EMGCP Meeting – Geo.ca and GOC presentations

August 21, 2024 | 14:00 – 15:00 Emergency Management Geomatics Community of Practice (EMGCP)

Attendees	DFO, DND (CJOC), DND (MCE), ECCC, ESDC, NRCan (EGS), NRCan (GeoDiscovery), PS GOC (Government Operations Centre), PS REID (Resilience and Economic Integration Division), PS VRAC (Virtual Risk Analysis Cell), PSPC (Real Property Services), RCMP, StatCan, TC EP (Emergency Preparedness), TC TDG (Transportation of Dangerous Goods), TC TEA (Transportation & Economic Analysis), TC Hydrogen, CRC
Location	Online (Microsoft Teams)

1. WELCOME AND INTRODUCTION 14:01-14:07

Presenter: Darlene Tran - PS (GOC)

Description
Welcome and overview of today's meeting agenda.

1.1. CALL TO ORDER

Description

The attendance is noted by an alphabetical roll call of all departments and/or agencies that are members of the EMGCP.

2. Presentation of GEO.ca 14:07-14:34

Presenter: Sean Eagles - NRCan (GeoDiscovery)

Presentation Overview

- GEO.ca is a project built and maintained by the GeoDiscovery team at NRCan, part of the CCMEO (Canada Centre for Mapping and Earth Observation)
- Presentation is meant to provide an overview of the GEO.ca data dissemination platform, the ecosystem that surrounds it, how data is disseminated and published, standards in use including accessibility standards, past and current collaborative work within the Emergency Management theme and further opportunities for collaboration

GeoDiscovery

- Main priorities are to
  - Disseminate geospatial and earth observation data and content;
  - Develop and deliver geomatics products, services and technologies, such as the basemap of Canada;
  - Lead content development and engage with stakeholders, partners and clients in support of their products and services.
- In 2022, the Federal Geospatial Platform (FGP) division was reoriented to take on a new role for CCMEO as the centre of expertise for data dissemination. Many of the foundational services remain, such as:
  - The ability for departments and partners to publish geospatial data using the FGP's contributor portal (gcgeo.gc.ca);
  - GCGeo catalogue and technologies continue to be leveraged by multiple sites, including GEO.ca, Canada.ca (Open Maps) and the Open Science and Data Platform (OSDP).
- Provides a range of products and services delivered by separate teams:
  - Online Application Technologies team
    - Develops leading edge online application technologies, such as visualization technology with a new GeoView, disseminating catalogue through online platforms, which include GEO.ca, the Atlas of Canada, Canada.ca and OSDP.
  - GeoProducts team
    - Maintains and updates the basemap of Canada, a product used widely across many organizations (up to 1.4 million unique visitors each month). The basemap fully supports both official languages, as well as Canadian place names in Indigenous languages. A renewed basemap is being launched in Fall 2024 with improved quality and capabilities. This team also creates and delivers value-added map products and services.
  - Data Integration team
    - Maintains IT infrastructure and services, onboards CCMEO and FPT data, and develops data dissemination applications.
  - Content and Engagement team
    - Develops web content for the various dissemination platforms, leads the engagement client service and user support

Data Dissemination

- Data is disseminated on GeoDiscovery's main dissemination portals (GEO.ca, Canada.ca and OSDP) and is obtained through three (3) main sources:
    - Satellite imagery
    - Federated Open Data Search Project – The linkage to PT web platforms has been fully automated, integrating their open data in GeoDiscovery's platforms on a weekly basis. AI is used to fully translate the metadata and content to support both official languages
    - Open data from other NRCan sectors and government departments using CCMEO's own dissemination toolkit
- Once acquired, the data makes its way into the catalogues, before being leveraged by various websites.
- All the open data is based on standards so that it can be easily exchanged across different platforms.

