



Data-enabling Disaster Response through Geo- Technology Platforms

by
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- ✓ Canada's GEO in the Open
- ✓ Digital Transformation during COVID-19
- ✓ Building Better Outcomes with Technology

DELIVERING CANADA'S GEOSPATIAL PLATFORM

OPEN GEOSPATIAL

- A Treasury Board approved initiative for a geo-enabled platform to:

- ✓ Improve decision-making.
- ✓ Increase innovation and productivity.
- ✓ Make data more accessible.
- ✓ Improve government efficiency.



- A partnership of federal departments and agencies
 - ✓ Championed by Natural Resources Canada
 - ✓ Endorsed by a federal committee of over 20 Assistant Deputy Ministers
 - ✓ Launched internally in June 2016, with Open maps (Open Government Portal) leveraging the Platform and launched in November 2017.

DELIVERING ON OUTCOMES FOR CANADA

OPEN GEOSPATIAL

- It is an example of broad commitment to sound management of a public asset: geospatial data.

- ✓ The GC Data Strategy recommends the Platform be leveraged to increase access, expand collaboration, and be the enterprise tool for geospatial information.



- The Platform helps to deliver outcomes such as cumulative effects, open government, resource development consultations, major projects, clean energy, disaster and hazard management.
- ✓ It helps industry gain access to thousands of important data layers about Canada, and use them for decision making and innovation.

