

Building the Future of Location at the Speed of Innovation

7 September 2021

The world's leading and comprehensive
community of experts making location information:



Findable



Accessible



Interoperable



Reusable



GeoSeer

The spatial data search engine

Search over **2 million** distinct spatial GIS **WMS** (Web Map Service), **WFS** (Web Feature Service), **WCS** (Web Coverage Service), and **WMTS** (Web Map Tile Service) datasets hosted on over **280,000 live services** from around the world.

OneGeology.Org

OpenIOOS.Org

CityGML

Emergency / Disaster Management

DigitalGlobe

Eurocontrol

Aviation Flight Information / Safety

Meteorology, Hydrology, Ocean Monitoring

Communication satellite

Modelling / Simulation

Pressure sensors

Seismic waves

Earthquake

<http://oos.soest.hawaii.edu/pacificsvoyager/news/2013/>

500+ Members

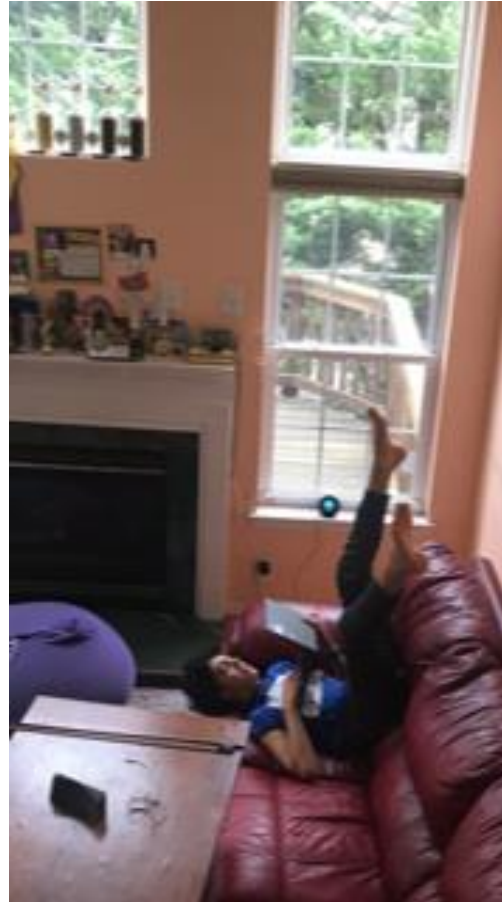
Mission

Approach

Products

Problems? What Problems?

Problem Number 1



<https://cesium.com/blog/2021/08/13/a-birds-of-a-feather-session-building-the-open-metaverse/>

Problem Number 2

12 : 45 : 87
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TOPIO Geospatial Location Landscape June 2021

OGC[®] Designed & Powered by
TOPIO



<https://www.ogc.org/node/4476>

Fast-forward to 2021: addressing new threats on a global scale

Climate Change

Global temperature
+2.1 degrees



Sea level
+ 3.1mm a year



Artic ice
- 13.1% a decade



Source: NASA

COVID Pandemic

Total cases in 2020
+ 80M



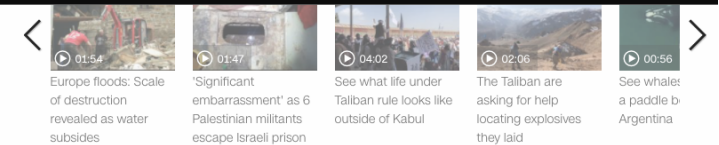
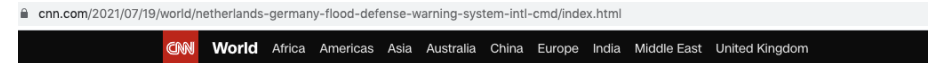
Active cases high
+20M



Pandemic spread
+210 territories



Source: World Health Organization



(CNN) — As communities devastated by the catastrophic flooding in parts of western Europe start picking up the pieces, they are wondering how it all went so wrong, so fast. After all, Europe has a world-leading warning system that issued regular alerts for days before floods engulfed entire villages.

