Technical Data Integration and Interpretation

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Technical Data Integration and Interpretation

A variety of datasets were used for the Regional Climate and Stormwater Assessment and the Locally Variable Hazard Differentiation of WestCOG to determine historical trends and climate projections for use in planning considerations. The datasets utilized are hosted by agencies such as NOAA, FEMA, CIRCA, UConn CLEAR, USDA, and others. This document summarizes how these datasets should be interpreted for municipal planning purposes and how to appropriately apply them in planning contexts.

Data Source Summary

The following table (Table 1) summarizes all datasets used in this assessment, their uses, and the hazards they apply to. Each dataset is described in further detail below.

Table 1. Data Source Summary

Data Source	Use Description	Applicable Hazard
NOAA		
NOAA Atlas 14	PFEs (precipitation frequency estimates) are pulled from NOAA Atlas 14 for locations in WestCOG to determine the probability of an expected precipitation amount likely to fall within a certain period of time, at a given location, in a given year.	• Extreme Storm Events • Rainfall (Pluvial) Flooding • Riverine (Fluvial) Flooding
SLOSH (Sea, Lake, and Overland Surges from Hurricanes)	SLOSH storm surge modeling can estimate the "near worst-case scenario of flooding for each hurricane category." The inundation extent of a Category 1 through Category 4 hurricane along the coast of WestCOG are available for use.	• Coastal Flooding • Extreme Storm Events
IBTrACS (International Best Track Archive for Climate Stewardship)	Historical storm tracks for tropical cyclones.	• Extreme Storm Events
SPC (Storm Prediction Center)	Annual probabilities of severe thunderstorms and wildfires are available in the SPC.	• Extreme Storm Events • Wildfire
PDSI (Palmer Drought Severity Index)	The PDSI represents the severity of dry and wet spells over the U.S. based on monthly temperature and precipitation data, as well as the soil-water holding capacity at that location.	• Drought

Data Source	Use Description	Applicable Hazard
FEMA		
DFIRMs (Digital Flood Insurance Rate Maps)	A DFIRM is a digital flood insurance map created by FEMA that delineates the SFHA and determines flood insurance requirements.	• Riverine (Fluvial) Flooding • Coastal Flooding • Rainfall (Pluvial) Flooding
NFHL (National Flood Hazard Layer)	The NFHL is a geospatial database that contains effective (i.e., current regulatory) flood hazard data. DFIRMs are available as geospatial data in the NFHL.	• Riverine (Fluvial) Flooding • Coastal Flooding • Rainfall (Pluvial) Flooding
Hazus	Hazus is FEMA's nationally standardized risk assessment software used to estimate potential losses from natural disasters, including floods. Litchfield County's floodplains are not available in the NFHL and were generated using Hazus.	• Riverine (Fluvial) Flooding • Coastal Flooding • Rainfall (Pluvial) Flooding
CIRCA		
CTPCSA (Connecticut's Physical Science Assessment Report)	CTPCSA provides an assessment of the state of the science regarding observed changes and projections for temperature and precipitation. All projections in this assessment use the high CO2 emissions scenario (RCP8.5).	• Rainfall (Pluvial) Flooding • Extreme Heat • Drought
CCVI (Climate Change Vulnerability Index)	The CCVI combines built, social, and ecological factors to identify areas that are vulnerable to flooding and heat-related impacts of climate change. These mapping tools can be used at regional scales and specific sites to view vulnerability.	• Rainfall (Pluvial) Flooding • Coastal Flooding • Riverine (Fluvial) Flooding • Extreme Heat

Data Source	Use Description	Applicable Hazard
Storm Surge and Sea Level Rise Viewer	This dataset shows different flood maps of MHHW and storm surge return periods of 10-, 30-, 100-, and 500-year flood events with SLR (sea level rise) projections (1 foot for MHHW only and 20 inches for all), above NAVD88 along the Connecticut coastline and the adjacent inland areas. CIRCA research recommends that planning anticipates sea level will be 20 inches higher than the national tidal datum in Long Island Sound by 2050.	• Coastal Flooding
CLEAR (Including: CT DEEP and CT ECO)		
NLCD (National Land Cover Dataset)	Hosted on CT ECO, UConn CLEAR utilizes the NLCD's land cover dataset to map and quantify land cover change over time.	*N/A (utilized to determine localized impacts for all hazards)
Statewide 2023 DEM	Hosted on CT ECO, UConn CLEAR hosts the statewide 2023 LiDAR-derived bare-earth digital elevation model (DEM) for Connecticut.	*N/A (utilized to determine localized impacts for all hazards)
Sea Level Rise Mean High Water, and Average Monthly Maximum	Hosted on CT ECO, mean high water (MHW) and average monthly maximum (AMM) water levels are available for seven separate SLR scenarios.	• Coastal Flooding
US Forest Service Wildland-Urban Interface	The U.S. Forest Service defines the Wildland-Urban Interface (WUI) as an area where houses and other development meet or mix with undeveloped natural areas. They are areas of transition and change where more people and infrastructure are at risk of wildfire, and where wildfire management can be complex.	• Wildfire
• **Other**		
NRCC (Northeast Regional Climate Center)	The NRCC provides present-day PFEs and future projections for New York, with overlapping areas into WestCOG.	• Extreme Storm Events • Rainfall (Pluvial) Flooding • Riverine (Fluvial) Flooding
U.S. Drought Monitor	The U.S. Drought Monitor is a map released every Thursday that shows updated locations and severity of drought across the U.S. It can be used to determine present-day drought conditions.	• Drought

Data Sources

This section summarizes the primary datasets used to support the Regional Climate and Stormwater Hazard Assessment and the Locally Variable Hazard Differentiation. For each data source, a brief overview is provided describing the information it contains, why it was selected, and how it applied within the assessment.

