

Closing Plenary Report

Scott Simmons + Chairs

118th OGC Member Meeting
Virtual | 26 March 2021

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- Thanks
- Keynote: Rishad Tobaccowala - Remaining Relevant in Transformative Times
- Presentations
 - OASC MIMs: Davor Meersman
 - Agriculture DWG Workshop report – Karel Charvat
- OGC Visiting Fellow
- Quorum confirmation
- TC Motions
 - CityJSON – Linda van den Brink
 - Abstract Spec Topic 2 Corrigendum + CRS SWG Recharter – Keith Ryden
 - POI SWG Recharter – Marna Roos
 - CityGML – Carsten Rönsdorf
 - Proposed SampleML for AI/ML SWG – Peng Yue
- Upcoming TC Meetings
- TC Chair announcements and motions
- Working Group reports with motions: 3 to Z
- “Important Things” discussion



- Author of “Restoring the Soul of Business: Staying Human in the Age of Data”
- Senior Adviser to the Publicis Groupe
- Named by *BusinessWeek* as one of the top business leaders for pioneering innovation
- *TIME* magazine dubbed him one of five “Marketing Innovators”

Presentations

OASC (Open Agile Smart Cities) MIM (Minimal Interoperability Mechanisms)

Agriculture DWG Closing Plenary Report

Karel Charvát

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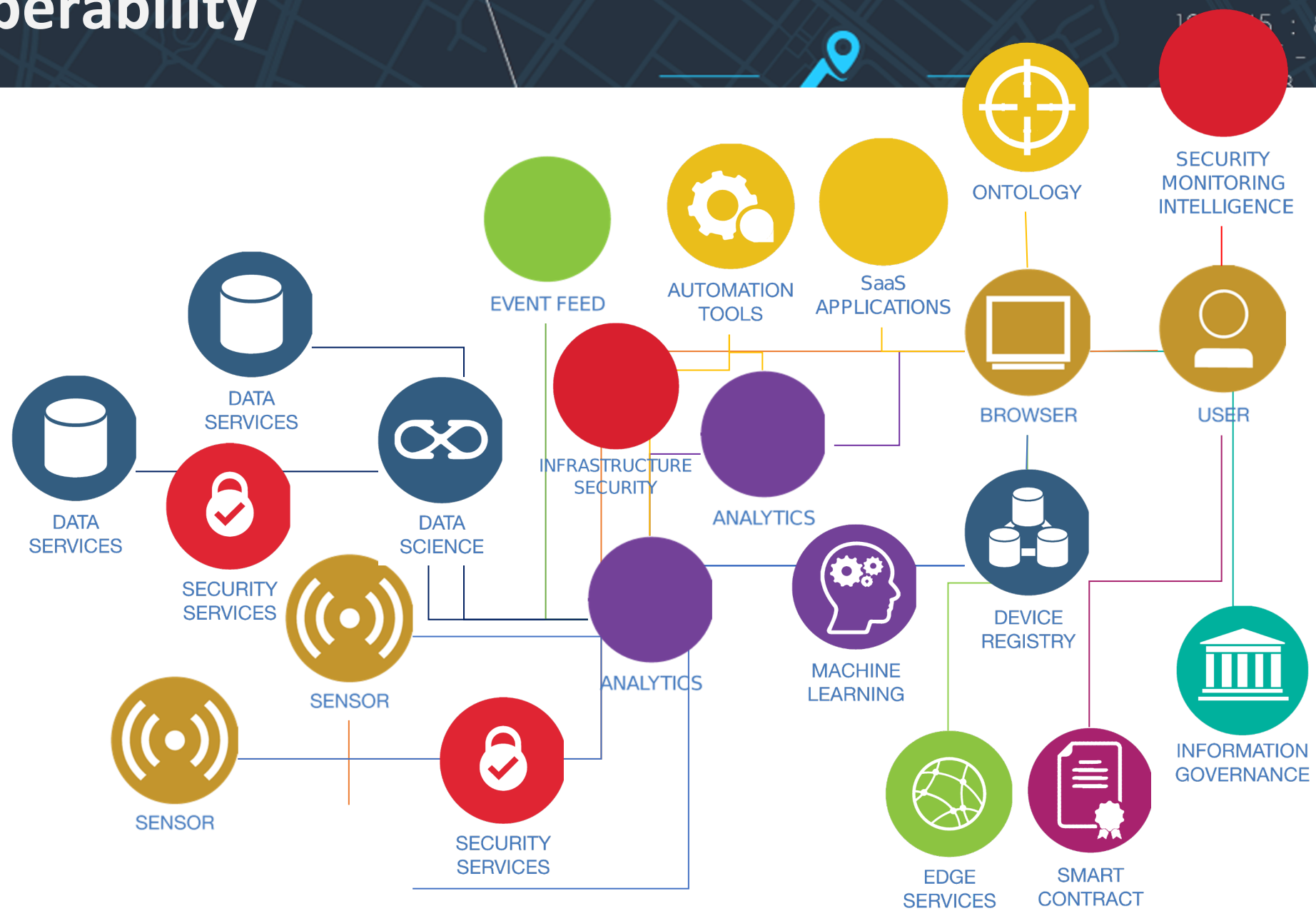
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Agriculture is a domain dealing with a heterogeneous source of data and it needs to be user of many standardisation effort in many domains (IoT, metadata,..). Till now the utilisation of standards is low.



1st part 2:00 - 4:30 PM (9:00 AM - 11:30 AM EDT)

- Francisco Javier - EUXDAT Infrastructure
- Nils Hempelmann at all - IoT technologies, architectures and data models
- Karel Charvat (Plan4all) - Lesprojekt cloud as tool for support integration of Agriculture Data
- Dominique Laurent - Standardisation topics identified by the NIVA project
- Arne Berre - DataBio and BDVA/DAIRO reference models

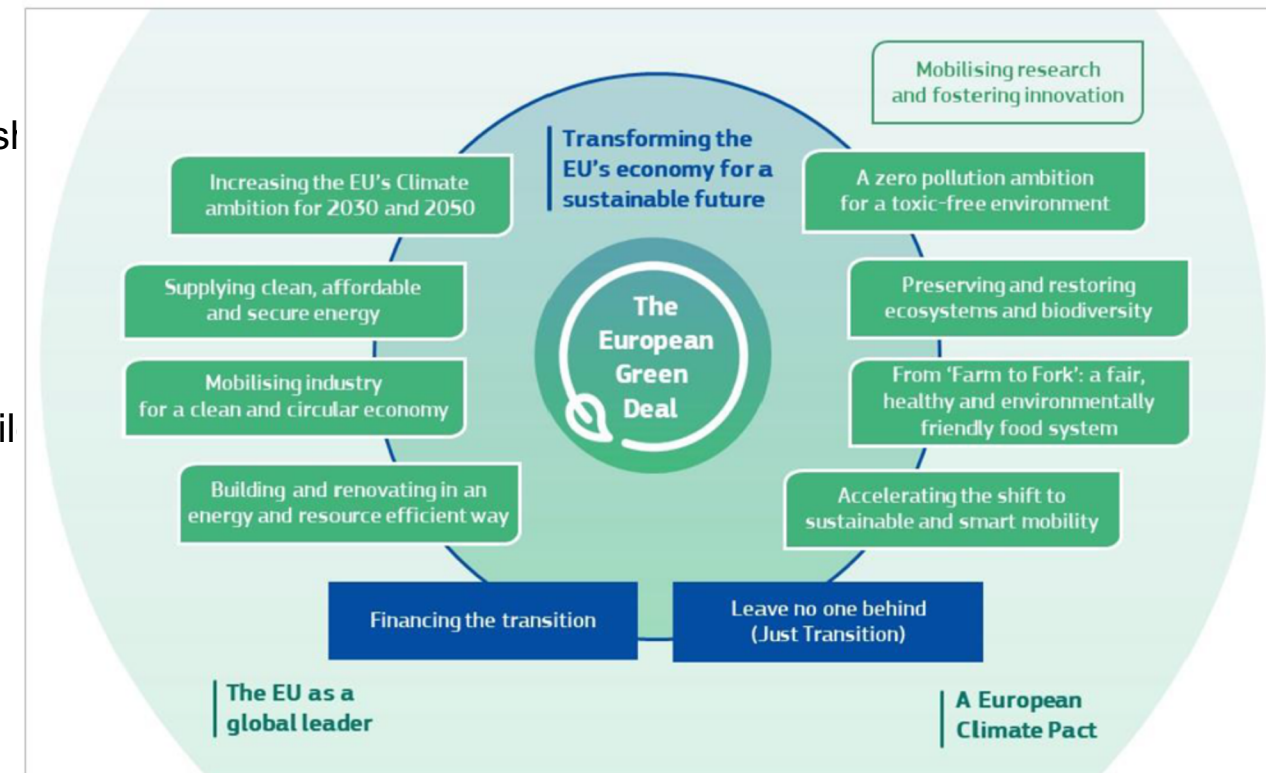
Break 4:30 - 4:45 PM CET (11:30 AM - 11:45 AM EDT)

2nd part 4:45 - 6 PM CET (11:45 AM - 1 PM EDT)

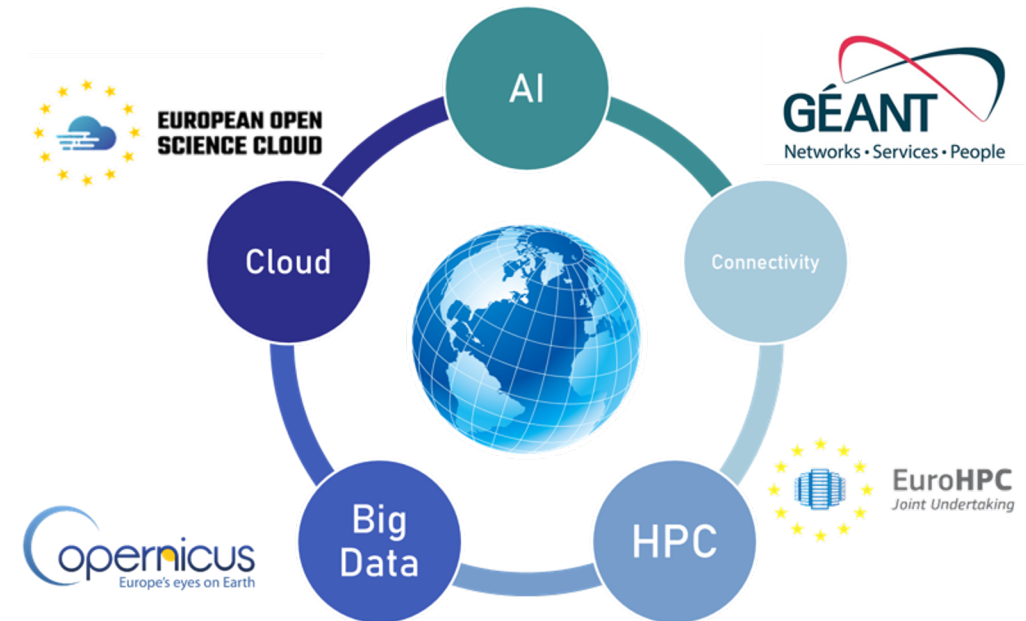
- Roundtable with experts on Metadata, IoT, BDVA, Earth Observation, Semantic

