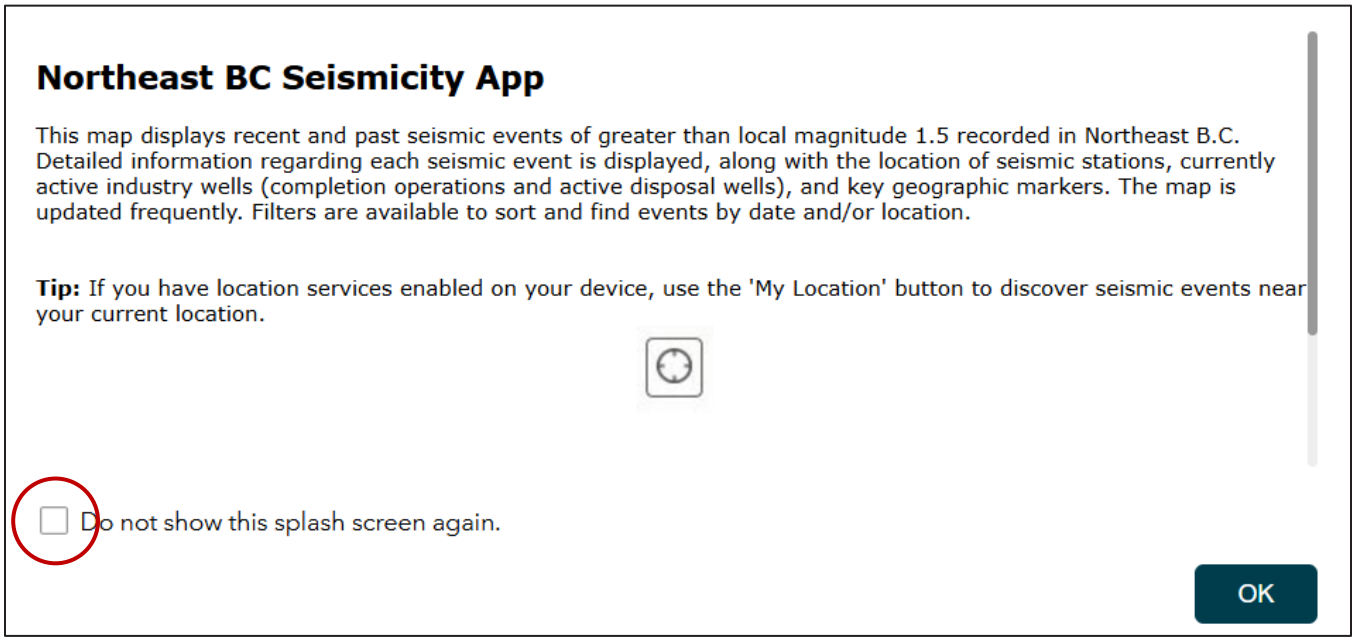
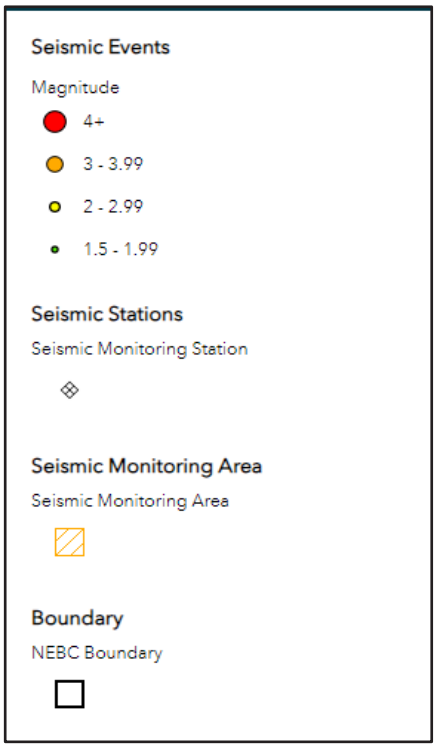
Northeast B.C. (NEBC) Seismicity App Map User Guide

1. Open the Northeast B.C. Seismicity Map.

2. A splash screen will pop up the first time you access the webpage. If you do not wish to see this pop-up again, click the box that says, 'Do not show this splash screen again.'



