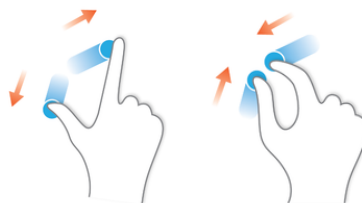





Saskatchewan Soil Information System (SKSIS)
User Manual
2020-06-10

1. Access SKSIS at sksis.usask.ca or sksis.ca
2. The first time you visit the site from a device, you'll be greeted with an *Important!* message:
 - “SKSIS is based on historical soil survey information from CanSIS, the Canadian Soil Information Service. Saskatchewan soil survey maps are at a scale of 1:100,000 and map units correspond to a polygon, not to individual quarter sections of land. Field-scale interpretations are limited at this scale.”
 - Click *Close* to continue to the site
3. Map navigation:
 - PC:
 - The map is navigated using the mouse
 - With the cursor over the map, scrolling forward will zoom in and scrolling backward will zoom out
 - Left clicking on the map and holding will allow you to “grab” the map to move directionally
 - Mobile:
 - Zooming in and out is done using two fingers with “pinch” or “zoom” gestures

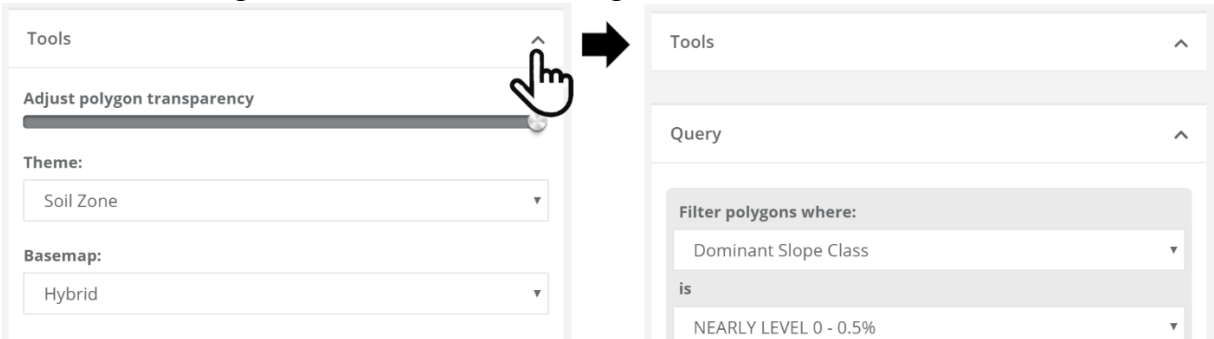



https://en.wikipedia.org/wiki/Pointing_device_gesture

- Moving around the map is done using one finger to “grab” the map to move it
- 
- Zoom can also be controlled by the  icon in the top-left corner of the map
 - Keep in mind that SKSIS is dynamically processing a lot of data, so screen refresh and response time will depend on your device and bandwidth
 - The legend can be turned on or off by pressing the  icon in the top right corner of the legend

4. Site navigation

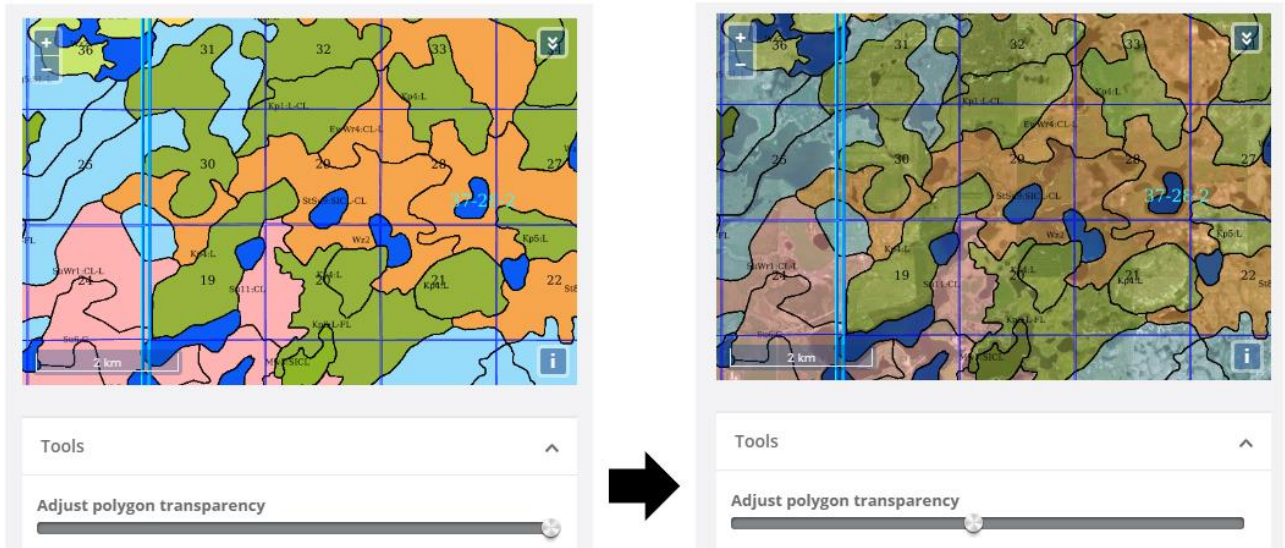
- To view the Tools, Query, or Information sections, scroll (on PC) or swipe (on mobile) down from somewhere other than the map, otherwise these actions will just zoom or move the map
- The Tools, Query, and Information sections can also be collapsed or expanded using the arrow buttons on the right of each of them:



- This allows you to simplify the interface to go back and forth between the map and sections more easily
- The hamburger button  in the top left corner of the site expands the sidebar for access to *Add Data*, *Your Account*, *Documentation*, *Contact*, *Acknowledgements*, *Citation*, *Developer*, etc.

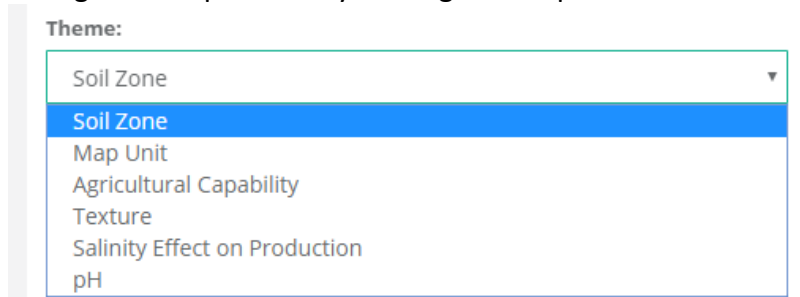
Tools

5. Adjust polygon transparency by dragging the knob along the slider, this allows you to see the basemap beneath the SKSIS polygons



6. Map theme

- Refers to the soil information displayed by the SKSIS polygons
- The default map theme is *Soil Zone*
- Change the map theme by clicking the drop-down list under *Theme*:



- Each map theme is described in the following table:

Map theme	Description
Soil Zone	Soil zones reflect the general colour of the surface soil for a region. The soil zone colours reflect differences in soil organic matter storage largely influenced by climatic characteristics.
Map Unit	<p>Map unit is the soil survey code for the soil association and series, which describe the soil classes, parent material, and texture found in a polygon. When using this theme, polygons are coloured according to the soil association and the full polygon label can be viewed when zoomed in. Descriptions for each of these items is provided in the <i>Polygon Information</i> tab.</p> <p>Pro tip: The colours used for the soil associations are also used to reflect broader soil characteristics:</p> <ul style="list-style-type: none"> • Orange, pink, and red colours are lacustrine soils that range from silt-loam to heavy clay textures • Yellow colours are sandy deposits • Brown colours are gravelly deposits • Blue and purple colours are till soils with different surface colours than the soil zone they fall within indicating either lighter or heavier soil textures, the purple colours also contain some residual and highly residual modified soils in the south west of the province • Green colours are soils with alluvial parent materials • Grey colours are miscellaneous soils
Agricultural Capability	Agricultural capability classes reflect the capability of the soil to support agricultural activity, where <i>Class 1</i> is the most capable and <i>Class 7</i> the least. <i>Class 0</i> represents Organic soils. Classes are based on several soil properties including structure, fertility, moisture, salinity, topography, stoniness, erosion, etc. More detailed information on a polygon's agricultural capability can be found in the <i>Polygon Information</i> tab.
Texture	Polygons are coloured according to general texture classes, which are based on the dominant surficial soil textures.


