and whether they are metadata or controlled vocabularies.	Clarity
User	NA	A	Vol 1 Core, 1.7.1.5.	Add recommendation on using lower case for all extensions	Interoperability
Editor	NA	A	Vol 1 Core Figure 2.2	Had an incorrect title. Changed versions to versus to correctly describe the axis of the figure.	Clarity
User	NA	A	Vol 1 Core, Clause 2.1.5	Fix table numbering	Duplicate table numbers.
Editor	NA	S	Vol 1 Core, Req 74	Add 1.2 as a valid version number	Consistency
Editor	NA	A	Vol 1 Core, Clause 4.0	Rewrite format desriptions	Clarity and Consistency
SWG	NA	A	Vol 1 Core, Clause 5.1	Geomatics and Vendor Attributes Metadata rewrite	Clarity and Consistency

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And

Editor	NA	A	Vol 1 Core, Clause 5.7	Deprecated vector data type MultiPatch	Never implemented.
Editor	NA	A	Vol 1 Core, Clause 8	Added graphic illustrations of file name conventions against CDB zone latitude and longitudes	Clarity
Public	NA	A	Vol 1 Core, Annex A, Test 64	Incorrect wording for test. Corrected to reflect requirement 64.	Clarity
OGC-NA	NA	A	Vol 1 Core, Annex A, Test 68	Remove duplicate "core" in URI	Error
Editor	NA	A	Vol 2 Guide, Front Material	Minor Grammar fixes	Clarity
SWG	NA	A	Vol 2 Guide, Annex J	Removed as Lights schema is normative	Clarity, consistency
SWG	NA	A	Vol 4 ShapeFile BP, Clause 6	Add note on deprecation of MultiPatch	Clarity, Interoperability
Editor	NA	A	Vol 7 Model Guidance, Scope	Minor re-wording	Clarity
Editor	NA	A	Vol 11 Conceptual Model, Front Material	Add GeoPackage note	Consistency

Questions?

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Motion to Request an electronic vote

- Motion: The CDB SWG recommends that the OGC Technical Committee approve an electronic vote to approve release of OGC CDB V1.2 [multiple documents] as an OGC Adopted Standard.
  - Pending any final edits and review by OGC staff
  - There was no objection to unanimous consent.

OGC®

MUDDI ad hoc – Closing Plenary Report

115th OGC Technical Committee

Virtual

Josh Lieberman, Carsten Rönsdorf

22 June 2020

The most important thing for this WG is…

Formation of SWG

Agenda

- Charter Revision
- Recommendation to approve MUDDI SWG
- Recommendation to release MUDDI ER v1.1
- Work Plan
- Chairs and Editors
- Meeting Schedule
- Liaison plans and contacts
- Roadmap outline

https://portal.ogc.org/files/?artifact_id=92110&version=1

OGC®

Activity Summary

- **Discussion topics**
  - Introduction of group members
  - Charter review
  - Preparation for MUDDI ER approval vote

- **Upcoming deliverables**
  - Work plan
  - Review of MUDDI ER (latest version of conceptual data model)
  - Roadmap

- **Coordination (ongoing and planned)**
  - bSI, ASCE, bsi (British standards), …
  - 3DIM DWG, Energy and Utilities DWG, GeoSciML SWG
  - LandInfra SWG, CityGML SWG

- **Future meetings**
  - Weekly telcons starting 24 June 2020

OGC®

Scope of Work

- Expand, prioritize, and validate a set of use cases based on the 2017 OGC Underground Infrastructure Concept Development Study [1] and the 2018 OGC Underground Infrastructure Pilot: MUDDI Workshop [2]

- Update and specify a MUDDI conceptual model, based upon and with mappings to existing model standards as laid out in [2]

- Develop a roadmap specification that outlines a framework and mechanisms for model modularity, allowing advanced MUDDI profiles to be constructed that preserve the fundamental interoperable concepts and relationships of the model.

- Develop an initial logical and physical implementation specification of the core MUDDI model as a base capability and template for future model development.

- Determine whether the SWG should conclude its work or continue to work on additional logical and physical models and/or harmonizations with other standards.

OGC®

Out of Scope

- The SWG will only standardize a model for underground data representation, relying on OGC API's such as Features to facilitate distributed, fine-grained, secure interchange of such representations between distributed systems and organizations.

- As the MUDDI standard will be modular and multi-part, its core and extension structure will allow a customized approach to implementing specific capabilities. If a community needs to develop a MUDDI profile specialized for its own use, that profile should be specified and governed by that community based on the MUDDI framework, with MUDDI providing the interoperability "backbone" between communities.

OGC®

Motion to Form MUDDI SWG

- The MUDDI Ad Hoc recommends that the TC approve an electronic vote for formation of the MUDDI SWG with charter [OGC 20-007r2] as updated following this meeting session.

  – Add coordination with IndoorGML SWG
  – Result: There was no objection to unanimous consent

OGC®

OGC API Charters, Resource Planning and Sprints

115th OGC Technical Committee

Virtual

Gobe Hobona

22 June 2020

Overview

- Sprints
- Resource planning
- SWG charters

OGC®

Sprints
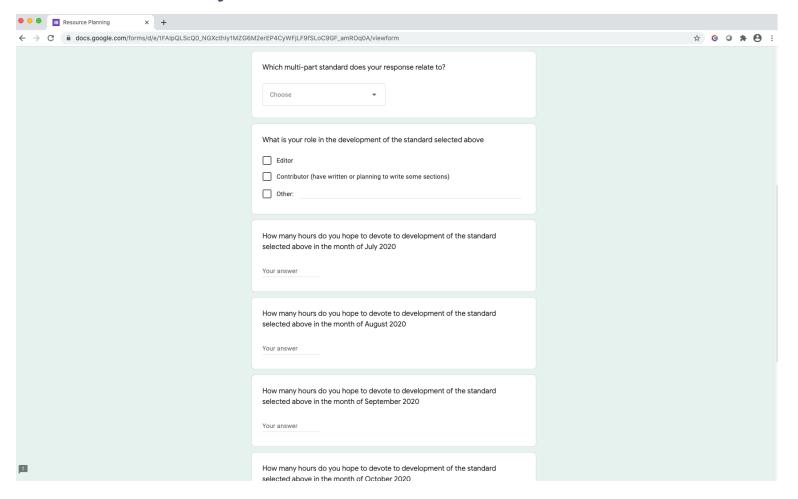
- Targeting 3 sprints before year end, potentially by the end of:
  - July
  - September
  - November

- Joint Sprints between multiple OGC APIs

OGC®

Resource Planning Questionnaire

- Please complete the form by 17:00 EDT on June 29th, 2020.

OGC®

Draft OGC API Naming Policy

- Defines a series of policy requirements for OGC API standards:
  - repositories
  - definitions
  - name abbreviations
  - specification elements

- Status
  - Presented to the OGC Naming Authority
  - Posted to the Pending Documents register

OGC®

Need for New Charters

- Situation
  - OGC API – Processes partially covered by WPS SWG Charter
  - OGC API – Maps partially covered by WMS SWG Charter
  - OGC API – Tiles partially covered by WMS SWG Charter
  - OGC API – Coverages partially covered by WCS SWG Charter
  - OGC API – Common partially covered by OWS Common SWG Charter

- Problem
  - The mechanics of OGC APIs are distinctly different from those of OWS
  - The draft OGC API specifications have developed to an appropriate stage

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Status (1)

- OGC API – Processes SWG Charter
  - WPS SWG passed a motion approving the draft charter
  - Presentation to the Workflow DWG pending

- OGC API – Maps SWG Charter
  - WMS SWG passed a motion approving the re-charter of the WMS SWG as the OGC API – Maps SWG
  - Presentation to the Architecture DWG pending

- OGC API – Tiles SWG Charter
  - WMS SWG passed a motion recommending creation of the OGC API - Tiles SWG
  - Presentation to the Architecture DWG pending

Status (2)

- OGC API – Coverages SWG Charter
  - Still under discussion in the WCS SWG
  - Presentation to the Coverages DWG pending

- OGC API – Common SWG Charter
  - Still under discussion in the OWS Common SWG
  - Presentation to the Architecture DWG pending

OGC®

Upcoming TC Meetings

Technical / Planning Committee Meetings

Date	Location	Host/Sponsor
15-19 June 2020	~~Montreal, Canada~~ Virtual	CAE
14-18 Sept 2020	Bonn, Germany	TBC
7-11 Dec 2020	Atlanta, GA USA	GTRI
Feb or March 2021 (or 2022)	Offer from India (TBC)	NRSC, DST, SOI
June 2021	Madrid, Spain (TBC)	
October 2021	Americas	

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TC Chair Announcements and Motions

Change to OGC standard template

- Clause 4 "Terms and Definitions" states:

  "This document uses the terms defined in Sub-clause 5.3 of [OGC 06-121r9], which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word "shall" (not "must") is the verb form used to indicate a requirement to be strictly followed to conform to this standard."

