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Downloading Spatial Datasets from Open Maps

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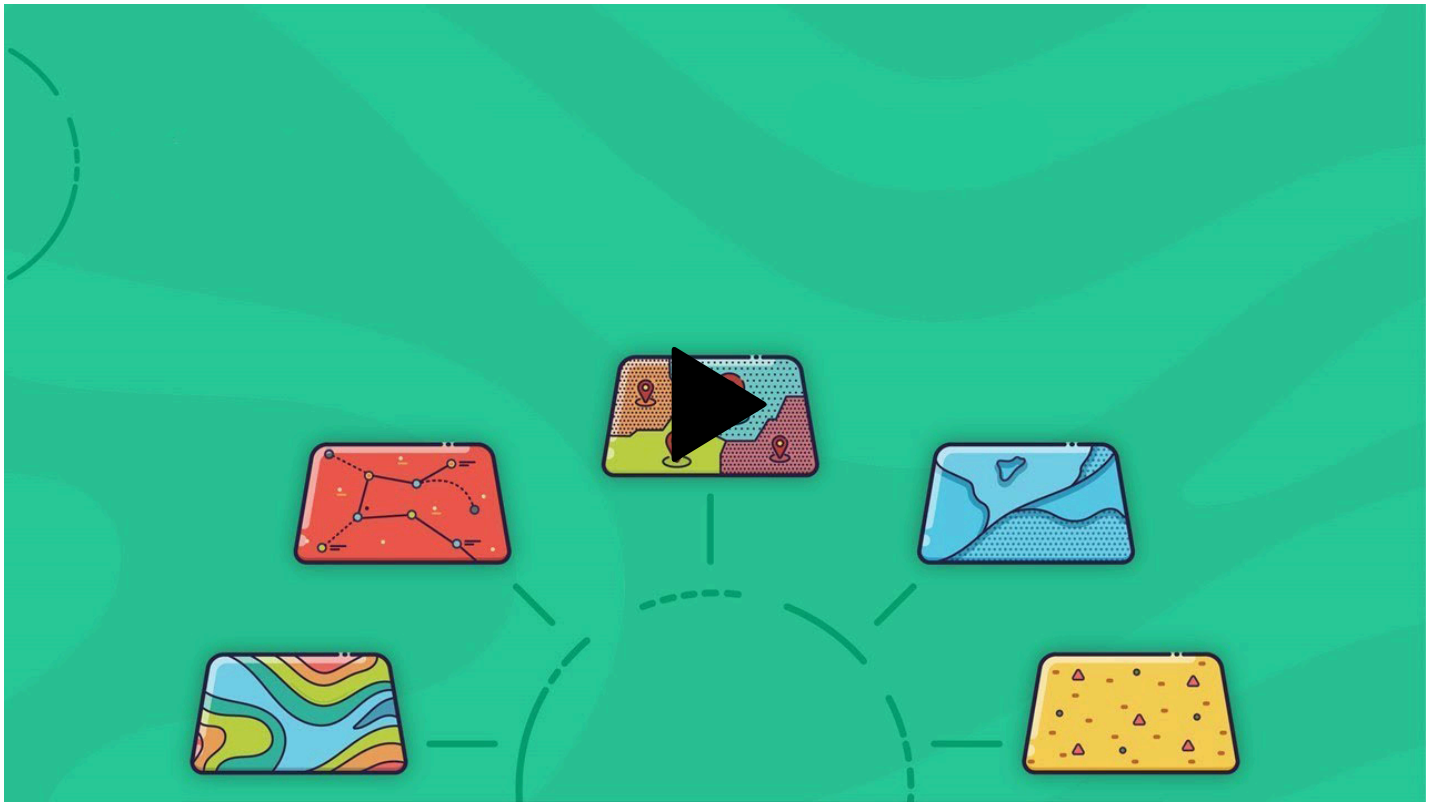

▼ Downloading Spatial Datasets from Open Maps - Video transcript

(The Statistics Canada symbol and Canada wordmark appear on screen with the title: "Demo 2b - Downloading Spatial Datasets from Open Maps")

So now that we have a better understanding of spatial data let's go to the Open Maps website and download some datasets to use in QGIS. Specifically we'll download 3 datasets, then using the skills from the video you can isolate and download the remaining files shown at the end of the video.