Salinity Effect on Production	Salinity effects on production are mapped as classes ranging from <i>None</i> to <i>Severe</i> . These are based on the extent and severity of the salinity observed at the time of the soil survey. Soil salinity in Saskatchewan fluctuates gradually over time, these classes may not reflect the current soil salinity conditions but can be useful for highlighting areas that could potentially be at risk for salinity effects on production.
pH	Polygons are coloured according to pH classes (<i>Moderately Acid</i> to <i>Alkaline</i>) to show generalized pH characteristics of the surficial soil.

7. Basemap

- Refers to the map underlying the SKSIS information
- The default basemap is *Hybrid*
- Change the basemap by clicking the drop-down list under *Basemap*
- Each basemap is described in the following table:

Basemap	Description
Hybrid	The Hybrid basemap contains political features like cities and roads over satellite imagery.
Roads	The Roads basemap contains political boundaries and features, as well as basic geographic features such as lakes, rivers, and wetlands.
Aerial	The Aerial basemap displays satellite imagery without labeled political features.
Dark	The Dark basemap is a non-satellite imagery layer with very dark styling. This layer can provide better contrast with the lightly coloured soil polygons, particularly when a query result contains a small number of soil polygons.

8. Layers

- Turn on/off different information layers on the map by checking/unchecking boxes
- Clicking the  icon will provide information about each layer

9. Zoom (Scale) Preset:

- This is another method to zoom on the map, this option allows the user to return to standardized zoom levels
- Change the zoom level by clicking on the drop-down list under *Zoom (Scale) Preset*

10. Point Datatypes:


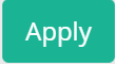
- A variety of point datatypes are stored by SKSIS including soil pit photos and descriptions, publications, and observations
- Turn on/off these datatypes on the SKSIS map by checking/unchecking the boxes
- Currently all data points are stored privately so only the user adding them can view them, but in future versions of SKSIS, users will have the option to make their uploaded point data publicly available
- For instructions on uploading your own data to SKSIS, please refer to the *Data collection guide* under *Documentation* in the sidebar

11. Export Map

- This button will export an image of the current view of the map and save it to your device

Query

12. Filtering:

- The filtering tools allow the selection and display of polygons that meet certain criteria specified with the dropdown menus
- SKSIS allows querying on dominant slope class, dominant slope length, salinity class, irrigation potential, dominant texture, secondary texture, pH, historic erosion class, stoniness class, soil zone, and soil order
- Specify what property you want to use to filter SKSIS polygons by selecting from the drop-down list under *Filter polygons where:*
- Specify the value of the selected property to filter the polygons using the drop-down list under *is*
- Click  to show the polygons that meet these specifications on the map
- For example, after clicking  with the settings shown in the picture below, only polygons with a *Dominant Texture* of *Coarse* class will be shown on the map



- More complex filtering queries can be conducted to filter combinations of multiple properties

- After your first query, select another property and value to filter within the new box that will appear below your first query
- Then click either the **and** or **or** buttons to add this condition to your query
- **and** will show all polygons that meet **BOTH** the 1st **AND** 2nd filtering criteria
- **or** will show all polygons that meet **EITHER** the 1st **OR** 2nd filtering criteria
- For example, in the picture below, our 1st filter was to show polygons where the *Dominant Texture* is *Coarse*, then we can *Filter polygons where: Salinity Affect on Production is Moderate*

Query

Dominant Texture = Coarse

()

and or

Filter polygons where:

Salinity Affect on Production

is

Moderate (8-16 mS/cm)

Clear all

- If we selected **and**, then our map would only show polygons that both have a *Coarse Dominant Texture* **AND** a *Moderate Salinity Affect on Production*
- If we selected **or**, then our map would show any polygons that have either a *Coarse Dominant Texture* **OR** a *Moderate Salinity Affect on Production*
- The **Add Group** button allows you to add groups of querying conditions, which allows for more complex filtering queries
- Using groups is akin to using brackets in conditional statements, for example, in the figure below, the group function is used to filter polygons that have *Coarse Dominant Texture* **OR** (polygons with *Fine Dominant Texture* **AND** *Moderate Salinity Affect on Production*)

- This is achieved *Adding* a second group to capture the two query conditions that were written in brackets (polygons with *Fine Dominant Texture* **AND** *Moderate Salinity Affect on Production*)
- These groups are separated by a larger dropdown that allows for specifying relationships between the query groups

Query ^

Dominant Texture = Coarse x

Filter polygons where:

▼

is

▼

Dominant Texture = Fine x

and Salinity Affect on Production = Moderate (8-16 mS/cm) x

Filter polygons where:

▼

is

▼

- All filters can be cleared by clicking the button or by clearing individual filtering criteria by clicking the button on the right

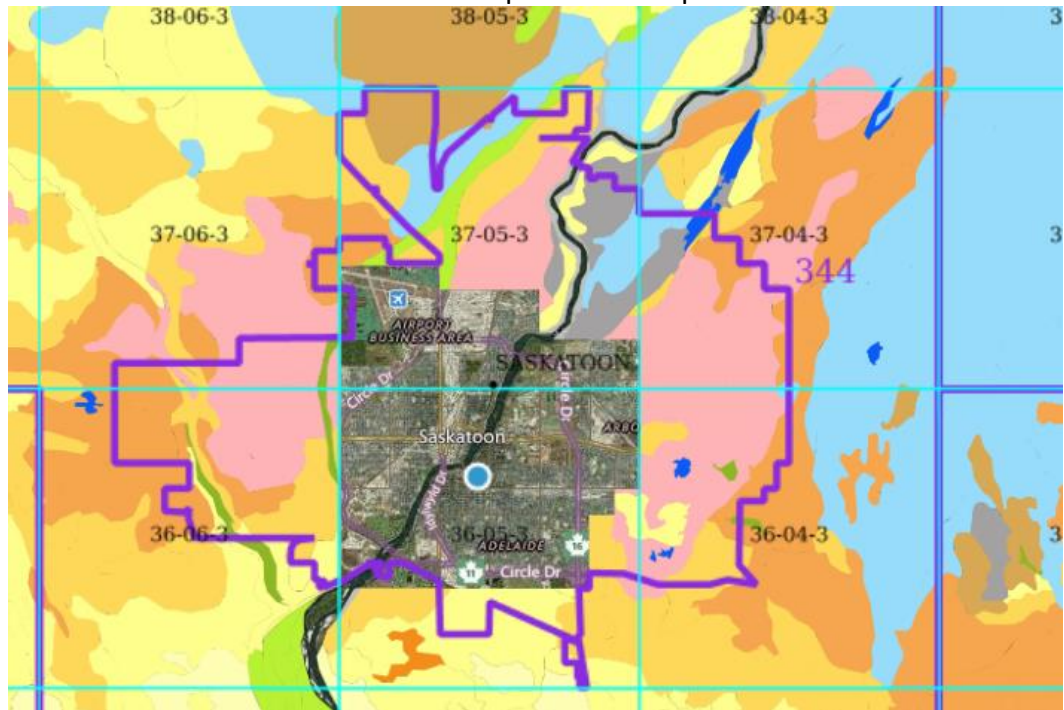
13. Location – Search by:

- The search tools allow you to move the map to certain geographic locations without scrolling
- Locations can be searched using Legal Land Descriptions (LLD), Latitude and Longitude coordinates, UTM coordinates, Rural Municipality, SKSIS Polygon ID, and Place by selecting the respective tabs and entering the correct information

Search by:

LLD	Lat Long (DD)	UTM	RM
Here	Polygon ID	Place	

- The *Here* option can be used to display the soil information for your location, if you are accessing SKSIS with a device that determines your location and you have allowed SKSIS to know your location
- Your location will be shown on the map with a blue point:



Information

- This feature provides information on a point selected on a map
- Before exploring this feature, place a point on the map by clicking (on PC) or pressing (on mobile) at some position on the map
- The clicked point will be shown on the map with a black point:




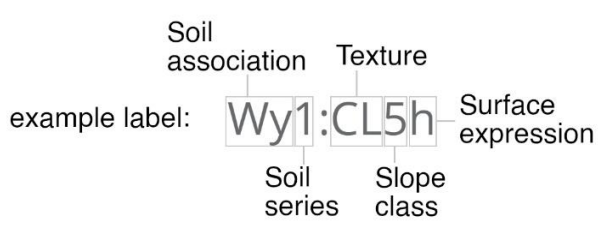
14. Map

- This tab provides the user with the coordinates of their mouse position, the coordinates of their clicked point, and the current scale of the map based on the zoom
- This tab also provides the legal land description for the clicked point (*Click LLD*) if the map is zoomed in when the point is selected