  – The reference is to OWS Common, which itself references an ISO document

- Instead, shall we instead create a persistent, web-accessible Policy Directive with the same content as the Sub-clause referenced above and then update the standard template as follows?

  "This document used the terms defined in OGC Policy Directive XX [URL], which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word "shall" (not "must") is the verb form used to indicate a requirement to be strictly followed to conform to this standard and OGC documents do not use the equivalent phrases in the ISO/IEC Directives, Part 2."

OGC®

Motion for new Policy Directive

- The Technical Committee Chair recommends that the OGC Technical Committee approve a new Policy Directive to describe terms used in OGC documents (formerly referenced from [OGC 06-121r9]) and appropriately update the OGC standard template.
  - There was no objection to unanimous consent
- The Policy Directive will include the content of Section 5.3 of OGC 06-121r9

Request of an electronic vote

- The Technical Committee chair recommends that the OGC Technical Committee approve an electronic vote to approve release of [OGC 19-014r3] "Core Tiling Conceptual and Logical Models for 2D Euclidean Space" as an OGC Abstract Specification Topic.
  - There was no objection to unanimous consent
- The candidate Abstract Specification Topic was presented to the Ottawa Closing Plenary and updated based on discussion in that session.

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TC Policies and Procedures revision

- I was planning on posting a revision for this TC Meeting, but some recent changes need adequate member review
  - Clarity on voting thresholds
  - SWG-to-DWG relationships
  - White Paper processes (surprised we never made any!)
  - Maybe User Guides?
  - Deprecation of API elements
  - Corrigenda for Best and Community Practices

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Z to 3

WG Reports with TC Motions

Marine DWG Closing Plenary Report

115th OGC Technical Committee

Virtual

Jonathan Pritchard

22 June 2020

OGC®

Making location count.

The most important thing for this WG is…

bringing land and sea together.

Bringing IHO, OGC and ISO industry standards alongside each other

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Agenda

- Introductions: JP, JL
- Norwegian Mapping Authority: Digitization of Norwegian sailing directions
    - 15 mins
- EU Maritime Spatial Planning Directive and the EU Marine Strategy Framework Directive - Jordi Sandalinas
    - 10 mins
- UN-GGIM/MSDIWG update – Sebastian Carisio
    - 10 mins
- Maritime Limits and Boundaries Pilot Project - outcomes, outputs, next stages
    - JP - 15 mins
- Maritime Limits and Boundaries Pilot Project – data and transformations
    - Dean Hintz, Safe Software - 15 mins
- Q&A
- TC Vote – MLB Pilot Engineering Report
- AOB - Close

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Activity Summary

- **Discussion topics**
  - MLB readouts
  - Impacts on IHO and possibilities for ISO
  - Bringing land and sea together - IGIF

- **Upcoming deliverables**
  - MLB Pilot ER (done)
  - Updates to S-121 from OGC Pilot Project
  - Revision to IHO S-100 using findings from OGC Pilot Project
  - Draft of "Marine geospatial standards for the common person"
  - Contributions to IGIF

- **Coordination (ongoing and planned)**
  - Work with UN-GGIM Marine Geospatial Information working group on IGIF-Water
  - S-100WG on OGC/S-100 interoperability
  - High density Bathy standards
  - DGGS for the Arctic

- **Future meetings**
  - IHO meetings reconvene late 2020 (hopefully)
  - Next TC (of course)
  - Full MDWG/MSDIWG/UN-GGIM Feb 2021

OGC®

Key activities

- Close of OGC Pilot project on maritime limits and boundaries. Outputs to IHO standards in progress and should result in a GML Schema forming part of the point release for the IHO standard

- Also result in improvements and tighter alignment between IHO and OGC standards – a basis for interoperability between models

- Input to UN-GGIM and discussions over IGIF for Water continue

- MSDI pilot is ongoing development

OGC®

Document Approval Motion

- The Marine DWG recommends that the OGC Technical Committee approve release of 20-013r3 "Maritime Limits and Boundaries Pilot Engineering Report" as an OGC Engineering Report.
  - There was no objection to unanimous consent

- This Engineering Report (ER) details the activities undertaken by participants in the pilot, the data supplied, transformed, and used to demonstrate the pilot's objectives and the results of the various interoperability tests performed within the pilot. Also documented are the various outputs from the pilot activities, where they are directed (IHO, ISO and others) and where updates or clarifications are recommended for external standards or elements of the broader ecosystem.

OGC®

GeoSemantics DWG
Working group report

115th OGC Technical Committee

Virtual

Linda van den Brink, Joseph Abhayaratna

22 June 2020

The most important thing for this WG is...

"Getting the band back together"

i.e. resurrecting the GeoSPARQL SWG

OGC®

Agenda

- Presentation: Introduction to Testbed-16 Aviation Engineering Report - Sergio Taleisnik (Skymantics)

- Whitepaper "[OGC Benefits of Representing Spatial Data Using Semantic and Graph Technologies](#)"
  - Motion to publish

- Draft charter for and reactivation of the GeoSPARQL SWG
  - Presentation of the draft charter
  - Discussion
  - Motion to release draft charter for public comment

- AOB

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Activity Summary

- **Discussion topics**
  - GeoSPARQL SWG charter

- **Upcoming deliverables**
  - Vote to release white paper
    Benefits of Representing Spatial Data Using Semantic and Graph Technologies
  - Vote for GeoSPARQL SWG charter to go to public comment

- **Coordination (ongoing and planned)**
  - SDWIG
  - ISO/IEC JTC 1 SC 32/WG3 (SQL/GQL)

- **Future meetings**
  - Next TC Meeting
  - GeoSPARQL SWG kickoff meeting after charter approval

OGC®

Motion: publication request of white paper

- The GeoSemantics DWG recommends that the OGC Technical Committee approve release of [OGC 19-078r1] "OGC Benefits of Representing Spatial Data Using Semantic and Graph Technologies" as an OGC White Paper
    - There was no objection to unanimous consent

OGC®

Motion to release GeoSPARQL SWG charter for comment

- The GeoSemantics DWG recommends that the GeoSPARQL SWG <u>revised charter</u> [OGC 20-028] be released for public comment and TC consideration to reactivate the SWG under that charter.

  – There was no objection to unanimous consent

OGC®

CITE Subcommittee

115th OGC Technical Committee

Virtual

Chuck Heazel

22 June 2020

The most important thing for this WG is…

Updated status on the Executable Test Scripts:

- SWE Common 2.0 is ready to move from beta to production release
  - SensorML 1.0 is ready to move from beta to production release
    - GeoTIFF 1.1 is ready for beta release

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Agenda

- O&M 2.0 XML Executable Test Suite- Dirk Stenger (lat/lon)
- SensorML 1.0 XML Executable Test Suite - Gobe Hobona, Aries Lai
- SensorML 2.0 XML Executable Test Suite - Gobe Hobona / Aries Lai
- SWE Common 2.0 Executable Test Suite - Gobe Hobona / Aries Lai
- GeoTIFF Executable Test Suite – Chuck Heazel, Dustin Jutras
- OGC Validation Tools – Status Report - Dirk Stenger (lat/lon)
- Discussion about TEAM Engine and OSGeo graduation (all)

OGC®

Activity Summary

- **Discussion topics**
  - ETS status updates and votes
    - Lack of implementations exercising Beta ETS
  - TeamEngine updates
  - TeamEngine as an OSGeo project
    - Including discussion of benefits
    - https://portal.ogc.org/files/?artifact_id=93866

- **Upcoming deliverables**
  - The ETS Roadmap is at:
  - https://docs.google.com/spreadsheets/d/1Kfi8kha80PAwzMaW0iK2qPtJNU5dGgLafROOQdTAdGw/edit#gid=1412922823

- **Coordination (ongoing and planned)**
  - TC Membership – need implementations to exercise ETS on Beta sites.
  - Continued coordination with OSGeo

- **Future meetings**
  - Next TC meeting (TBD)

OGC®

Motion to approve the SWE Common v2.0 Executable Test Suite as Official

- The CITE SubCommittee recommends that the Technical Committee approves the Executable Test Suite (ETS) for version 2.0 of the OGC® SWE Common Data Model Encoding Standard as an official OGC Compliance Test Package.