Open Maps is the integrated federal archive for spatial data making it a one-stop-shop for downloading thematically diverse datasets – from broad to highly specific content, which should enable most processes or features of interest to be examined. It is important to note that not all datasets are inherently spatial, but most have traits that enable their integration and use in GIS.

To begin searching for datasets scroll down the main page, and click the Open Maps link.

This brings us to a page with a search-bar where we can search specific datasets. The first one we'll look for is the Transport Features released by Natural Resources Canada as part of their CanVEC catalogue.

So the search results appear as such with a hyperlinked title to the main dataset page, a description of its content, the organization associated with its release and the file formats for the different components of the dataset.

At the moment datasets must be downloaded individually.

At the top right of the page are Search Filters to help refine the results. We'll apply two to find our dataset right now. Scrolling down to the Format Filter we'll check the FGDB box since we are looking for a File Geodatabase. In the Organization filter we'll click on Natural Resources Canada.

So we can click on the title to bring us to the main page of the dataset. The Resource Type column indicates the different components of the dataset, such as web services, classification guide or the main dataset itself,

in this case provided in Shapefile or File Geodatabase format. The file formats of spatial datasets and supporting information are varied between entries.

So to download the dataset we'll click the Access tab beside FGDB. This brings us to the main index page which hosts the available datasets. All are listed as Canvec - followed by abbreviations for the scale and geographic location and all are part of the Transport series. So national datasets vary in resolution from 1 in 1 million to 1 in 15 million, whereas provincially subset datasets vary in resolution from 1 in 50,000 to 1 in 250,000.

In general, you should use the dataset that matches your intended scale of analysis and visualization. So using the finest resolution data for a national examination of transport features or using the coarsest resolution for local assessment would both be inappropriate.

We'll download the 1 in 50,000 dataset for Manitoba.

Closing the index page, now I'd like to quickly show the classification guide. Classification guides contain information to help interpret and use a dataset. In the Catalogue drop-down we'll select Transport – the dataset we downloaded. It defaulted to 1 in 50,000 so we can just scroll down to a layer of interest. And within the table, we can expand a field we'd like more information on. So expanding the Road Class drop-down it provides the numeric IDs within the Attribute table, as well as the corresponding class and a detailed description of each class. We'll use this guide in a later demo to help classify our road segments.

So now we can close up the page and hit back. The first thing we'll do is remove the filters we applied earlier so they don't impact our next search results.

The next dataset we'll look for is the Annual Crop Inventory, a thematic raster released by Agriculture and Agri-Food Canada. This is a great resource for local assessments of crop variations both spatially and over time within Canada.

So scrolling down we can see each entry associated with a particular year, and then further down there is one without a designated year. We'll click on this link.

Once on the main page we'll scroll past the web-mapping services

until we reach the main components of the dataset. We'll download the Classifications Guide, to help us interpret the crop classes associated with the different numeric values.

If we wanted more information on the sources and methodology used to create the dataset we can access the metadata guide. In this case providing us information on the remote sensing datasets, methodologies, as well as the resolution and some accuracy assessments.

Now to access the main dataset, we'll click on the Access tab beside GeoTIF.

As we can see, the entire time-series is listed on this one integrated index, which would make for quicker downloading of a time-series than were we to click on the individual links in the original search results. We'll select 2017, and once again download the subset dataset for Manitoba.

Now the final dataset we'll look for is the land-cover circa 2000 file. So look-up land-cover within the Search Bar and hit search. With 271 returned records, we'll once again scroll down to the format filter, expand it and in the expanded options we'll select shapefile.

Once again it's our first returned result so we'll click the hyperlinked title. On the main page we'll scroll-down and click on the shapefile dataset.