NOAA

The following are data sources used in this assessment that are hosted by NOAA.

NOAA Atlas 14

NOAA Atlas 14 (NA14) is a product of the National Weather Service's Hydrometeorological Design Studies Center that provides precipitation frequency estimate (PFE) information for the U.S. states and territories. PFEs can be pulled from NOAA Atlas 14 for locations in WestCOG to determine the probability of an expected precipitation amount likely to fall within a certain period of time, at a given location, in a given year. For the Northeastern States region, including WestCOG, NOAA published PFEs in 2015 and updated them in 2019 as NOAA Atlas 14, Volume 10, Version 3.0 (NOAA14).

NOAA'S Precipitation Frequency Data Server provides online access to PFEs across Connecticut here: https://hdsc.nws.noaa.gov/pfds/pfds_map_cont.html?bkmrk=ct. A user can select a location or click a point on a map and query PFEs. GIS grids are also available for download and cover the entire Northeastern States region of Volume 10.

This dataset can be used by WestCOG to understand an area's anticipated rainfall for a given duration. It is used for planning and design purposes, as PFEs serve as the de facto standards for designing, building, and operating infrastructure to withstand the forces of heavy precipitation and floods. When considered across multiple communities, NA14 can be used to understand spatial differences in anticipated heavy rainfall across a region.

Applicable Hazards for Dataset Use

- Extreme Storm Events
- Rainfall (Pluvial) Flooding
- Riverine (Fluvial) Flooding

SLOSH

Sea, Lake, and Overland Surges from Hurricanes (SLOSH) storm surge modeling can estimate the "near worst-case scenario of flooding for each hurricane category." The inundation extent for Category 1 through Category 4 storms along the WestCOG coast is available for use. To access this data online the data can be viewed on the ArcGIS Online hosted viewer here: https://www.arcgis.com/home/item.html?id=a2888059e0564520856e845dd913996d

This dataset can be utilized by WestCOG to understand which areas of the coastal communities, and infrastructure within these areas, are most at risk when extreme storms hit the state. It can be used for planning purposes to inform evacuation zone extents, what critical infrastructure is at risk, and can help

support long-term coastal resilience planning. SLOSH modeling can also be used as a tool to communicate risk to the public.

The storm surge data derived from SLOSH is available in the provided geodatabase.

https://www.arcgis.com/home/item.html?id=a2888059e0564520856e845dd913996d

Applicable Hazards for Dataset Use

- Coastal Flooding
- Extreme Storm Events

IBTrACS

The International Best Track Archive for Climate Stewardship (IBTrACS) project is the most complete global collection of tropical cyclones. It merges recent and historical tropical cyclone data from multiple agencies to create a unified, publicly available, best-track dataset. To read more about IBTrACs, follow the link provided here: https://www.ncei.noaa.gov/products/international-best-track-archive

IBTrACS is updated up to three times a week, and potentially more frequently during hurricane season. There are multiple access methods, including NetCDF, Comma Separated Values (CSV), and Shapefiles. Datasets can also be subset by Basin. The NA – North Atlantic basins cover storms that would impact WestCOG. Datasets can also be subset by period, including all available storms, storms since 1980, the three most recent years, and currently active storms. The link above provides access to each file type if a refresh of the current storm tracks is necessary.

This dataset can be utilized by WestCOG and its member municipalities to identify areas of historical storm exposure and the intensity of these storms. This data is best used in plans, such as hazard mitigation plans (HMPs), to show past occurrences and identify areas of historical exposure for prioritizing tropical cyclone adaptation efforts.

All North Atlantic Basin IBTrACS data were pulled and subset to a roughly 150-mile region surrounding WestCOG. This was done to collect all storms that may have impacted the WestCOG, not just landfalling events. This subset is available in the provided geodatabase.

Applicable Hazards for Dataset Use

- Coastal Flooding
- Extreme Storm Events

SPC

The Storm Prediction Center (SPC) provides probability statistics for severe thunderstorms and wildfires. The SPC provides the annual, monthly, or daily probability of tornadoes, thunderstorm winds, wildfires, and hail events of different severities. The SPC also provides an archive database of severe weather events, including tornado tracks, high wind events, large hail, and the average annual number of severe weather watches issued.

This data can be accessed here: https://www.spc.noaa.gov/climo/dataviewer/. Maps can also be downloaded as PNGs, as well as GIS file alternatives (shapefiles, JSON, netCDF). SPC storm archives can be accessed here: https://www.spc.noaa.gov/wcm/

SPC probability of severe storms data can be viewed in an interactive map, which allows users to adjust hazard, sector, climatology interval and length, and threshold, as well as map overlays such as states, counties, and NWS County Warning Areas (CWAs). This data can be utilized within member municipalities in WestCOG for resilience planning, housing growth plans and initiatives, and in HMPs and other plans to show the probability of future occurrences.