- At the time of this motion, one implementation has been confirmed to successfully pass the compliance tests provided by the ETS. The ETS has been in beta for longer than 6 months.

- Result: There was no objection to unanimous consent

- NOTE: OGC Compliance Policy Section 5 "It is required to have at least three implementations that pass a conformance class for a conformance class to be released as official. However, **if a test has been in beta for more than 6 months and one or two implementations have passed the test, the CITE SC can consider a motion related to releasing the test as official with an exception about requiring three minimum implementations.** When the TC approves a Compliance Test Package. It is published at the OGC Web-based Testing Facility. Organizations may then certify their products using the new Compliance Test Package"

OGC®

Motion to approve the Sensor Model Language (SensorML) v1.0 Executable Test Suite as Official

- The CITE SubCommittee recommends that the Technical Committee approves the Executable Test Suite (ETS) of version 1.0 of the OpenGIS Sensor Model Language (SensorML) standard as an official OGC Compliance Test Package.

- At the time of this motion, one implementation has been confirmed to successfully pass the compliance tests provided by the ETS. The ETS has been in beta for longer than 6 months.

- Result: There was no objection to unanimous consent

- NOTE: OGC Compliance Policy Section 5 "It is required to have at least three implementations that pass a conformance class for a conformance class to be released as official. However, **if a test has been in beta for more than 6 months and one or two implementations have passed the test, the CITE SC can consider a motion related to releasing the test as official with an exception about requiring three minimum implementations.** When the TC approves a Compliance Test Package. It is published at the OGC Web-based Testing Facility. Organizations may then certify their products using the new Compliance Test Package"

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Architecture DWG

115th OGC Technical Committee
Virtual
Joan Maso, Gobe Hobona
22 June 2020

The most important thing for this WG is…

OGC API can be deployed such that all of the building blocks from OGC APIs are blended into a single API implementation. Can have different resources (features, tiles, maps etc) in the collections list.
It is possible to create cascading OGC API services/proxies to classic services.

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Agenda

- From Spatial Data Infrastructures to Data Spaces—A Technological Perspective on the Evolution of European SDIs
  - Alexander Kotsev, Marco Minghini, Robert Tomas, Vlado Cetl and Michael Lutz (European Commission, Joint Research Centre (JRC))
- Discussion on Tiling Terminology
  - Carl Reed (Carl Reed & Associates)
- Modernizing SDI Concept Development Study
  - Scott Serich(OGC), Cindy Mitchell (Natural Resources Canada)
- Testbed-16 D017 DGGS and DGGS API ER
  - Robert Gibb (Landcare Research New Zealand Limited), Matthew Purss (Pangaea Innovations)
- Testbed-16 OpenAPI
  - Anneley Hadland, Sam Meek (Helyx SIS)
- OGC API Deployment Patterns
  - Panagiotis (Peter) A. Vretanos (Cubewerx)

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Activity Summary

- **Discussion topics**
  - The future of SDIs
  - Need for be careful when using terminology in standards. Common clear terminology needed
  - Modern SDIs applied to Cumulative Effects in nature. Request for Information
  - Testbed-16 activities on DGGS and OpenAPI
  - Deployment patterns for OGC APIs

- **Upcoming deliverables**
  - OGC JSON Best Practice
  - Aproved ERs
    - VTP2 Filter ER
    - VTP2 Tile Set Metadata ER
    - VTP2 Summary ER
  - Revision of: Testbed-16 activities (DGGS and OpenAPI)

- **Coordination (ongoing and planned)**
  - OAB
  - OWS Common SWG
  - OGC API SWGs
  - Testbed16

- **Future meetings**
  - Next TC Meeting

OGC®

Actions

- The Architecture DWG accepted an action to review the Testbed-16 engineering reports
  - Testbed-16 DGGS and DGGS API ER
  - Testbed-16 OpenAPI ER

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Key activities
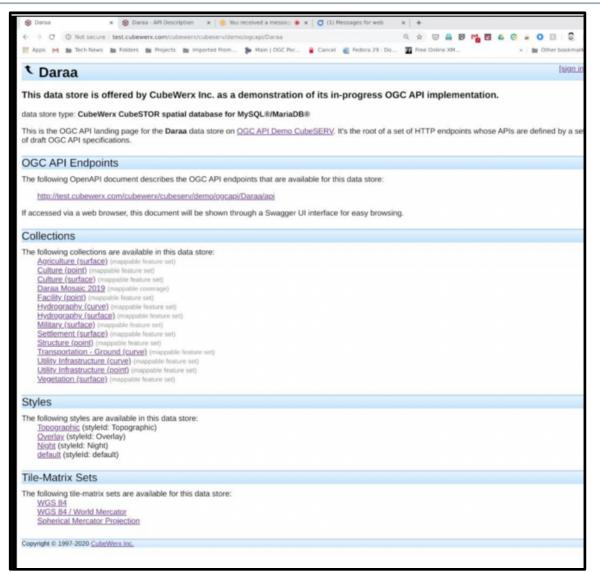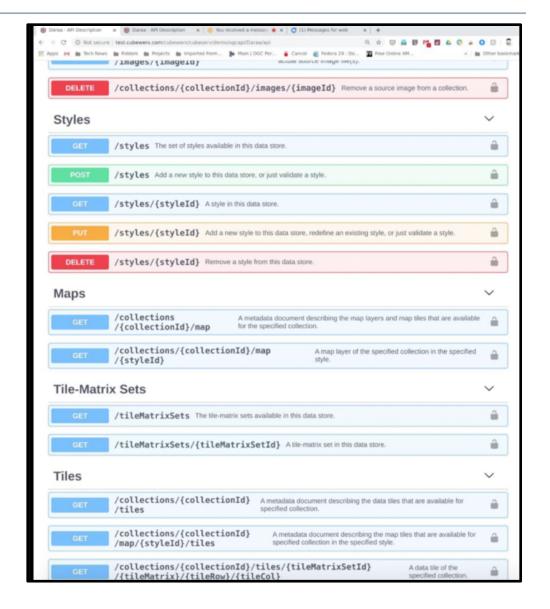
- Modernization of SDI towards future frameworks such as Data Spaces
- There is a need to overhaul the OGC Glossary in order to provide consistent and clear terminology that we can use in future standards in a consistent way
- The Architecture DWG will review the:
  - Testbed-16 DGGS and DGGS API ER
  - Testbed-16 OpenAPI ER

OGC®

OGC API Deployment Patterns

Motion to approve public release of OGC 19-084, the OGC Vector Tiles Pilot 2: Vector Tiles Filtering Language Engineering Report

- The Architecture DWG recommends that the OGC Technical Committee approve release of OGC 19-084 "OGC Vector Tiles Pilot 2: Vector Tiles Filtering Language Engineering Report" as an OGC Public Engineering Report.
  - Result: There was no objection to unanimous consent
- The OGC Vector Tiles Pilot 2: Vector Tiles Filtering Language Engineering Report (ER) defines a filter language for vector data delivered as tiles (also known as vector tiles). The language applies to vector tiles served through implementations of the OGC API – Features standard and the draft OGC API - Tiles specification, but can be generally applied on all services supporting filtering by attributes.

OGC®

Motion to approve public release of OGC 19-082, the OGC Vector Tiles Pilot 2: Tile Set Metadata Engineering Report

- The Architecture DWG recommends that the OGC Technical Committee approve release of OGC 19-082 "OGC Vector Tiles Pilot 2: Tile Set Metadata Engineering Report" as an OGC Public Engineering Report.
  - Result: There was no objection to unanimous consent
- This Vector Tiles Pilot Phase 2 (VTP2) Engineering Report (ER) describes a conceptual model for Tile Set Metadata that provides information about the intended usage of a Tile Set as well as the origin, security level, tiling scheme, layers and feature properties contained within. A tile set is a series of tiles containing data and following a common tiling scheme.

