# 2022 COMMUNITY RESILIENCE ESTIMATES FOR HEAT FILE LAYOUT
July 2024

**FILES**

The 2022 Community Resilience Estimates (CRE) for Heat consists of five comma separated data files that provide estimates for the nation, states, counties, and tracts. The first file contains the complete dataset with estimates for each unique geographic observation. The other four datasets are subsets, each categorized by a geographic level. Details about these files are provided in Table 1.

| Table 1. 2022 Community Resilience Estimates Files Details | |
|---|---|
| **File Name** | **Description** |
| **CRE22_Heat.csv** | This file contains estimates for all geographic areas published for the CRE for Heat. |
| **CRE22_Heat_National.csv** | This file contains estimates for the nation overall. |
| **CRE22_Heat_State.csv** | This file contains estimates for each state and the District of Columbia. |
| **CRE22_Heat_County.csv** | This file contains estimates for the 3,144 county and county equivalent geographic areas in the United States. |
| **CRE22_Heat_Tract.csv** | This file contains estimates for the 84,415 census tracts from the 2020 Census in the United States. |

**FILE LAYOUT**

The CRE for Heat data files contain estimates for the nation, state, county, and tract geographies. The data files have geographic identifiers that include the applicable FIPS codes and the name of the geography. See Table 2 for a full list of variable names.

Each unique geographic observation will have a single row of data. On the complete data file (CRE22_Heat.csv), there is the categorical variable, "GEO_LEVEL", which specifies the different geographic levels; Nation ("US"), State ("State"), Country ("County"), and Tract ("Tract")."

The "GEO_LEVEL" field is included on the complete file because other files are subset by the geographic level. On the files that contain a geographic subset, only applicable FIPS codes are included as fields. For example, the "TRACT" field is not included on the county level files (CRE22_Heat_County.csv) because counties do not have tract level FIPS Codes.

The CRE categorizes the population into three groups based on the number of components of social vulnerability: zero components, one to two components, and three or more components. The provided data files include the estimates of the population count, margin of error for population count, rate, and margin of error for each of the three categories three categories. Population count estimates and their margins of error are denoted by an "E" and "M" suffix in

the variable name, respectively. Similarly, for rates, the estimate is denoted with "PE" and the corresponding margin of error with "PM" at the end of the variable. A few variables are not marked by a suffix; those include geographic identifiers (e.g., STATE and COUNTY) and variables that indicate exposure to extreme heat (e.g., LONG_90_DAY, and MAX_WBT). Details about each variable can be found in Table 2.

| Table 2. Community Resilience Estimates for Heat File Description | | Availability | | | |
|---|---|---|---|---|---|
| Variable | Description | Nation | State | County | Tract |
| GEO_ID | A geographic identifier that contains information on the type of geography and applicable FIPS codes | x | x | x | x |
| STATE | State FIPS code | | x | x | x |
| COUNTY | County FIPS code | | | x | x |
| TRACT | Tract FIPS code | | | | x |
| NAME | Geographic area name | x | x | x | x |
| GEO_LEVEL | Geographic level (found only on **CRE22_Heat.csv** to denote geographic level) | | | | |
| POPUNI | Total population | x | x | x | x |
| PRED0_E | Estimated number of individuals with zero components of social vulnerability | x | x | x | x |
| PRED0_M | Margin of error for individuals with zero components of social vulnerability | x | x | x | x |
| PRED0_PE | Rate of individuals with zero components of social vulnerability | x | x | x | x |
| PRED0_PM | Rate margin of error for individuals with zero components of social vulnerability | x | x | x | x |
| PRED12_E | Estimated number of individuals with one to two components of social vulnerability | x | x | x | x |
| PRED12_M | Margin of error for individuals with one to two components of social vulnerability | x | x | x | x |
| PRED12_PE | Rate of individuals with one to two components of social vulnerability | x | x | x | x |
| PRED12_PM | Rate margin of error for individuals with one to two components of social vulnerability | x | x | x | x |
| PRED3_E | Estimated number of individuals with three plus components of social vulnerability | x | x | x | x |

