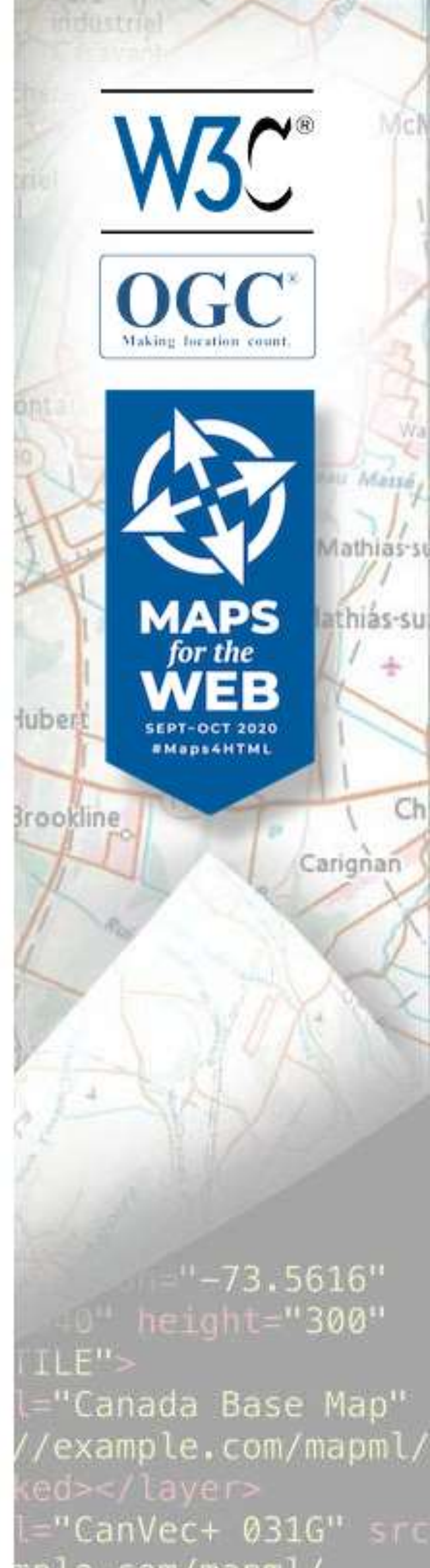


OGC API STANDARDS FOR WEB USE

Dr. Gobe Hobona
Open Geospatial Consortium

2020-09-22

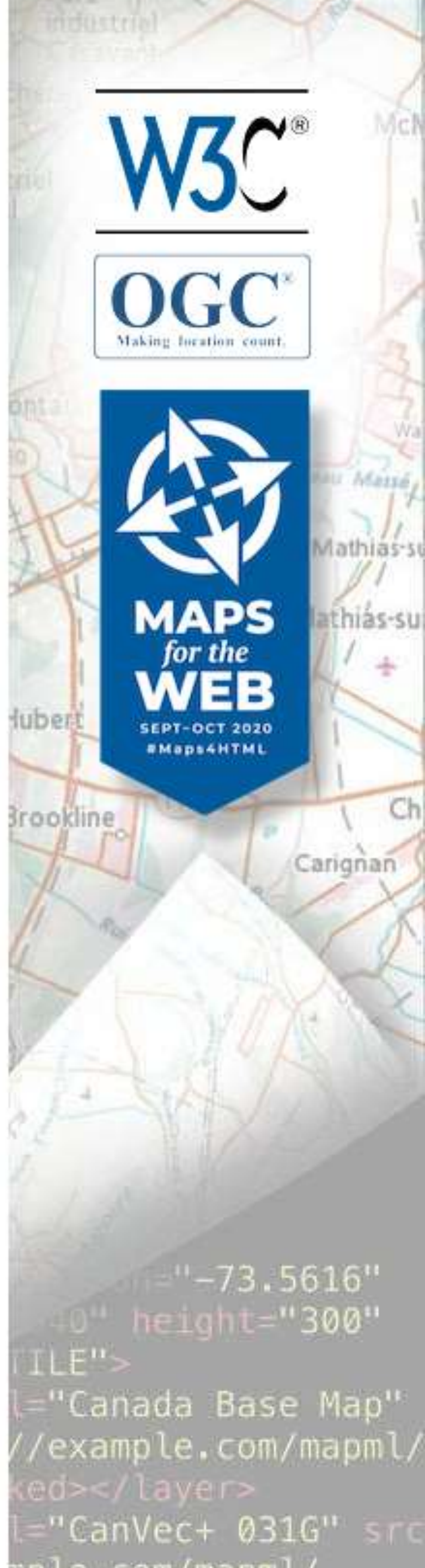
W3C/OGC Joint Workshop Series on Maps for the Web
w3.org/2020/maps/



Overview

- About OGC
- Background to OGC API development
- Motivation for developing OGC APIs
- Overview of OGC API standards
- Innovation initiatives
- How to get involved

#OGCAPI





What is OGC?

A Global consortium representing over 500 industry, government, research and academic member organizations:

A hub for thought leadership and innovation for all things related to location

A neutral and trusted forum for tackling interoperability issues within and across communities

A consensus-based open standards organization for location information

Who are our members?