OGC®

Motion to approve public release of OGC 19-088r1, the OGC Vector Tiles Pilot 2: Summary Engineering Report

- The Architecture DWG recommends that the OGC Technical Committee approve release of OGC 19-088r1 "OGC Vector Tiles Pilot 2: Summary Engineering Report" as an OGC Public Engineering Report.
  - Result: There was no objection to unanimous consent
- This OGC Engineering Report (ER) provides a summary of the research and findings from Phase 2 of the OGC Vector Tiles Pilot (VTP2). The goal of VTP2 was to deliver a consistent, interoperable online/offline architecture for vector tiles based on feature and tile servers, and GeoPackage.

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Closing Plenary – no motions

115th OGC Technical Committee

Virtual

TC Working Group Chairs

22 June 2020

3DIM DWG

115th OGC Technical Committee
Virtual
David Graham, Carsten Rönsdorf
22 June 2020

The most important thing for this WG is…

Appointing new co-chairs.

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Agenda

- Introductions; Co-Chairs
- Updates and videos on the 3D Container and Tiles API Pilot
  – Josh Lieberman, OGC Staff
- Energy ADE update
  – Avichal Malhotra, Giorgio Agugiaro, RWTH Aachen, TUD
- 3DIM DWG Co-Chair arrangement/discussion
  – DWG current Co-Chairs; David; Carsten
- The pathway towards an Information Management Framework for built environment data in the UK
  – Carsten Roensdorf, Ordnance Survey
- 3D Information for City Operations
  – Ravi Nishesh Srivastava, Cyient

OGC®

3DIM DWG special session - Underwriting and reinsurance

Tuesday, 16 June 2020, 3PM EDT

- Introduction to Session - Carsten Roensdorf, Ordnance Survey GB
- "Risk assessment for Underwriting and Reinsurance (TBC)", Yasir Kaheil, VP, Swiss Re
- "Building Resilience for Communities and Infrastructure Through Geospatial Intelligence", David Alexander, DHS
- Discussion
- Closing Comments, Carsten Roensdorf

OGC®

Activity Summary

- **Discussion topics**
  - Insurance and Fintech
  - Energy ADE
  - 3D Container and Tiles API pilot
  - City Operations
  - Chair arrangements
  - Thanking Jantien Stoter for her support a co-chair

- **Upcoming deliverables**
  - n/a

- **Coordination (ongoing and planned)**
  - CityGML SWG
  - LandInfra
  - IndoorGML

- **Future meetings**
  - Next member meeting

OGC®

Citizen Science DWG

115th OGC Technical Committee

Virtual

Joan Masó

22 June 2020

The most important thing for this WG is…

We have some suggestions for Sensor Things API extension and CRs. WE will collect them in the second phase of the CitSci Interoperability experiment ER.

Agenda

- SensorThings API implementation for the Earth Challenge 2020 (25 min)
  - Anne Bowser (Wilson Center)

- The missing user in SensorThings API (15min)
  - Andreas Matheus (Secure Dimensions) and Joan Masó (UAB-CREAF).

- Scent data ingestion into NextGEOSS during the INSPIRE hackathon (8 min)
  - Bente Lilja Bye

- Definition server for Cit Sci (0 min)
  - Joan Masó (UAB-CREAF)

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Activity Summary

- **Discussion topics**
  - Inclusion of the Earth Challenge results and other contributions from COS4cloud in SensorThings API

- **Upcoming deliverables**
  - Second phase of the Cit Sci IE ER

- **Coordination (ongoing and planned)**
  - SensorThings API

- **Future meetings**
  - September TC

OGC®

Joint CRS DWG/SWG Meeting

115th OGC Technical Committee

Virtual

Keith Ryden

22 June 2020

The most important thing for this WG is…

How do we best convene those across numerous organizations that want to help define the overarching model for deformation grids, and then work towards an interoperable encoding for distribution and direct use of the information?

OGC®

Agenda

1. 1600-1610 10mins   Introductions (Keith)

2. 1610-1715   5mins   IAG WG1.3.1 (Richard)

3. 1615-1635 20mins   LINZ deformation grid GeoTIFF implementation in Proj7 (Chris)

4. 1635-1645 10mins   GGXF documentation summary (Roger)

5. 1645-1715 30mins   Deformation grid functional model – definition / scope (Chris)

6. 1715-1725 10mins Way forward - One or two documents (Kevin Kelly, ESRI)

7. 1725-1730 5mins   Future actions (Keith)

OGC®

Activity Summary

- Discussion topics
  - Existing work encoding deformation grids in Proj being done in NZ
  - Requirements discussion
  - Practical applications
  - How might we proceed

- Upcoming deliverables
  - DWG requirements and direction review and rough documents to form the basis for possible future SWG formation to generate Standards Documents
  - SWG Charter once DWG work is approved

- Coordination (ongoing and planned)
  - Coordinating with other stakeholder organizations in the geodetic and standards fields

- Future meetings
  - Interested parties to meet every other week starting June 29 – will use same timing as TC meeting.

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Data Preservation DWG

115th OGC Technical Committee

Virtual

Joan Masó

22 June 2020

The most important thing for this WG is...

We are starting steps to submit the "EU eArchiving specifications for Geodata"
as an OGC Community standard

OGC®

Agenda

- EU eArchiving specifications for Geodata as an OGC Community standard
  - Gregor Završnik (GEO Arch)

- Review the template for a justification document to see if there is an stopping factor to proceed

- Discuss if significant modifications should be made to the specification

OGC®

Activity Summary

- Discussion topics
  - Process of the Community standards
  - IPR restrictions (non detected)

- Upcoming deliverables
  - Request to start the process of community standard

- Coordination (ongoing and planned)
  - Geopackage

- Future meetings
  - Telco to prepare the document
  - September TC

OGC®

Key activities

- We want to send a draft of the justification document to the TCC for review before September and start the process

D&I DWG

115th OGC Technical Committee

Virtual

L Colaiacomo

22 June 2020

The most important thing for this WG is…

GEOINTEROP initiative to promote interoperable and harmonized geospatial standards in an operational profile for GEOINT

OGC®

Agenda

- GEOINTEROP discussion , Mark Reichardt, OGC

- NGA's Inititative to modify US NARA, Roy Rathbun, NGA

- Status of GMLJP2 v2 and v2.1, including availability of ETS (GMLCOV/CIS1.0), Lucio Colaiacomo , EUSatcen

- Sprint for Interoperable Simulation & Gaming USSOCOM, Scott Simmons , OGC

OGC®

Activity Summary

- Discussion topics
  - GEOINTOP
  - LONG TERM PRESERVATION
  - ENCODING AGNOSTIC STANDARDS

- Upcoming deliverables

- Coordination (ongoing and planned)
- WCS, SWE, Portrayal.. Need for a stronger coordination in order to finalize efforts for proper integration of sensor model and imagery annotation

- Future meetings
  - WEB MEETING FOR GEOINTOP

OGC®

Discrete Global Grid Systems Domain Working Group (DGGS DWG)

115th OGC Technical Committee

Virtual

Matthew Purss

22 June 2020

The most important thing for this WG is...

One thing that is most important for this WG is the harmonization of DGGS technologies through the implementation of the OGC DGGS Standards Development Roadmap

Agenda

- Introduction & Logistics
- Presentation: Extending Discrete Global Grid Systems to Three Dimensions using Radial Mapping
  - Benjamin Ulmer and Faramarz Samavati (University of Calgary)
- Presentation: Axis Aligned Spatio-Temporal DGGS in China
  - Fuhu Ren, Chengqi Cheng, Tengteng Qu (Peking University Collaborative Innovation Center for Geospatial Big Data (PKU-CICG))
- Presentation: From 2D to 3D: A Journey of Space and Topology in DGGS
  - Matthew Purss (Pangaea Innovations Pty. Ltd.)
- Discussion: DGGS Activities in TestBed 16 (30 min)
  - Joshua Lieberman (OGC)
- Discussion: Pathways forward to standardised implementation of higher dimensional DGGS (i.e. OGC Abstract Specification Topic 21 Parts 2 – 4)

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Activity Summary

- ## Discussion topics
  - Pathways forward for the drafting of OGC Topic 21: parts 2 – 4 addressing:
    - 3D Equal Volume DGGS;
    - Spatio-Temporal DGGS; and,
    - Axis Aligned DGGS
  - Discussion of cross-cutting issues between reference systems and representation of observations using those reference systems

- ## Upcoming deliverables
  - Review the OGC TestBed-16 DGGS Draft Engineering Report as it becomes available for comments.