3. The map legend is found on the left side of the webpage. The legend will adjust based on the layers that are selected (turned on) in the layer window (described on the next page).



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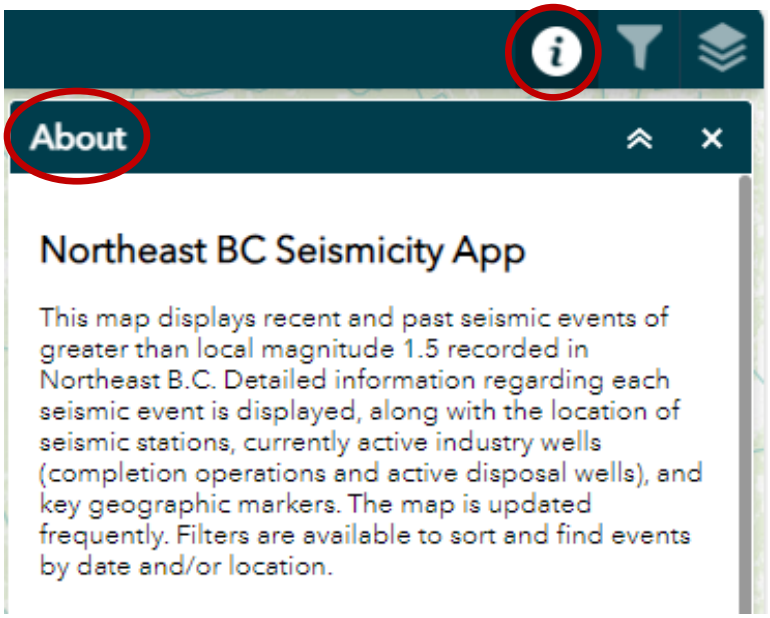
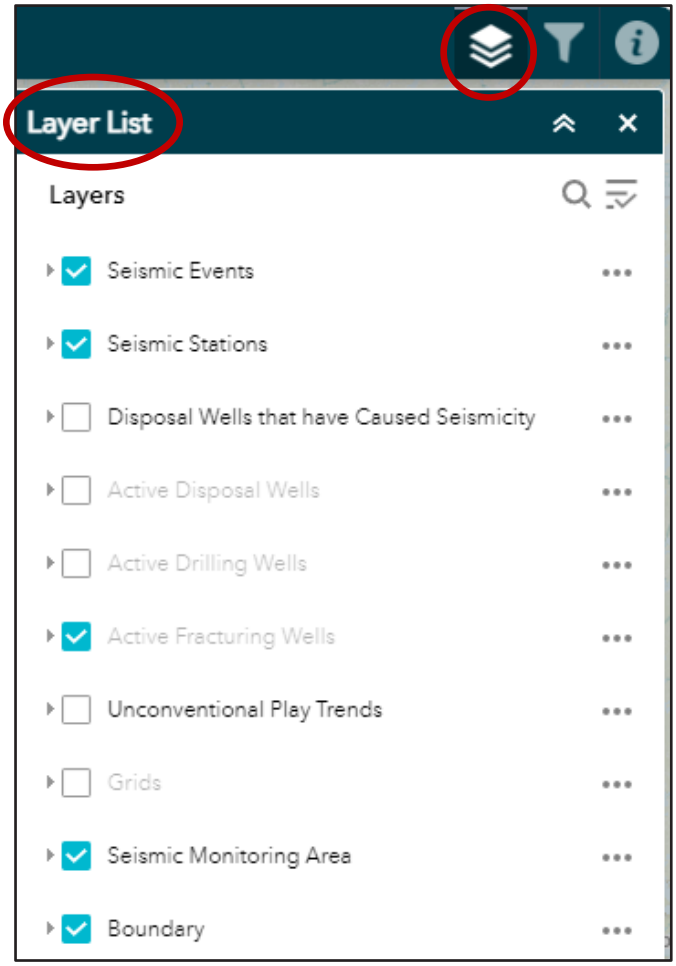
4. The map will open with the information icon highlighted and its 'About' window open. Be sure to scroll to the bottom of it to view more information about the App.