The world's leading and comprehensive community of experts making location data more findable, accessible, interoperable and reusable

OGC

Commercial

- Business Development
- Competitive Technical Advantage
- Global; Brand Exposure
- Funding for Innovation

Government

- Innovation and Market Support
- Trusted Advice
- International Partnerships
- Operational Policy, Support, and Certification

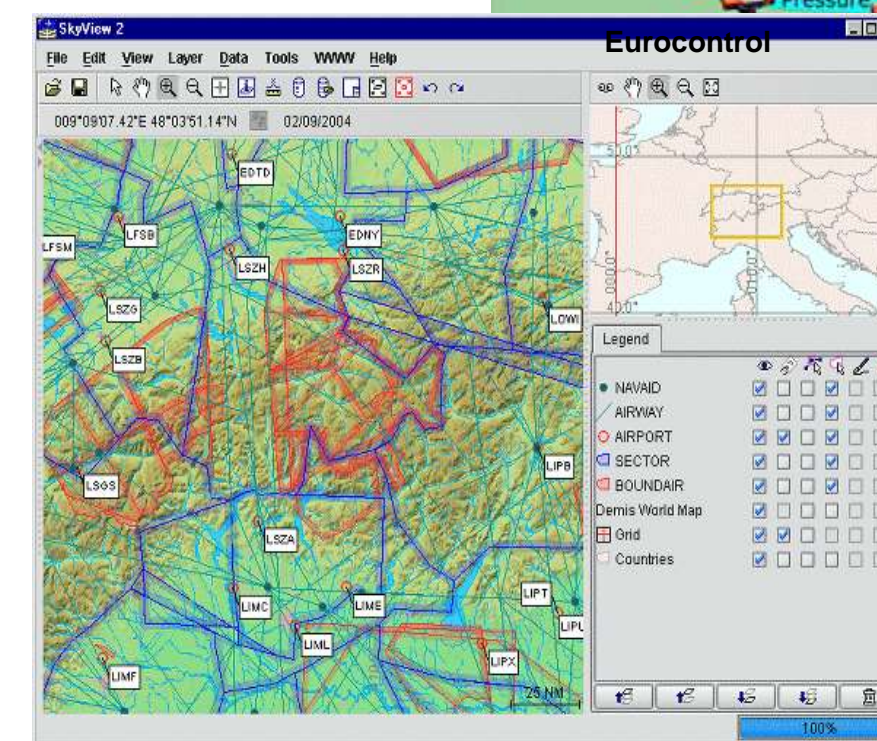
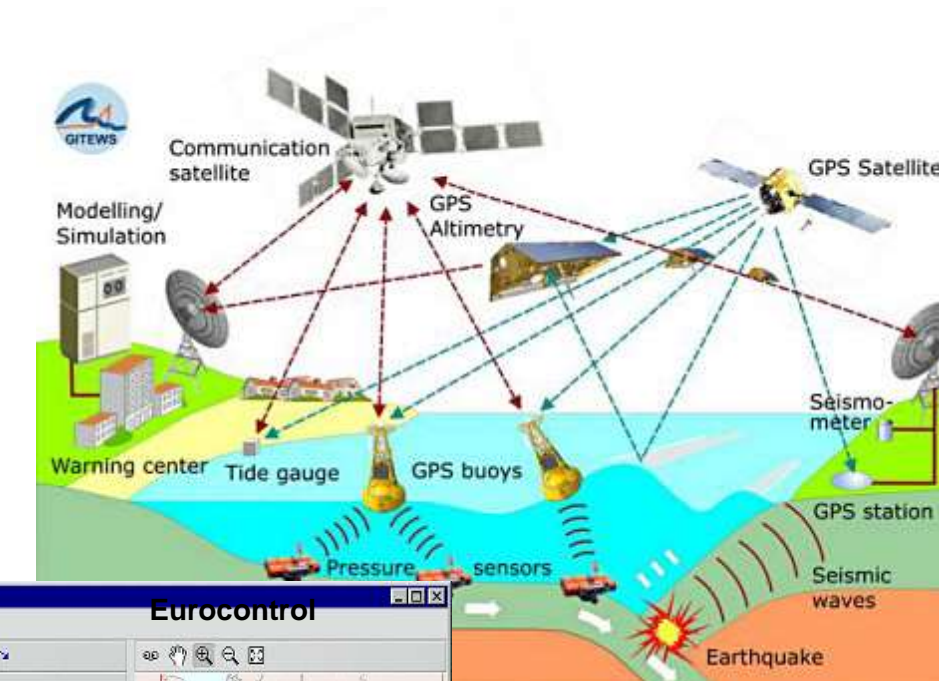
Research & Academia

- Applied Research Partners
- Funding for Innovation
- International Collaboration
- Citations

Background



OGC Web Services (OWS)
Web Map Service (WMS)
Web Map Tile Service (WMTS)
Web Feature Service (WFS)
Web Coverage Service (WCS)



“There are more than 200K OGC Web Services deployed across the Web”