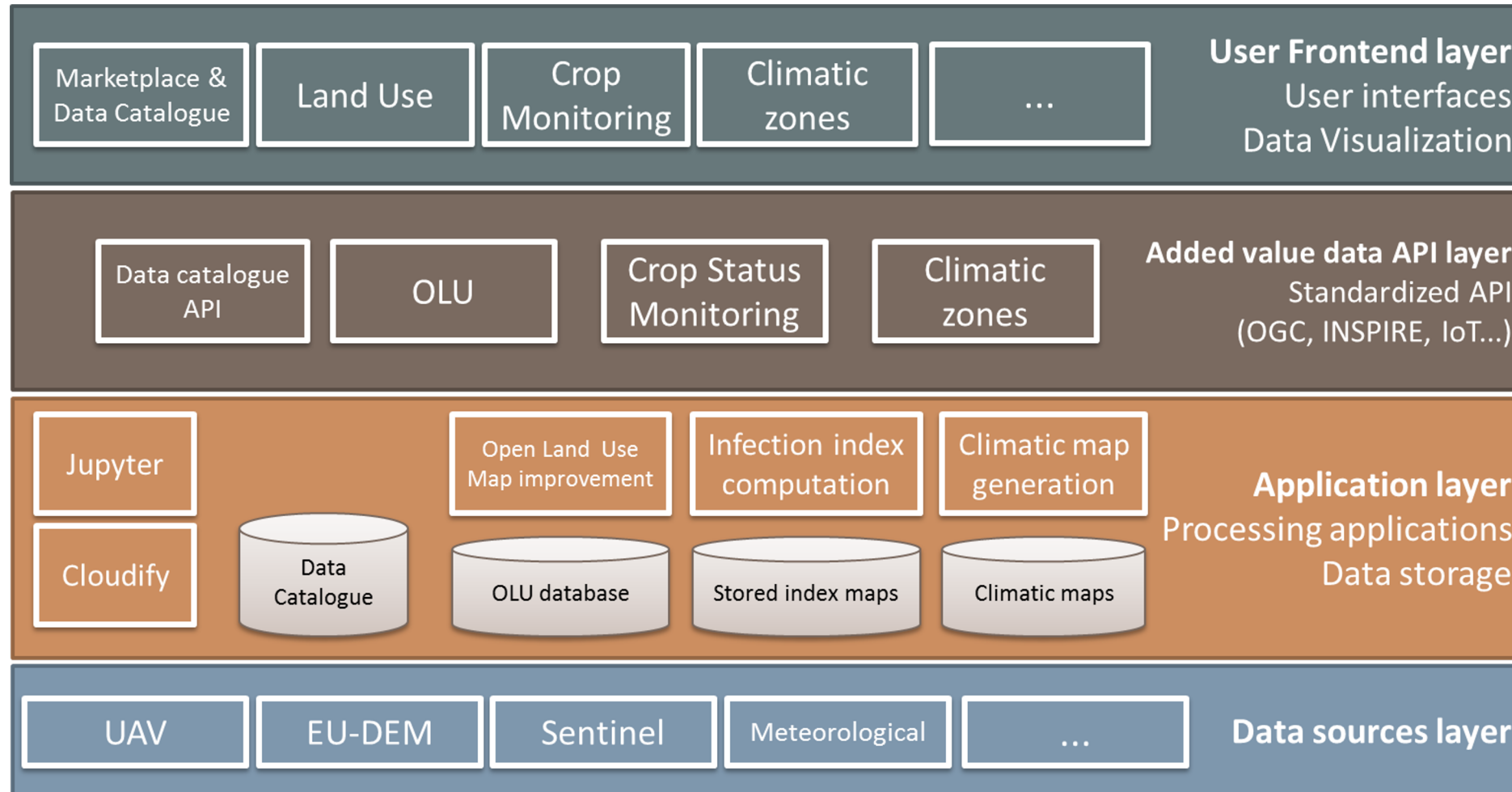


- Motivation (in line with UN's 2030 agenda) □ Big change to improve well-being of citizens and protect the environment
 - Become climate neutral by 2050
 - Reduce pollution to protect people and the environment
 - Support companies to become 'clean' and boost their leaders
 - Support an inclusive transition
- This requires...
 - Major changes in key sectors (energy, transport, industry, build
 - Important investments to support transition
- How to implement the plan?
 - Proposition of a European Climate Law
 - Financial support (green and digital transition + COVID-19 recovery)
 - Key work streams identified



- What is the high-level objective?
 - Implement European strategies (Green Deal, Digital Age...) □ Maximise socio-economic benefits
 - Complex systems modelling:
 - Climate change, sustainability (circular economies), etc...
 - Security/Sovereignty
- A European solution to model, solve complex mathematics, and obtain decision-support tools!
- Bring together key technology areas:
 - Resources provision □ EOSC + HPC
 - European Data Spaces/Large data (i.e. Copernicus, DIAS platforms)
 - Artificial Intelligence
 - Connectivity □ GEANT





DEMETER Architecture Overview

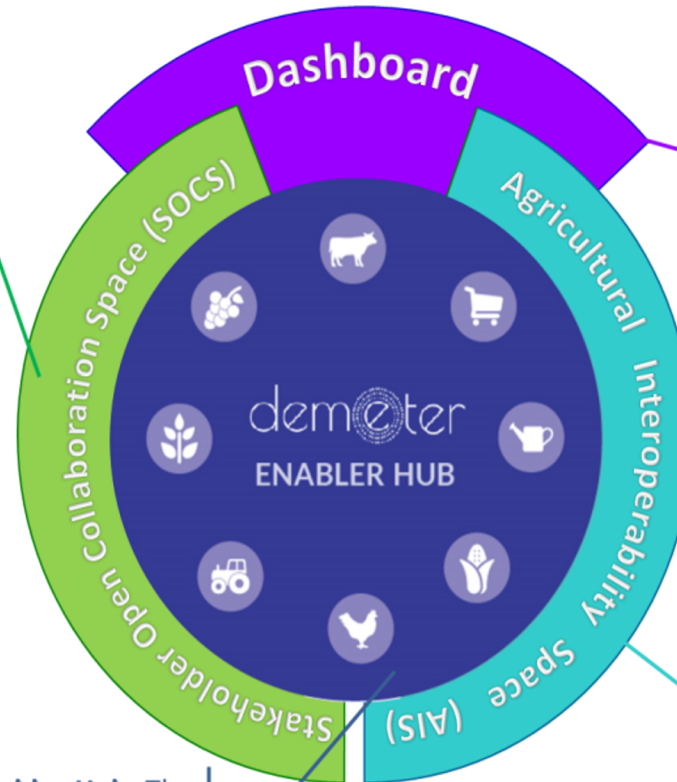
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12 : 45 : 87
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Knowledge sharing and co-creation space where

- Farmers/service advisors express their needs and
- Service advisors and providers team-up to define the most appropriate combination of tools.



DEMETER Dashboard: Sole entry point to the DEMETER ecosystem for all DEMETER Stakeholders.

DEMETER Enabler Hub: The available collaboration spaces (SOCS and AIS) are built around this hub that enables access to all resources that are available for integration and deployment.

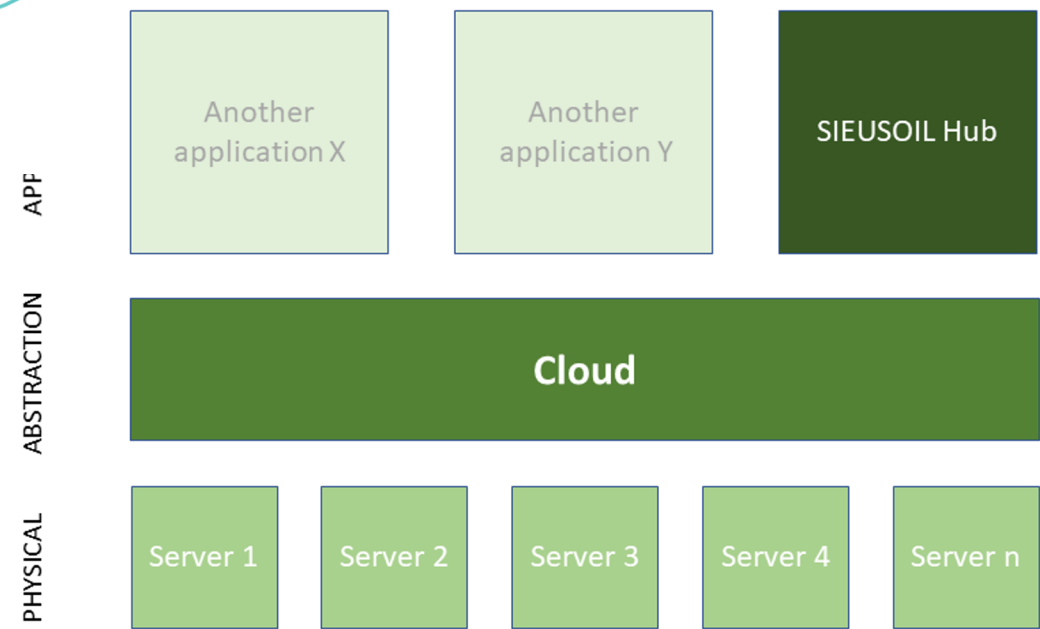
Implementation Space: A virtual space where providers team-up and interoperate to develop and deliver the appropriate combinations and customisations of tools to the farmers ensuring interoperability with existing solutions.



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KL - IT - 3678 - 986

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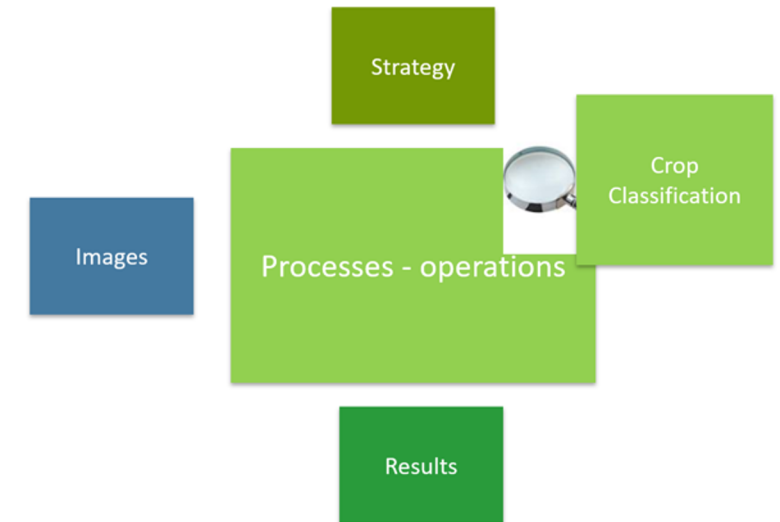
4583



- Current control system (for activities)

- Sample control (5 % of parcels)
- Done at given dates
 - Photo-interpretation of images
 - Field visits

The model is (or should be) composed of 5 packages



- The Commission is pushing Member States to adopt a new monitoring system

- Based mainly on the Sentinel images and their temporal series
- Control will be:
 - Exhaustive: all parcels
 - Continuous
- The analysis of Sentinel (or other satellite) images will provide traffic lights



payment



no payment



Alternative evidence

- The EO monitoring process is linked to the new CAP and so of interest for European Union
- Would its documentation standardisation be in the scope of OGC?
- Anyway, agriculture stakeholders are using and will use EO derived products
- => at least, some parts of the (improved) NIVA base types would be of interest for the global agriculture community

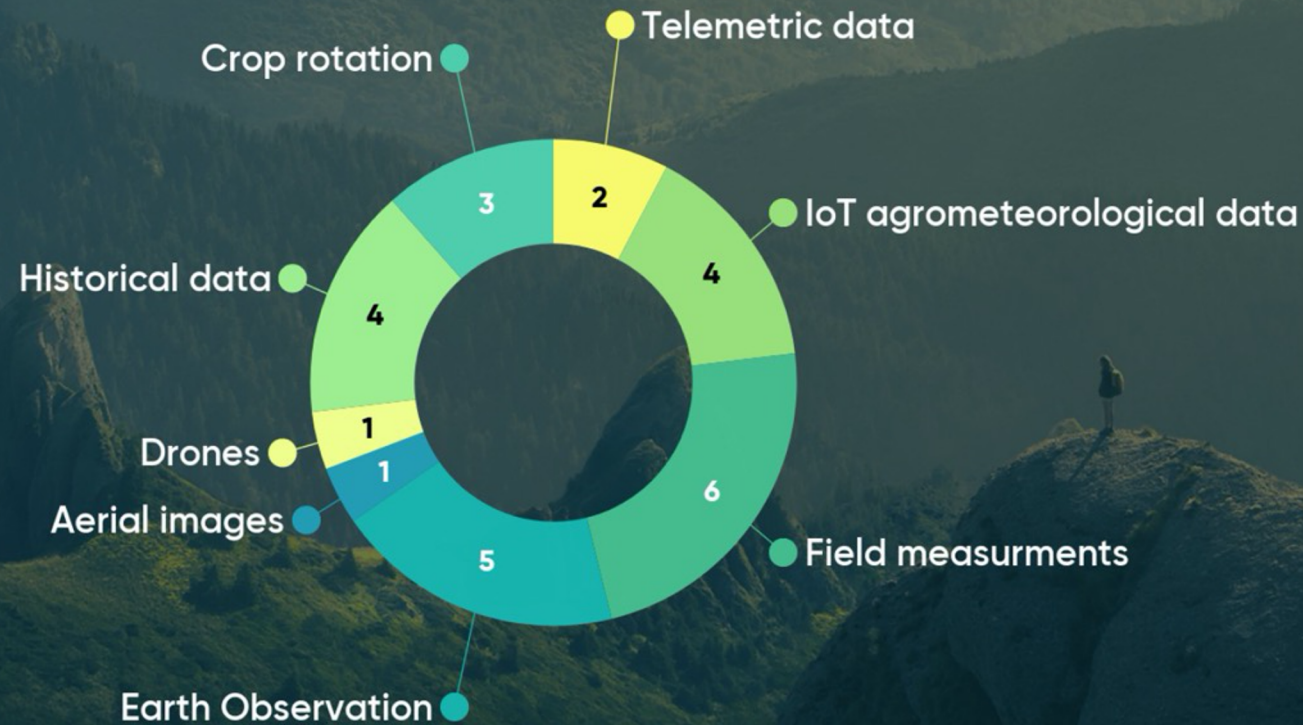


- Discussion topics
 - How can OGC supply the community with easy to use standards
 - The possibility of cooperation of different platforms
 - Are current metadata models suitable for the problems that we dealing with?
 - Vocabularies and thesaurus