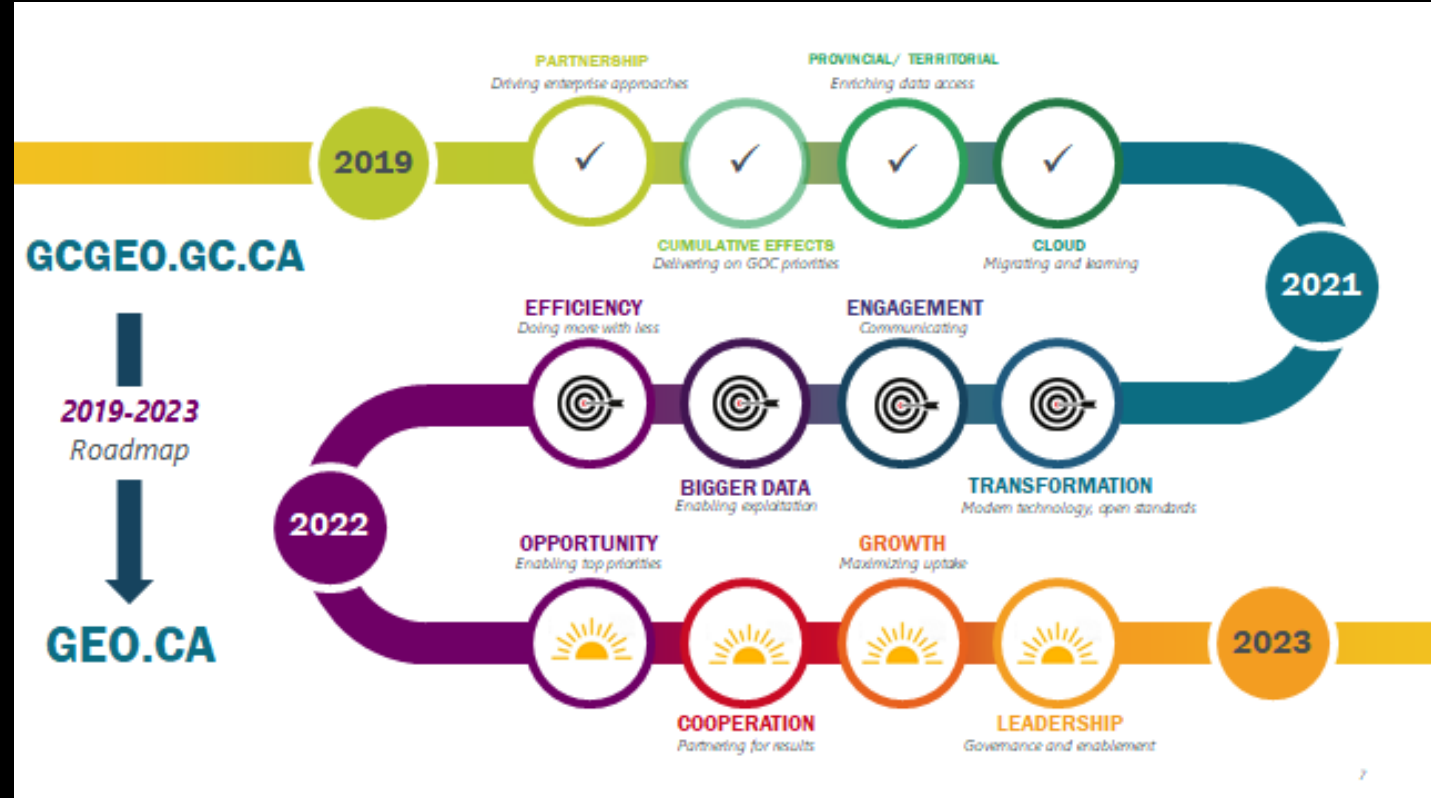
THE PLATFORM

OUR ROADMAP



■ Today, the Platform actively works with organizations to publish and make discoverable over 4,500 from-the-source, interoperable geospatial data layers, supported by ISO standard metadata, available to federal employees and the public to enable analysis and decision support.

✓ Years in development, there is still more to do to maximize the value of Canada's geospatial assets, and make our open geospatial information even more accessible to everyone.



DISASTER RESPONSE

OPEN GEO FOR THE PROTECTION OF CANADIANS

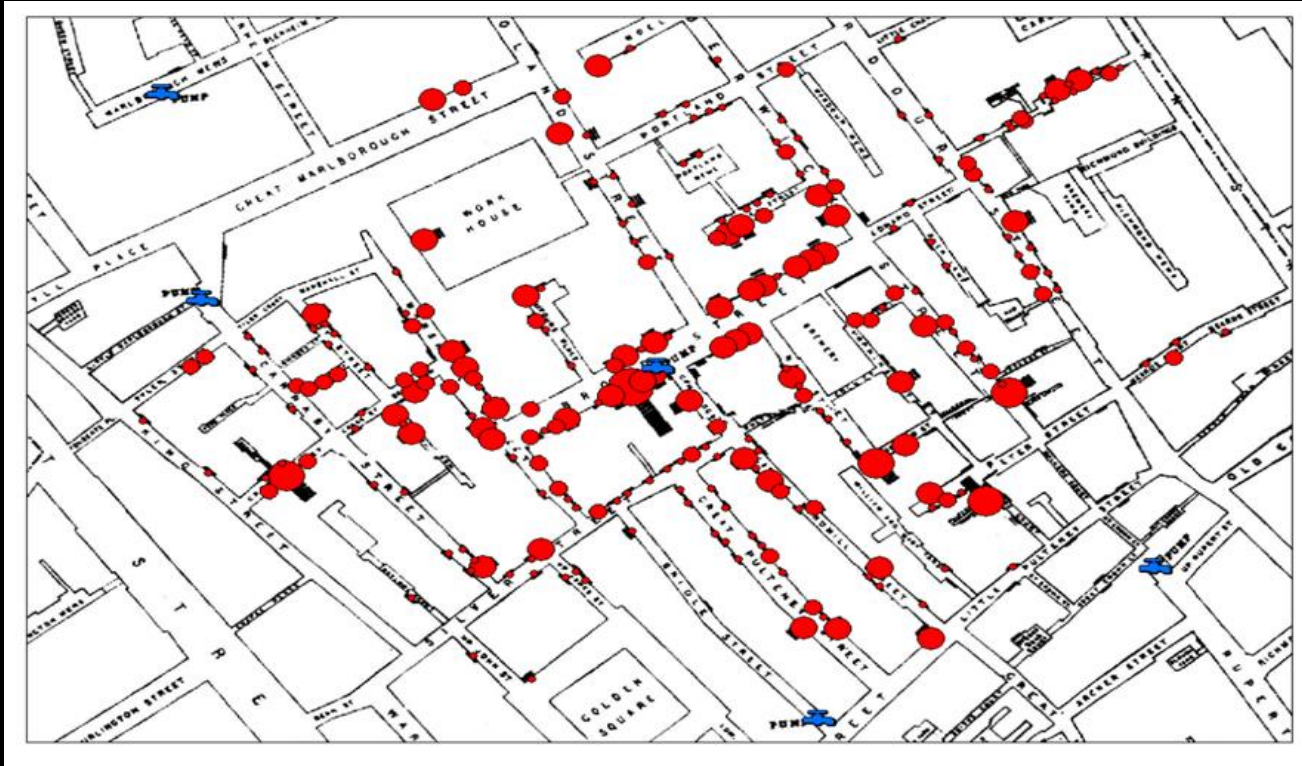
- Emergencies occur in many forms.
- ✓ And each federal, provincial, and territorial government has a responsibility for disaster management and the safety of our country and its citizens.