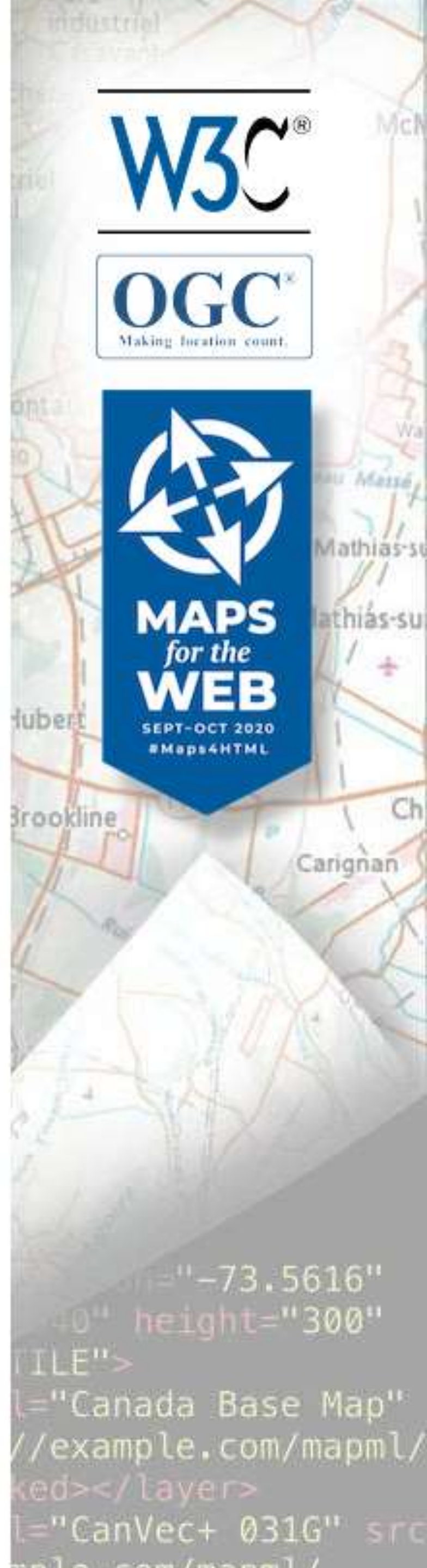
- Source: GeoSeer spatial data search engine: <https://geoseer.net>

Copyright © 2020 Open Geospatial Consortium

~~Services~~

	WMS	WFS	WCS	WPS	SOS	SPS	CSW	WMTS
Use HTTP methods explicitly.	Y	N	Y*	N	N	N	N	Y
Be stateless.	Y	Y	Y	Y	Y	Y	Y	Y
Expose directory structure-like URIs.	N	N	N	N	N	N	N	Y
Use HTTP Error codes	N	N	N	N	N	N	N	N
Transfer XML, JavaScript Object Notation (JSON), or image.	Image	XML	Any	Any	XML	XML	XML	Image

Source: OGC 15-052r1r1



Timeline

2015

- Testbed-11 Comparison of REST to classic OGC Web Services

2016

- Testbed-12 work on a RESTful binding of the WPS
- Focus of discussions shifts from REST to Web APIs

2017

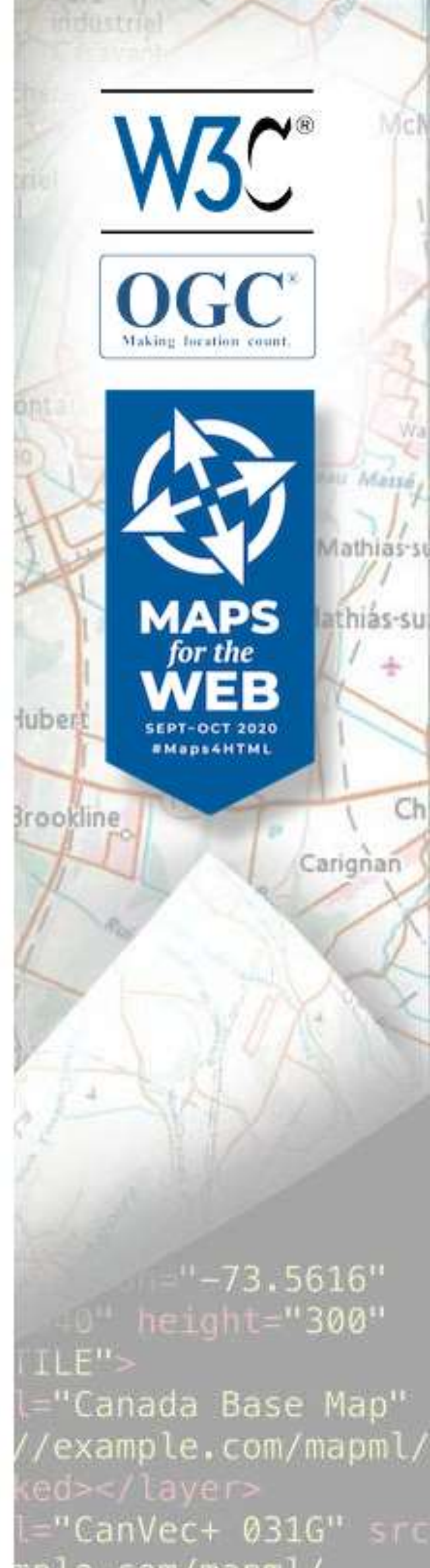
- OGC® Open Geospatial APIs - White Paper published