Standards used for publishing geospatial data

- As required by the Treasury Board directive on Open Government, all geospatial data can easily be accessed, shared, and re-used, as well as work with other systems.
- Also aligns with the Standard on Geospatial Data, which CCMEO developed to ensure consistency and interoperability of geospatial data across the Government of Canada.
- Standards:
    - ISO 19115 (International Standard)
        - A meta-data standard, essentially a detailed "data passport" that tells you everything you needs to know about a specific geospatial dataset or map. It includes details on the quality and accuracy source geographic area covered, how the data is organized, and how others can use and access the data.
        - The Harmonized North American Profile (H-NAP) is CCMEO's own standard for applying ISO 19115 to Government of Canada geospatial dat. All federal departments distributing geospatial data provide H-NAP metadata through the contributor webstore.
        - For example, ECCC's Geo network almost exclusively manages H-NAP ISO 19115 metadata, which is then harvested by GeoDiscovery. The provincial and territorial data catalogues that are harvested must first have the dataset description transformed into H-NAP to be compatible with GeoDiscovery's systems and others.
    - Open Geospatial Consortium (OGC) APIs
        - Modern standards for accessing geospatial data and servers online.
        - The web service standard (OGC WMS – Web Map Service) provides a way for users to request map images from servers.
        - OCG API-Records acts like a search engine for finding data and metadata for geospatial resources.
    - SpatioTemporal Asset Catalogue (STAC)
        - A community-driven standard that provides a consistent way to organize, describe and share satellite imagery, photos of earth observation (EO) data
    - Catalogue Services for the Web (CSW)
        - Standard akin to a library catalog system applied to geospatial data.
        - Helps in discovering and retrieving metadata from geospatial catalogues

Publishing and dissemination of data

- GeoDiscovery encourages members of the Community of Practice to leverage datasets available on GEO.ca, or to publish your own data by sending a request to the following email address: fgp-pgf@nrcan-rncan.gc.ca. Support can be provided in the process of data preparation before publishing.
- Any data published through GCGeo will be available on GEO.ca, Canada.ca and the OSDP.
- Publishing process
    - The data dissemination repository gets set up through tools that run data through processes that stores and copies in ArcGIS Server or NRCan's SFTP
    - The contributor space on GCGeo, where metadata is entered, allows partners to contribute their H-NAP data, which gets harvested to FGP, open.Canada.ca , OSDP and GEO.ca.
- CCMEO's Dissemination Toolkit (CDTK)
    - Leverages QGIS, pygeoapi, OGC APIs and OWS. These are used to dynamically extract using geospatial APIs, or view the data through GeoView, a new lightweight viewer.

Web Content

- Implemented using Accessibility Guidelines (WCAG), standards by the World Wide Web Consortium to enhance accessibility on GEO.ca
- Compliance with WCAG is required as stated in the Treasury Board standard on web accessibility, and this process involves three major steps:
    - Assessment of User Interface and User Experience (UI/UX)
        - Multiple contractors have come in to review for WCAG compliance, and suggested updates are continuously implemented to ensure maintained compliance.
        - Ensures content is easy to see, usable by all, easy to understand and compatible with current and future technologies.
    - Implementation
        - Solutions are implemented through coding, content development and design.
    - Testing and Reporting
        - WCAG and UI/UX testing and assessment is ongoing for every release in order to ensure map components and technologies are designed and developed in compliance with the requirements. Issues to be addressed are logged onto GitHub.