Scroll

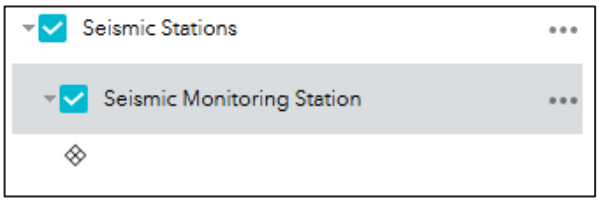
5. Some layers already have their default set to active. Some will appear as having black or grey text. If a layer is black, then at the current map zoom the layer will be visible. If the layer is showing as grey, the map is zoomed out too far and the layer will not be visible. Zoom in to make the layer appear.



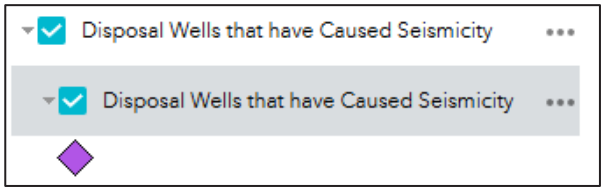
Available layers:

Seismic Events: This layer displays all confirmed seismic events located in NEBC. They are colour coded by local magnitude. Green dots are events M_L1.5-1.99. Yellow dots are events M_L2.00-2.99. Orange dots are events M_L3.00-3.99. Red dots are events equal to and greater than M_L4.00.

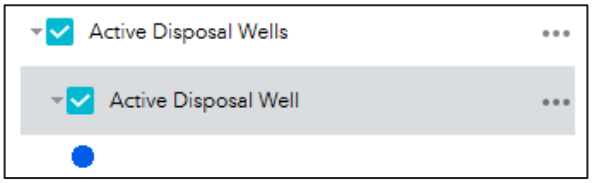
Seismic Stations: This layer displays the locations of open, public seismic stations the BCER uses to locate seismic events. The data collected is used, as necessary, for regulatory decisions.



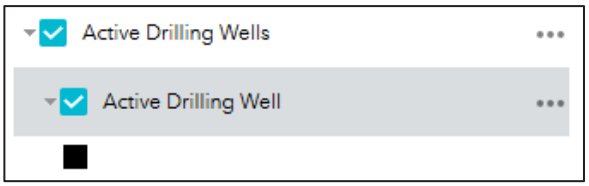
Disposal Wells that have Caused Seismicity: This is a subset of the Active Disposal Wells layer. It displays the disposal wells that have had any occurrence of seismicity linked to their disposal activities.



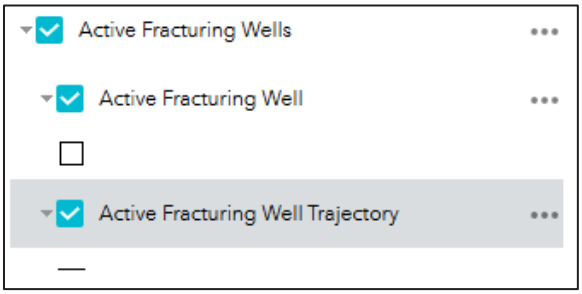
Active Disposal Wells: This layer displays the location of all active disposal wells in NEBC.



Active Drilling Wells: This layer displays the surface location of wells actively being drilled in NEBC.