2018

- Work on version 3 of the Web Feature Service (WFS3) starts

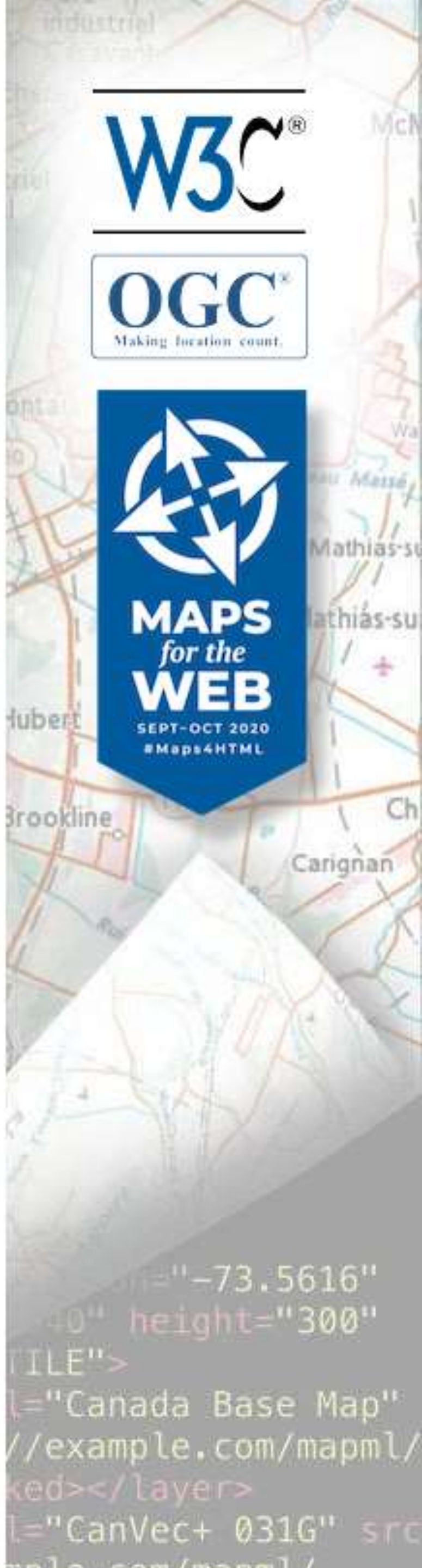
2019

- WFS3 draft specification renamed OGC API - Features
- OGC API – Features – Part 1: Core standard is published



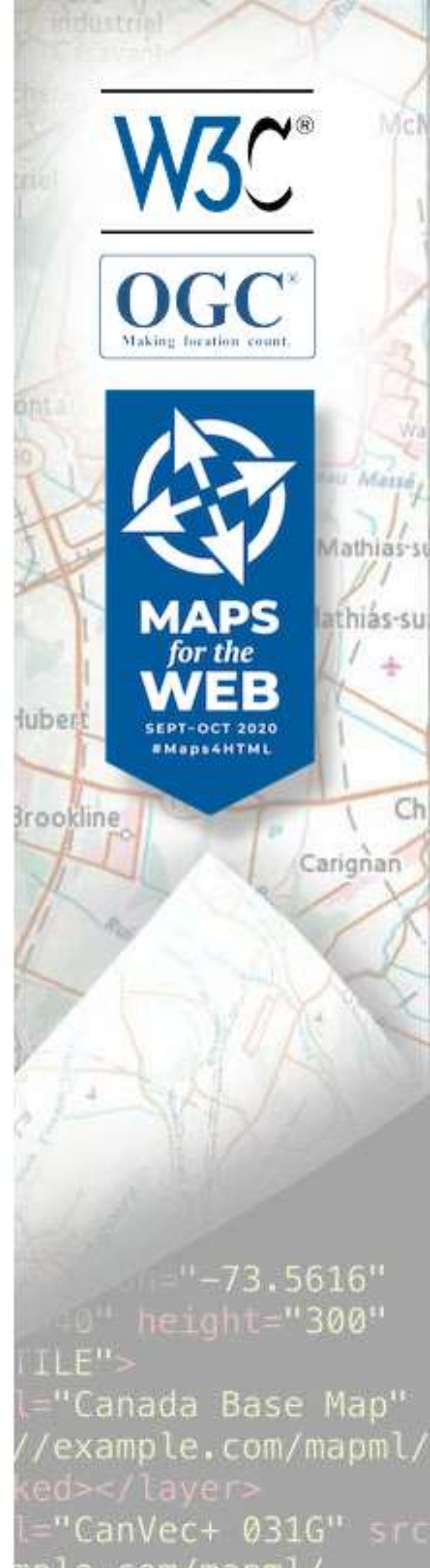
‘Why’ OGC APIs

- APIs are a popular, effective method for rapid software development
- API variations degrade interoperability
- Open Standards enable interoperability of independent implementations
- OGC APIs will improve interoperability between Web APIs



OGC API Standards Development

- Modular API building blocks; spatially enable Web APIs in a consistent way
- Spatial Data on the Web Best Practices
- Leverages OpenAPI
- Focus on developer experience and usability
- Modular building blocks for access to spatial data that can be used in data APIs
- Open development; Public GitHub, Early implementations, In-depth validation



API First Approach – using OpenAPI

definitions

Swagger Editor
Supported by SMARTBEAR

File Edit Insert Generate Server Generate Client

```
1 openapi: 3.0.2
2 info:
3   title: "Building Blocks specified in OGC API - Features - Part 1: Core"
4   description: |-
5     Common components used in the
6     [OGC standard "OGC API - Features - Part 1: Core"](http://docs
7       .opengeospatial.org/is/17-069r3/17-069r3.html).
8
9     OGC API - Features - Part 1: Core 1.0 is an OGC Standard.
10    Copyright (c) 2019 Open Geospatial Consortium.
11    To obtain additional rights of use, visit http://www.opengeospatial
12      .org/legal/ .
13
14    This document is also available on
15    [OGC](http://schemas.opengis.net/ogcapi/features/part1/1.0/openapi
16      /ogcapi-features-1.yaml).
17
18  version: '1.0.0'
19  contact:
20    name: Clemens Portele
21    email: portele@interactive-instruments.de
22  license:
23    name: OGC License
24    url: 'http://www.opengeospatial.org/legal/'
25  components:
26    parameters:
27      bbox:
28        name: bbox
29        in: query
30        description: |-
31          Only features that have a geometry that intersects the bounding
32          box are selected.
33          The bounding box is provided as four or six numbers, depending on
34          whether the
35          coordinate reference system includes a vertical axis (height or
```

Building Blocks specified in OGC API - Features - Part 1: Core 1.0.0 OAS3

Common components used in the [OGC standard "OGC API - Features - Part 1: Core"](#).