Applicable Hazards for Dataset Use

- Extreme Storm Events
- Wildfires

PDSI

The Palmer Drought Severity Index (PDSI) represents the severity of dry and wet spells over the U.S. based on monthly temperature and precipitation data, as well as the soil-water holding capacity at that location. PDSI data can be accessed at the link provided here: https://climatedataguide.ucar.edu/climate-data/palmer-drought-severity-index-pdsi

WestCOG and member municipalities should use the PDSI data for long-term drought planning. PDSI trends inform climate adaptation strategies, especially in regions experiencing increasing drought frequency. Municipalities can adjust landscaping codes or watering restrictions based on sustained PDSI trends. The PDSI should be used in wildfire risk assessments, HMPs, and water resource management.

Applicable Hazards for Dataset Use

- Drought

FEMA

The following are data sources used in this assessment that are hosted by FEMA.

DFIRMs and the NFHL

A DFIRM is a digital flood insurance map created by FEMA that delineates the SFHA and determines flood insurance requirements. DFIRMs are a way to understand the present-day flood zone and floodplain delineation for a place. FEMA's Flood Map Service Center provides the ability to download a DFIRM by searching an address, place, or coordinates. https://msc.fema.gov/portal/home

The National Flood Hazard Layer is a geospatial database containing current, effective flood hazard data. DFIRMs are available geospatially in this FEMA layer. The NFHL should be used to analyze the present-day flood zone and floodplain extents within WestCOG. The effective NFHL for Fairfield County can be downloaded here: https://msc.fema.gov/portal/advanceSearch.

DFIRMs and the NFHL can be best used by WestCOG and member municipalities for land-use and zoning decisions, infrastructure siting and design, HMPs, resilience planning, flood insurance and regulatory compliance, and community outreach and risk communication. Projects such as property acquisitions and elevations require DFIRMs included to indicate whether the project is within the SFHA.

The NFHL for Fairfield County is available in the provided geodatabase. FEMA's NFHL is not available in Litchfield County.

Applicable Hazards for Dataset Use

- Riverine (Fluvial) Flooding
- Coastal Flooding
- Rainfall (Pluvial) Flooding

Hazus

Hazus is FEMA's nationally standardized risk assessment software used to estimate potential losses from natural disasters, including floods. The 1% annual chance (100-year) floodplain for Litchfield County was not available in the NFHL and was generated using Hazus. This data was generated and used in Connecticut's Natural Hazard Mitigation Plan 2023 update.

The Hazus–produced 1% annual chance floodplain in WestCOG is available in the provided geodatabase.

Applicable Hazards for Dataset Use

- Riverine (Fluvial) Flooding
- Coastal Flooding
- Rainfall (Pluvial) Flooding

CIRCA

The following are data sources used in this assessment that are hosted by CIRCA.

CTPCSA

Connecticut's Physical Science Assessment Report (CTPCSA) provides an assessment of the state of the science regarding observed changes and projections for temperature and precipitation. All projections in this assessment use the high CO_2 emissions scenario (RCP 8.5). The CTPCSA provides annual precipitation and temperature trends for the state of Connecticut with projected increases for the mid- and late-century. The report can be accessed at the link provided here: https://circa.uconn.edu/ct-climate-science/

The data in this report can help communities within WestCOG update local stormwater management requirements to account for more frequent and intense storms, enhancing existing stormwater infrastructure capacity by right-sizing for future conditions. It can also help communities develop drought preparedness plans that account for these future increases in temperature.

Applicable Hazards for Dataset Use

- Rainfall (Pluvial) Flooding
- Extreme Heat
- Drought

CCVI

The Climate Change Vulnerability Index (CCVI) combines built, social, and ecological factors to identify areas that are vulnerable to flooding and heat-related impacts of climate change. These mapping tools can

be used to view vulnerability at both regional and site-specific scales to see how factors contribute. The CCVI Viewers can be accessed at the link provided here: https://resilientconnecticut.uconn.edu/ccvi/

WestCOG and member municipalities can use the CCVI for flood and heat to directly inform land-use, infrastructure, and resilience planning, as the CCVI identifies where people, infrastructure, and ecosystems are most vulnerable to these climate-driven hazards. The CCVI combines exposure, sensitivity, and adaptive capacity to map vulnerability at a fine spatial scale, helping towns prioritize where action is most needed.

CCVI data for flood and heat in WestCOG are available in the provided geodatabase.

Applicable Hazards for Dataset Use

- Rainfall (Pluvial) Flooding
- Coastal Flooding
- Riverine (Fluvial) Flooding
- Extreme Heat

Storm Surge and SLR Viewer

This dataset shows different flood maps for MHHW and storm-surge return periods of 10-, 30-, 100-, and 500-year events, with SLR projections (1 foot for MHHW only and 20 inches for all), above NAVD88 along the Connecticut coastline and adjacent inland areas. CIRCA research recommends that planning anticipates sea level will be 20 inches higher than the national tidal datum in Long Island Sound by 2050. This data can be accessed at the link provided here: https://resilientconnecticut.uconn.edu/datasets/connecticut-sea-level-rise-viewer/

WestCOG and member municipalities can use the MHHW, storm-surge, and SLR layers to inform land-use and zoning decisions, create coastal resilience overlay zones, and restrict development in high-risk areas. Additionally, these layers and the viewer can be used for infrastructure and capital improvement planning to identify roads that will be impassable during future storm events, critical facilities at risk, and bridges/culverts that need redesign to account for SLR.