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

- ## Future meetings
  - Face-to-face: September Members Meeting

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Key activities

- This DGGS DWG Session focused on showcasing and discussing the current state of development and implementation of higher dimensional DGGS infrastructures. Presentations were delivered by:
  - Benjamin Ulmer and Faramarz Samavati (University of Calgary); presenting their radial volumetric DGGS implementations and related R&D projects.
  - Fuhu Ren, Chengqi Cheng, Tengteng Qu (Peking University Collaborative Innovation Center for Geospatial Big Data (PKU-CICG)); presenting their axis aligned 4D spatio-temporal DGGS implementation and related Chinese national standards.
  - Matthew Purss (Pangaea Innovations Pty. Ltd.); presenting a background to the similarity of topologies between 2D and 3D DGGS and the application of this to develop the TerraNexus multi-dimensional DGGS Platform.

- Discussion was had on some of the unresolved cross-cutting issues between various standards working groups related to the different ways observations are represented with respect to reference systems.

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Next Quarter WG Communications Plan

- The DGGS DWG would like to propose a Joint special session during the September Member Meeting focused on
  - "highlighting and addressing cross-cutting issues across OGC working groups associated with referencing systems and the representation of observations by coordinates, areas and identifiers with respect to those referencing systems"

DocTeam

115th OGC Technical Committee

Virtual

Scott Simmons

22 June 2020

The most important thing for this WG is…

Organize a workshop for finalizing implementer-friendly standards format

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Agenda

- New document type: User Guide: Scott Simmons
- Metanorma Update: Ron Tse
- Requirements numbering: Scott Simmons
- Alternate view of some standards: Scott Simmons

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Activity Summary

- Discussion topics
  - OGC has been publishing User Guides, let's make them formal
  - Metanorma implementation is driving a new model for managing standards Requirements as semantic resources
  - We need to come to agreement on implementer-friendly standards

- Upcoming deliverables
  - Revision to TC PnP on User Guides
  - User Guide template(s)
  - Proposal for new Requirements policy
  - Implementer-friendly standard workshop

- Coordination (ongoing and planned)
  - Ribose
  - ISO / TC 211
  - DGGS SWG
  - OGC API SWGs

- Future meetings
  - Workshop before next Member Meeting
  - Next Member Meeting

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DocTeam motion for User Guides

- The DocTeam recommends that a new document type of "User Guide" be added to the Technical Committee Policies and Procedures. The DocTeam agrees to:
  - Formalize a template (with lots of flexibility)
  - Add an approval process by the TC identical to that of ERs, DPs, WPs
  - Develop guidance on when a User Guide should be developed

  - There was no objection to unanimous consent

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EO4Agriculture
Conclusion from Virtual Meeting

115th OGC Member Meeting

Virtual

Karel Charvat, Hana Kubickova

Plan4all

15 June 2020
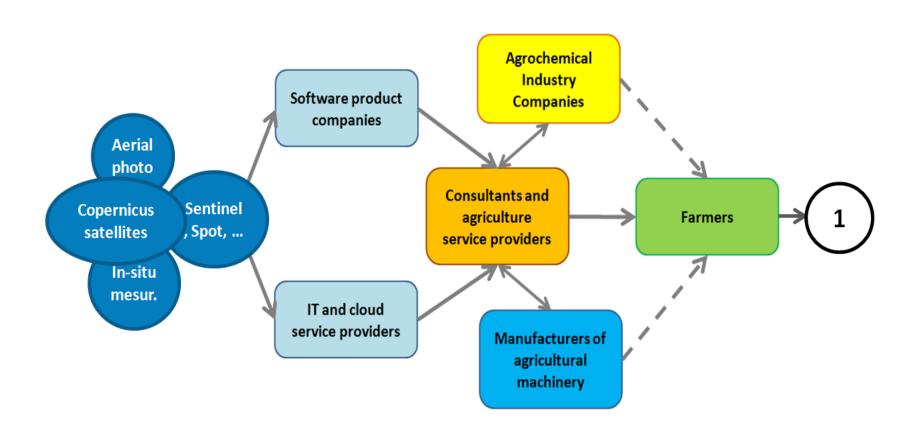
EO4AGRI GAP ANALYSIS

Farmer's sector requirements

- Data on the weather forecast
- Data used for forecast of agricultural yields
- Data for determining the height of the crop
- ...

Public sector requirements

- Data for water protection against nitrates
- Data for support CAP
- Data for the identification of crops to control subsidies
- ...

Financial sector requirements

- Data for identification parcels for potential land for biomass production
- Data for creating flood maps
- Data for maps of providing annual soil erosion risk maps
- ...

Food & Nutrition security requirements

- Data for yield modelling security
- Data for food security information
- Data for early warning information
- ...

FARMING SECTOR

FOOD SECTOR

Observation

- Different agrifood sectors require similar services
- The analysis required only basic services – real service is more complex and required interaction of many players

OGC & Agriculture
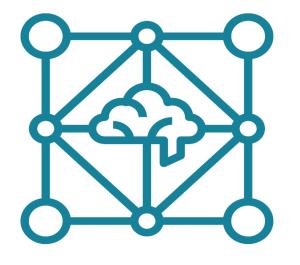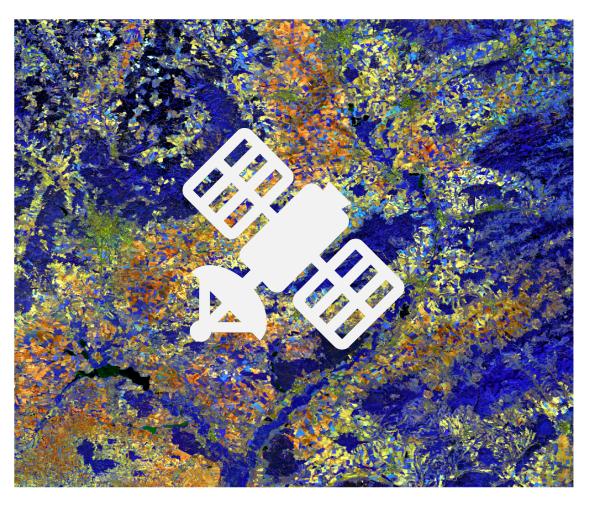
- Number of topic of OGC is relevant for Agriculture
  - Metadata
  - IoT
  - Data integration
  - Downloading
  - Visualization
  - Location
  - Data modeling
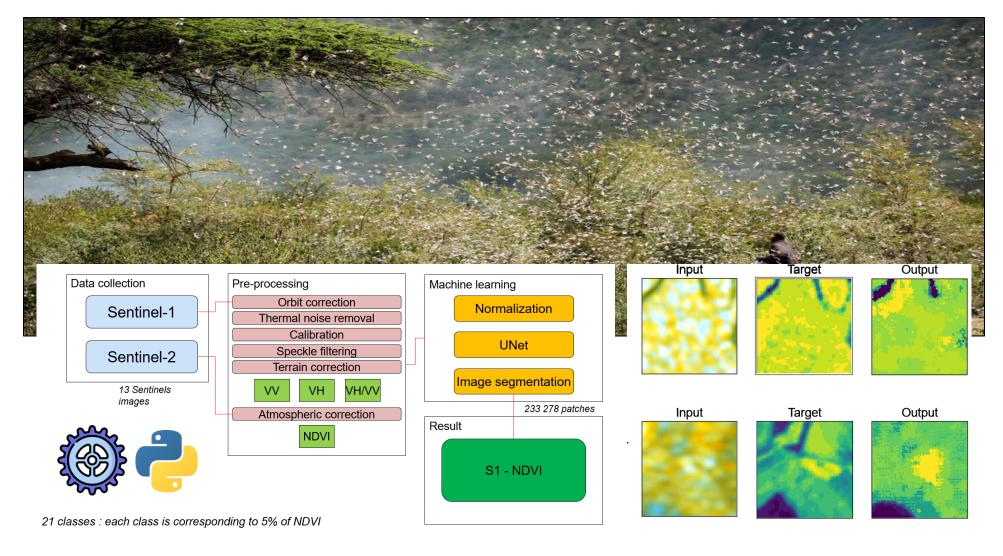 - Analysis
  - Big Data
  - AI
  - **EO**
  - Meteodata
  - …………