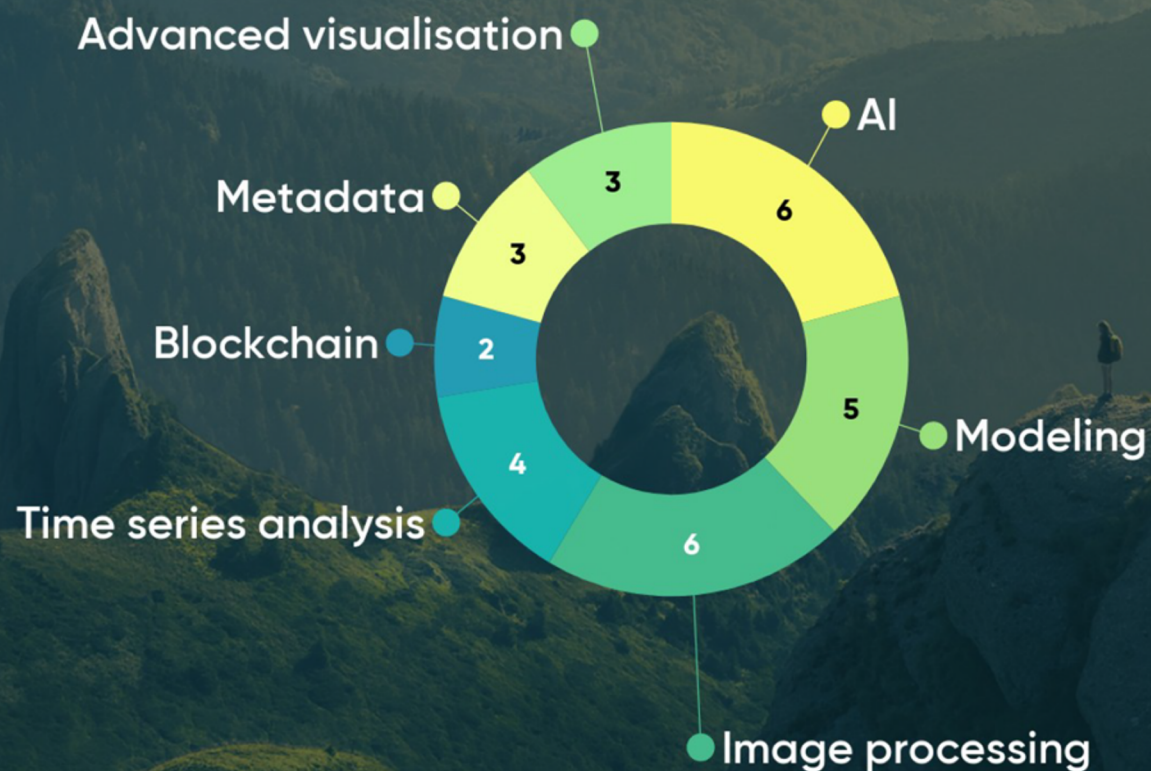
Which data do you see as the most important and relevant for future SmartAgriculture?

Mentimeter



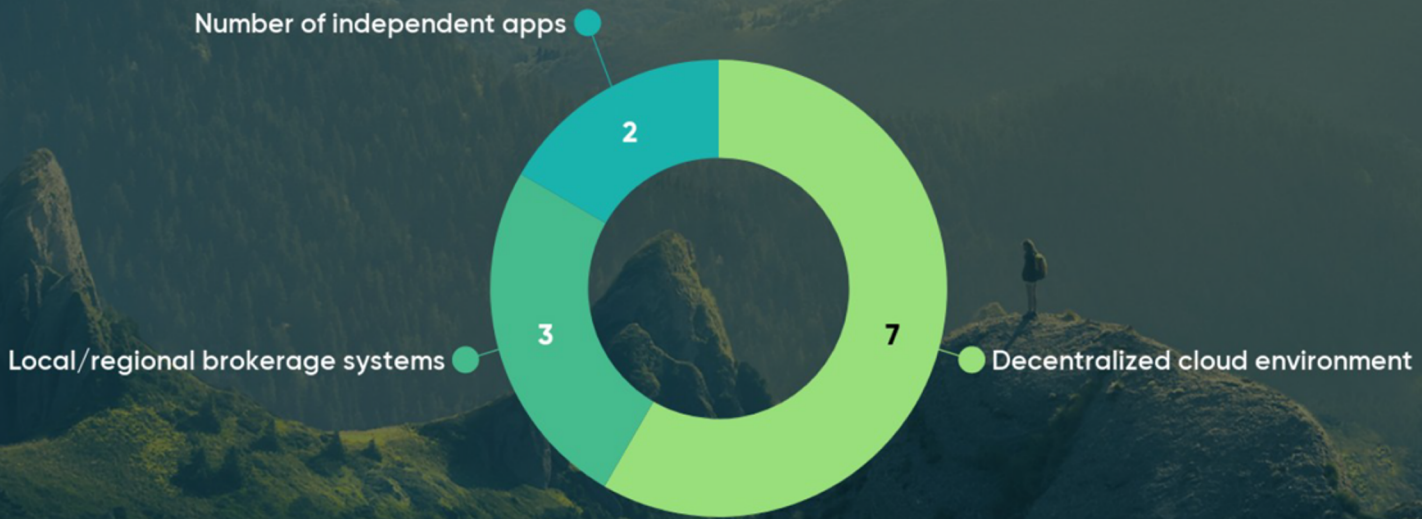
Which technologies do you see as critical for future SmartAgriculture?

Mentimeter



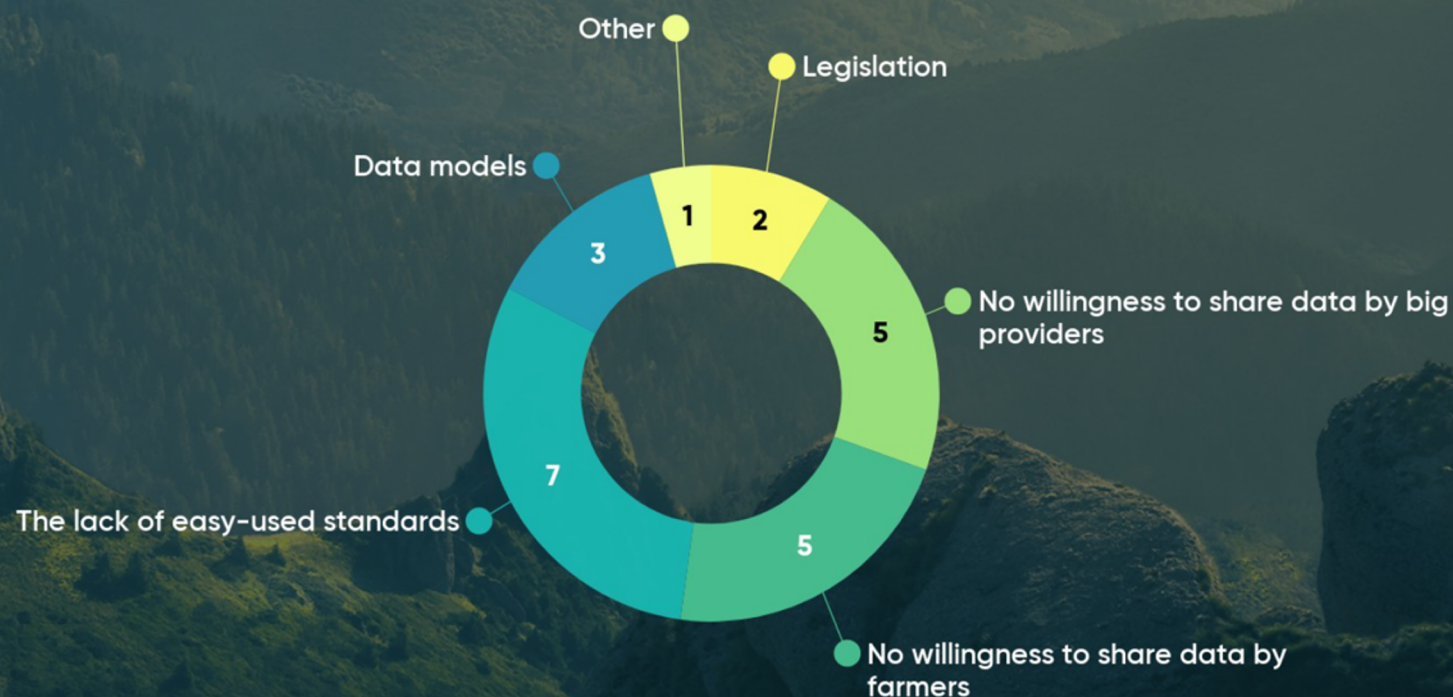
What is your idea about future model for SmartFarming?

Mentimeter



What is the main problem of sharing agriculture data?

Mentimeter



- The heterogeneity of many different types of data (e.g. Climate and agriculture data) is a huge problem – **necessity of the standardisation of data**
- There must be a willingness and interest to agree on where and how to share a data than we can look how applicable are existing standards
- There are ways to use existing standards – e.g., Convenience APIs, but if they cannot be matched with the community and interest in agreeing to share data, they are not going to be easy to use
- The interplay between the standardisation and agreements to share data are the critical challenge
- The data became too massive to be stored on centralized cloud – **decentralized clouds** are the future

- The discoverability of data is one of the basic motivations of the INSPIRE directive
- Metadata cataloguing and inventoring is crucial
- We have a lot of metadata standards that are available and
- Metadata standards mostly being used in the geospatial domain, do not support all the agriculture use cases – the way out would be **semantic metadata**
- **Linked open metadata** could erase the artificial border between data and metadata
- The establishment of an initiative that will combine different thesaurus – otherwise semantic data cannot help us

- Till now there were mainly discussions about state of the art with the community
- We have been setting regular meetings in last three years
- Forces are till now mainly on European side and big part of activities goes from research
- We looked on architecture, IoT, Earth Observation, data models

- We need to establish connection with other related activities like RDA, BDVA, ISO
- We need to focus on bigger involvement of Industry
- We need to focus on involvement of other continents
- We need to start thinking about SmartFarming Testbed and preparation of Cook Book of Standards for Agriculture and prepare exact planning for this
- Volunteers to cooperate and contribute please contact at charvat@plan4all.eu

Visiting Fellow program

Bart De Lathouwer, President OGC

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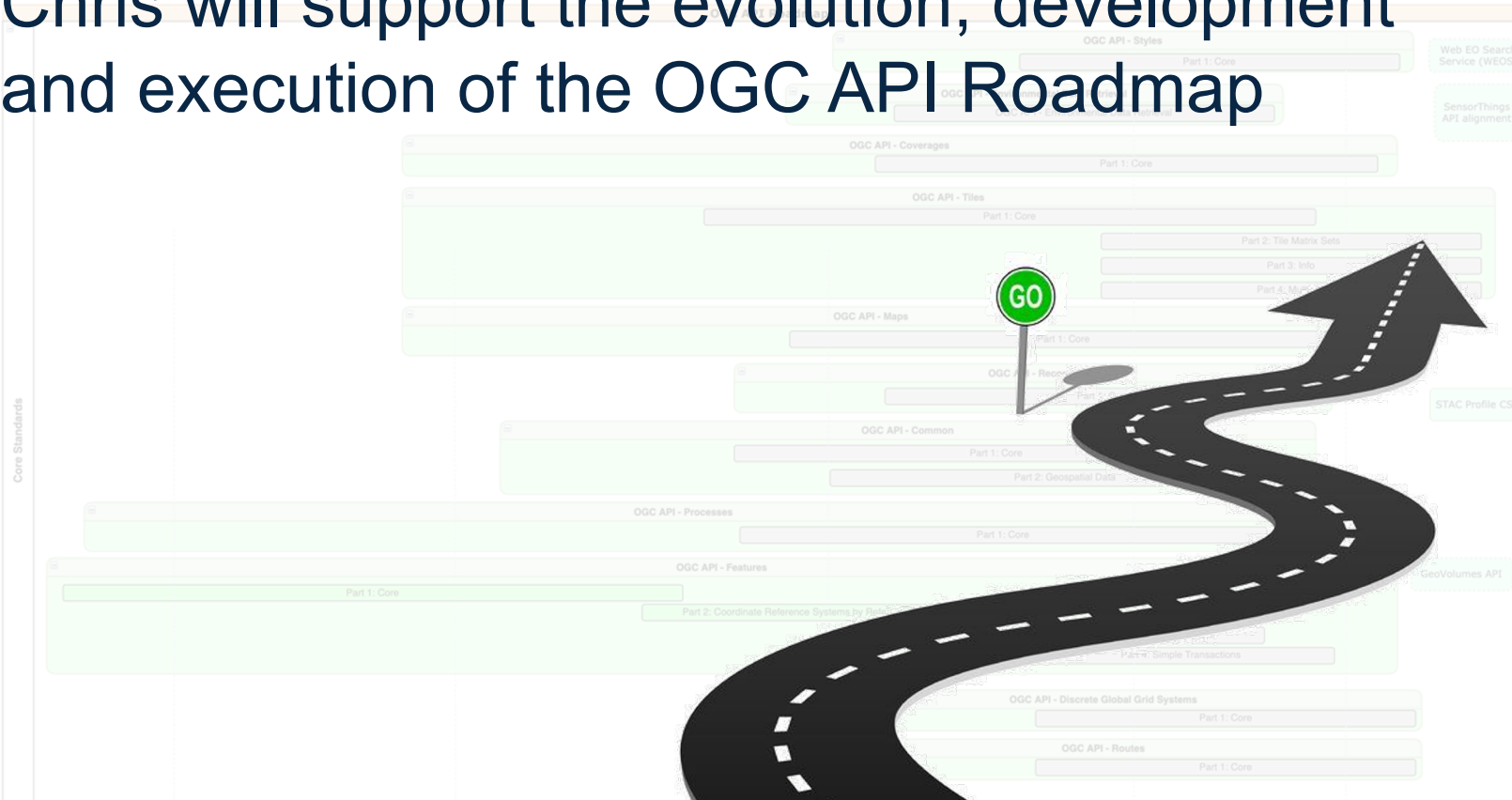


“The program will welcome highly accomplished, seasoned experts from around the world to augment OGC's leadership team with external targeted expertise and support the strategic objectives of the Consortium for durations of 3-9 months.”