But at least 195 people still died in Germany and Belgium, in floods that came quickly and forcefully. The Copernicus Emergency Management Service said it sent more than 25 warnings for specific regions of the Rhine and Maas river basins in the days leading up to the flooding, through its European Flood Awareness System (EFAS), well before heavy rains triggered the flash flooding.

But few of these early warnings appear to have been passed on to residents early -- and clearly - enough, catching them completely off guard. Now questions are being raised over whether the chain of communication from the central European level to regions is working.

"There was clearly a serious breakdown in communication, which in some cases has tragically cost people's lives," said Jeff Da Costa, a PhD researcher in hydrometeorology at the University of Reading in the United Kingdom.

Da Costa focuses on flood warning systems in his research, and his own parents' home in Luxembourg happened to be hit over the weekend. He said the experiences of the past week show there is often a gap between the weather warnings scientists issue and the actions actually taken by people in charge on the ground.

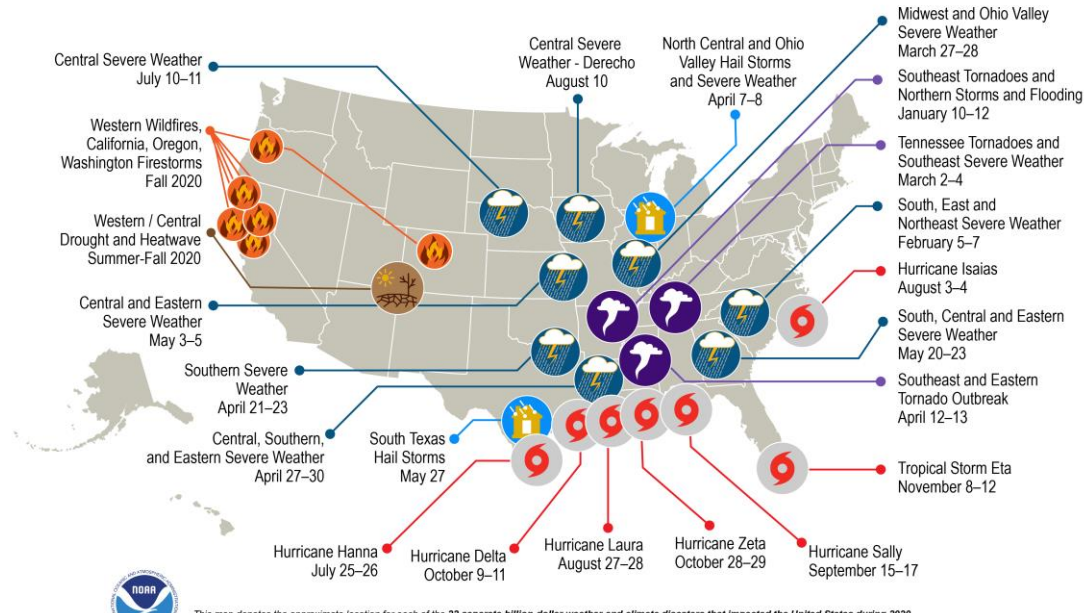
- A whole new generation of application developers
- A whole new generation of users/consumers with very different expectations re access to data
- A whole new ecosystem with many many players that are outside of geospatial
- And increasing threats at a global scale



<http://mars.nasa.gov>



U.S. 2020 Billion-Dollar Weather and Climate Disasters



2020 sets the new annual record of 22 events - shattering the previous annual record of 16 events that occurred in 2011 and 2017. 2020 is the sixth consecutive year (2015-2020) in which 10 or more billion-dollar weather and climate disaster events have impacted the United States. Over the last 41 years (1980-2020), the years with 10 or more separate billion-dollar disaster events include 1998, 2008, 2011-2013, and 2015-2020.