Once again this is a subset dataset, but less intuitive than the provincially subset datasets we just downloaded. However, it is in the National Topographic System, a common referencing system for federal spatial data. So just look up NTS Index Canada in a new tab, and click the Open Canada link to access the reference guide which will help us isolate the files that correspond with our area of interest. There are a variety of formats we could use to find the files of interest, but for now we'll use the .pdf file and click on the prairies. This is how the system appears. Each areas is referenced by a large number and – zooming in – they are also subset by specific letters. So if we wanted to download the land-cover for Winnipeg we could download 62 G, H, I and J. Closing up the Reference Guide and returning to the main data index page for the dataset, scroll down to 62 and then select G, H, I and J. This system is also used for the Digital Elevation Model datasets in Table 1.

I'd also like to quickly discuss downloading the Statistics Canada Census Boundary files, which were accessed from Statistics Canada's website. So look up Statistics Canada Boundary Files in a webpage and click on the on the link. There are two styles of boundary files. There is the cartographic boundary file, which include shorelines, islands and other land-components and are best are used for visualization of data. And the Digital boundary file in which there is one feature for each corresponding boundary. These are best suited for processing and analysis.

Now that we know of the two different styles, we can click on the 2016 link to access the most recent boundary files. So we can select the specific style and level of interest. We'll start by downloading the digital boundary file for Census Divisions, clicking on Continue and then selecting the hyperlinked text to access the dataset. Then we can access the Census Subdivision Cartographic file, selecting the corresponding level and style, clicking on continue at the bottom of the page and the zipped dataset link on the next page. So repeat these procedures as necessary to download the remaining boundary files and styles, as well as the Lakes and Rivers Polygon and Rivers line datasets shown in the table at the end of the video.

While we are here we will also download the table datasets listed in Table 1.

First we'll download the Population and Dwelling Highlight Tables. So click on Data, and look up Highlight. The first returned result is the compiled highlight tables from the 2016 census. Listed are the various highlight tables, ours is on Page 2 and we'll click on the Population and Dwelling Count highlights. We'll then download the complete geographic level by clicking on the CSV/TAB hyperlink in which we can then download the Census Divisions, Subdivisions and Tracts.

The next table dataset we'll look for is the Farms Classified by Total Farm Capital table. Much like Open Maps there are various filters we can apply to help isolate the dataset, so let's add an Agriculture filter and search Farm Capital. Scrolling down it is around the 8th result, so once found click on the hyperlinked title. On the main page it has provided the dataset by default for Canada. We can click on the Add/Remove Data tab to change the geography levels, as well as the reference period, and choose the variables we want to download.

So let's expand the Geography levels to show how to select different boundary levels. To download a complete geographic level we can use the boxes at the top – clicking on the box furthest to the right to download the finest resolution at the subdivision level or in this case we'll select the Census Agricultural Regions– the third box. We could also expand and select a specific area of interest within the drop-downs, clicking all or on an individual feature. Re-enabling we'll just select all Agricultural Regions and toggle Canada off.

Then we can go over to our variables. In this case, by default all the variables are enabled – which is not always the case so it is always good to verify and select the variables that are of interest to you. If a dataset has been collected over multiple census periods, you can specify the Reference period to include in the table from the drop-downs here.

And the Customizable Layout tab lets you format the dataset according to your particular use of interest. For us we'll simply change the Geography from Columns to Rows.

Then we'll click Apply. Once the formatting has been applied to the table below we can select Download Options. We'll Download As Displayed to retain the formatting specified. If we were to Download the Entire Table it would remove those formatting specifications.

The final procedure I'd like to discuss is extracting our datasets to a common folder. In GIS it is best practice to store all your datasets in one common directory. So we'll expand the Documents and create a new folder called GeospatialData. Within this folder we can use additional subdirectories be organized by project or theme to help

organize your files. Before hitting extract, we will copy the directory so we can paste it when repeating the procedure with other downloaded datasets. Repeat with the remaining files.

Congratulations! From today's demo you've learned foundational skills to navigate the Open Maps Platform, download and take full advantage of the diversity of spatial data it stores. Many of these skills can be extended to accessing datasets from other geospatial archives, such as those hosted by municipal and provincial governments. We also covered the process of extracting and storing datasets in a common directory on your computer, with subdirectories to help organize the different datasets. With this experience you should be able to isolate relevant data and file formats for your own work activities. In the following tutorial we'll cover the procedures for loading and ordering datasets in QGIS.

(Canada wordmark appears.)

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