Our first Visiting Fellow is **Chris Holmes**!

Chris will support the evolution, development and execution of the OGC API Roadmap



TC Motions

CityJSON community standard

Linda van den Brink, Geonovum

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- The CityJSON submitters recommend that the OGC Technical Committee approve an electronic vote for adoption of OGC 20-072r2 “CityJSON Community Standard 1.0” as an OGC Community Standard.
 - There was no objection to unanimous consent

CRS Closing Plenary Report

Keith Ryden

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The most important thing for this WG is...

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Continue to push forward with Deformation Model Functional Model and Geodetic Grid Exchange Format DWG Work.



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- Planetary references in Coordinate Reference Systems
 - Jean-Christophe Malapert, Expert Dev. Segments Sols Scientifiques DNO/SC/3S
- OGC Topic 2 - minor updates to UML for metadata to align with ISO
 - Roger Lott, OGP
- Update on working group progress towards a logical Grid Deformation Model
 - Chris Crook, Land Information New Zealand
- Update on working group progress towards a Deformation Grid Exchange Format
 - Roger Lott, OGP
 - Kevin Kelly, Esri
- SWG/DWG Motions
 - Motion to approve OGC Topic 2 Corrigendum
 - Motion to approve SWG charter update to add Deformation Grid work

- Discussion topics

- Planetary Coordinate Reference Systems
- Topic 2 Corrigendum
- Status of Deformation Model Functional Model
- Status of Geodetic Grid Exchange Format
- Update the scope of the CRS SWG charter

- Upcoming deliverables

- Topic 2 Corrigendum – posted on pending
- Deformation Model Function Model DWG working group draft to the CRS SWG
- Geodetic Grid Exchange Format DWG working group draft to the CRS SWG

- Coordination (ongoing and planned)

- Work with Trent Haire and Jean-Christophe Malapert to define a profile for planetary CRS – if everything works out, to be picked up in a future revision

- Future meetings

- Continue DWG working group meetings every other week – alternating between teams
- If charter update is approved, begin SWG meetings when DWG teams wrap up
- June Member Meeting – DWG status update

- These changes bring Topic 2 in line with ISO 19111 amendment 1
- Pending Document 18-005r5: OGC Abstract Specification - Topic 2: Referencing by coordinates
- Adds
 - i. a constraint missing from the UML description of coordinate metadata
 - (detail on next slide)
 - constraint is described in normative text, so no change there.
 - ii. a note to one of the definition of coordinate operation to refer to subtypes

3.1.8

coordinate operation

process using a mathematical model, based on a one-to-one relationship, that changes coordinates in a source coordinate reference system to coordinates in a target coordinate reference system, or that changes coordinates at a source coordinate epoch to coordinates at a target coordinate epoch within the same coordinate reference system

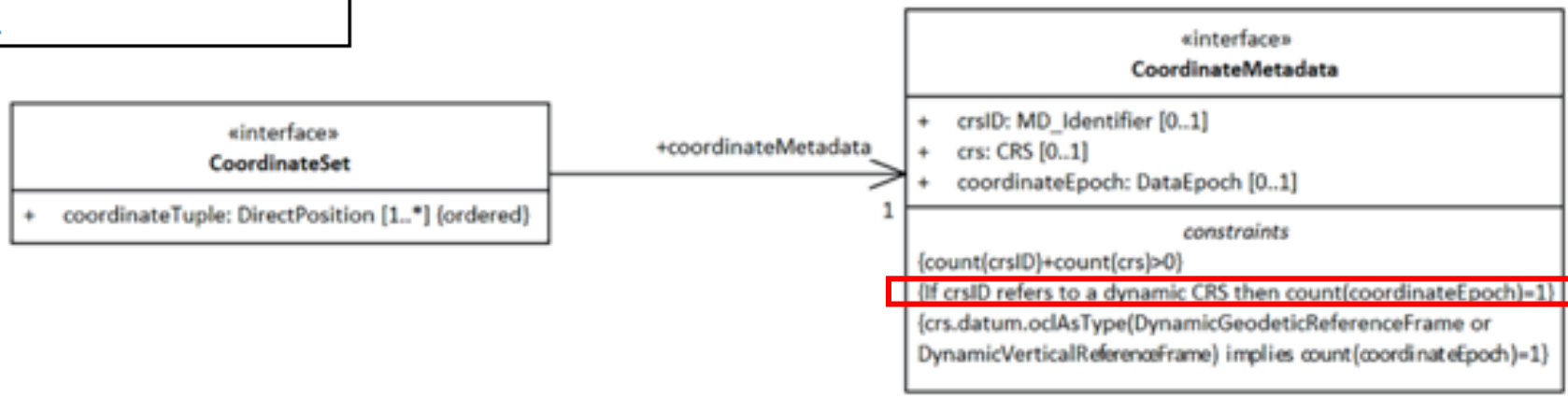
Note 1 to entry: Generalization of coordinate conversion, coordinate transformation and point motion operation.

Update to Abstract Spec Topic 2 – add missing constraint

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Table 2 — Defining elements of Coordinates::CoordinateMetadata class

Definition:	metadata required to reference coordinates				
Stereotype:	Interface				
Class attribute:	Concrete				
Inheritance from:	(none)				
Public attributes:					
Attribute name	UML identifier	Data type	Obligation	Maximum Occurrence	Attribute definition
CRS ID	crsID	MD_Identifier	C	1	identifier of the coordinate reference system to which a coordinate set is referenced
CRS definition	crs	CRS	C	1	full definition of the coordinate reference system to which a coordinate set is referenced
Coordinate epoch	coordinateEpoch	DataEpoch	C	1	epoch at which a coordinate set referenced to a dynamic CRS is valid
					Note: Required if the CRS is dynamic, otherwise should not be given.
Constraints:	{count(crsID)+count(CRS)>0} Remarks: See 7.2 {crs.datum.oclAsType(DynamicGeodeticReferenceFrame or DynamicVerticalReferenceFrame) implies count(coordinateEpoch)=1} <u>{if crsID refers to a dynamic CRS then count(coordinateEpoch)=1}</u>				
	Remarks: The constraint provides the conditionality for coordinate epoch.				



- The CRS DWG/SWG recommends that the OGC Technical Committee approve release of OGC Document 18-005r5 – Abstract Spec Topic 2 Referencing by Coordinates as a corrigendum
 - There was no objection to unanimous consent
- *Background: OGC Topic 2 and ISO 19111 are maintained as the same document by both organizations. This document describes the data elements, relationships and associated metadata required for referencing by coordinates. This corrigendum is to align OGC Topic 2 with ISO 19111 corrections for defining coordinate epoch in the CoordinateMetadata class.*

- Pending document 16-081r3: Coordinate Reference System Standards Working Group Charter
- The CRS SWG charter is being updated to formalize the exploratory work being conducted by CRS DWG project teams:
 - Work of the OGC CRS DWG Gridded Geodetic Data Exchange Format (GGXF) project team
 - Work of the OGC CRS DWG Deformation Functional Model (DFM) project team
- Deliverables under this updated charter:
 - Maintenance of OGC Abstract Specification Topic 2 (18-005r4).
 - Maintenance of CRS WKT specification (18-010r7).
 - Additional deliverables:
 - Specification of a standard exchange format for gridded geodetic data (GGXF).
 - Documentation of a standard model for deforming coordinate reference systems.

- The CRS DWG/SWG recommends that the OGC Technical Committee approve release of OGC document 16-081r3 as an updated CRS SWG Charter.
 - There was no objection to unanimous consent
- *Background: The scope of the CRS SWG Charter document is being updated to include standardization of the CRS DWG working group efforts for:*
 - *Deformation Model Functional Model*
 - *Geodetic Grid Exchange Format*

Points of Interest SWG Closing Plenary Report

Christine Perey, Marna Roos, Matthew Purss

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- The Points of Interest Standards Working Group (POI SWG) elected the following individuals as Co-chairs of the SWG.
 - Marna Roos
 - Christine Perey
 - Matthew Purss
- There was no objection to unanimous consent

- The Points of Interest Standards Working Group (POI SWG) recommends that the OGC Technical Committee approve recharter of the POI SWG per [OGC 21-012] “OGC Points of Interest Standard Working Group Charter.”
 - There was no objection to unanimous consent

CityGML SWG

C Nagel, S Smyth, C Rönsdorf

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- The CityGML SWG submitters recommend that the OGC Technical Committee approve an electronic vote for adoption of OGC 20-010r1 “CityGML 3.0 Conceptual Model” as an OGC Standard.
 - There was no objection to unanimous consent

Sample Markup Language for Artificial Intelligence Machine Learning (SampleML-AI/ML)

proposed Standards Working Group

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SampleML-AI/ML SWG Meeting #1 Agenda



- Background of the SampleML-AI/ML Standards Working Group
 - The purpose of SampleML-AI/ML SWG
 - Scope of Work
- Answers to the SampleML comments from the OGC members
 - Outstanding issues on naming conventions
 - The “sample” definition in SampleML
 - “SampleML” vs “TrainingML” and in the AI/ML community
 - Root elements of information model
- Candidate Charter discussion and modification
- Have the ad hoc vote for public comment
- Any other business

SampleML for AI/ML SWG Charter Members



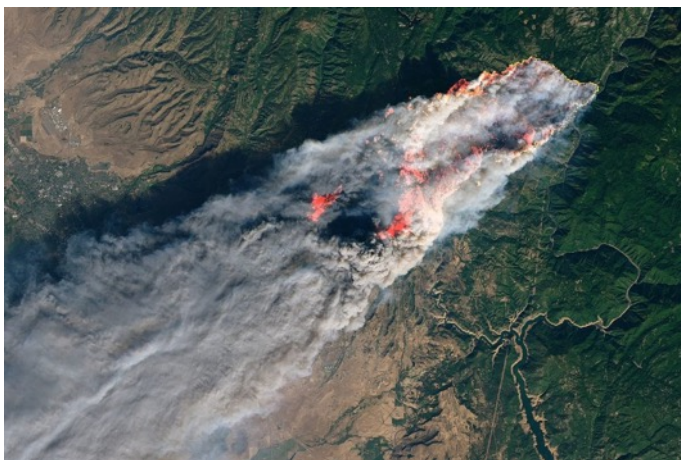
Name	Organization
Peng Yue	Wuhan University
Danielle Ziebelin	Laboratoire d'Informatique de Grenoble
Zheheng Liang	South Digital Technology Co., Ltd
Liping Di	George Mason University
Winnie SHIU	HKSARG, Development Bureau
Jibo Xie	Aerospace Information Research Institute, Chinese Academy of Sciences
Yuqi Bai	Tsinghua University
Lei Hu	Wuhan University
Liangcun Jiang	Wuhan University
Mingda Zhang	Hubei University
Chenxiao Zhang	Nanjing University of Information Science & Technology
Ignacio Correias	Skymanatics, LLC



Background

❖ Remote Sensing Machine Learning Scenarios:

- In the scene level, e.g., the wildfire scene classification, the sample content includes an image and its corresponding binary label
- In the object level, e.g., the building detection, the sample content includes an image with several polygons indicating the position of buildings
- In the pixel level, e.g., the landcover classification, the sample content includes the Earth Observation (EO) imagery and the landcover class of each pixel



Purpose of the Standard Working Group



- The SampleML-AI/ML SWG is chartered to develop the UML model and encodings for Artificial Intelligence/Machine Learning sample data. The usage of SampleML is to train AI/ML models, and to validate model results.
- The SWG will investigate the feasibility and interoperability of OGC standards to use and share geospatial sample data in AI/ML applications and describe gaps and issues that can lead to a new geospatial standard.
- The geospatial sample data categories will include, but are not restricted to, remote sensing imagery, moving features (e.g., vehicle trajectories), and related spatial content.
- The UML model and encodings will consistent with the OGC standards baseline to exchange and retrieve the geospatial sample data in the Web environment.

Scope of SampleML for AI/ML SWG Work



The SWG will take on the following work actions:

- Discuss the cutting-edge issues of samples for AI/ML in the geospatial community;
- Design the UML model and encoding of SampleML for AI/ML ;
- Define the description of spatial and temporal representativeness;
- Define the description of whether it's a classification or object detection task, type of applicable AI/ML model/algorithm, preferred accuracy level, techniques used to generate the sample data, original data used to generate labels;
- Define the description of the permanent identifier, version, license, sample data size, dates of measurement or imagery used for annotation, uncertainty of the measurement, etc;
- Define the description of quality evaluation (e.g., sample data errors, sample data sparsity) and the provenance (all intermediate data and training process);
- ...