GEO.ca

- GEO.ca was launched by CCMEO in 2021 as a reliable and definitive source for the Canadian public to access, discover and share geospatial data.
- Involves collaboration with FPT stakeholders
- Characteristics of the platform:
    - 41+ Contributors
    - Ever growing catalogue of data, currently sitting at 7,671+ datasets on past/present features of Canada's land, water and infrastructure
    - 57,000+ Sentinel-1 Records with value-added features for discoverability and display
    - All data published on GEO.ca is automatically disseminated to TBS Open Data.
- GEO.ca provides users with ready-to-use interactive map products, and also the tools to create their own maps.
- Why use GEO.ca
    - Adds value to data and projects by enabling visualization to provide a foundation for informed decision-making and discussion.
    - Bring individuals and organizations together to share insights and solve issues.
    - Identify threats, monitor risks, inform resource management, and support emergency planning and informing.
    - Respond to crises and manage disasters more effectively and with near real time data.
    - Develop a clear picture of environmental disasters, risks and other emergency data and maps.
    - Find curated information on disasters, such as earthquakes, wildfires, floods, and health risks.
    - Adapt to an environment where the public expects timely access to emergency data.
- How to use GEO.ca?
    - Start off by using the search bar, or filter using one of the curated themes.
    - From the record page, users can view or interact with the data as a map to see spatial distribution of different data, or to access the detailed meta-data records.
    - Ready-to-use interactive map products are available for users, or tools are available to help users build their own map. Custom maps can be saved and shared.
- Several innovations and tools
    - GeoDiscovery develops and maintains the basemap of Canada. A new vector-tile basemap will be launching in Fall 2024.
    - Version 1 of GeoView has been released on GEO.ca for all the thematic data categories.
    - Sentinel-1 data was recently added as part of the latest GEO.ca release, with RCM being the next EO series planned to be added.
    - AI and natural language processing machine learning models have been applied to create a similarity engine, which analyzes text similarity and metadata records to suggest related datasets and improve exploration of geospatial data
    - Semantic Search Engine has also been developed to replace traditional keyword searches, which yields faster and more precise results. This feature will be integrated into GEO.ca in December 2024. A demo version is currently available for testing
- Emergency Datasets on GEO.ca
    - Since 2016, approximately 89 datasets from 6 contributors have been onboarded within the theme of *Emergency*, making them available on Canada.ca, GEO.ca and the OSDP.
    - Many other datasets from NRCan and FPT partners outside the theme of *Emergency* may also be relevant to emergency management stakeholders.

Opportunities for collaboration

- Depending on available resources, the scope of the request and the needs, GeoDiscovery can support with the provision of custom mapping products, designs, dashboards, storymaps, and more.
- Also provide support for data sharing the basemap of Canada, and assist in its integration in applications.
- Real-Time Web Mapping Collaboration with Health Canada to publish real-time environmental radioactivity monitoring. Available on GEO.ca, Canada.ca and the OSDP, the service updates and displays radioactivity measures from sensors across the country every 15 minutes.
- GEO.ca Initiative Pages and Communities
    - Initiatives Pages are meant to capture data, maps and products linked to a specific project and/or initiative.
    - Communities are open spaces managed by a group and focused on specific subjects to access data resources and information.

Closing

- GeoDiscovery's capabilities and potential areas for engagement include:
    - Assessing and disseminating open data through a standardized publishing environment.
    - Synchronizing data from departments and publishing metadata.
    - Providing support through their dissemination and visualization tools.
    - Developing curated map products.
    - Provide access to web services, maps and applications.
    - Sharing best practices.
- Some constraints include:
    - Human resource availability.
    - Financial resources and budget.
    - Length of projects.

2.1. Q&A

John Harrison: **Has GeoDiscovery ever been approached for a deployment on a different, closed domain?**
A: It has been a consideration, primarily in regards to COVID. A specific situation required a closed environment, but it never moved forward.

Cameron Bouchard: **Are there costs associated to adding data to GEO.ca?**
A: SFTP and ArcGIS Server are available for data hosting. Unsure of the cost associated with that process, but it should be much less than what it was in the past. Nicolas Gariépy can be contacted for additional information on costing (nicolas.gariepy@nrcan-rncan.gc.ca).

Cameron Bouchard: **How can the basemap of Canada be used?**
A: It is an open service, meaning it can be added to any application using the link. It is separated between different themes, or it can be used it its entirety. Custom layers can also be added to the basemap on the provided GeoViewer available on GEO.ca.

Ken Marshall: **Is there a plan to update the railway network dataset?**
A: GeoDiscovery used to be the team in charge of maintaining the transportation basemap. Bruno Avard is the best person to contact for additional information (bruno.avard@NRCan-RNCan.gc.ca).