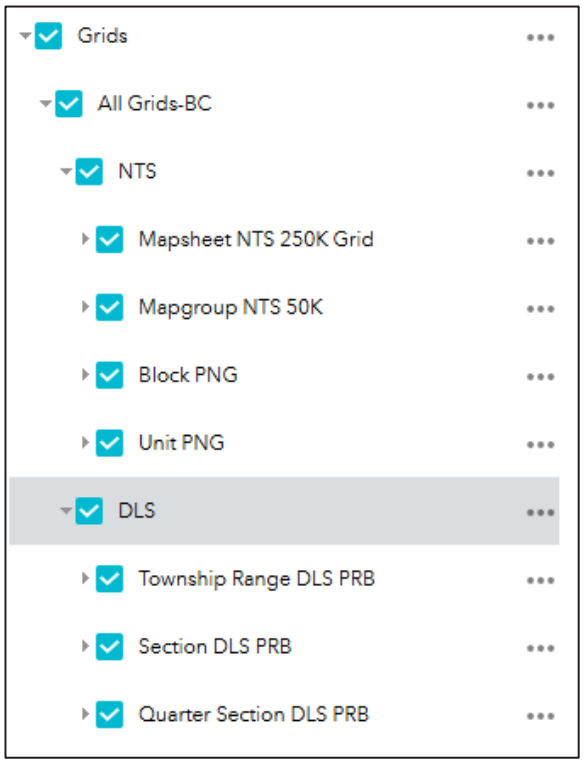


Active Fracturing Wells: This layer displays the surface and subsurface wellbore trajectory of wells currently undergoing hydraulic fracturing activities in NEBC.



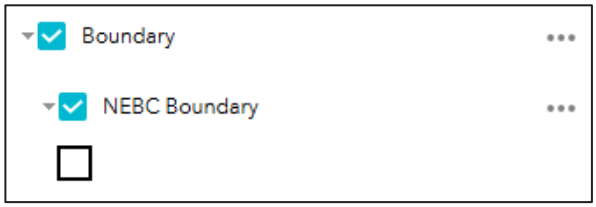
Unconventional Play Trends: This layer displays the outline of the Montney Trend.

Grids: This layer displays options to show the grid of the National Topographic System (NTS) or the Dominion Land Survey (DLS) in NEBC.

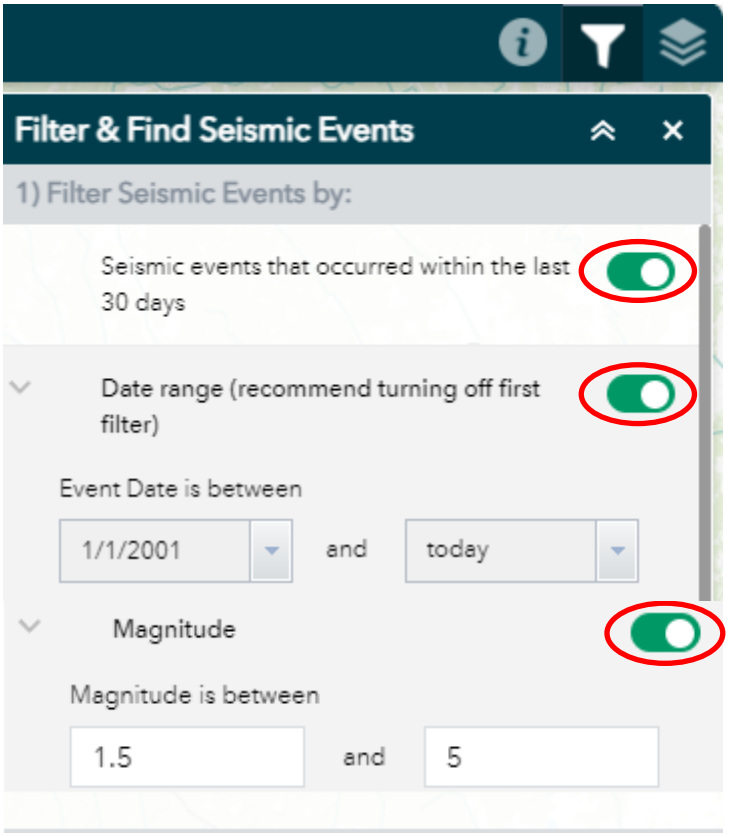


Seismic Monitoring Area: Displays the outlines of the Kiskatinaw Seismic Monitoring & Mitigation Area (KSMMA) and the North Montney Seismic Monitoring & Mitigation Area (NMSMMA), areas of enhanced regulation for horizontal wells undertaking multi-stage hydraulic fracturing operations.