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AI & EO DATA

CREATION OF A VEGETATION INDEX USING SENTINELS DATA AND MACHINE LEARNING METHODS /DESERT LOCUST MONITORING

METADATA
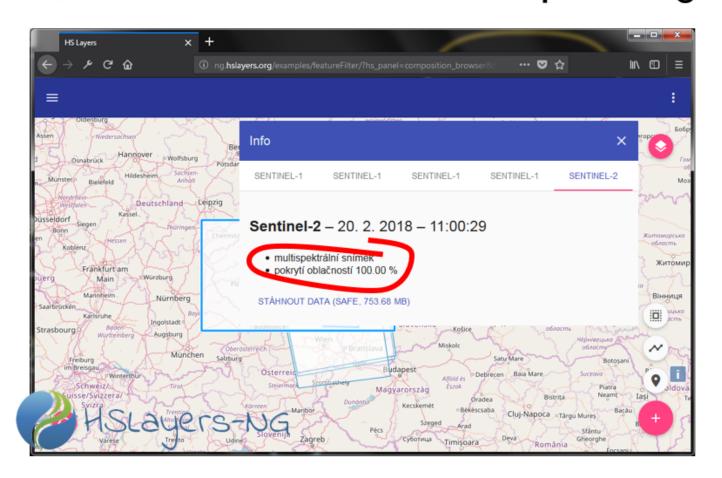
Image adopted from: Reznik, T., Chudy, R., Micietova, E. Normalized evaluation of the performance, capacity and availability of catalogue services: a pilot study based on INfrastruture for SPatial InfoRmation in Europe. International Journal of Digital Earth 9, 325-341 (2016). doi: 10.1080/17538947.2015.1019581

PREDICTING CLOUDINESS OF SATELLITE IMAGES THROUGH (META)DATA

PREDICTING CLOUDINESS OF SATELLITE IMAGES THROUGH (META)DATA
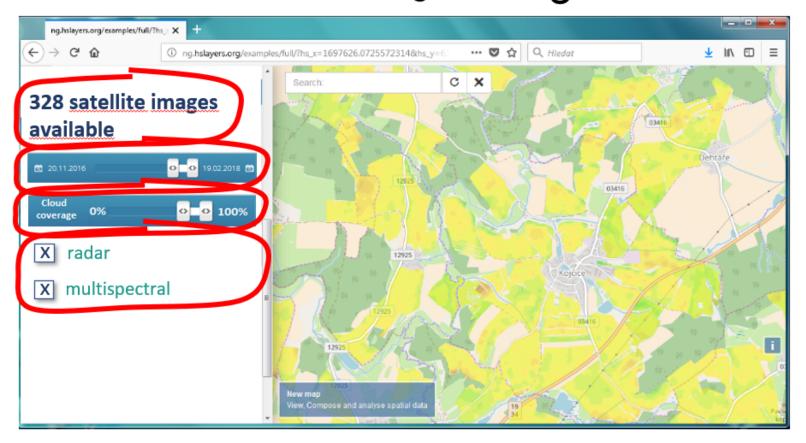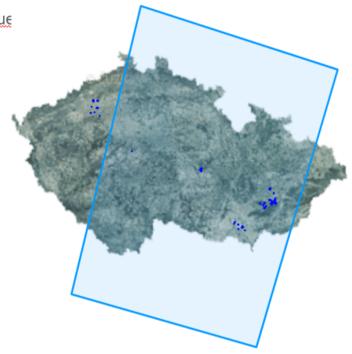
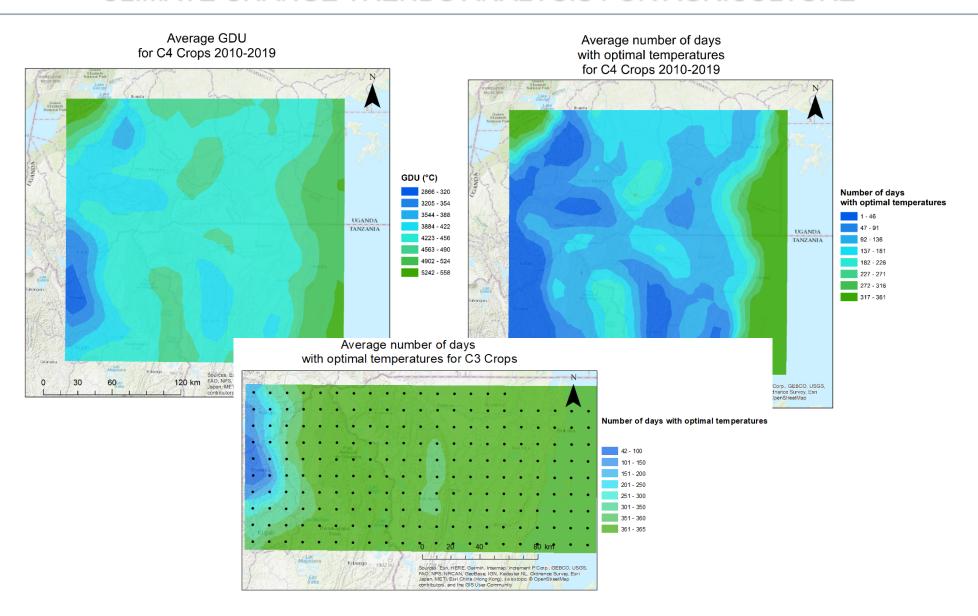## Now... ...2020 predictions of cloudiness

- Metadata in a textual form have in some cases a low information value for a user; e.g. a **satellite image is covered from 60% by clouds**.

- Will my farm be covered with clouds or not?

- State-of-the-art: **cloudiness available only after the event**, after the image postprocessing

- Innovation: **provide the needed information beforehand!**
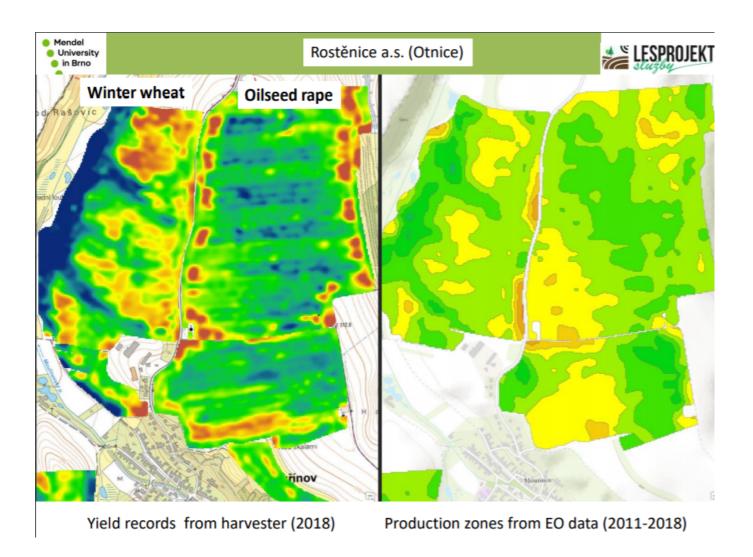
CLIMATE CHANGE TRENDS ANALYSIS FOR AGRICULTURE