Share Like (2) Comment (1)

Apr 16, 2020 9:04 pm GMT 3200 views

Summary of a white paper prepared for the Geospatial Information & Technology Association by Geoff Zeiss and Dr. Sakura Shinoaki

Over the past two decades in the U.S. there have been over 400 fatalities and nearly 2000 injuries attributed to hitting underground infrastructure during excavations. For comparison over the past 20 years in the U.S., there have been about the same number of fatalities (403) resulting from major commercial airline crashes (excluding 9/11). In addition inaccurate and missing information about underground infrastructure increases the risk of construction project schedule and budget overruns. It has been estimated that unreliable location information about underground infrastructure represents a \$50 billion to \$100 billion drag on the U.S. economy, multiple £ billions in the U.K. and € 1 billion in the Netherlands. Comparing the United States and Japan reveals a startling difference in the number of incidents of underground utility damage during construction. In the U.S. the number of incidents is between 400,000 and 800,000 per year (roughly one or two every minute). For Japan the number of incidents in 2016 was 134. Clearly something can be done to reduce the risk for construction workers and the public.



<https://energycentral.com/c/pip/reducing-damage-underground-utility-infrastructure-during-excavation-costs>



<https://ogcapi.ogc.org/>

<https://www.youtube.com/watch?v=hNmZJ1itqfM>

OGC APIs – Building Blocks of the Future



Features

Approved Standard

OGC API - Features - Part 1: Core and Part 2: Coordinate Reference Systems by Reference are both publicly available.



Common

OGC API - Common provides those elements shared by most or all of the OGC API standards to ensure consistency across the family. The candidate standard will soon be released for public review.



Maps

OGC API - Maps offers a modern approach to the OGC Web Map Service (WMS) standard for provision map and raster content.



Tiles

OGC API - Tiles provides extended functionality to other OGC API standards to deliver tiled data, such as Map Tiles.



Styles

The OGC API - Styles defines a Web API that enables map servers, clients as well as visual style editors, to manage and fetch styles...



EDR

Environmental Data Retrieval (EDR) API provides a family of lightweight interfaces to access Environmental Data resources. Each resource addressed by an EDR API maps to a defined query pattern.



Records

OGC API - Records updates OGC's Catalog Services for the Web by building on the simple access to content in OGC API - Features.



Processes

OGC API - Processes allows for processing tools to be called and combined from many sources and applied to data in other OGC API resources through a simple API.

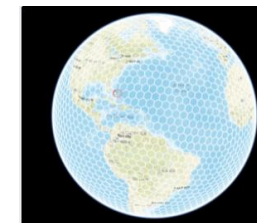


Coverages

OGC API - Coverages allows discovery, visualization and query of complex raster stacks and data cubes.