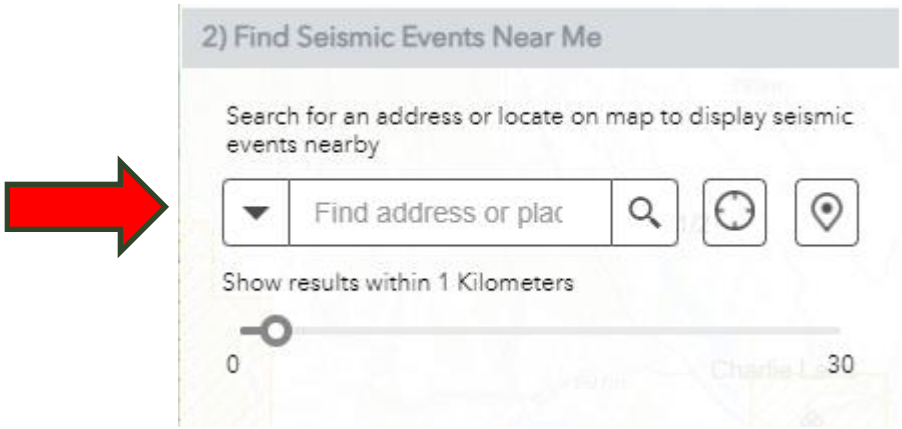
Boundary: Outlines the extent of the Western Canadian Sedimentary Basin within NEBC.



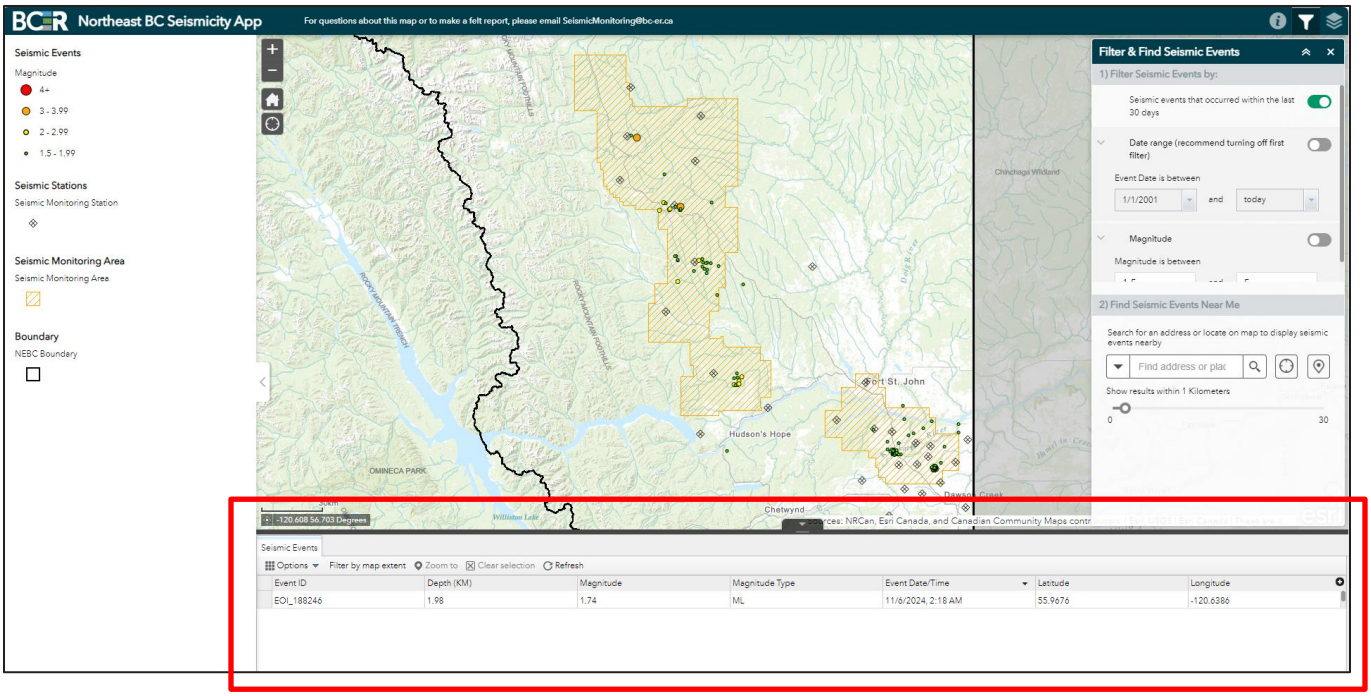
6. Seismic events can be filtered based on criteria. Options are:
    A. Seismic events that have occurred in the last 30 days (this is the default setting).
    B. Seismic events can be filtered to a specified date range, of interest.
    C. In combination with either of the above criteria, a range for the local magnitude events can also be selected. The default setting is all events above M_L1.5.