Average GDU
for C4 Crops 2010-2019

Average number of days
with optimal temperatures
for C4 Crops 2010-2019

Average number of days
with optimal temperatures for C3 Crops

Visualisation

WM(T)S, WFS, …

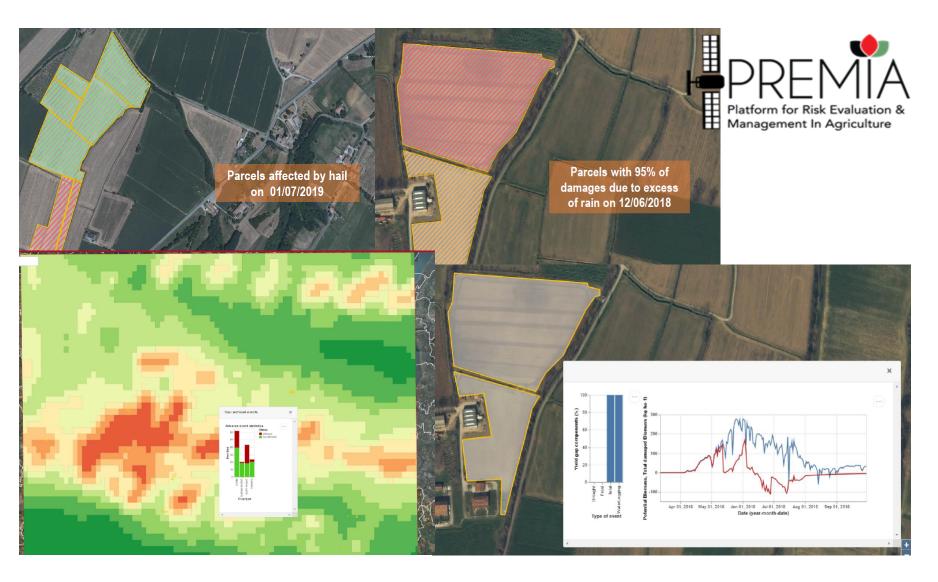http://foodie.lesprojekt.cz/vynosy_2017/
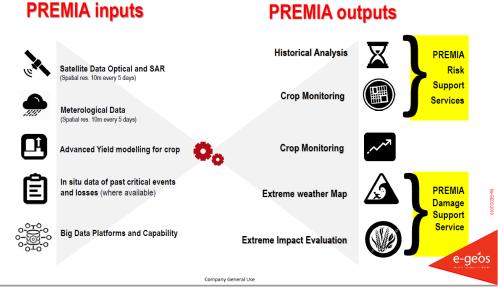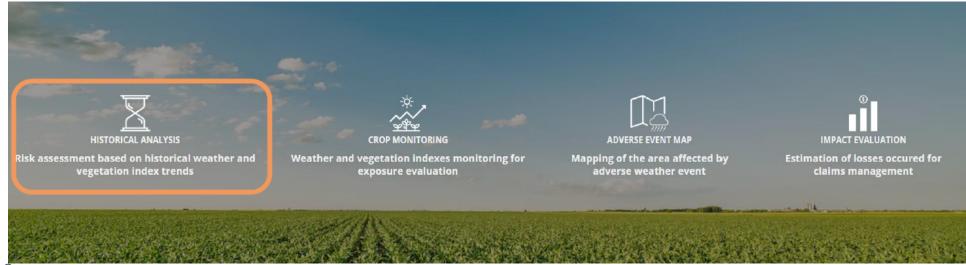
PREMIA – PLATFORM FOR RISK EVALUATION & MANAGEMENT IN AGRICULTURE

Key topics recognized during meeting

- Limited number of farmers is using EO

- The willingness to pay from farming sector is limited

- POSSIBLE SOLUTIONS:

    - Public Private Partnership

    - Better data sharing

    - Re using analysis

- Different sectors required similar services

- The analysis required only basic services – real service is more complex and required interaction of many players

- Request for more precise data, then are current open data source

- Cloud and HPC computing

- FAIR data principles

- EO is one from key sources of information for agriculture

- AI as a powerful „tool" for EO data processing and analysis

Next steps

- Preparation of White paper and Research Agenda for better future exploitation in Agriculture

- To run discussion with decision makers about future priorities

- Continue with Hackathons as one from instrument for profe of concept

- To prepare testbeds supporting better utilsiation of EO in Agriculture

- To improve exchange of information and international cooperation

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- Please join Agriculture DWG http://www.opengeospatial.org/projects/groups/agriculturedwg

- Contact me charvat@plan4all.eu

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GeoAI DWG Report

115th OGC Technical Committee
Virtual
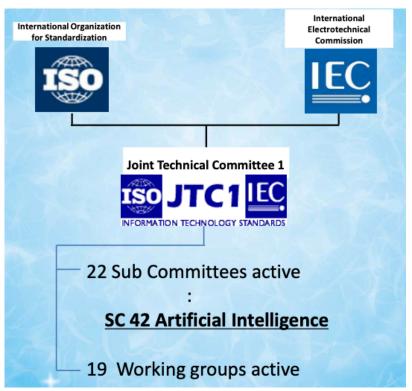Kyoung-Sook Kim, Ashley Antonides
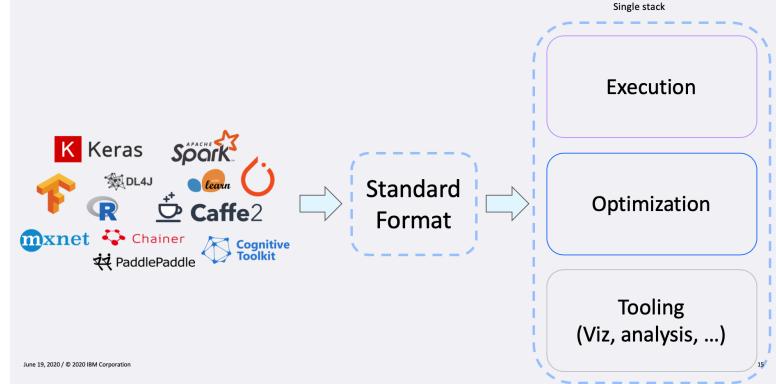22 June 2020

The most important thing for this WG is...

Interoperability of AI/ML

OGC Testbed 16
Shaping the future of location technologies
ogc.org/testbed16

International Organization for Standardization

International Electrotechnical Commission

Joint Technical Committee 1

ISO JTC1 IEC
INFORMATION TECHNOLOGY STANDARDS

22 Sub Committees active
:
SC 42 Artificial Intelligence
19 Working groups active

Courtesy of **Roy Sugimura, AIST**

Single stack

Keras   Spark   DL4J   learn   R   Caffe2   mxnet   Chainer   PaddlePaddle   Cognitive Toolkit

→ Standard Format →

Execution

Optimization

Tooling (Viz, analysis, ...)

June 19, 2020 / © 2020 IBM Corporation   15

Courtesy of **Nick Pentreath, IBM**

Agenda

- June 19th, 3:00 AM - 4:30 AM (EDT)

  28 members presented!

  – 3:00 - 3:05 Introduction

  – 3:05 - 3:20 Machine Learning Task in Testbed-16 (Scott Serich)

  – 3:20 - 3:40 ISO/IEC JTC1 SC42 report (Roy Sugimura, AIST)

  – 3:40 - 4:00 ML Deployment Standards (Nick Pentreath, IBM)

  – 4:00 - 4:15 Location Powers workshop and New Space workshop report (Ashley Antonides, Anno.AI)

  – 4:15 - 4:30 Discussion for standardization items

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Activity Summary

- **Discussion topics**
  - Testbed-16 ML Task Overview applying for wildland fire events.
  - JTC1 SC42 AI Standardization (Participating Members : 35 countries, Observing Members : 65 countries)
  - Open Source vs Open Standard
  - ONNX: Open Governance of AI model deployment

- **Upcoming deliverables**
  - AI Summit (?)

- **Coordination (ongoing and planned)**
  - ISO/IEC JTC1 SC42
  - DGGS DWG ?
  - Health DWG
  - Data Quality DWG
  - WCS, WPS, etc.

- **Future meetings**
  - Teleconference in July
  - Next TC meeting

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IDBE SC – Closing Plenary Report

115th OGC Technical Committee

Virtual

Jim Plume, Carsten Rönsdorf

22 June 2020

The most important thing for this WG is…

Re-configuring the joint bSI-OGC working group and identifying possible innovation programme activities.

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Agenda

- IDBE rebooted, Jim Plume (bSI Australasia) and Carsten Roensdorf (OS GB)

- Smart planning, construction and facility management processes throughout the life cycle, Väino Tarandi (Tarandi AB, Sweden)

- Data as an asset, Kimon Onuma (Onuma Inc, US) and Roger Grant (National Institute of Building Sciences, US)

- BIMstorm exercise with healthcare example, Kimon and Roger

- Discussion/brainstorm of ideas for future innovation programme projects

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Activity Summary

- Discussion topics
  - Built environment uses cases data integration approaches
  - BIM storm and COVID hospital planning exercise
  - 'Shopping cart' BIM approach for planning

- Upcoming deliverables
  - Re-constituted working group
  - List of Innovation Program ideas

- Coordination (ongoing and planned)
  - bSI, naturally
  - CityGML, LandInfra

- Future meetings
  - Tbc
  - Intention to meet separately from bSI summits and OGC member meetings + report back into OGC at future member meetings

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Interoperable Simulation and Gaming Domain Working Group

115th OGC Technical Committee

Virtual

David Graham, Lance Marrou, David Ronnfeldt

22 June 2020

The most important thing for this WG is…

Continuing outreach to participants and speakers from the active games-for-training community, and current active relevant programs:

U.S. Army One World Terrain

NGA Foundation GEOINT 3D

Agenda; first session; 08:00-09:30 EDT

08:00-08:10	Introductions, Admin Setting the Stage	ISG DWG Chairs	
08:10-08:30	Entities, Attributes, and Enumerants, Oh My: Applying GGDM for Interoperable One World Terrain Semantics	Greg Peele, Geometric Progress	
08:30-08:50	One World Terrain Data Model Implementation	Ron Moore, Vricon	
08:50-09:10	Analysis and automated validation of CDB content using the C-nergy Toolkit	Freddie Santiago, Dignitas	
09:10-09:30	Defence 5th Generation Capabilities – Driving a shift in Simulation Architectures	Jawahar Bhalla, JB Engineering Systems, Australia	
	Q&A; Discussion; Gitter Break	Time permitting	

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Agenda; second session; 09:45-11:00 EDT

09:45-10:00	Geospatial Data Science Tech Note: Geospatial Model Interoperability	George Percivall OGC Staff	
10:05-10:25	SOCOM ISG Sprint SOCOM CDB Tech Sprint	Scott Simmons/Scott Serich OGC Staff Tracey Birch SOFWERX	
10:25-10:45	~~CDB Export of SE Core MDB~~ *Will be presented at next CDB SWG online meeting*	Lance Marrou, Leidos	
10:45-11:00	CDB SWG Activities / External ActivitiesUpdate	David Graham CDB SWG Chair	

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Activity Summary

- Discussion topics
  - We need to leave more time in the agenda for Q&A, and engage our co-chairs to actively promote discussion during the meeting
  - Brief discussion after George Percivall's presentation on model interoperability:
    - Time variance in models and datasets
    - Model 'awareness' of other models

- Coordination (ongoing and planned)
  - USGIF MSG Working Group
  - CDB SWG
  - See George Percivall's closing slide (next) on recommended Coordination

- Future meetings
  - Quarterly at OGC Member Meetings

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OGC Model Interoperability – what next?

- Coordination of Domain Working Groups
  - Interoperable Simulation and Gaming
  - 3D Information Management for built environment, e.g., digital twins
  - Earth System Science for predictive models – leadership needed
    - Coordinate with Open Modeling Foundation

- Testbed 17 planning

Model Interoperability

- Location Powers: 2020 planning

Urban Digital Twin

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Joined LandInfra DWG - LandAmin DWG

115th OGC Technical Committee

Virtual

Hans-Christoph Gruler, Erik Stubkjær, Leif Granholm, Chrit Lemmen,
Peter van Oosterom

17 June 2020

Agenda

- CaLAThe – Status and next steps - Erik Stubkjær (20 Minutes)
- ISO TC211 LADM – report from the last meeting- Chrit Lemmen (15 Minutes)
- Proposals to align LADM v2 with LandInfra - Peter van Oosterom (15 Minutes)
- ISO TC127 – update on current state – HC Gruler (10 Minutes)
- LandInfra – update on current state – HC Gruler (10 Minutes)
- Discussion and next steps – all (20 Minutes)

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Next steps / Open issues

- Hans-Christoph Gruler will organize next joint meeting to further discuss the various alignment topics:
  - Details of how to have more functional code list, with versioning, hierarchy/meaning (SKOS)
  - Comparing nationally specified datasets (DK, TR, NL, CH, ..) in order to maximize use of joint code lists
  - Register service, management of code list: OGC, ISO, UN-GGIM, FIG, ..?
  - Alignment LandInfra (CityGML, IFC) and LADM on best effort basis or on formal say in each others developments?
  - Backwards compatible, have prefixes for various packages, not in use by other ISO TC211/OGC standards: LA, VM (valuation), SP (spatial planning)
  - Support implementations / (Country) Profile development methodology

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Met Ocean Domain Working Group Report

115th OGC Technical Committee

Virtual

Chris Little, Steve Olson, Frédéric Guillaud

22 June 2020

The most important thing for the Met Ocean DWG is...

Standardise EDR API and CoverageJSON

Met Ocean Domain WG Agenda

- Welcome, Introduction & Technology struggles, Chris Little [5min]

- Current Met Ocean activities, Chris Little, Steve Olson, Frédéric Guillaud [20min]
  - Paul Hershberg

- Request approval of Sprint ER for public release, Chris Little, Peng Yue [5min]

- Demo: EDR API against disparate sources, Mark Burgoyne [10min]

- Demo: EDR API aggregating disparate metadata, Shane Mill [10min]

- Demo: STAC, real-time weather data, EDR API integration, Tom Kralidis [10min]

- Demo: EDR API over ESRI ArcImage Server, Pete Trevelyan [10min]

- Future Activities discussion [5min] , Any Other Business [5min]

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Met Ocean DWG Activity Summary

- **Discussion topics**
  - Standardise CoverageJSON
  - \<topic raised during meeting\>
  - \<topic raised on email list\>

- **Upcoming deliverables**
  - EDR API Sprint ER
  - Several implementations of EDR API

- **Coordination (ongoing and planned)**
  - EDR API SWG
  - WCS SWG for CoverageJSON
  - W3C SDWIG
  - WMO WIS2.0

- **Future meetings**
  - More Regular telcos

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Key activities

- Coordination of EDR API implementations and developments

- EDR API Standard in 2 weeks

- Screen snapshots from demos? .No – too much JSON/YAML

Document Approval Motion

- The Met Ocean DWG (as well as the EDR SWG) recommends that the OGC Technical Committee approve release of [OGC 20-032 "OGC Environmental Data Retrieval API Sprint Engineering Report" as an OGC Engineering Report.

  - There was no objection to unanimous consent
  - Abstract: "A virtual development Sprint was held from 18-20 March 2020 to advance the OGC Environmental Data Retrieval (EDR) API candidate standard. EDR API enables end users and Web developers to conveniently and easily retrieve required data from big data stores, using current Web technologies and a significantly reduced learning curve, with unnecessary details initially hidden from the service endpoint."

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Next Quarter Met Ocean DWG Communications Plan

- Outreach to non-Met Ocean communities re EDR API Standard

- E.g. Geology, hydrology, ?

- Push EDR API Standard

OGC Naming Authority SC

115th OGC Technical Committee

Virtual

Gobe Hobona, Erik Stubkjær

22 June 2020

The most important thing for this WG is...

Over the past year some communities have requested that their definitions use https://www.opengis.net/def/. So there was a discussion about whether the OGC-NA definitions namespace should include both HTTP and HTTPS.

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Agenda

- Modernization of the OGC Definitions Server
  - Rob Atkinson

- OGC APIs and naming conventions
  - Gobe Hobona

- Discussion on the emerging global context of definition registries
  - Erik Stubkjær

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Activity Summary

- **Discussion topics**
  - Modernization of the Definitions Server (replacement of ELDA with VocPrez)
  - Draft policy for naming OGC API repositories, specification elements, abbreviations etc.
  - Towards better interoperability between CaLAThe, OGC Definitions Server and similar registries

- **Upcoming deliverables**
  - Draft policy on OGC API naming
  - Whitepaper on coordinated revision of thesauri

- **Coordination (ongoing and planned)**
  - OAB
  - OWS Common SWG
  - WMS SWG
  - WPS SWG
  - WCS SWG
  - EDR API SWG
  - OGC API – Features SWG
  - OGC API – Styles SWG

- **Future meetings**
  - Web meeting before the next OGC Member Meeting.

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Key activities

- Rob Atkinson and Nick Car are working on a refresh of the OGC Definitions Server. The user interface will change.

- Extraction of specification elements from OGC standards
  - To configure the specification element URIs
  - To create a register of specification elements

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Security DWG

115th OGC Technical Committee

Virtual

Andreas Matheus

22 June 2020

Data Centric Security

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Agenda

- TB 16 - DCS ER (10 min)
  - Alex Balaban (m.click)
- TB16 - Key Management Server (D145) (5 min)
  - Andreas Matheus (Secure Dimensions)
- TB16 - Key Management Server (D146) (5 min)
  - George Elphick (Helyx)
- TB16 - QGIS DCS plugin (5 min)
  - Michael Leedahl (Maxar)
- TB16 - Offline support for DCS on iOS (5 min)
  - Marcus Alzona (keys)
- TB16 - Federated Security ER (5 min)
  - Craig Lee (KeyVoms)

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Activity Summary

- Discussion topics
  - Security for OGC API
  - Secure data in JSON

- Upcoming deliverables
  - TB16 Data Centric Security ER
  - TB16 Federated Security ER

- Coordination (ongoing and planned)
  - no

- Future meetings
  - next TC Meeting (either F2F or virtual)

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Key activities

- How to apply encryption and signatures to GeoJSON data
- Security in a (Access and Identity Management) Federation