Activity Summary



- Discussion topics

- What does “ML” stand for in this SWG
- Abbreviation of Sample Markup Language for Artificial Intelligence/Machine Learning
- Purpose and scope of this SWG
- Difference between “Sample” in this SWG with “Sample” in O&M

- Upcoming revisions for the SWG charter

- Using SampleML and AI/ML to specify context of ML
- Using SampleML-AI/ML, and can also use SampleML for AI/ML in sentences
- Scope part is updated to define clearly, not only training data, but also validation data sets.
- Related work of O&M have been added in Section 3.1 & 3.3, and the difference will be clarified Section 3.1

- Coordination (ongoing and planned)

- OGC O&M

- Future meetings

- Weekly telcons (to be discussed)

Document and Approval Vote Motion



- Present the scope of the charter to the TC in the Closing Plenary, ask the TC for approval to start a vote on the SWG after the public comment ends
- The public comment period will start right after the Member Meeting and run for 3 weeks.
- Once comments are addressed, we can start the approval vote.
- ...

[OGC SampleML-AI/ML Standards Working Group Charter](https://portal.ogc.org/files/?artifact_id=97072&version=1) (21-003r2):

https://portal.ogc.org/files/?artifact_id=97072&version=1

Next Quarter SWG Communications Plan



- We would like to advertise the availability of the candidate standard for public comment
- Various communities such as O&M community are expressing interest in the candidate standard

Upcoming Member Meetings

Date	Location	Host/Sponsor
March 2021	Virtual	
June 2021	Virtual	
September 2021	Singapore (TBC)	
December 2021	California USA (TBC)	

Who wants to host in 2022? It is SO FUN to host!!!!

Per a member poll, we agreed to 3 meetings for 2021; we are proposing a new pattern of 3 physical meetings per year, with a virtual meeting in March 2021 and thereafter each December

TC Chair Announcements and Motions

- 



- OGC Policy Directive 47 states....

*"All OGC API SWGs will work on their respective standards with other OGC API SWGs and the OWS Common SWG and report on the interaction with those SWGs to ensure **coherence (with respect to OGC Web API Guidelines, OGC API - Common, and reusability of extensions)** of standards in advance of OAB review. **OAB will develop a template for the review.** If the OAB determines that sufficient review has not taken place, the submitting SWG will be instructed to perform further review. OAB will deliver a template by the end of 2019. OGC API SWGs currently working will perform coherence review as described above over at least the time required to receive the template. This motion does not preclude formation of a SWG, it only applies to work undertaken by an existing SWG. This coordination effort occurs after the formation of a SWG and before OAB review of a candidate standard for public RFC."*

"All OGC API SWGs will work on their respective standards with other OGC API SWGs and the OWS Common SWG and report on the interaction with those SWGs to ensure coherence of the standard with respect to OGC Web API Guidelines and OGC API – Common, in advance of OAB RFC review.

Part of the OAB review for an OGC API draft standard is to validate that it includes, in an associated informative document named “OGC Web API Guidelines,” the self-assessment by the SWG about the applicability of the OGC Web API guidelines. The template is to be filled out in full: each principle shall be addressed. In case a principle is not applicable a reason shall be given.

The template for this self-assessment against OGC Web API Guidelines, resulting from the 2021-03-22 closed OAB meeting, is included in the [Github template for standards](#).

Examples for this Annex are provided at <https://github.com/opengeospatial/OGC-Web-API-Guidelines/tree/master/Examples>."

- The OGC Architecture Board (OAB) recommends that the OGC Technical Committee approve Policy Directive 50 as per the text provided on the previous slide.
 - There was no objection to unanimous consent

- The I3S Community Standard is proposed for revision
- The Work Item justification was presented in the December 2020 Closing Plenary and circulated for public comment with no comments received
- **Policy** is to start a 45-day electronic vote to approve the Work Item
- However, the most recent TC Policy document (did not reach sufficiency in voting) proposed aligning Community Standard process with that of SWGs
 - SWG charter revisions are voted in a Plenary
 - Work Item updates are equivalent to SWG charter revisions and should also be voted in a Plenary
- Would like to follow this more efficient approach moving forward – any objection?

- The I3S submitters recommend that the OGC Technical Committee approve I3S – Indexed 3D Scene Layers Version 1.2 Update Work Item per [OGC 20-093r1].
 - There was no objection to unanimous consent

- Idea initiated by the Moving Features SWG
- Mobility data: space + time
- Summit Goals
 - Understand the technical challenges of Mobility Data Science
 - Harmonize the concepts of “spatiotemporal” across WGs:
 - Moving Features SWG, Temporal DWG, GeoAI DWG, SensorThings API, GeoPose, EDR API, TimeseriesML (TSML), MLS DWG, CityGML, Dynamizer, CDB, Big Data, Data cube, Mobile location services, Routing SWG
- Scheduled for the Members Meeting in September 2021
- Participation:
 - WGs, Academia, Industry, Government
 - Keynotes and panel discussions
- Interested to participate ?
 - Contact Scott Simmons or MF SWG (Mahmoud Sakr)

WG Reports not to be briefed

Not being briefed today, saving you 166 slides

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3DIM DWG
Blockchain and DLT DWG
CDB SWG
Citizen Science DWG
Coverages SWG
Data Quality DWG
DGGs DWG
DGGs SWG
EO Exploitation Platform DWG
Emergency & Disaster Management DWG
EDR API SWG
Features API SWG
GeoAI DWG
GeoPackage SWG
GeoPose SWG
Interoperable Simulation and Gaming DWG

LandInfra DWG/SWG
Met Ocean DWG
Moving Features SWG
MUDDI SWG
Observations & Measurements SWG
OGC API – Common SWG
OGC API – Processes SWG
OGC API – Records SWG
OGC API – Tiles SWG
OGC Naming Authority
Portrayal DWG
SensorThings API SWG
SDWIG
TimeseriesML SWG
University DWG
UxS DWG



3 to Z

WG Reports with TC Motions

Architecture DWG Closing Plenary Report

Gobe Hobona, Joan Maso

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The most important thing for this WG is...

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The Data Access and Processing API (DAPA) should be developed into an extension of OGC API - Processes



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- Draft Discussion Paper on Conceptual Modeling - Sam Meek
- Modernizing Spatial Data Infrastructure CDS Engineering Report - Josh Lieberman
- Where next for DAPA? New Charter or Work Item - Peter Vretanos, Josh Lieberman
- A first look at the new OpenAPI 3.1 specification - Joan Maso, Chuck Heazel
- Joint OGC OSGeo ASF Code Sprint 2021 Summary Engineering Report - Gobe Hobona

- Discussion topics

- How do we improve Conceptual Modeling within the consortium?
- Modernizing Spatial Data Infrastructure (SDI) - Enabling Data Interoperability for Regional Assessments and Cumulative Effects
- Where should future standardization of the Data Access and Processing API (DAPA) take place?
- The beginning of the conversation of how to manage the introduction of OpenAPI 3.1
- The Joint OGC OSGeo ASF Code Sprint of 2021

- Coordination (ongoing and planned)

- OGC API SWGs
- OGC-NA

- Upcoming deliverables

- Conceptual Modeling Discussion Paper

- Future meetings

- Web meeting to discuss OGC API Cross SWG issues
- Next Member Meeting

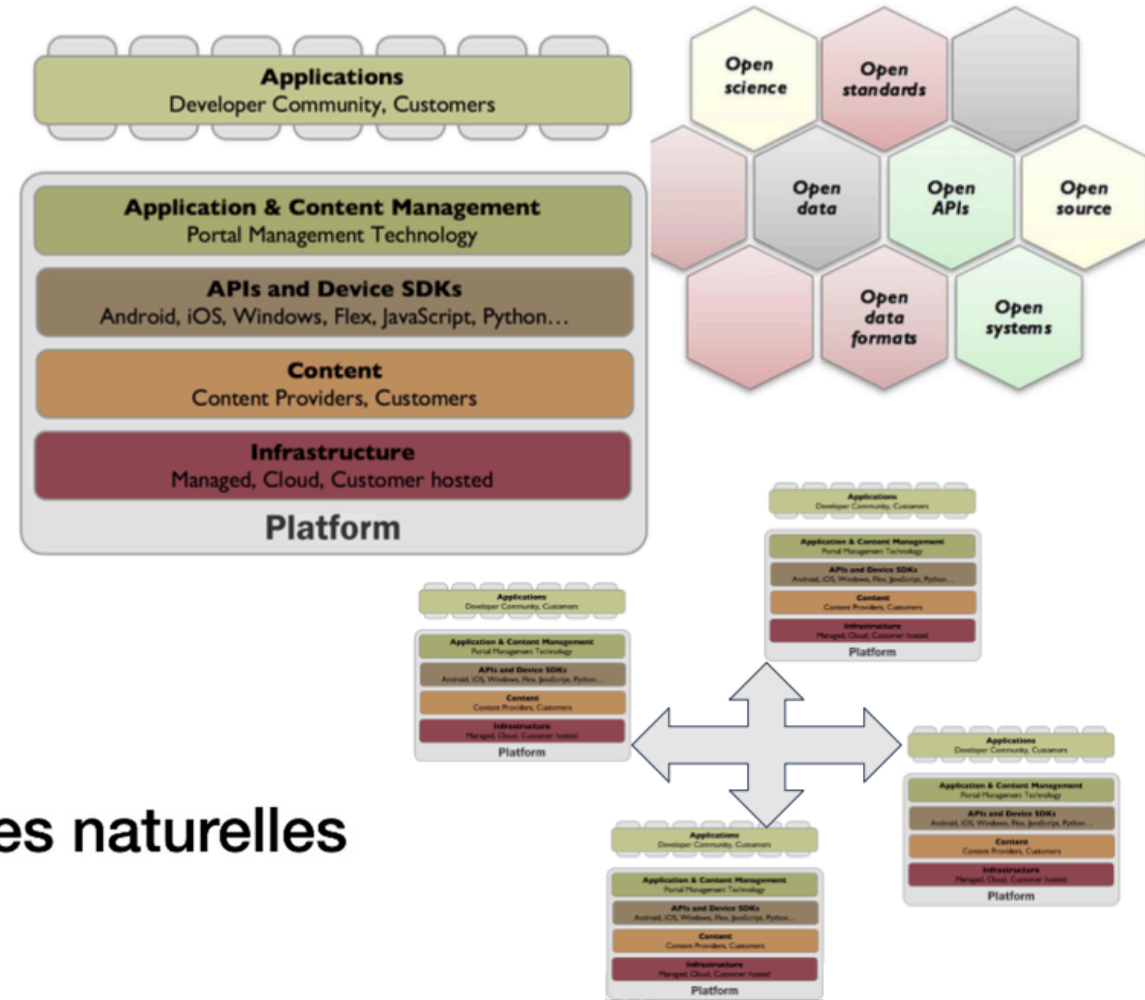
- Discussion Paper on Conceptual Modeling
- Previous major discussions:
 - Boulder 2015 - Conceptual Models
 - OAB (1047, 1485)
- Sample of OGC standards that include Conceptual Models
 - OWS Context
 - CDB
 - CityGML 3.0
- Seeking volunteer contributors for a Discussion Paper – Contact Sam Meek (s.meek@helyx.co.uk)

- Data Integration Challenges
- Stakeholder Needs
- Reference Architecture
- System Requirements
- Sponsored by:



Natural Resources
Canada

Ressources naturelles
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- Summary Report on Code Sprint held 17 to 19 February 2021

- Hosted and Organized by:



- Goal of accelerating the support of open geospatial standards within the developer community

Gold Sponsor



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- The Architecture DWG recommends that the OGC Technical Committee approve release of OGC 21-013 “Modernizing SDI: Enabling Data Interoperability for Regional Assessments and Cumulative Effects CDS Engineering Report” as an OGC Public Engineering Report.
 - There was no objection to unanimous consent
- This engineering report (ER) presents the results of a Concept Development Study (CDS) on Modernizing Spatial Data Infrastructure (SDI), sponsored by Natural Resources Canada, executed by the Open Geospatial Consortium (OGC). The focus of this study was to understand how to best support the modernization of SDI(s) by enabling increased data interoperability for Regional Assessments (RA) and Cumulative Effects (CE), to advance the understanding of stakeholder issues, and serve stakeholders’ needs in these contexts.

- The Architecture DWG recommends that the OGC API – Processes SWG Charter be extended to include a Work Item for the Data Access and Processing API (DAPA).
 - There was no objection to unanimous consent
- The DAPA prototype was developed in OGC Testbed-16 with the goal of making it easier for end users to interact with services that access data and processing services.

- The Architecture DWG recommends that the OGC Technical Committee approve release of OGC 21-008 “Joint OGC OSGeo ASF Code Sprint 2021 Summary Engineering Report” as an OGC Public Engineering Report.
 - There was no objection to unanimous consent
- The subject of this Engineering Report (ER) is a code sprint that was held from 17 to 19 February 2021 to advance support of open geospatial standards within the developer community, whilst also advancing the standards themselves. The code sprint was hosted by the Open Geospatial Consortium (OGC), the Apache Software Foundation (ASF), and Open Source Geospatial Foundation (OSGeo). The event was sponsored by Ordnance Survey (OS) and GeoCat BV, and held as a completely virtual event.