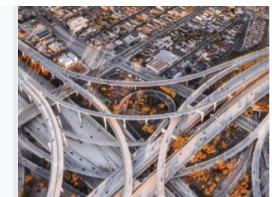


<https://ogcapi.org/>



DGGS

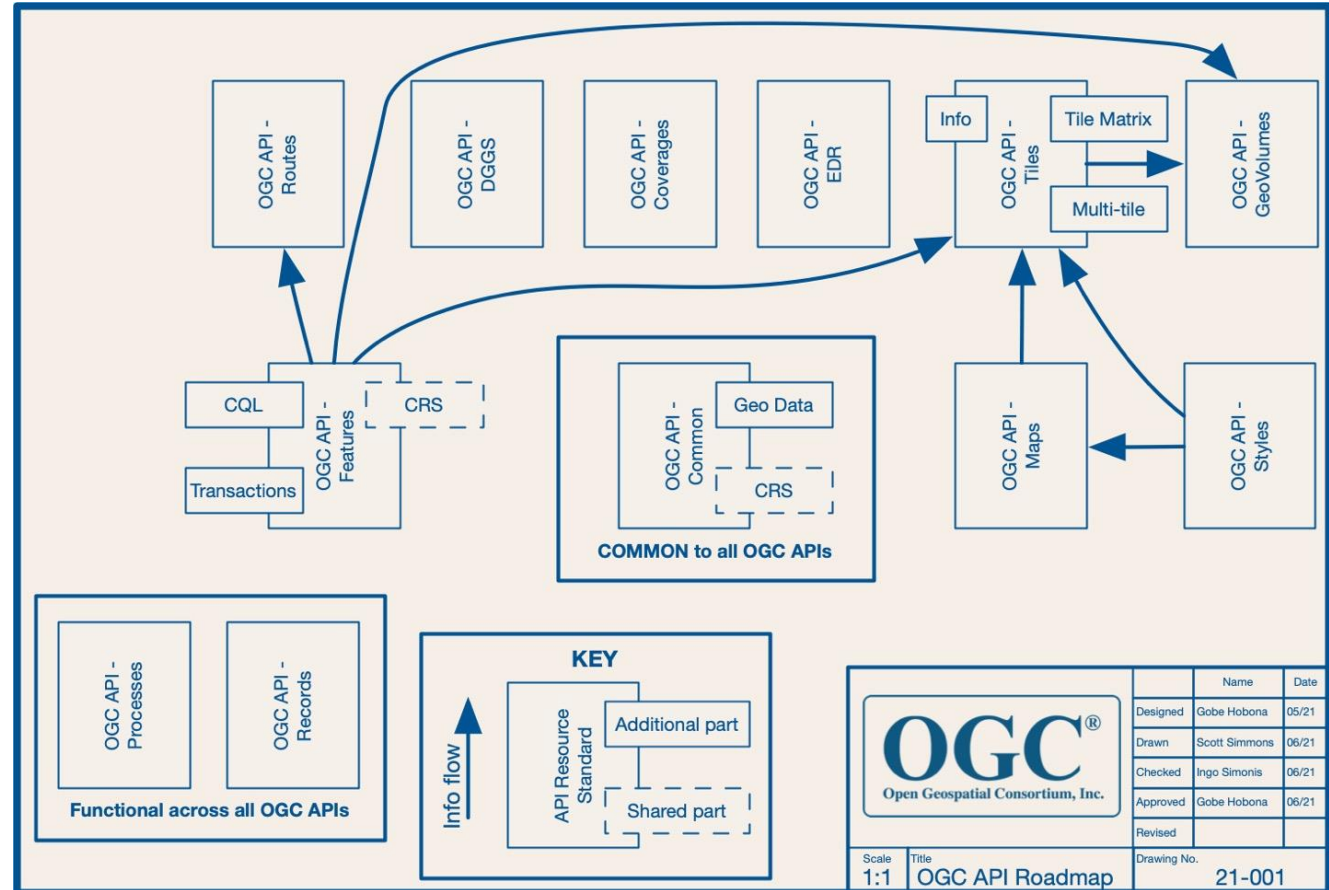
Enables applications to organise and access data arranged according to a Discrete Global Grid System (DGGS).