- Geospatial data constitutes the information component for all phases of disaster management.
- ✓ Whether prevention, preparedness, response, or recovery, geospatial information is a core need for decision makers.

DISASTER RESPONSE

OPEN GEO FOR THE PROTECTION OF CANADIANS



- Over 170 years ago, John Snow an English physician and one of the founders of modern epidemiology mapped the Soho Cholera outbreak to the Broad Street water pump. Utilizing mapping techniques to understand the extent and spread of the disease.
- ✓ Today, we will show you how federal collaborators used cloud-first technology to understand the pandemic.

**Knowing where to help is critical
to any disaster response.**



COVID-19

HELPING THE EXPERTS RESPOND

The need:

- On March 13th, Federal Geospatial Platform assistance was requested by the Public Health Agency (PHAC), Statistics Canada (StatCan) and NRCan's Emergency Geomatics Services.

- ✓ This required authoritative geospatial data from the source, for the country, accessed by multiple organizations, visualized in an epidemiologically sound manner, and published for Canadians.



The solution:

- A multi-departmental, geospatially enabled cloud environment, with high availability and reliability, with the appropriate tools, accessible by many departments.

- ✓ **One investment, many users.**

GEOSPATIAL CLOUD

aws



GEOSPATIAL DATA LAKE

- An open geospatial data lake, and data transfer mechanisms for multi-departmental data sharing and collaboration.



- ✓ **One source of data, many users.**





MAPPING INFRASTRUCTURE

- Providing enterprise level mapping infrastructure including open source and commercial software.

✓ **One investment, many users.**



ESRI

MapServer

POWERFUL WORKSTATIONS



- Providing geo-enabled high – performance workstations connected by a geospatial datastore for multi-departmental collaborative work.

✓ **Investment only where and when it's needed.**



THE POWER OF THE CLOUD IN 72 HOURS

- Created a multi-departmental cloud environment with all required technology within 72 hours.

✓ This was possible because of years of thinking "enterprise" and building whole of government approaches.



- Fueling decision making, maps, services, data and the public dashboards of Canada.ca.

✓ **Bringing users to the data.**

THE RESULT

GIVING CANADIANS AUTHORITATIVE INFORMATION



Interactive data visualizations of COVID-19

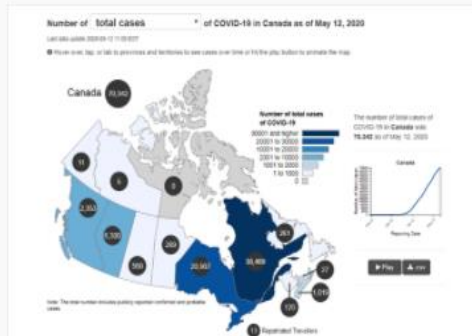
Canada

International

Visual data gallery

Telling the COVID-19 story through numbers. Includes maps, charts, graphics, models and projections.

