

User Guide: Heat Vulnerability in Minnesota Tool

Get started by exploring the pre-loaded data and then look at the geographic area of most interest. Pre-loaded sensitivity data show the change in projected population from 2018 to 2050 for three age groups at highest risk for heat-related illness in Minnesota. Pre-loaded exposure data show the projected number of cooling degree days for 2050, which is a proxy to estimate cooling needs for buildings. A composite score of the variables for each geographic area is determined by dividing the range of values for each variable into quartiles (1-lowest to 4-highest) and then summing the quartiles across the variables. With the pre-loaded data, a score of 12 means the county is at the highest ranking for each variable (3 variables x 4 (highest score for each variable) = 12), suggesting an increased risk for health impacts related to heat compared to other counties in the state.

1) Select study area: Minnesota ▾

When you're ready to move beyond the pre-loaded data, start by selecting the area of interest by clicking on the "Minnesota" drop-down button. Data can be viewed by the entire state, Homeland Security and Emergency Management (HSEM) Region, or county.

2) Select spatial resolution: Counties ▾

Next, select the spatial resolution by clicking on the drop-down button next to "Select spatial resolution" to view data in the selected study area by county, cities and townships, or block group resolution. Variables with a grayed-out box in front of it indicates that the variable is not available at the selected spatial resolution.

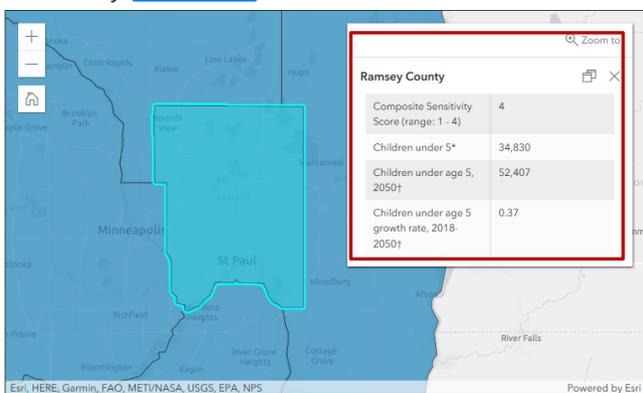
Sensitivity Select Variables ▾

Exposure Select Variables ▾

Explore heat sensitivity and exposure data by clicking on the "Select Variables" drop-down buttons. Sensitivity data encompasses demographic, population health, and environmental indicators, such as age, income, medical outcomes, and impervious surface. Exposure data encompasses current climate-related conditions, such as

number of heat advisories, and climate projections related to temperature. Data for selected layers will display on the map and the composite sensitivity/exposure score will recalculate accordingly.

Sensitivity Select Variables ▾



Click on an area of interest to view a pop-up box with more detailed information. This functionality gives you the ability to view an area's composite score value along with count and percentage data. For example, if you select the "Children under age 5 growth rate, 2018-2050" sensitivity variable, the pop-up will provide the composite score value, total count data, and percentage growth rate (highlighted below in red).

READY TO CREATE A REPORT AND SHARE THE INFORMATION?

Use our model heat vulnerability assessment for Ramsey County on the [Heat Vulnerability in Minnesota Tool website](#) as a framework for pulling it all together. The report provides general information about heat vulnerability as well as a format to guide you on how to pull maps and data from the tool into a report format.

Tool Tips



The zoom in/zoom out button provides a larger/smaller view of the maps. The Sensitivity and Exposure maps will zoom simultaneously to provide comparable side-by-side views.



The home button brings you back to the default map extent, zoomed out to show the state.

Print Exposure Map

The “Print Exposure/Sensitivity Map” buttons allow you to export a file of the map displayed. You can choose either the “Layout” or “Map Only” option. The Layout option adds a title that you provide in the “Title” box and a legend (it does not label or provide values for the layers that were selected). The “Map Only” option exports just an image file. Exported files will display directly underneath the “Exported Files” subhead. Click on the file to open it in a new browser window and save.

Run Report

The “Run Report” button displays data for the selected layers and geographic areas in a new browser window. For some variables both counts and percentages are included in the report. Data is alphabetized by jurisdiction and can be copy/pasted for further use.

Access the raw data

Clicking on “Access the raw data” opens a new browser window. From here you can open the data in the ArcGIS Online Map Viewer. You can also access the data in ArcGIS Pro or ArcMap by downloading a .pitemx or .pitem file linked to the hosted feature service. To create a copy of the data in ArcGIS Desktop, export the hosted feature layers to a new feature class.

Download the data dictionary

Clicking on “Download the data dictionary” opens a Microsoft Excel Spreadsheet file with detailed information about data used in the tool.

IMPORTANT: Tool features work best in web browsers such as Mozilla, Chrome, Safari, or Edge. Do not use Internet Explorer.

HAVE SPECIFIC QUESTIONS ABOUT HOW TO USE THE TOOL?

Get in touch with us at climatechange@state.mn.us.