SLR and storm surge data in WestCOG is available in the provided geodatabase.

Applicable Hazards for Dataset Use

- Coastal Flooding

CLEAR (CT DEEP and CT ECO)

The following are data sources used in this assessment that are hosted by UConn CLEAR on either CT DEEP or CT ECO.

NLCD Land Cover

Hosted on CT ECO, UConn CLEAR utilizes the National Land Cover Database's (NLCD) land cover dataset to map and quantify land cover change over time. The dataset can be accessed at the link provided here: https://maps.cteco.uconn.edu/projects/landcover/cl_nlcd/

WestCOG and member municipalities can use the NLCD land cover dataset for climate resilience and heat-mitigation planning. Examples include identifying vulnerable populations in high-impervious, low-canopy areas and helping plan cooling corridors and shade infrastructure. It can also be used to identify where development is expanding, evaluate whether zoning aligns with actual land cover, identify areas where growth pressures threaten natural resources, and support comprehensive plan updates.

Land cover data in WestCOG is available in the provided data folder as a layer file.

Applicable Hazards for Dataset Use

- N/A

Statewide 2023 DEM

Hosted on CT ECO, UConn CLEAR hosts the Connecticut statewide 2023 LiDAR-derived bare earth digital elevation model (DEM). The dataset can be accessed at the link provided here: https://geodata.ct.gov/datasets/f9bb656ee9f74544bcdac9c8831d122d/about

DEMs are foundational for identifying terrain-driven hazards, modeling flood extents, assessing landslide susceptibility, and analyzing coastal erosion risk. High-resolution DEMs significantly improve hazard accuracy and support disaster-risk planning.

DEM data in WestCOG is available in the provided data folder as a layer file.

Applicable Hazards for Dataset Use

- N/A

SLR MHW and AMM

Hosted on CT ECO, mean high water (MHW) and average monthly maximum (AMM) water levels are available for seven separate SLR scenarios. The dataset can be accessed at the link provided here: https://maps.cteco.uconn.edu/map-services/

WestCOG and member municipalities can use these tidal MHW and AMM SLR layers to inform land-use and zoning decisions, create coastal resilience overlay zones, and restrict development in high-risk areas.

SLR data for MHW and AMM in WestCOG is available in the provided data folder as layer files.

Applicable Hazards for Dataset Use

- Coastal Flooding

USDA

The following are data sources used in this assessment that are hosted by the USDA.

USFS WUI

The U.S. Forest Service defines the Wildland-Urban Interface (WUI) as an area where houses and other development meet or mix with undeveloped natural areas. They are areas of transition and change. When housing expands near forests and undeveloped land, more houses and people are at risk of wildfire, and wildfire management becomes more complex. The data can be accessed at the link provided here: https://silvis.forest.wisc.edu/globalwui/

WestCOG and member municipalities can use the WUI to identify where populations are at risk from wildfire ignition and spread. This can be used for land-use and zoning decisions, creating wildfire hazard overlay zones, emergency response and evacuation planning, and hazard mitigation planning.

WUI data in WestCOG is available in the provided geodatabase.

Applicable Hazards for Dataset Use

- Wildfires

Other

The following are additional datasets utilized in this assessment.

NRCC

The Northeast Regional Climate Center (NRCC) provides Intensity-Duration-Frequency (IDF) Curves for New York State, as well as Future Projections for a Changing Climate. While this dataset is specifically focused on NY, multiple stations extend into Western Connecticut and are applicable to WestCOG. This data can be accessed here: https://ny-idf-projections.nrcc.cornell.edu/

Present-day IDF curves can be considered an alternative to NA14 precipitation frequency estimates for design standards. Future projections can be used to adjust present-day estimates based on two emission scenarios (High – RCP8.5 and Low – RCP4.5) and 2010-2039, 2040-2069, and 2070-2099 time periods.

Applicable Hazards for Dataset Use

- Extreme Storm Events
- Rainfall (Pluvial) Flooding
- Riverine (Fluvial) Flooding

U.S. Drought Monitor

The U.S. Drought Monitor is a map released every Thursday that shows where drought is present and its severity across the U.S. It can be used to determine present-day drought conditions and to provide an archive of historical drought conditions for comparison. The U.S. Drought Monitor can be accessed at the link provided here: https://droughtmonitor.unl.edu/

WestCOG and member municipalities can utilize weekly updates to the US Drought Monitor for activating water conservation and wildfire preparation measures as needed- for example, implementing burn bans. It provides an objective communication tool for explaining drought location and severity. Long-term trends derived from the drought monitor can be used for risk and land use assessments.