| Table 2. Community Resilience Estimates for Heat File Description (Continued) | | Availability | | | |
|---|---|---|---|---|---|
| Variable | Description | Nation | State | County | Tract |
| **PRED3_M** | Estimated margin of error for individuals with three plus components of social vulnerability | x | x | x | x |
| **PRED3_PE** | Rate of individuals with three plus components of social vulnerability | x | x | x | x |
| **PRED3_PM** | Rate margin of error for individuals with three plus components of social vulnerability | x | x | x | x |
| **PRED3EXP_E** | Estimated number of individuals with three plus components of social vulnerability and live in a county exposed to extreme heat in 2022 | x | x | | |
| **PRED3EXP_M** | Margin of error for individuals with three plus components of social vulnerability and live in a county exposed to extreme heat in 2022 | x | x | | |
| **PRED3EXP_PE** | Rate of individuals with three plus components of social vulnerability and live in a county exposed to extreme heat in 2022 | x | x | | |
| **PRED3EXP_PM** | Margin of error for individuals with three plus components of social vulnerability and live in a county exposed to extreme heat in 2022 | x | x | | |
| **LONG_90_DAY** | Longest consecutive number of days where the temperature was at or above 90 degrees Fahrenheit in 2022 | | | x | x |
| **MAX_WBT** | Maximum recorded wet bulb temperature in 2022 | | | x | x |
| **EXPOSED** | Meets the definition of having a heat event for the CRE for Heat. This means the county or tract:<br>• had the maximum air temperature reach or exceed 90 degrees Fahrenheit for two or more consecutive days during 2022.<br>•had a maximum estimated wet bulb temperature that reached or exceeded 80 degrees at any time during 2022. | | | x | x |

Note: Margin of errors are calculated at the 90 percent confidence level.

**WHAT'S NEW**

**Components of Social Vulnerability (SV)**

The CRE adjusted terminology from "risk factors" to "components of social vulnerability" after discussions with stakeholders such as emergency managers and urban planners. In this context, "risk" refers to the likelihood a disaster or event will occur. Whereas "vulnerabilities" refer to the conditions people experience which may compound the impact of a disaster. The CRE program strives to provide data products that are understandable and meets the needs of its users. To better explain the purpose of the estimates and how they are developed, the language has been adjusted. "Components" highlights the combination of factors that define social vulnerability. "Social vulnerability" refers to the characteristics that could impede a community's ability to deal with disasters and external stressors. The results of this assessment form the basis of a community's Community Resilience Estimate.

**Extreme Heat Exposure**
The CRE for Heat 2022 estimates contain an additional measure of exposure to extreme heat ("EXPOSED"). Not all socially vulnerable communities are equally exposed to extreme heat. Pairing the CRE for Heat estimates with heat exposure data provides a more comprehensive look at social vulnerability to heat. In the 2022 CRE for Heat dataset, an area is considered exposed to extreme heat if it meets one of two criteria:

- Areas where the maximum air temperature has reached or exceeded 90 degrees Fahrenheit for two or more days in a row during 2022.
- Areas where estimated wet bulb temperature has reached or exceeded 80 degrees at any time during 2022.

On the county and tract level files, these heat exposure criteria are associated with the variables LONG_90_DAY and MAX_WBT, respectively.

On the state and national file, the exposure variable, PRED3EXP_E, measures the estimated number of individuals with three plus components of social vulnerability who also live in a county exposed to an extreme heat event in 2022. Similarly, PREDEXP_PE, measures the rate of individuals with three plus components of social vulnerability who also live in a county exposed to an extreme heat event in 2022. These variables, and their accompanying margins of error, are available on the national and state files.

**ADDITIONAL INFORMATION**

**Community Resilience Estimates Program Website**
<https://www.census.gov/programs-surveys/community-resilience-estimates.html>

**Technical Help**
<sehsd.cre@census.gov>