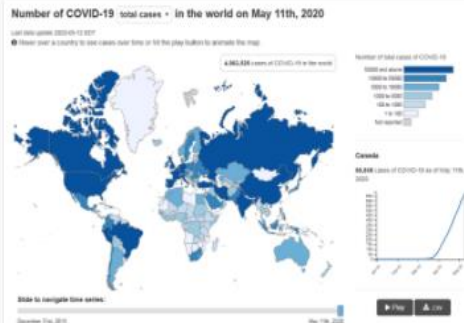
Search this page:



Interactive data visualization of COVID-19 in Canada

Interactive data map of COVID-19 cases across Canada. Shows number of cases, tests and deaths over time.

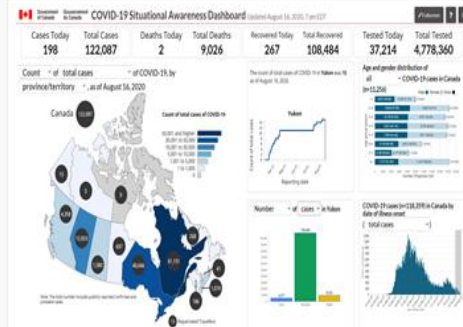
[View](#) [.csv](#)



Interactive data visualization of COVID-19 in the world

Interactive data map of COVID-19 cases around the world. Shows number of cases and deaths by country over time.

[View](#) [.csv](#)



Situational Awareness Dashboard

Summary of COVID-19 cases and deaths in Canada and in the provinces and territories.

[View](#) [.csv](#)

- Canadians have access to epidemiologically-sound, current situational awareness data from the best sources possible
- ✓ Canada's leading geospatial experts from public and private sector have been mobilized, with new partnerships forged
- ✓ Canadians rely on these products for daily communications by officials

CANADA'S IM/IT TRANSFORMATION

BREAKING DOWN DEPARTMENTAL BARRIERS

- In 2017, the 20-department, ADM-level Federal Committee on Geomatics and Earth Observation (FCGEO) endorsed the migration of the Platform to a shared cloud environment.

- ✓ Invest once, use many times by many departments. Be efficient. Save money.
- ✓ During this journey, we have encountered challenges.



- The Cloud Adoption Strategy delegated responsibility to Departmental CIOs for cloud deployment.
- ✓ Departments have created secure but closed infrastructures, aligned with vertical accountabilities.
- ✓ Horizontal collaboration is not enabled. Efficiencies projected are not attainable this way.

RESPONDING TO FUTURE DISASTERS

PAVING THE WAY FOR BETTER OUTCOMES

- We have demonstrated the way governments should work together.
 - ✓ We must pave the way to realize the efficiencies that are achievable.
 - ✓ We must fully deploy a geospatially-enabled, multi-jurisdictional enterprise cloud infrastructure as a highly efficient, reliable technology for use by all decision makers.
- 
- We need to be able to data-enable organizations involved in disaster management.
 - ✓ We need to transfer our knowledge and expertise to decision makers to more effectively mobilize geospatial capability at a moment's notice.
 - ✓ We need to do this now, before the next disaster.

SOLUTIONS TO WORK TOWARDS TECHNOLOGY AND DATA EXCHANGE IN DISASTER MANAGEMENT

- ✓ Establish multi-jurisdictional framework to maximize the effectiveness and efficiency of data sharing and analysis, data collection and reporting on emergencies.
- ✓ Proactively enable data interoperability through the use of common and consistent geospatial standards so that data can be geo-enabled more quickly in future emergencies.
- ✓ Fully deploy the existing multijurisdictional geospatial infrastructure to enable more effective data collection, storage, access, and discovery.
- ✓ Ensure our disaster management protocols account for the importance of geospatial expertise to support future emergencies, and be ready to deploy it at a moment's notice.



**Our challenge is to move from being
a geospatial capability that excels in reacting to an
disaster situation, to one that is ready before it happens,
and maybe even change its
outcomes for the better.**



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ESRI Canada





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