Applicable Hazards for Dataset Use

- Drought

Appendix 1 – Metadata for Geospatial Database Data Layers

The following feature classes are included in the geodatabase, along with their associated metadata. The metadata for the Category 1-4 hurricane storm surge extent rasters are not included, as the files have embedded metadata already within the raster files.

Municipality_Boundaries

Tags

WestCOG, Communities, Municipalities, Political Boundaries, Administrative Areas

Summary (Purpose)

Political boundaries of 18 WestCOG communities.

Description (Abstract)

Political boundaries of 18 WestCOG communities.

Credits

WestCOG

WestCOG_Study_Area

Tags

Western Connecticut, WestCOG

Summary (Purpose)

Merged boundary area of all WestCOG communities for use in Climate and Stormwater Assessment Study.

Description (Abstract)

Merged boundary area of all WestCOG communities for use in Climate and Stormwater Assessment Study.

Credits

WestCOG

SVI_NRI_Shapefile_CensusTracts

Tags

Social Vulnerability Index, Census Tracts, National Risk Index

Summary

Social Vulnerability Index ranked from 'Very Low' to 'Very High' as published by FEMA's National Risk Index (NRI) Data. Published December 2025. This dataset measures social vulnerability by assessing how socioeconomic and demographic factors influence a community's capacity to prepare for, respond to, and recover from natural hazards.

Description

The Social Vulnerability Measure is a location-specific assessment of social vulnerability that uses 10 socioeconomic variables that contribute to a community's reduced ability to prepare for, respond to, and recover from hazards. These variables include:

Income-to-Poverty Ratio, Single- or zero-caregiver household, Unit-level crowding, Communication barrier, Lack of Employment, Disability, No health insurance coverage, Aged 65 years or older, No vehicle access, Households without broadband internet access.

County and Census tract Social Vulnerability Scores are classified into five qualitative categories, from "Very Low" to "Very High," by dividing Scores into quintiles. Social Vulnerability percentile rankings are available for all counties and Census tracts.

Credits

Federal Emergency Management Agency. (2025, December). *National Risk Index technical documentation (Version 1.20)*. U.S. Department of Homeland Security. https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

Floodplain_1pct_Annual_Chance_CT_NHMP_Hazus

Tags

Flood, 1% annual chance floodplain, 100-year flood, FEMA Hazus, Connecticut 2023 NHMP, Climate Change, Coastal Flooding, Riverine Flooding

Summary (Purpose)

The 1% Annual Chance Floodplain (FEMA Hazus – CT 2023 NHMP) dataset maps areas of Connecticut with a 1% probability of flooding in any given year, commonly referred to as the 100-year floodplain. This dataset supports statewide hazard mitigation planning, municipal risk assessments, and resilience-focused land-use and infrastructure decision-making.

Description (Abstract)

The 1% Annual Chance Floodplain dataset represents modeled flood extents generated using FEMA's Hazus loss estimation software and published in the State of Connecticut's 2023 Natural Hazard Mitigation Plan (NHMP). This dataset provides a consistent, statewide representation of flood risk for both riverine and coastal areas.

This dataset reflects the 1% annual chance flood event, meaning there is a 1-in-100 probability of flooding in any given year. It is widely used for regulatory, planning, and risk-reduction purposes.

Because it is derived from the 2023 NHMP, this dataset provides a standardized statewide floodplain layer that complements—but does not replace—FEMA's regulatory Flood Insurance Rate Maps (FIRMs). It is intended for planning and risk assessment, not insurance determinations. It covers Litchfield County, which FEMA's digital floodplains do not.

Credits

FEMA, CT NHMP, CIRCA, Dewberry

Floodplain_1pct_Annual_Chance_NFHL

Tags

1% Annual Chance Floodplain,100-Year Flood, FEMA NFHL, Flood Insurance Rate Maps, Flood, Riverine Flooding, Coastal Flooding, Connecticut

Summary (Purpose)

The 1% Annual Chance Floodplain (FEMA NFHL) dataset maps areas with a 1% probability of flooding in any given year, commonly known as the 100-year floodplain. Extracted from FEMA's National Flood Hazard Layer, this dataset supports regulatory compliance, hazard mitigation planning, flood insurance determinations, and resilience-focused land-use decision-making.

Description (Abstract)

The 1% Annual Chance Floodplain dataset represents the official Special Flood Hazard Area (SFHA) as defined by FEMA and published through the National Flood Hazard Layer (NFHL). This dataset includes both riverine and coastal flood hazard zones that have a 1% annual chance of being inundated. The data can be selected out of FEMA's NFHL by either selecting out the A, AE, AH, AO, or VE flood zones, using the "FLD_ZONE" field, or by selecting "T" using the "SFHA_TF" field.

Because this dataset is sourced directly from the FEMA NFHL, it reflects the most current, official regulatory flood hazard information available for Connecticut. It is updated continuously as FEMA issues new FIRMs, DFIRMs, and LOMRs.

Credits

FEMA NFHL

Floodplain_0_2pct_Annual_Chance_NFHL

Tags

0.2% Annual Chance Floodplain, 500-Year Flood, FEMA NFHL, Flood Insurance Rate Maps, Flood, Riverine Flooding, Coastal Flooding, Connecticut

Summary (Purpose)

The 0.2% Annual Chance Floodplain dataset maps areas with a 0.2% probability of flooding in any given year, commonly referred to as the 500-year floodplain. This dataset supports hazard mitigation planning, long-term resilience assessments, infrastructure risk evaluation, and land-use decision-making.