Command & Control Ad-hoc Closing Plenary Report

Steve Liang

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Virtual | 26 March 2021

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Identify the need of UxS Command and Control interoperability



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- Teodor Hanchevici (Kongsberg Geospatial)
Presentation: UxS Command and Control Use cases and Interoperability Gap - a Kongsberg Geospatial perspective (20 min)
- Donald Sullivan (NASA)
Presentation: UxS Command and Control Use cases and Interoperability Gap - a NASA perspective (20 min)
- Hylke van der Schaaf and Thomas Uslander (Fraunhofer)
Presentation: UxS Command and Control Use cases and Interoperability Gap - from an Industry 4.0 perspective (20 min)

- Discussion topics

- UxS command and control use cases
- Existing disparate UxS command and control systems
- Interoperability needs for UxS command and control

- Upcoming deliverables

- A possible charter for a Command and Control SWG

- Coordination (ongoing and planned)

- UxS DWG
- SensorThings SWG
- Moving Feature SWG

- Future meetings

- TBD

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

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- The CITE Subcommittee recommends that the Technical Committee approves the Executable Test Suite (ETS) of version 1.1 of the OGC GeoTIFF standard as an official OGC Compliance Test Package. Upon passing of this motion, the ETS will be moved from the Beta instance of TEAM Engine to the Production instance.
- At the time of this motion, there is 1 early implementor that has been certified compliant.
- Result: There was no objection to unanimous consent

- The CITE Subcommittee recommends that the Technical Committee approves the Executable Test Suite (ETS) of version 2.0 of the OGC Sensor Model Language (SensorML) standard as an official OGC Compliance Test Package. Upon passing of this motion, the ETS will be moved from the Beta instance of TEAM Engine to the Production instance.
- At the time of this motion, there is 1 early implementor that has been certified compliant.
- Result: There was no objection to unanimous consent

D&I DWG Closing Plenary Report

Lucio Colaiacono

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Presented a new imagery coded requiring for a coordination with
other imagery WG to harmonize once forever the way geo
enabled information is referred

NITF evolution to manage spectral data



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- DGIWG GMLJP2 Profile submission to OGC E. Devys
- HTJ2K GeoenablementAction E. Devys
- GEOINTEROP Update M. Reichardt
- WMS XML Best practice update G. Hobona
- Spectral NITF Implementation Profile Jason S. Smith

- Discussion topics
 - Standardization on how geo information is referenced in imagery formats
 - Commercial tool / open source tool

- Upcoming deliverables

- Coordination (ongoing and planned)
 - Geotiff SWG

- Future meetings

- The D&I DWG recommends that the OGC Technical Committee approve an electronic vote for adoption of OGC 21-007 “DGIWG GMLJP2 profile as BP of OGC GMLJP2 v2.1” as an OGC Best Practice associated to OGC GMLJP2 v2.1.
 - There was no objection to unanimous consent
- **Abstract:** DGIWG 104(2) is an implementation profile of OGC's GML in JPEG 2000 (GMLJP2) Encoding Standard Part 1: Core, version 2.1 and is conformant with OGC's GML 3.2.1 standard and GMLCOV application schema and GMLCOV / Coverage Implementation Schema - ReferenceableGridCoverage Extension

Developer Track

Gobe Hobona

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- Goal

- To provide developers with exposure to the draft OGC APIs and to share productivity advice about implementing the APIs.

- Vision

- Held quarterly during each OGC Member Meeting
- A single track in the near-to-mid term
- Potentially a double track in the long-term
- Focus on different OGC standards each time

- OGC API – Tiles
- OGC API – Processes
- OGC API – Records
- OGC API – Environmental Data Retrieval candidate standard

- 09:00 - 09:05 Welcome Remarks - Gobe Hobona (OGC)
- 09:05 - 09:10 Participant Introductions (post to developer-track/discussions/1) - All
- 09:10 - 09:20 Program for the day and Ways of Working - Gobe Hobona (OGC)
- 09:20 - 09:40 Status of OGC API – Tiles – Joan Maso (UAB CREAM)
- 09:40 - 10:00 Status of OGC API – Processes - Benjamin Pross (52 North)
- 10:00 - 10:20 Status of OGC API – Records - Panagiotis 'Peter' Vretanos (CubeWerx)
- 10:20 - 10:40 Overview of the OGC API – Environmental Data Retrieval candidate standard - Chris Little (Met Office)
- 10:40 - 11:15 Break
- 11:15 - 13:15 Practical work: Block 1
 - Retrieving vector tiles from OGC API - Tiles implementations using pygeoapi - Francesco Bartoli (OSGeo) - 40 minutes
 - Publishing data through implementations of the OGC API – Environmental Data Retrieval candidate standard - Mark Burgoyne (Met Office), Shane Mill (NWS), Igor Andruska (IBL) - 40 minutes
 - Development work - 40 minutes

- 13:15 - 15:15 Practical work: Block 2
 - Publishing your Python code as OGC API - Processes using pygeoapi - Tom Kralidis (MSC) - 40 minutes
 - Development work - 80 minutes
- 15:15 - 17:15 Practical work: Block 3
 - Publishing your geospatial metadata with pygeoapi - Tom Kralidis (MSC), Paul van Genuchten (GeoCat BV) - 40 minutes
 - Development work - 80 minutes
- 17:15 - 18:15 Break
- 18:15 - 19:00 Demonstrations
 - CubeWerx TEP Demonstration
 - CubeWerx OGC API - Records with legacy output formats
 - Skymantics Route to Airport
- 19:00 - 19:30 Discussion
- 19:30 - 19:45 Wrap up and Close

...and the winner is...



OGC Energy & Utilities DWG Closing Plenary Report Scott Simmons for Eddie Oldfield

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Publish Building Energy Mapping & Analytics Concept
Development Study (CDS)

Advance actions/recommendations in the CDS

Engage with Pipeline ML – for improved coordination / a focused
session in 2021

1. Welcome/Introductions
2. Outcomes of Building Energy Mapping and Analytics Concept Development Study (BEMA-CDS) and vote to publish
(It can be accessed in either HTML or PDF form through this link: https://portal.ogc.org/files/?artifact_id=95237)
3. Planning for next steps / new initiatives – Toward an Energy Spatial Data Infrastructure
4. Guest Speakers – Pipeline ML (Jan Stuckens and John Tisdale)
5. Close

- Discussion topics

- Recap of BEMA-CDS, vote to recommend to TC
- Next Steps (e.g. pilots/standards for energy SDI)

- Upcoming deliverables

- 2021 schedule of sessions

- Coordination (ongoing and planned)

- Discussions with Pipeline ML
- OGC, NRCan, OGC Members – to action BEMA-CDS recommendations / opportunities

- Future meetings

- To be announced (next TC in June tbc)

- The OGC Energy & Utilities DWG recommends that the OGC Technical Committee approve release of # 20-083 “Building Energy and Mapping Analytics Concept Development Study” as an OGC Engineering Report.

- There was no objection to unanimous consent

Concept Development Study which outlines findings from Request for Information, opportunities and recommendations, toward building energy mapping and analytics, energy SDI, and standards R&D.

Closing Plenary Reports without motions

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3DIM Closing Plenary Report

F Biljecki, D Graham, C Rönsdorf

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The most important thing for this WG is...

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Indoor location and asset tracking



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- Scaling Location Services and Indoor Mapping in Healthcare, Kevin Ferrys, Large Health Provider
- IMDF-as-a-service, Judd Swanson, EVS
- Future topics to be discussed in 3DIM, co-chairs

- Discussion topics

- Location Services and Indoor Mapping in Healthcare
- Practical use of IMDF

- Upcoming deliverables

- none

- Coordination (ongoing and planned)

- CityGML
- Portrayal

- Future meetings

- next Member Meeting

- Building a larger indoor mapping community
- Discussion about future topics to be discussed in 3DIM DWG
- Need for user guidance relating to 3DIM standards

Blockchain and DLT Working Group

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The most important thing for this WG is...

Understanding the use of DLT and Blockchain with geospatial data

Find and discuss use cases to identify a need for standardization activities

Build Partnerships with Specialised organizations working on DLT standards

Blockchain and Distributed Ledger Technologies DWG

March 26th, 9:00 AM - 10:30 AM (Room D)

Blockchain and Distributed Ledger Technologies DWG

The OGC Blockchain Distributed Ledger Technologies (BDLT) DWG operates to build understanding of blockchain and distributed ledger technologies, as well as to identify the potential requirements for geospatial standardization within those technologies.

Project: **Blockchain and Distributed Ledger Technologies DWG** ([read more...](#))

Reserved By: **Gobe Hobona**

Facilitator: **Athina Trakas**

Session Agenda Items

Speaker: John IV (Astral Protocol)

Presentation: Exploring the Web3 spatial universe (20 min)

Speaker: Kumar Navulur (Maxar)

Presentation: Evolving Customer needs for Data integrity and Trustworthiness (20 min)

Speaker: Nane Tsolma (Satelligence)

Presentation: From Farm to Table: EO data integration to blockchain-based food supply management platforms (20 min)

Speaker: Valantis Tsiakos (ICCS)

Presentation: AquaChain: Enhancing traceability and tracking in Aquaculture and fisheries supply chain through the use of Blockchain and Earth Observation (20 min)

Speaker: All (All)

Presentation: Discussion of Next Steps for the DWG (10 min)

- Discussion topics

- Review of the use cases
- Decentralised decentralized applications that use spatial data
- Data security and traceability

- Upcoming deliverables

- Finalized Category A ISO TC 307 liaison - The ballot to approve the liaison relationship is currently open and will close on 29 April
- Draft text of the OGC – INATBA MOU - pending

- Coordination (ongoing and planned)

- n/a

- Future meetings

- Closer cooperation with key standardisation organisations (ISO/ INATBA)

CDB SWG

Closing Plenary Report

David Graham

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CitSci DWG

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Joan Masó

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An extension fo STA to include the needs for Citizen Science (capturing the citizen, the licence, the campaign and the relation between observations) is slowly maturing.



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- Citizen Science 2on Interoperability Experiment
 - Joan Masó
- Sensor Things API extension for Citizen Science
 - Andreas Matheus et al.

- Discussion topics

- The STA4CS elements. Could they be useful beyond CitSci?

- Upcoming deliverables

- Discussion paper on the STA extension

- Coordination (ongoing and planned)

- Data quality
- STA.SWG

- Future meetings

- next Member Meeting

Coverages SWG Closing Plenary Report

J. St-Louis, P. Baumann, S. Meißl

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DQ DWG Closing Plenary Report

Ivana Ivánová, Matt Beare, Joan Masó,
Sam Meek

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Continue the efforts in developing guidelines for curating FAIR data quality information in collaboration with all scientists, incl. citizen scientists.



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- Welcome
- Presentations:
 - Ge Peng: Developing Community Guidelines for FAIR Dataset Quality Information
 - Ivana Ivánová: ISO/TC211 Data Quality Standards: ISO 19157-1 and ISO 19157-3
 - Lucy Bastin & Peter Mooney: Data Quality Considerations in Citizen Science
- Discussion

- Discussion topics

- ISO 19157-1 & ISO 19157-3
- Guidelines for FAIR data quality information
- Data quality in citizen science

- Upcoming deliverables

- n/a

- Coordination (ongoing and planned)

- with ISO/TC211 on ISO 19157-3
- With ESIP IQC on the guidelines
- With Citizen Sci DWG on DQ for Citizen Sci

- Future meetings

- next Member Meeting

Discrete Global Grid Systems DWG

Closing Plenary Report

Matthew Purss

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A key focus of this group at the moment is the scoping and requirements gathering to support and guide the DGGS SWG in the drafting of the OGC API DGGS specification.



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- Introduction and logistics
- Discussion/Presentation of OGC API Common Architectures
- Early work towards a common DGGS query language
- Summary and discussion of key Learnings from Testbed-16
- Application of DGGS resources to Modular OGC API Workflows
- Discussion: Paving the way towards an OGC API DGGS Specification

- Discussion topics

- OGC API Common Architectures
- Recent work in the DGGs API Space
- The path towards an OGC API DGGs specification

- Upcoming deliverables

- Review of existing/prior DGGs API implementations, their touch points with other OGC API standards – OGC June Members Meeting

- Coordination (ongoing and planned)

- Engagement with all relevant OGC API SWGs to help determine key patterns and structures for DGGs APIs to assist the DGGs SWG in its task of drafting the OGC API DGGs implementation standards.
- Engagement with the OGC Innovation Program to review outcomes from planned OGC DGGs API code sprints to be conducted in 2021.

- Future meetings

- Next Virtual Meeting – OGC June Members Meeting.
- Big Earth Data – Special Issue: “Global Reference Grids for Big Earth Data”
 - Paper submission deadline 1 May 2021

- Review of DGGS API implementations and their alignment with existing OGC API Standards to define the appropriate scope of a OGC API DGGS Specification.
- Ongoing work to develop and implement the OGC DGGS Registry will continue into 2021, in close coordination with the OGC API DGGS activities.

Big Earth Data – Special Issue: “Global Reference Grids for Big Earth Data”

https://think.taylorandfrancis.com/special_issues/big-earth-data-global-reference-grids-for-big-earth-data/

- This special issue aims to focus on recent progress and developments in the design, specification and application of global reference grid systems for Big Earth data. Submissions may be in the form of review/discussion papers, research papers, data papers or technical notes. Potential topics include (but are not limited to) the following:
 - Global tessellation methods
 - Geospatial data management using global reference grids
 - Discrete Global Grid Systems
 - International Standards and global reference grids
 - Global Reference Grids in practice
 - Data fusion and interoperability using global reference grids

Important Dates:

Paper Submission:	1 May, 2021
Decision to Authors:	1 July, 2021
Revised Paper Submission:	1 September, 2021
Publication:	November, 2021

[Instructions for Authors](#)

Please submit it through the [Taylor & Francis Submission Portal](#), ensuring that you select the appropriate Special Issue. Publication charges (APCs) will be waived for invited manuscripts submitted to Big Earth Data. Authors who need a waiver code should contact the Editorial Office (quanll@aircas.ac.cn) before submitting.