OGC API - Features - Part 1: Core 1.0 is an OGC Standard. Copyright (c) 2019 Open Geospatial Consortium. To obtain additional rights of use, visit <http://www.opengeospatial.org/legal/> .

This document is also available on [OGC](#).

[Contact Clemens Portele](#)

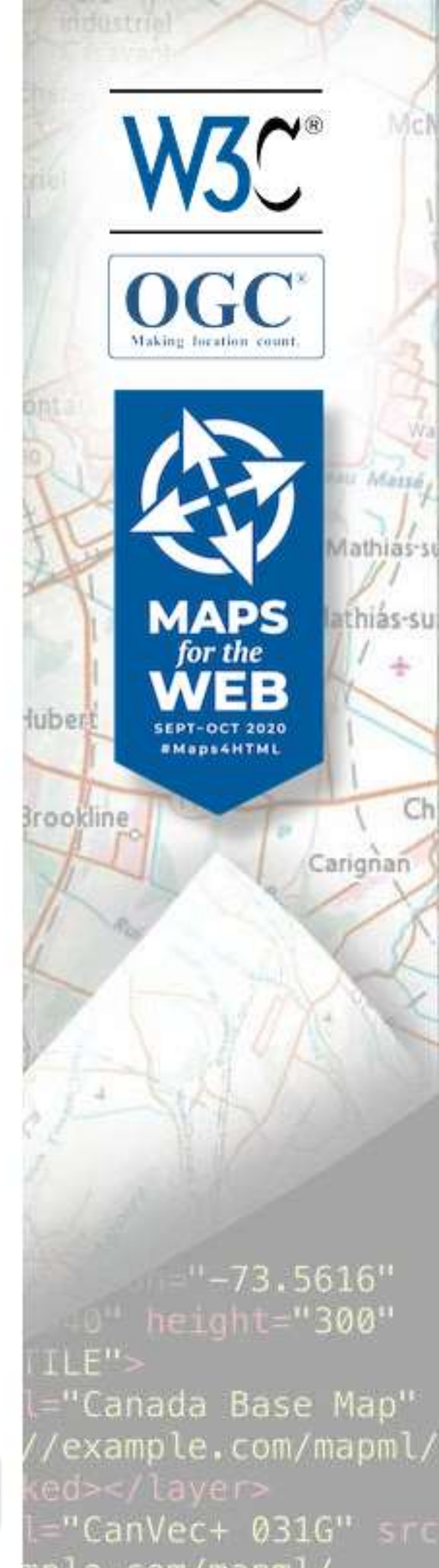
[OGC License](#)

No operations defined in spec!