Description (Abstract)

The 0.2% Annual Chance Floodplain dataset represents areas identified by FEMA as having a 0.2% probability of flooding in any given year, equivalent to a 1 in 500 chance. These areas are part of FEMA's National Flood Hazard Layer (NFHL) and are typically designated as Zone X (shaded) on Flood Insurance Rate Maps (FIRMs). The data can be selected out of FEMA's NFHL by selecting where it states "0.2 PC ANNUAL CHANCE FLOOD HAZARD" in the "Zone_SUBTY" field.

Although the 0.2% floodplain is not regulatory for flood insurance purposes, it is widely used for risk-averse planning, climate resilience, and infrastructure design due to its representation of low-frequency, high-impact flood events.

Because this dataset is sourced directly from the FEMA NFHL, it reflects the most current, official regulatory flood hazard information available for Connecticut. It is updated continuously as FEMA issues new FIRMs, DFIRMs, and LOMRs.

Credits

FEMA NFHL

Tornado_Tracks

Tags

NOAA/NWS Storm Prediction Center (SPC), Severe Storm Climatology, Tornado, Wind

Summary (Purpose)

The Tornado Tracks layer includes all observed tornadoes in the contiguous United States from 1950 to 2024.

Description (Abstract)

This climatology represents the historic likelihood of observing an F/EF0+ tornado within 25 miles (40 km) of a location during a given day.

The historical probability was calculated by summing the number of times at least one tornado was observed at a given location on a given day of the year, and dividing by the number of times that day appeared in the dataset. A 2D Gaussian filter (sigma = 120 km) was then applied to spatially smooth the data. Finally, a Gaussian filter (sigma = 7 days) was applied to temporally smooth the data.

Credits

NOAA/NWS Storm Prediction Center (SPC), NCEI Storm Events Database

Tropical_Cyclone_Tracks

Tags

NOAA, International Best Track Archive for Climate Stewardship, IBTrACS, Tropical Cyclone, Climatology

Summary (Purpose)

The Tropical Cyclone Tracks layer includes all observed tropical cyclones in the International Best Track Archive for Climate Stewardship (IBTrACS) dataset, from 1851 to the present. This layer was clipped from its original, full North Atlantic domain to a 150-mile buffer surrounding WestCOG communities. A 150-mile buffer provides a full picture of storms that may have impacted WestCOG communities, even without making direct landfall.

Description (Abstract)

The International Best Track Archive for Climate Stewardship (IBTrACS) project is the most complete global collection of tropical cyclones available. It merges recent and historical tropical cyclone data from multiple agencies to create a unified, publicly available, best-track dataset that improves inter-agency comparisons. IBTrACS was developed in collaboration with all the World Meteorological Organization

(WMO) Regional Specialized Meteorological Centers, as well as other organizations and individuals worldwide.

Credits

Knapp, K. R., M. C. Kruk, D. H. Levinson, H. J. Diamond, and C. J. Neumann, 2010: The International Best Track Archive for Climate Stewardship (IBTrACS): Unifying tropical cyclone best track data. *Bulletin of the American Meteorological Society*, 91, 363-376. doi:10.1175/2009BAMS2755.1

Gahtan, J., K. R. Knapp, C. J. Schreck, H. J. Diamond, J. P. Kossin, M. C. Kruk, 2024: International Best Track Archive for Climate Stewardship (IBTrACS) Project, Version 4r01. [indicate subset used]. NOAA National Centers for Environmental Information. doi:10.25921/82ty-9e16 .

CCVI_Heat_Adaptive_Capacity

Tags

CIRCA, CCVI, Heat Adaptive Capacity, Extreme Heat, Climate Change, Connecticut, Resilience, Emergency Preparedness, Municipal Capacity, Community Resources, Cooling Centers

Summary (Purpose)

The Heat Adaptive Capacity layer evaluates the ability of communities to prepare for, respond to, and recover from extreme heat events. It supports resilience planning, capacity-building efforts, and equitable distribution of adaptation resources.

Description (Abstract)

The Climate Change Vulnerability Index (CCVI) developed by the Connecticut Institute for Resilience & Climate Adaptation (CIRCA) provides a statewide, data-driven assessment of community vulnerability to climate-related hazards. The Heat Adaptive Capacity layer measures the institutional, social, and economic resources that enable communities to reduce heat impacts and recover more quickly. Higher adaptive capacity reduces overall vulnerability.

Each geographic unit receives a relative adaptive capacity score, where higher values indicate stronger ability to manage extreme heat risks. This dataset helps identify communities that may require additional support, funding, or technical assistance to build heat resilience.

The CCVI is periodically updated as new climate projections, demographic data, and environmental datasets become available.

Credits

CIRCA

CCVI_Heat_Sensitivity

Tags

CIRCA, CCVI, Heat Sensitivity, Extreme Heat, Climate Change, Connecticut, Resilience, Public Health, Socioeconomic Vulnerability, Housing Vulnerability, Environmental Justice

Summary (Purpose)

The Heat Sensitivity layer measures how susceptible a community is to harm from extreme heat, based on demographic, health, and housing characteristics. It supports equitable climate adaptation and public health planning.