7. Events may also be filtered by location. Add in an address or use your location for the map to search if any events have been recorded nearby. Addresses are based on the 911 civic address - begin typing the address of interest and address options will appear.



8. Once all the filters have been applied and the layers have been selected, events will populate the window at the bottom of the viewer. If you select any events that populate the box in red, the map will direct you to that location on the map. Additionally, depending on the layers you've selected, the legend on the left will update to reflect those choices.



The table at the bottom of the screen has seven columns of information.

Available Columns:

Event ID - A unique identifier attached to every confirmed event.

Depth - This is the depth below the earth's surface where the seismic event occurred - also referred to as the hypocentre. The depth is usually determined by analyzing the travel times of seismic waves recorded by multiple stations. The difference in arrival times between different wave types (P-waves and S-waves) allows for an estimation of the earthquake's location, including its depth below the Earth's surface. Depth accuracy is susceptible to the density of seismic stations in proximity to the seismic event and may not be accurate or representative of the actual depth of the seismic event.

Magnitude - The magnitude generally refers to a measure of the earthquake's size.

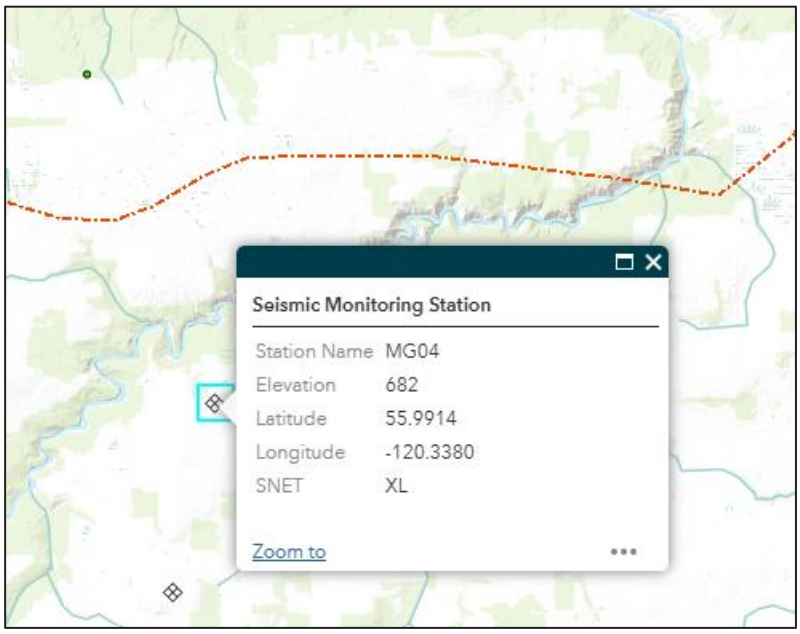
Magnitude Type - M_L which refers to local magnitude. The BCER has adopted a local magnitude standard for the calculation of seismic event magnitudes in NEBC.

Event Date/Time – local time to Fort St. John, does not recognize daylight savings time.

Latitude – is a coordinate that gives the north–south position of a point on the surface of the Earth. Measured north (positive) or south (negative) of the equator. NEBC is north of the equator, so units are positive.

Longitude - is a geographic coordinate that gives the east–west position of a point on the surface of the Earth. Measured east (positive) or west (negative) from the prime meridian. NEBC is west of the prime meridian, so units are negative.

9. For additional information on any features on the map, left click on the feature and a pop-up menu with more information on the layer feature will appear.



For NEBC Seismicity App technical support, please contact servicedesk@bc-er.ca
For all other NEBC Seismicity App related inquiries, please contact SeismicMonitoring@bc-er.ca.