Discrete Global Grid Systems SWG Closing Plenary Report

Matthew Purss

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EO Exploitation Platform DwG

Closing Plenary Report

C.Lopes & C.Lynnes

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The work on the “Best Practice for Earth Observation Application Package”



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- 1) Welcome & Introduction
Chairs – 5m
- 2) Demonstration of client-driven workflows chaining OGC API processes and data
Jérôme St-Louis (Ecere)- 25m
- 3) Update on the OGC Earth Observation Cloud Platform Concept Development Study
Johannes Echterhoff (ii - as OGC) - 10m
- 4) OGC Best Practice for Earth Observation Application Package
Pedro Gonçalves (Terradue), 20m
- 5) ESA's EO Common Architecture - Overview and Status
Richard Conway (Telespazio UK), 15m
- 6) AoB (buffer) – time left

- Discussion topics

- How API-Processes supports DwG work/interests
- 3 out of 4 presentations made this link evident.

- Upcoming deliverables

- Best Practice for “Earth Observation Application Package” draft is available for review.

- Coordination (ongoing and planned)

- API Processes (basis for the EO Apps BP)

- Future meetings

- Web meetings to advance work on draft BP
- Next MM, dedicated discussion to close any crucial topics

- A draft version of the Best Practice for “Earth Observation Application Package” now exists at:

<https://gitlab.ogc.org/ogc/eoap-best-practice>
- The DwG needs to review and improve it to reach a final version.
- There is a clear realization that API Processes (core and some extensions) are crucial for the work that is on-going.

EDM DWG Closing Plenary Report

Don Sullivan

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The most important thing for this WG is...

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One thing that is most important for this WG is continuing the coordination with other DRR and EDM stakeholders



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- ITU/WMO/UNEP Focus Group on Artificial Intelligence for Natural Disaster Management (FG-AI4NDM)
Dr Monique Kuglitsch, Chair ITU/WMO/UNEP FG-AI4NDM
- US Department of Defense Implementation of Next Generation 9-1-1 (NG911) Geospatial Mapping
Dave LaBranche, OASD
- ESIP Disaster Lifecycle Cluster Update
- Operational Readiness Levels (ORLs) & Secure Data Sharing Across Platforms, Devices and Sectors
Karen Moe and/or Dave Jones, NASA/StormCenter Communications
- GEO Disaster Risk Reduction WG Brief
Dave Borges, NASA
- Mobile geo-communications
David Hammel, Balcony
- Update on the Disaster Pilot '21
Josh Lieberman/Marie-Francoise Voidrot, OGC

EDR API SWG Closing Plenary Report

Chris Little

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Features API SWG Closing Plenary Report

Clemens Portele, Panagiotis (Peter) Vretanos

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GeoAI DWG Closing Plenary Report

Kyoung-Sook Kim, Tien-Yin (Jimmy) Chou,
Anneley Hadland, Dimitris Kotzinos, Ashley Antonides

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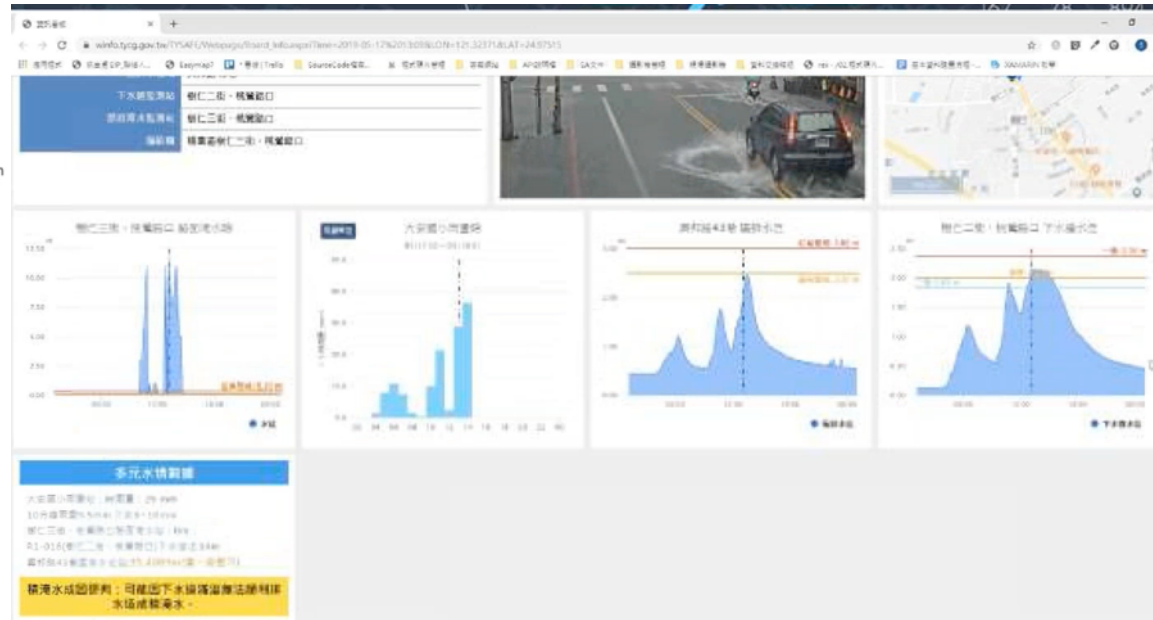
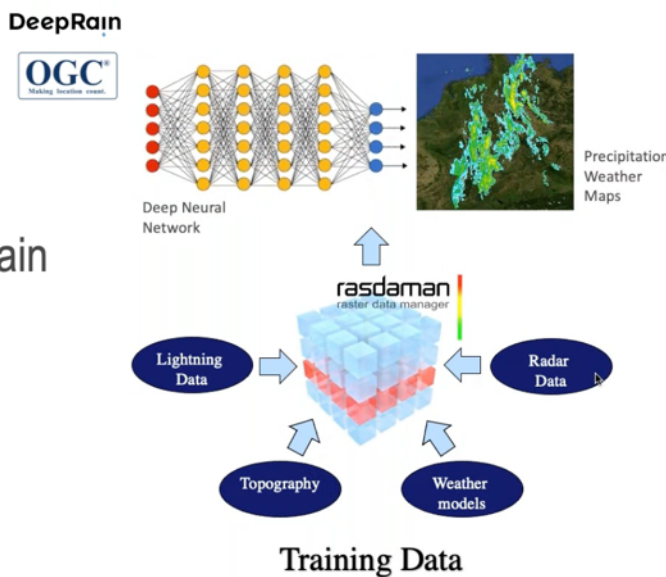
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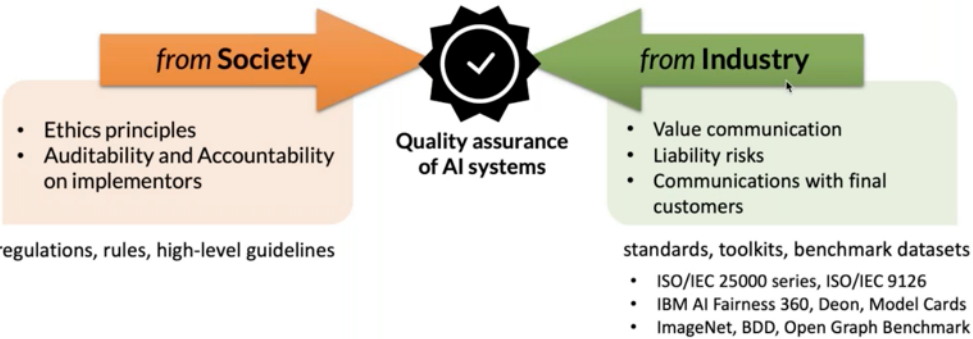


DeepRain: Improving Mountaneous Rain Forecast through AI on Datacubes

GeoAI DWG, 2021-mar-23
Peter Baumann, Otoniel Jose Campos Escobar



- AI Trustworthiness and Reliability
 - Hot topic due to regulatory landscape (e.g. European privacy laws; discussions about social media engines)
 - Key stakeholders view this as a necessary area for the success and broad market adoption of AI



GeoAI White Paper

- Introduction to GeoAI
 - What it is;
 - What we would like to include/cover in this White Paper?
- GeoAI Research and Development
 - Subjects
- Standards in GeoAI (OGC's role)
- Ethics, trust and transparency in GeoAI
- Recent initiatives
- OGC specific initiatives
- Recommendations and conclusions

Legal & Ethical Issues

- **Legal Frameworks**
 - Create ethical laws
 - Protect rights to data use & ownership
- **Ethical Frameworks**
 - Many for data in general
 - International, national, commercial
 - Few for spatial data

Responsible Use of Spatial Data (W3C)

- March 23rd, 9:00 AM - 10:30 AM (EDT)

9:00 - 9:05	Introduction: Kyoung-Sook Kim
9:05 - 9:20	DeepRain: Improving Mountaneous Rain Forecast through AI on Datacubes: Otoniel Jose Campos Escobar
9:20 - 9:35 Postpone schedule	Satellite powered Operations & Maintenance for core industries : an introduction: Abhishek Singh (AiDash)
9:35 - 9:50	Responsible Use of Location Data: Rob Smith (Away Team)
9:50 - 10:00	AI/ML Quality Management: Kyoung-Sook Kim (AIST)
10:00 - 10:15	First Deliverable: GeoAI White Paper: Dimitris Kotzinos (CY Cergy Paris University)
10:15 - 10:30	The Application of GeoAI on Edge Computing for Flood detection: Tien-Yin (Jimmy) Chou (Feng Chia University)

- Discussion topics

- Improving local precipitation forecasts with deep learning
- EarthServer Datacube Federation
- Feedback to W3C/OGC Spatial Data on the Web
- Data quality
- Automatic interpretation of road flooding images

- Upcoming deliverables

- GeoAI White Paper

- Coordination (ongoing and planned)

- ISO/IEC JTC1 SC42
- Health DWG
- Data Quality DWG
- GeoPose SWG
- Moving Features SWG

- Future meetings

- Teleconference in May
- Next TC meeting

GeoPackage SWG Closing Plenary Report Jeff Yutzler

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GeoPose SWG Closing Plenary Report

Christine Perey, Jan-Erik Vinje, Jeremy Morley

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Interoperable Simulation & Gaming Domain Working Group Closing Plenary Report

David Graham, Lance Marrou

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Continuous and expanding outreach and collaboration. In this meeting we had a presentation of the USGIF/OGC Joint Position Paper.



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Session Agenda

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09:00-09:05am	Introductions, Admin Setting the Stage	ISG DWG Chairs	Confirmed
08:05-09:25 [total time, including Q&A]	Joint OGC/USGIF Modeling, Simulation and Gaming Technical Paper [OGC 20-085r1]	Stuart Blundell Presagis	Confirmed
09:25-09:45 [total time, including Q&A]	NGA FG3D Current Status	Andy Claar NGA	Confirmed
09:45-10:05 [total time, including Q&A]	Building extraction and reconstruction at global scale	Tom Richter-Trummer Blackshark Ai	Confirmed
10:05-10:25 [total time, including Q&A]	Game-engine agnostic Earth Server	Pete Morrison Bohemia Interactive Simulators	Confirmed
10:25-10:30	Discussion	Time permitting	



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- Discussion topics

- NGA Metadata requirements from FG3D and follow on program(s)
- Shameless plug for stakeholder involvement in the CDB SWG, particularly as we are involved in establishing the scope of both major and minor revisions

- Coordination (ongoing and planned)

- CDB SWG, GeoPackage SWG, TMS and API SWGs
- SISO
- USGIF MSGWG

- June Member Meeting

Key a

OGC CDB Roadmap 2021
updated 210319
Current version of the Standard:
OGC CDB V1.2 and Multi-Special
Extension; v1.2 schemas

• CDB

OGC CDB 1.2 Standard Maintenance and Development

CDB 1.2.1
Corrigendum
Development

CDB 1.3 Minor
Revision
development

Change Request

Proposals (CRPs)

OGC CDB 2.0 / OGC CDB - X Development of a major revision to CDB!

! Approve revised SWG Charter / Tasks

! Encourage early implementers of OGC
CDB 1.0 CITE Tests

? Increased
Geopackage
functionality?

! Modernized
approach to
attribution?

? New
Feature
Encoding
for Indoor?