Description (Abstract)

The Climate Change Vulnerability Index (CCVI) developed by the Connecticut Institute for Resilience & Climate Adaptation (CIRCA) provides a statewide, data-driven assessment of community vulnerability to climate-related hazards. The Heat Sensitivity layer represents the social and physical characteristics that influence how severely a community may be affected by extreme heat. Sensitivity reflects the presence of populations or structures that are more likely to experience heat-related health impacts.

Each geographic unit receives a relative sensitivity score, helping planners identify communities where heat impacts may be more severe due to demographic or structural factors. This layer is essential for public health interventions, cooling center planning, and environmental justice analysis.

The CCVI is periodically updated as new climate projections, demographic data, and environmental datasets become available.

Credits

CIRCA

CCVI_Heat_Exposure

Tags

CIRCA, CCVI, Heat Exposure, Urban Heat Island, Extreme Heat, Climate Change, Resilience, Land Surface Temperature, Connecticut

Summary (Purpose)

The Heat Exposure layer indicates the extent to which Connecticut communities are physically exposed to extreme heat. It supports climate adaptation planning, public health preparedness, and resilience investment decisions.

Description (Abstract)

The Climate Change Vulnerability Index (CCVI), developed by the Connecticut Institute for Resilience & Climate Adaptation (CIRCA), provides a statewide, data-driven assessment of community vulnerability to climate-related hazards. The Heat Exposure layer quantifies the physical hazard component of heat vulnerability by mapping where extreme heat conditions are present or projected to intensify. Exposure is based on spatial datasets that represent land surface temperature, urban heat island intensity, vegetation cover, and climate projections of future heat events.

Each geographic unit receives a relative exposure score, enabling users to identify areas most likely to experience dangerous heat conditions. This layer is used in public health planning, heat emergency response, urban forestry initiatives, and statewide climate resilience assessments.

The CCVI is periodically updated as new climate projections, demographic data, and environmental datasets become available.

Credits

CIRCA

CCVI_Heat_Vulnerability

Tags

CIRCA, CCVI, Heat Vulnerability, Extreme Heat, Urban Heat Island, Resilience, Climate Change, Connecticut

Summary (Purpose)

The CIRCA CCVI Heat Vulnerability layer identifies Connecticut communities that face the greatest combined risk from extreme heat due to high exposure, high sensitivity, and low adaptive capacity. It supports public health preparedness, climate adaptation planning, and equitable distribution of resilience resources.

Description (Abstract)

The Climate Change Vulnerability Index (CCVI), developed by the Connecticut Institute for Resilience & Climate Adaptation (CIRCA), provides a statewide, data-driven assessment of community vulnerability to climate-related hazards. The Heat Vulnerability layer integrates three components, Heat Exposure, Heat Sensitivity, and Heat Adaptive Capacity, to produce a composite vulnerability score for each census block group or municipality.

These components are normalized and combined to generate a relative heat vulnerability score, where higher values indicate communities with greater potential for heat-related harm and reduced ability to prepare for or recover from extreme heat events.

The CCVI is periodically updated as new climate projections, demographic data, and environmental datasets become available.

Credits

CIRCA

CCVI_Flood_Adaptive_Capacity

Tags

CIRCA, CCVI, Flood Adaptive Capacity, Climate Change, Resilience, Connecticut, Emergency Preparedness, Municipal Capacity, Community Resources

Summary (Purpose)

The Flood Adaptive Capacity layer evaluates the ability of communities to prepare for, respond to, and recover from flood events. It supports resilience planning, capacity-building efforts, and equitable distribution of adaptation resources.

Description (Abstract)

The Climate Change Vulnerability Index (CCVI) developed by the Connecticut Institute for Resilience & Climate Adaptation (CIRCA) provides a statewide, data-driven assessment of community vulnerability to climate-related hazards. The Flood Adaptive Capacity layer measures the institutional, social, and economic resources that enable communities to reduce flood impacts and recover more quickly. Higher adaptive capacity reduces overall vulnerability.

The layer assigns a relative adaptive capacity score, with higher values indicating a greater ability to manage flood risks. This dataset is used to identify communities that may require additional support, funding, or technical assistance to build resilience.

The CCVI is updated periodically as new climate projections, hazard datasets, and demographic information become available.

Credits

CIRCA

CCVI_Flood_Sensitivity

Tags

CIRCA, CCVI, Flood Sensitivity, Climate Change, Resilience, Connecticut, Critical Infrastructure, Housing, Environmental Justice, Public Health, Socioeconomic Vulnerability

Summary (Purpose)

The Flood Sensitivity layer measures how susceptible a community is to harm during a flood, based on demographic, housing, and infrastructure characteristics. It supports equitable climate adaptation and environmental justice planning.

Description (Abstract)

The Climate Change Vulnerability Index (CCVI) developed by the Connecticut Institute for Resilience & Climate Adaptation (CIRCA) provides a statewide, data-driven assessment of community vulnerability to climate-related hazards. The Flood Sensitivity layer represents the social and physical characteristics that influence how severely a community may be affected by flood events. Sensitivity reflects the presence of populations, structures, or systems that are more likely to experience harm or disruption.