Darlene Tran: **What is your experience coordinating with your Communications team regarding the public facing nature of your products? Any best practices to share?**
A: Content team deals with everything related to social media. Andrea Merry is the best person to contact for additional information (andrea.merry@NRCan-RNCan.gc.ca).

3. GOC Geomatics Earthquake Webmap Presentation 14:34-14:44

Presenter: Clare Williamson - PS (GOC)

Presentation Overview

- The GOC Geomatics team recently developed a new thematic webmap application specifically on earthquakes and relevant data, which is publicly available on the GOC Geomatics Hub at the following link: https://goc-cog-pscanada.hub.arcgis.com/
- A gap was recently identified in regards to Canadian-centric earthquake-related data. The data is displayed on a map on Earthquakes Canada webpage from NRCan, but there was a desire to build an Esri application making use of a feed, allowing for further customization and sharing.
- An updated list of data sources and how to access them is also available on the Hub. Furthermore, the info tab on the various thematic webmaps links to the item page on ArcGIS Online, which provides a full list and links to all the data sources used on this specific webmap.
- A feedback form is also available through the Hub, as well as on each and every individual webmap applications through the info tab. The GOC Geomatics team routinely reviews provided feedback

Earthquake Webmap

- The earthquake data is sourced from a feed from NRCan's Earthquakes Canada, and it provides information on the most recent earthquakes across the country.
    - The data is continuously updated and is categorized in three separate timeframes; last 30 days, last 7 days and last 48 hours.
    - The information is scraped using a Python notebook on ArcGIS Online and republished as its own hosted feature layer, with the approval of NRCan's Earthquakes Canada team.
- A tab is available on the webmap with a list of dynamic information with regards to the nearest city and location of the earthquake, the time of occurrence and the magnitude.
    - The map will dynamically zoom and provide additional information when elements in the tab are interacted with.
- Shake Intensity data using the Modified Mercalli Intensity (MMI) scale is also available on the webmap, adding additional qualitative information.
- An update list of seismograph stations across Canada is also available on the webmap and will be maintained by the GOC Geomatics team twice a year.
    - A link is available on the popups of the seismograph station points and shows the current movement at that specific stations.
- Demographic and infrastructure layers are available as with our entire suite of webmap applications, which include Federal properties, relevant infrastructure, national parks, and the latest census data among others.
    - ECCC weather alerts have also been added but have been filtered to only focus on tsunami alerts, warnings and watches.
- Many widgets are available to facilitate usage in different contexts, notably including a dynamic list of recent earthquake events, a drawing widget and a printing widget.
- The webmap, alongside our entire suite of emergency management thematic webmaps, is available in both official languages, which can be toggled on the bottom right of the screen, as well as being fully compatible with desktops, tablets and mobile devices.
- The GOC Geomatics team has also recently been looking into integrating additional hazard-focused data into its webmaps. For the earthquake webmap, 2023 data on ground acceleration from the Global Hazard Foundation was integrated to facilitate analysis.

Closing

- As we are entering the peak of the annual Atlantic ocean hurricane season, a reminder to all that the GOC Geomatics team has a tropical cyclone-specific webmap available on the Hub.
    - The webmap contains a lot of Canadian-centric data provided by the Canadian Hurricane Centre (CHC) and ECCC. Data from NHC NOAA is also available for tropical cyclones occurring outside the Canadian response zone.

3.1. Q&A

John Harrison: **How often are the links in the data sources PDF update?**

A: They are normally updated on a quarterly basis. The GOC Geomatics team attempts to maintain them as often as possible based on ongoing events and capacity, but they are currently being updated.

David Lefebvre: **Is the data contained on the webmap the same as on the USGS tracker?**

A: They are different, but in the sense that GOC Geomatics receives data directly from Earhquakes Canada. The goal is to make use of Canadian-centric data as much as possible if and when available.

4. ADJOURNMENT 14:48-14:49

Presenter(s): Darlene Tran - PS (GOC)

The next meeting is scheduled to take place on November 13th, 2024. Meeting invites will be sent out in the next few weeks.

Feel free to reach out to Darlene Tran if you have any topics you would like to present at the next meeting.