Schemas

collection >

collections >



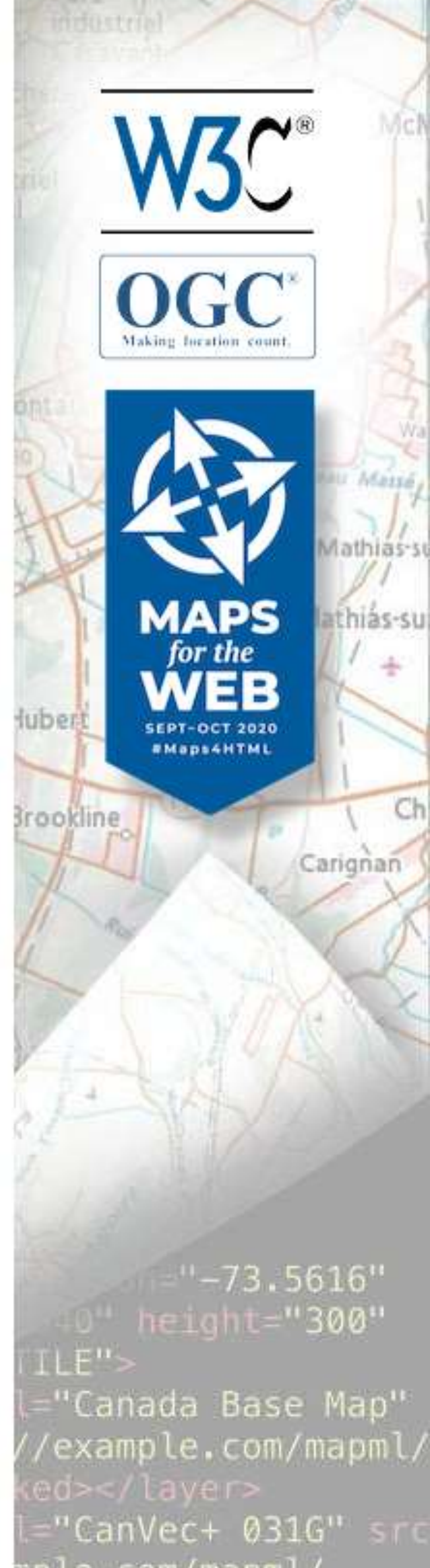
OGC API standards

Approved

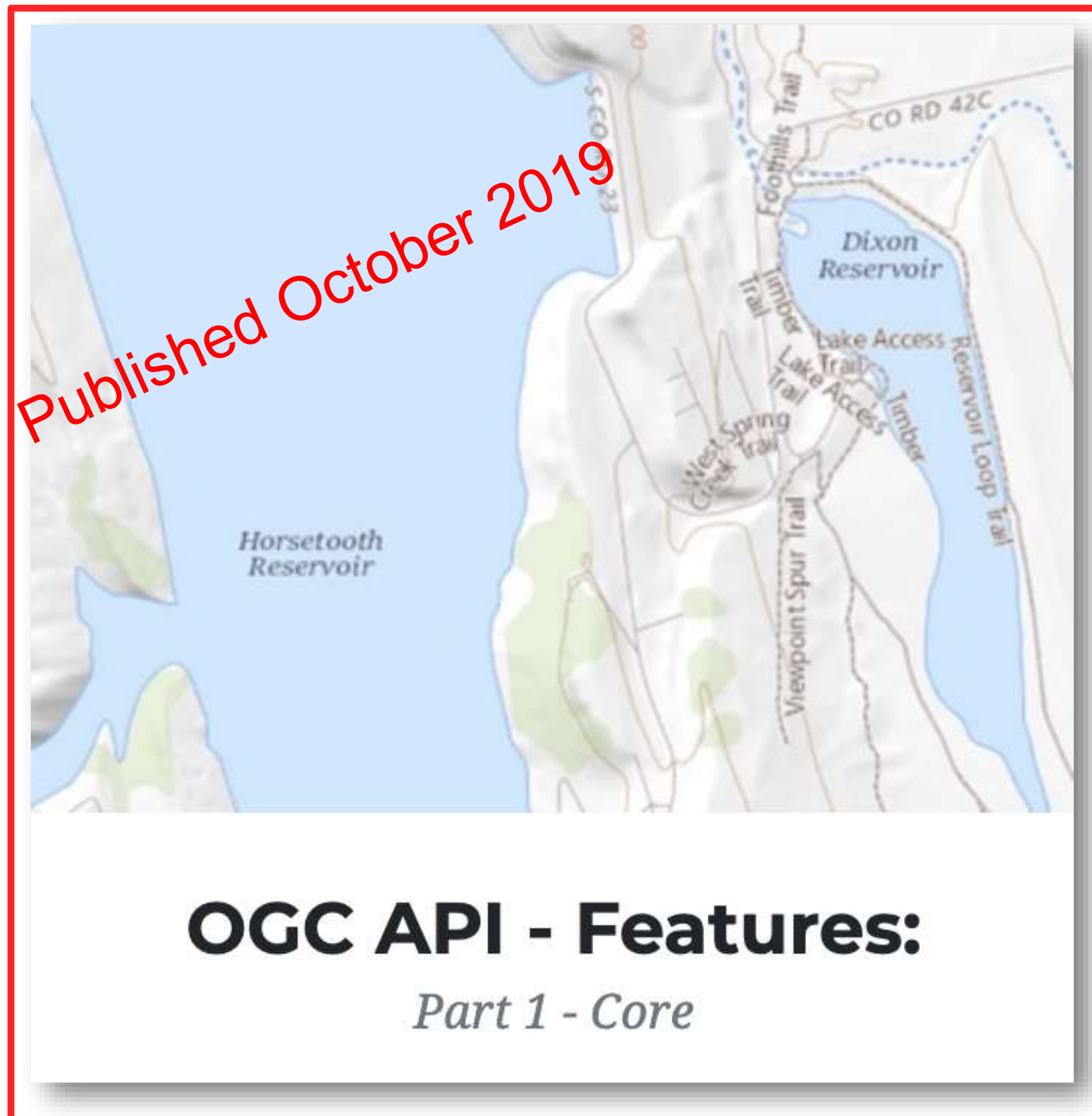
- OGC API – Features

Draft

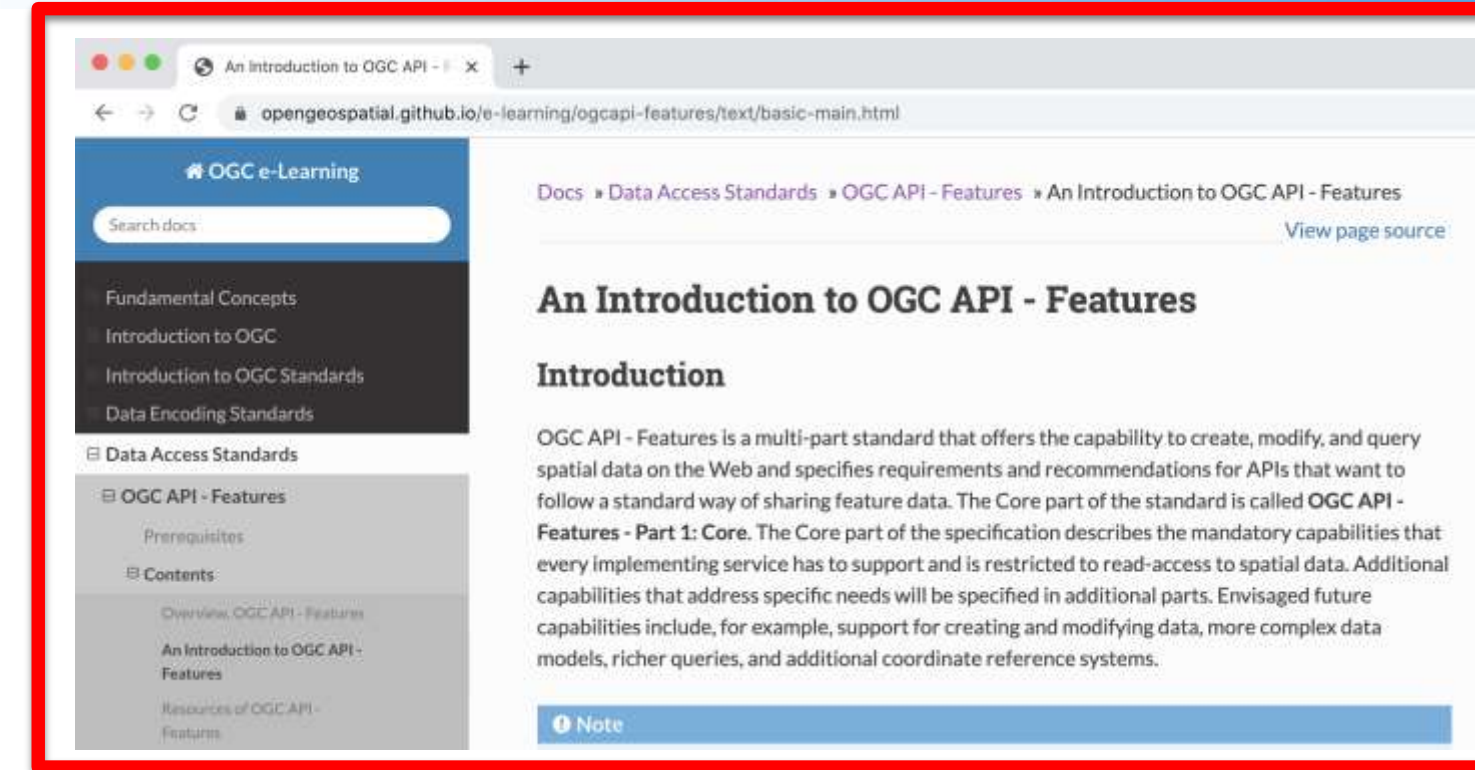
- OGC API – Common
 - OGC API – Coverages
 - OGC API – Records
 - OGC API – Processes
 - OGC API – Tiles
 - OGC API – Maps
 - OGC API - Environmental Data Retrieval
 - OGC API – Styles
-
- Future concepts: DGGS, Routing