! Update DIS Country
Codes; Add ISO
Alpha3Code

Establish CDB V1.2.1
Corrigendum Scope

Establish CDB V1.3
Scope

Moving towards
scope freeze

Establish CDB 2/X Scope

Representation of weather
in Synthetic
Environments, particularly
interaction between
weather and "the terrain"

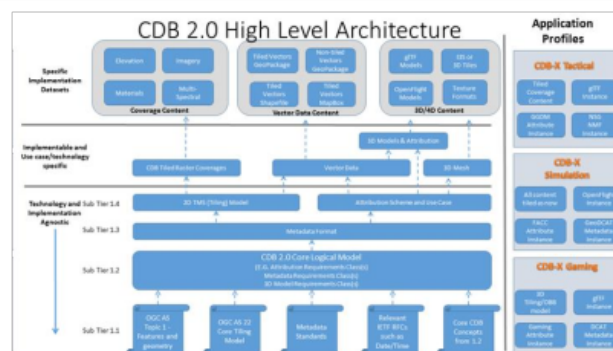
3D ER
recommendations

! Tiling/Coverages
ER
recommendations

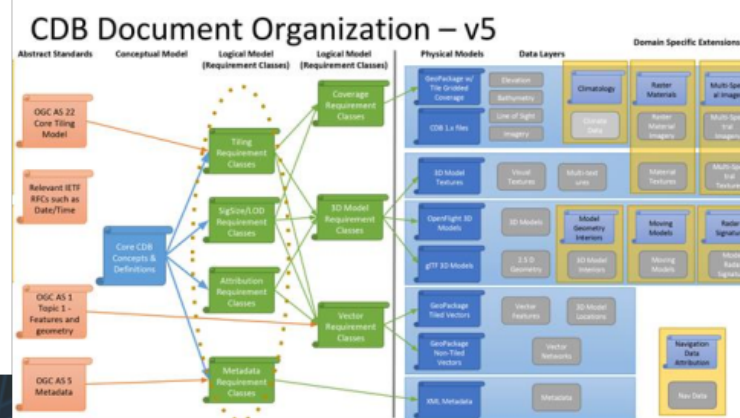
! Attribution ER
recommendations

Planning
Deadline
V1.2.1
Corrigendum
Scope Freeze

Planning
Deadline
V1.3 Scope
Freeze



! Approve and make Public the Tech Sprint ER reformatted as
an OGC Public Discussion Paper



LandInfra DWG Closing Plenary Report

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Kickstart adoption of LandInfra, it has been nonexistent so far.

Main reasons: Market sticking to LandXML and high expectations for IFC for infra



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Open discussion on future of landInfra and InfraGML Leif Granholm and HC Gruler

- Discussion topics

- Open discussion on future of landInfra and InfraGML

- Upcoming deliverables

- ?

- Coordination (ongoing and planned)

- Collaboration with ISO LADM group on LandInfra:s role in LADM renewal, mostly about surveying and filed work

- Future meetings

- virtual meeting in 3-4 weeks

- Discussion about reasons for slow uptake and implementations. Mainly hanging on to LandXML despite its problems and high expectations for IFC Infra, specifically by road authorities.
- Most promising adoption project is Australia and New Zealand Cadastral field work renewal project. Current system based on LandXML and renewal project ongoing. They are looking for a replacement for LandXML and LandInfra/InfraGML is a strong candidate. Byron Cochrane from Openwork that is participating in the renewal project presented the project.
He was told that LandInfra will give any required support to the project. A meeting in about 3 weeks time was agreed.
- One reason for slow adoption is also lack of support material and examples.
- One possible activity would be to analyze differences and similarities of LandInfra and IFC to direct promoting and further development of Landinfra and create lebensraum for it.
- Scope of LandInfra needs to be revised, current on mostly about succeeding LandXML

Met Ocean DWG Closing Plenary Report

Chris Little, Steve Olson

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OGC API-EDR passing PC vote



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- Welcome and Opening Remarks (5 min) Chris Little, Steve Olson (Met Office, NWS)
- Co-Chair Update (5 min) Chris Little, Steve Olson (Met Office, NWS)
- Update on EDR API:
 - Review TC vote comments, proposed changes, outstanding issues, including renaming (5 min) Chris Little
 - Update on Sprint activities, outcomes (10 min) Steve Olson, Tom Kralidis (NWS, MSC)
 - Coordination with other OGC API SWGs (10 min) Chris Little, Steve Olson (Met Office, NWS)
 - Coordination with other OGC SWGs (5 min) Chris Little, Steve Olson (Met Office, NWS)
 - Current EDR implementations (5 min) Mark Burgoyne, Shane Mill, Tom Kralidis (Met Office, NWS, MSC)
 - Update on pygeoapi & EDR/API Records search engine/metadata (10 min) Tom Kralidis, Shane Mill (MSC, NWS)
 - CITE Testing of existing implementations (5 min) Gobe Hobona (OGC)
 - Future Work Plans and future EDR implementations (10 min) Chris Little (Met Office)
- Any Other Met Ocean Business? (20 min)



- Discussion topics

- Repeat call for a 3rd Co-Chair
- Mismatch of O&M, Feature and Coverage views
- Develop OGC based custom weather processes

- Upcoming deliverables

- EDR API before PC
- TimeseriesML
- More EDR API implementations

- Coordination (ongoing and planned)

- Explore liaison with Marine SDI work
- Explore EDR API links with:
 - Maps/Tiles/Styles in a Sprint
 - ISG/CDB
 - Routing and trajectory and IWXXM

- Future meetings

- More regular telcos, not about EDR API
- Next Member Meetings, of course
- Will look for opportunities to promote OGC standards, and the Web APIs in particular in WMO

- EDR API SWG

- Another EDR API implementation: pygeoapi plugin, Tom Kralidis, MSC
- Collaboration with API Records on Met Ocean Metadata Profiles and authoritative registries

- The EDR API and API-records joint work on addressing MetOcean metadata profiles to be promoted in WMO, and GEO, community

MF-SWG Closing Plenary Report

Mahmoud SAKR

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MUDDI SWG Closing Plenary Report

A Hughes, A Leidner, C Rönsdorf

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OGC API-Common Closing Plenary Report

Chuck Heazel

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OGC API – Processes SWG Closing Plenary Report

Benjamin Pross

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OGC API Records

Closing Plenary Report

Panagiotis (Peter) A. Vretanos

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OGC API Tiles

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Joan Maso

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OGC Naming Authority SC

Erik Stubkjær, Gobe Hobona

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- OGC-NA wishes to inform the TC that the OGC-NA is looking into the use of the QUDT ontology as the OGC ontology for **units of measure**.



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- A new look for the OGC Definitions Server - Rob Atkinson (OGC / Metalinkage)
- Case for using QUDT for units of measure - Nicholas Car (SURROUND Australia)
- Registration of AUTO and AUTO2 authorities - Gobe Hobona (OGC)
- Registration of data-meta relation type - Chuck Heazel (Heazel Tech)
- Register GML 3.2 Simple Features media type profile – Gobe Hobona (OGC)

- Discussion topics

- New user interface for the OGC Definitions Server
- Use of QUDT for Units of measure
- Registration of AUTO, AUTO2 crs authorities
- Registration of the data-meta relation type and GML 3.2 media types
- The level of detail in proposals sent to the OGC-NA

- Coordination (ongoing and planned)

- OGC API SWGs regarding relation types
- QUDT community regarding governance and maintenance

- Upcoming deliverables

- Reviewing content on the newly upgraded OGC Definitions Server
- New registrations

- Future meetings

- Next Member Meeting

- Extraction of specification element URIs from OGC documents
- Registration of names of resources
- Management of the OGC Definitions Server

- Proposals to the OGC-NA should be made more explicit in terms of the definitions of objects being discussed and the implications for behavior of identifiers in a Web.

- **OGC-NA wishes to inform the TC that the OGC-NA is looking into the use of the QUDT ontology as the OGC ontology for units of measure.**
- This is coming from the GeoSPARQL SWG as a requirement
- UCUM is now a profile of the QUDT
- Governance, stability, and deprecation mechanisms are being considered
- Comments and input from the TC is encouraged
- The URL to QUDT is <http://qudt.org/>

- OGC-NA recognizes that AUTO and AUTO2 have been in use for a long time and therefore does not object to AUTO and AUTO2 being registered as Authorities.
- OGC-NA however observes that this is an unusual use of the term 'authority'.

```
application/gml+xml; version=3.2;  
profile="http://www.opengis.net/def/profile/ogc/2.0/gml-sf0"
```

- See [Requirement 39](#) in OGC API – Features – Part 1.
- Related [Issue 381](#).

Portrayal DWG Closing Plenary Report

Keith Ryden

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Establish a common vision and scope for describing the portrayal of symbols, and their encoding.



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- Styles and Encoding SWG Chair - proposed addition of Co-Chair to the Styles and Encoding SWG
- Update – Styles and Encoding SWG work update from December
- Discussion – Styles and Encoding SWG work direction -
 - - encodings (xml, json, css) existing work examples from testbed 14:
<https://docs.opengeospatial.org/per/18-029.html> [docs.opengeospatial.org]
<https://docs.ogc.org/per/18-025.html#StylingModel> [docs.ogc.org]
<https://av.tib.eu/media/43578> [av.tib.eu]
 - And from Testbed 15:
<https://docs.ogc.org/per/19-018.html> [docs.ogc.org]
<https://maps.ecere.com/ogcapi/collections/Daraa/styles> [maps.ecere.com]
<https://maps.ecere.com/ogcapi/collections/osm:ottawa/styles> [maps.ecere.com]
 - Vector tiles case from Testbed 13:
<https://docs.ogc.org/per/17-041.html#Styling> [docs.ogc.org]
- Organizational discussion - June Members Meeting - Member organization demonstrations of Portrayal capabilities.

- Discussion topics

- Pending call for approval in the Styles and Encoding SWG to add Jerome St-Louis as a co-Chair
- General discussion on style and encoding requirements
- June Member Meeting presentations on Portrayal

- Upcoming deliverables

- none

- Coordination (ongoing and planned)

- Ensure coordination with the API-Styles SWG

- Future meetings

- Coordinate a June meeting Portrayal DWG that brings in presentations on portrayal requirements and capabilities from a broad cross section of the OGC and industry.

SensorThings Closing Plenary Report

Steve Liang

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SDWIG Closing Plenary Report

Jeremy Tandy, Linda van den Brink

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Re-chartering as a working group



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- Update of the Spatial Data on the Web Best Practices, including PR #1247. See [1]
- Responses to our SDWWG charter review, including discussion on including spatial accessibility in SDW work. See [2]

[1] : <https://github.com/w3c/sdw/pull/1247>

[2] : <https://lists.w3.org/Archives/Public/public-sdwig/2021Mar/0007.html>

- Discussion topics

- Update of the SDW best practices with new DCAT work

- Upcoming deliverables

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

- Coordination (ongoing and planned)

- W3C
- See charter for specific groups

- Future meetings

- Monthly web meeting, see [agenda](#)
- <next Member Meeting>
- <special forum or conference>

TimeseriesML Closing Plenary Report

Paul Hershberg

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University DWG Closing Plenary Report

Steve Liang, Alex Kmoch

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The Commissioning Geospatial Research (CGR) study should continue to Phase 2.



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- Update from the Commissioning Geospatial Research study - Gobe Hobona, Danny Vandenbroucke, Stefano Cavazzi (OGC, KU Leuven, Ordnance Survey)
- Introduction to the Association of Geographic Information Laboratories in Europe (AGILE) - Alex Kmoch (University of Tartu)
- Election of additional Chair
- University DWG representation on the Planning Committee

- Discussion topics

- Interim results from Phase 1 of the Commissioning Geospatial Research study
- Initiatives of the Association of Geographic Information Laboratories in Europe (AGILE)
- OGC should continue to collaborate with AGILE
- University representation on the Planning Committee

- Coordination (ongoing and planned)

- AGILE
- Planning Committee

- Upcoming deliverables

- None at the moment

- Future meetings

- Strategic planning meeting for the DWG (post pandemic)
- Next Member Meeting

- Commissioning of Geospatial Research (CGR) Study
- Engagement with alliance partners such as AGILE and EuroSDR
- Continuous review of OGC e-Learning content
<http://opengeospatial.github.io/e-learning/index.html>

- Proposal for GIS.FCU to take on additional role of representing the 97 University members at the Planning Committee
- Reason being that GIS.FCU is the only university that sits on the Planning Committee
- Proposal for one of the 3 TC reps to be from academia

- The University DWG has historically had 3 Chairs. There is currently a vacancy in the team of Chairs. The University DWG therefore elects Dr Alexander Knoch of the University of Tartu to serve as a Chair of the University DWG.
 - There was no objection to unanimous consent
- Dr. Alexander Knoch is a Distributed Spatial Systems Researcher with many years of experience in geospatial data management and web- and cloud-based geoprocessing with a particular focus on land use, soils, hydrology, hydrogeology and water quality data. His interests include OGC standards and web-services for environmental and geo-scientific data sharing, modelling workflows and interactive geo-scientific visualization. Alex is currently a Marie Skłodowska-Curie Individual Fellow (MSCA) at the University of Tartu where his aim is to improve standardized data preparation, parameterization and parallelisation for hydrological and water quality modelling across scales (H2020 GLOMODAT).

Motion to approve the CGR Study moving to Phase 2

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- The University DWG approves that the Commissioning Geospatial Research (CGR) Study may proceed to Phase 2, in order to help expand the dataset of responses.
- Result: There was no objection to unanimous consent

UxS DWG Closing Plenary Report

Don Sullivan

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Creating a common C&C standard for UxS



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- Discussion point: Name change to "Uncrewed Systems"
- Unmanned / Uncrewed Systems (UxS) Terminology 2021

Marcus Alzona, keys

- Update on GeoPose Video 1.0

Steve (Carl) Smyth, Open Site Plan

- UxS Command and Control Use cases

Teodor Hanchevici, Kongsberg Geospatial

- NASA SBIR efforts associated with UAS in the NAS and with UAS conops to address hyper-local weather now-casting/for-casting and to overcome the issues associated with ADS-B in high-density operations.

Ivan O. Clark, NASA