15. Polygon

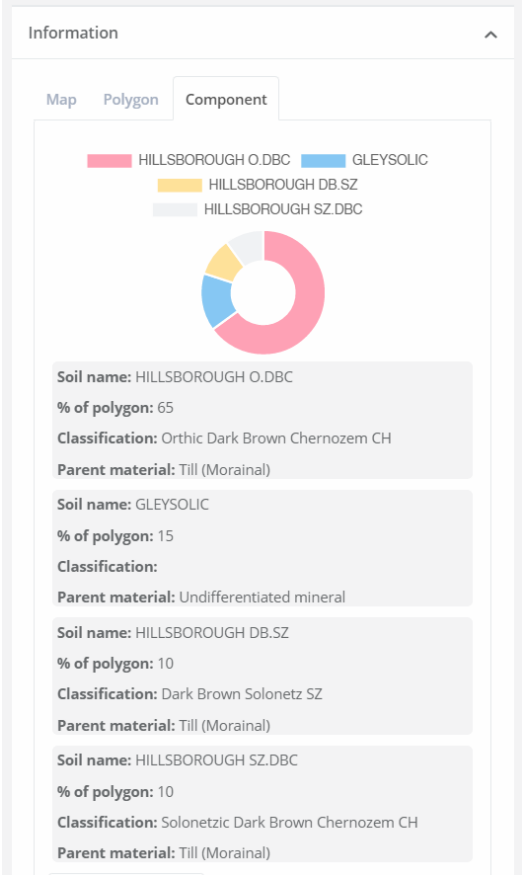
- This tab will be displayed automatically after clicking on a position in the map
- The information in this tab describes the soil characteristics of the polygon that the clicked point falls inside
- Please keep in mind that the soils at the exact location you clicked may differ from the description provided here. The soil survey offers excellent general soil information for a region, not an exact measurement for every meter of soil in SK!
- The  icon beside each item provides a link to a page of soilsofsask.ca or soilsofcanada.ca that provides thorough descriptions for the item
- The following table briefly describes the polygon information:

Information	Description
Polygon ID	A unique identification code for the polygon, this can be used in the Location Query - <i>Search by</i> : to return to the selected polygon.
Surface Expression	Refers to the recurring patterns of landscape shape. Surface Expression is categorized as: hummocky, inclined, level, ridged, rolling, terraced, undulating, fan, apron, channelled, dissected, or gullied.
Slope Description	Describes the steepness of slopes and gives a range of the slope grade.
Stoniness	Describes the stoniness of the soil, ranging from <i>non-stony</i> to <i>excessively stony</i> .
Polygon Label	<p>The polygon label is a string of code that formed the basis of the soil survey. This code describes the soil association, series, texture, stoniness, slope, and surface expression in a single line:</p> <div style="text-align: center;">  <p>example label: Wy1:CL5h</p> </div> <p>Beneath the polygon label is a description of the soil series that occur within the polygon and in which slope positions (upper slope, mid-slope, depressions, etc.) they are found. Following is a description of the soil series. A soil series represents a group of soil classes (ex. Orthic Brown Chernozem, Orthic Humic Gleysol) that occur in combinations on a certain parent material.</p> <p>Pro Tip: Soil associations and series are typically named after the region they were first encountered during the soil survey but can be found beyond those regions.</p>
Surface Texture	Describes the dominant texture of the surficial soil.


Agricultural Capability	<p>Provides a string of text that describes the full agricultural capability rating. This string is described beneath so you don't have to interpret the code. The percentage describes the percentage of the area that is affected by the limitation. The class number refers to the severity of the limitation, with class 1 being the least severe and class 7 being the most severe. Beneath the percentage and class is a description of the limitation. For example, given the capability information in the picture below, we would know that 60% of the polygon is affected by class 3 moisture limitations.</p> <p style="text-align: center;">60% class: 3 Moisture limitations.</p> <p>Following all limitation descriptions is a written summary of the overall limitations of the polygon and the considerations required for management.</p>
Salinity Class	Provides a code of the salinity class and a description of the salinity affect on productivity.
pH Class	Provides a code of the pH class and the percentage of the soil within the polygon that falls within the various pH ranges.
Area	The total area of the polygon in acres and hectares (ha).

16. Component

- This tab provides a chart showing the percentage of each soil type (soil class and series) described by the *Polygon Label* found in the polygon



17. Provide Feedback

- Beneath both the Polygon and Component tabs, users can click the  button to give us feedback on the information provided. We can also be emailed at sksis_support@usask.ca (found in the contact page accessed from the sidebar)
- Feedback is hugely appreciated as it allows us to improve the information provided by SKSIS!