Routes

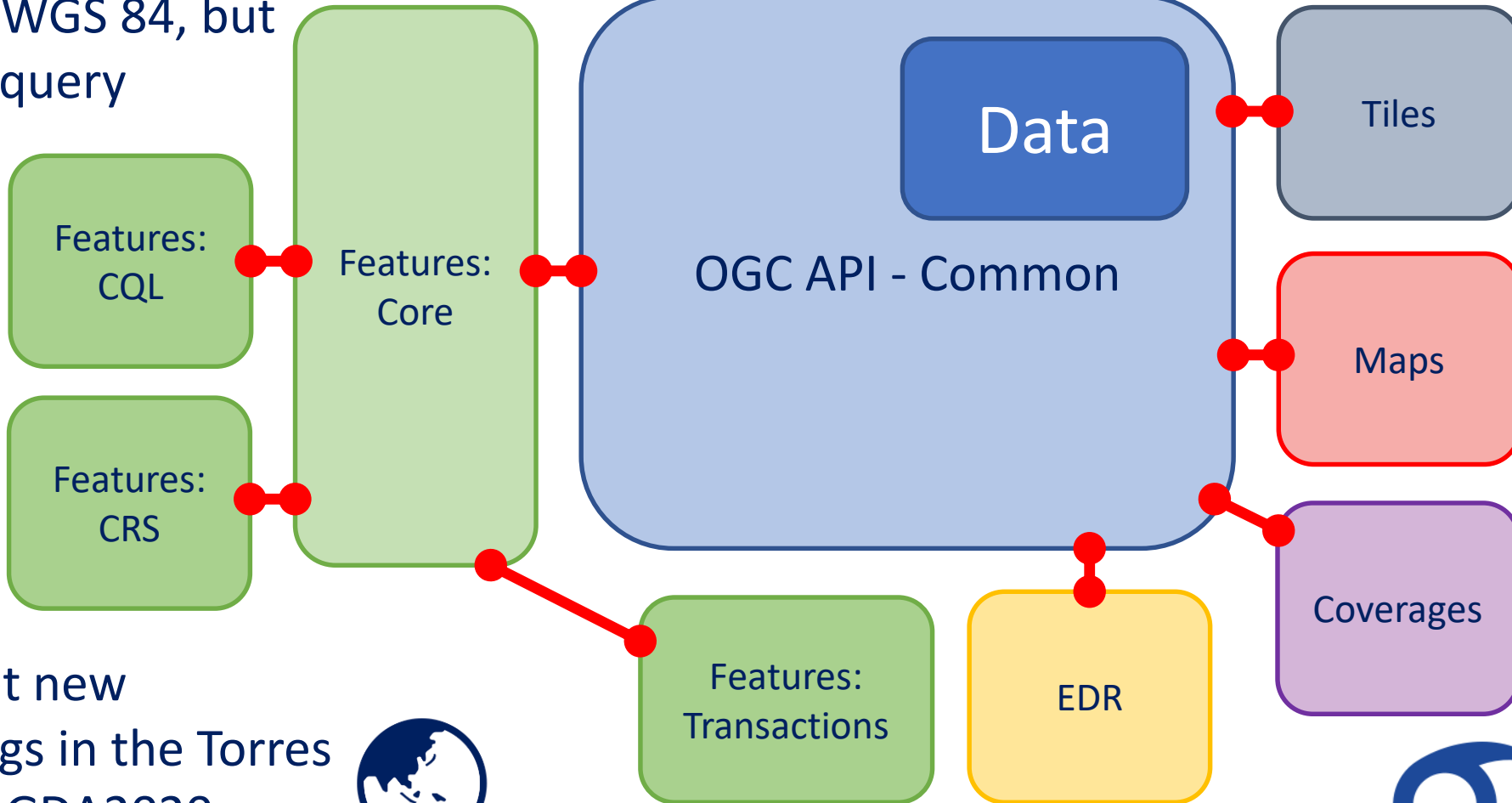
Enables applications to request routes in a manner independent of the underlying routing data set, routing engine or algorithm.

- “Building blocks” that can be used to assemble novel APIs for web access to geospatial content
- Defined with OpenAPI and published in discrete, easily implementable parts
- Ensure that geospatial data are “web native”