What to expect from each approved OGC API standard



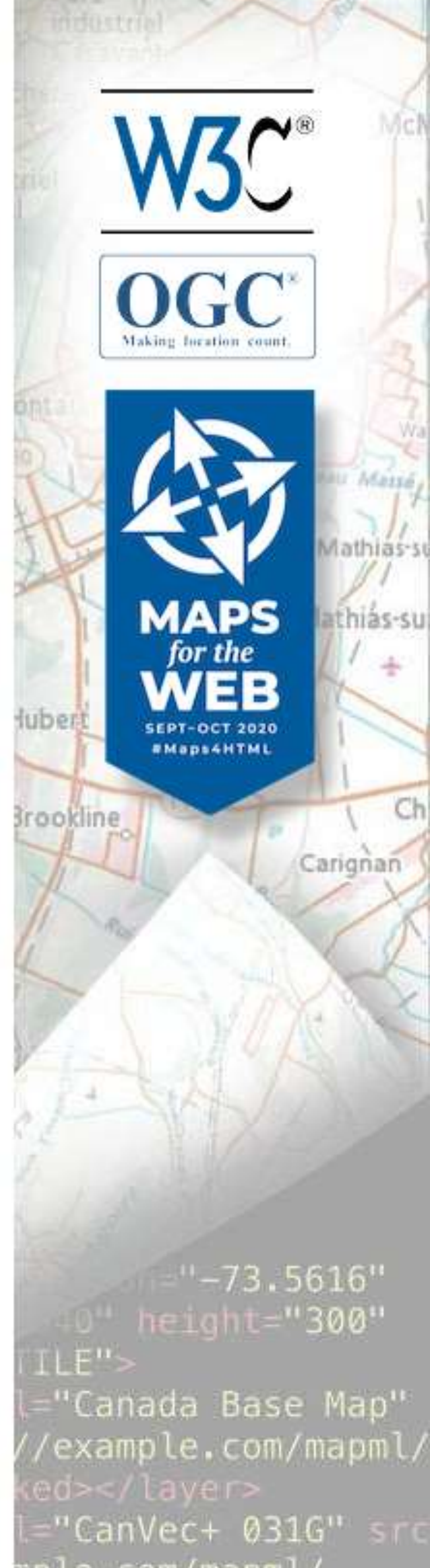
Standards document
& OpenAPI definition



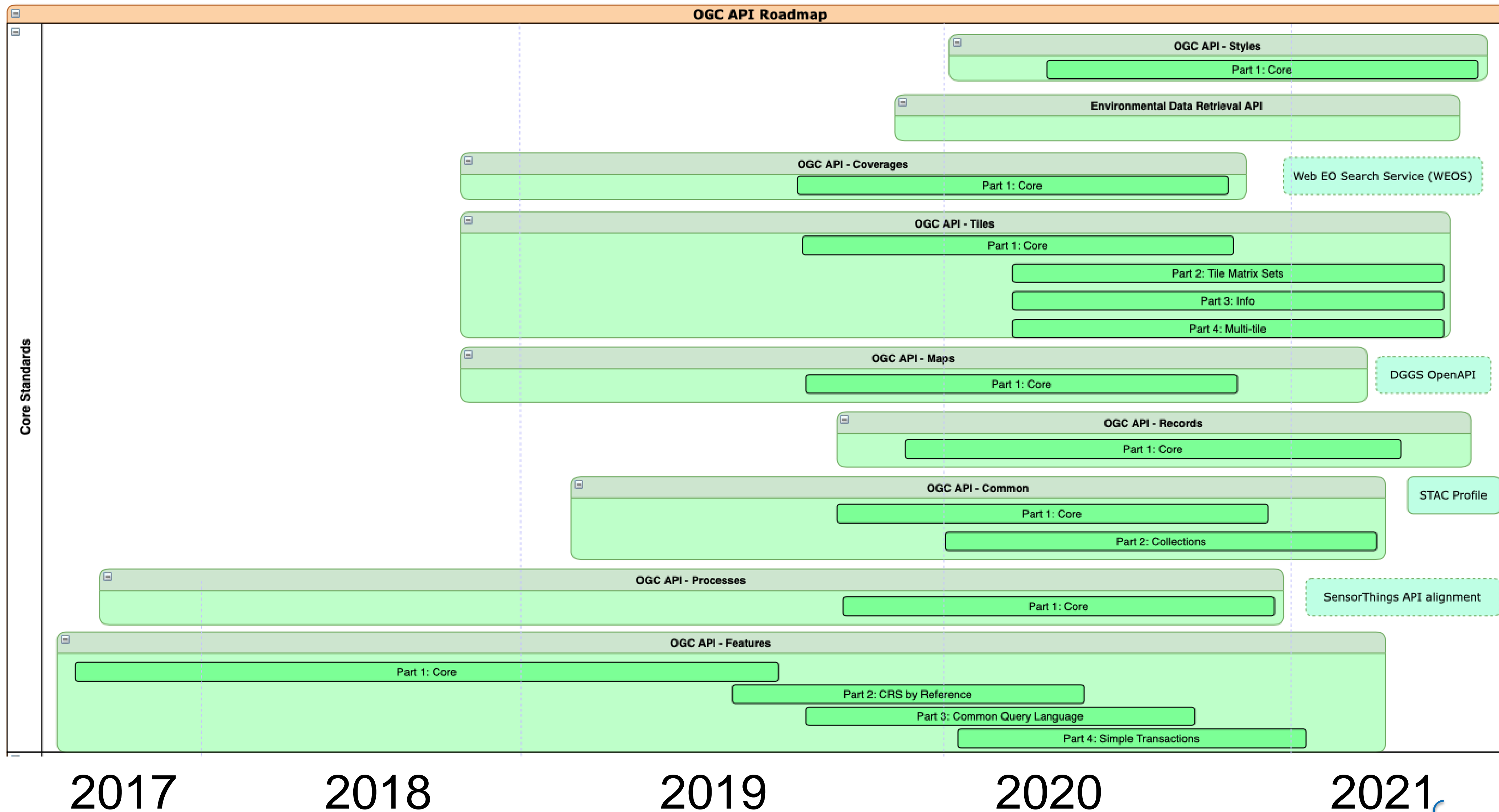
Tutorials & Guides



Executable Test Suite



Roadmap



Sprints, Hackathons, Pilots, Testbeds and Innovation

Previous

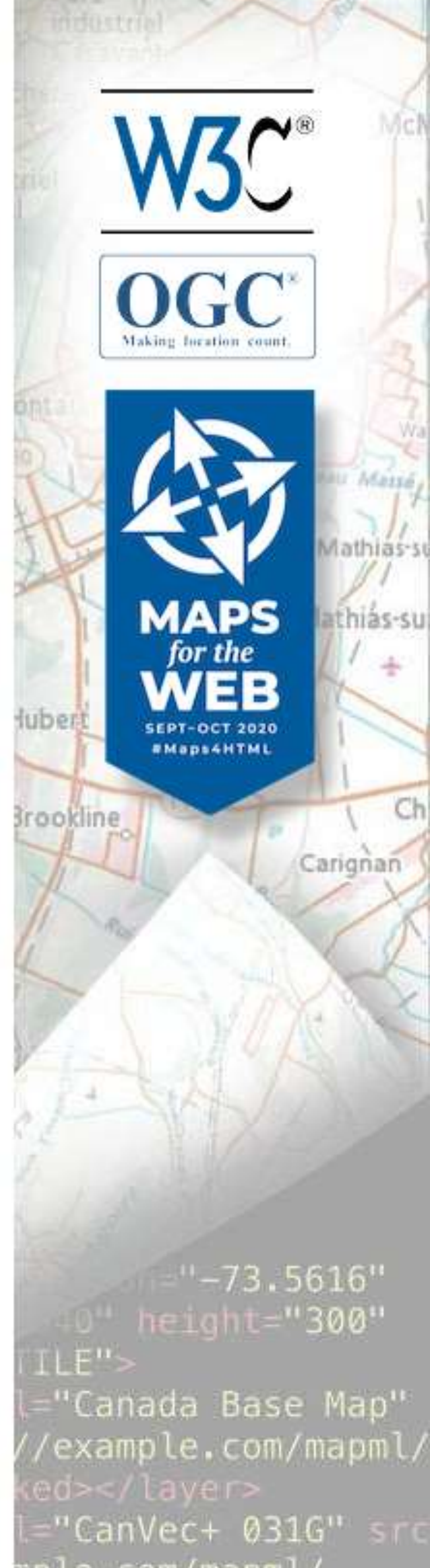
- OGC API Hackathon: June 2019
- STAC and OGC API - Features and Catalogues Sprint: December 2019
- ESIP and OGC Coverage Processing and Analysis Sprint: January 2020
- Environmental Data Retrieval API Sprint: March 2020
- OGC API – Tiles Sprint: April 2020
- Routing Pilot, Vector Tiles Pilot
- Testbeds 15 & 16 – APIs for Styles, Maps and Tiles, SWIM, DGGS
- 3D Data Container and Tiles Pilot
- ... and many more

Next up

OGC API – Common & OGC API – Features **Virtual Code Sprint**

On Sept 29 – 30, 2020

Register at https://portal.ogc.org/public_ogc/register/q3_api.php



THANK YOU!

ghobona@ogc.org
@opengeospatial
<http://ogcapi.ogc.org>
#OGCAPI

2020-09-22

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w3.org/2020/maps/