Deployment model example – building blocks

User: need a list of lights in WGS 84, but want to query



User: I want to look at charts on my phone

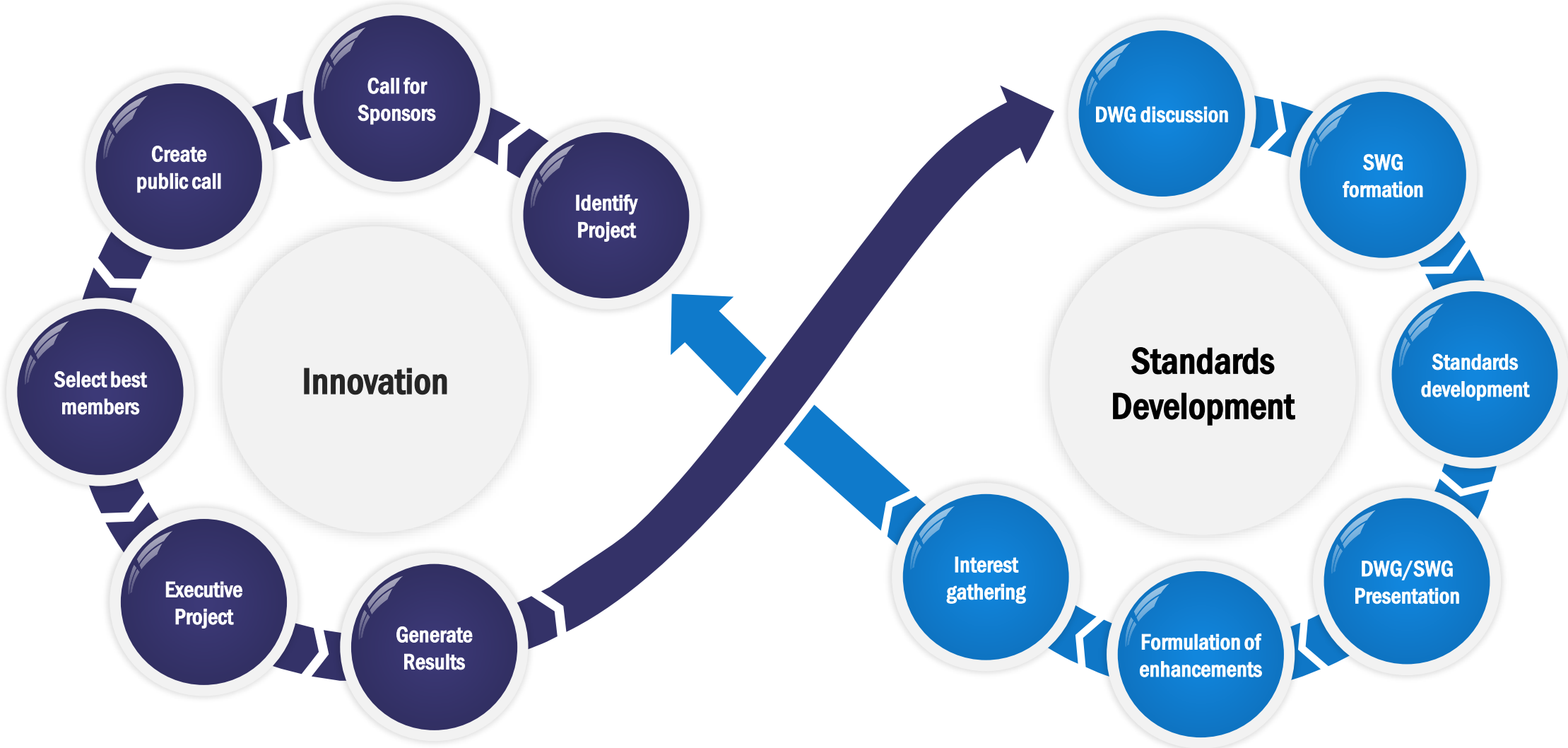


User: get new soundings in the Torres Strait in GDA2020



User: hurricane approaching, give me everything





- The whole ecosystem is changing (your kids and mine are part of it!)
- Together we need to evolve and modernize how we discover, access, use, integrate and share our data - any data that is associated with location
- The OGC APIs are part of that puzzle – our effort as a global community
- We are developing these standards literally at the pace of innovation

- We can't do that without strong committed partners like Geonovum in our community!

OGC

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DATA A
RT : IPR - 1 S
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1 - 0 B

Dr. Nadine Alameh nalameh@ogc.org

A
B
C
D

[5H]
24.67 - 87 A4

H - 11 - 784 - 8946
X - 52 | Y - 14 | Z - 27
48N 21E - 31.53

Thank You!

Community

- 540+ International Members
- 115+ Member Meetings
- 60+ Alliance and Liaison partners
- 50+ Standards Working Groups
- 45+ Domain Working Groups
- 25+ Years of Not for Profit Work
- 10+ Regional and Country Forums

Innovation

- 120+ Innovation Initiatives
- 380+ Technical reports

Standards

- 65+ Adopted Standards
- 300+ products with 1000+ certified implementations
- 1,700,000+ Operational data sets using OGC Standards

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