Each geographic unit receives a relative sensitivity score, enabling planners to identify communities where flood impacts may be more severe due to demographic or structural factors. This layer is essential for environmental justice analysis, public health planning, and resilience prioritization.

The CCVI is updated periodically as new climate projections, hazard datasets, and demographic information become available.

Credits

CIRCA

CCVI_Flood_Exposure

Tags

CIRCA, CCVI, Flood Exposure, Climate Change, Resilience, Connecticut, Inland Flooding, Storm Surge, Sea Level Rise

Summary (Purpose)

The Flood Exposure layer identifies the degree to which Connecticut communities are physically exposed to current and future flood hazards. It supports hazard mitigation planning, climate adaptation strategies, and resilience investment decisions.

Description (Abstract)

The Climate Change Vulnerability Index (CCVI), developed by the Connecticut Institute for Resilience & Climate Adaptation (CIRCA), provides a statewide, data-driven assessment of community vulnerability to climate-related hazards. The Flood Exposure layer quantifies the physical hazard component of flood vulnerability by mapping where flood risks are present or projected to increase. Exposure is based on spatial datasets representing coastal flooding, riverine flooding, storm surge, sea-level rise, and extreme precipitation events.

The layer assigns a relative exposure score to each census block group or municipality, allowing users to identify areas most likely to experience flood impacts. It is intended for use in hazard mitigation plans, resilience project prioritization, and statewide climate risk assessments.

The CCVI is updated periodically as new climate projections, hazard datasets, and demographic information become available.

Credits

CIRCA

CCVI_Flood_Vulnerability

Tags

CIRCA, CCVI, Flood Vulnerability, Climate Change, Resilience, Connecticut

Summary (Purpose)

The CIRCA CCVI Flood Vulnerability layer identifies and maps the relative vulnerability of Connecticut communities to flood-related climate hazards. It supports state agencies, municipalities, planners, and researchers in risk assessment, resilience planning, and equitable climate adaptation.

Description (Abstract)

The Climate Change Vulnerability Index (CCVI), developed by the Connecticut Institute for Resilience & Climate Adaptation (CIRCA), provides a statewide, data-driven assessment of community vulnerability to climate-related hazards. The Flood Vulnerability layer integrates physical exposure, environmental conditions, and socioeconomic sensitivity indicators.

The dataset synthesizes multiple factors—including flood hazard zones, projected sea-level rise, storm surge exposure, land cover, infrastructure characteristics, and demographic indicators—to produce a relative vulnerability score for each census block group or municipality (depending on the CCVI version). Higher scores indicate communities with greater potential impacts from flooding and reduced capacity to prepare for, respond to, or recover from flood events.

The CCVI is updated periodically as new climate projections, hazard datasets, and demographic information become available.

Credits

CIRCA

CIRCA_MHHW

Tags

CIRCA, MHHW, Tidal Datums, Coastal Flooding, Sea Level Rise, Climate Change, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA MHHW dataset maps the extent of Mean Higher High Water, which represents the average of the two daily high tides. It supports coastal planning, tidal-flooding assessments, and baseline comparisons for sea-level-rise scenarios.

Description (Abstract)

The CIRCA MHHW layer represents the spatial extent of Mean Higher High Water, a standard tidal datum used to characterize present-day high-tide conditions along Connecticut's coastline. This dataset provides a baseline for evaluating coastal flooding, tidal inundation, and the impacts of sea-level rise.

The model incorporates NOAA tidal datum information, high-resolution elevation data, and coastal topography and bathymetry.

The MHHW layer is updated as new tidal datum information and elevation datasets become available.

Credits

CIRCA

CIRCA_MHHW_20inSLR

Tags

CIRCA, MHHW, Tidal Datums, Coastal Flooding, Sea Level Rise, Climate Change, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA MHHW + 20 Inches SLR dataset maps the projected extent of Mean Higher High Water under 20 inches of sea-level rise, supporting long-term coastal resilience planning, infrastructure risk assessment, and climate adaptation strategies.

Description (Abstract)

The CIRCA MHHW + 20 Inches SLR layer represents the spatial extent of Mean Higher High Water after applying 20 inches of projected sea-level rise, a scenario used widely in Connecticut coastal planning for

the 2050 planning horizon. This dataset illustrates how tidal flooding will expand as sea levels rise due to climate change.

The model incorporates NOAA tidal datum information, a 20-inch sea-level rise projection from CIRCA, high-resolution elevation data, and coastal topography and bathymetry.

The dataset is updated as new sea-level rise projections and elevation datasets become available.

Credits

CIRCA

CIRCA_MHHW_1ftSLR

Tags

CIRCA, MHHW, Tidal Datums, Coastal Flooding, Sea Level Rise, Climate Change, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA MHHW + 1 Foot SLR dataset maps the projected extent of Mean Higher High Water under 1 foot of sea-level rise, supporting coastal resilience planning, hazard mitigation, and long-term climate adaptation.

Description (Abstract)

The CIRCA MHHW + 1 Foot SLR layer represents the spatial extent of Mean Higher High Water after applying 1 foot of projected sea-level rise. This scenario provides a near- to mid-term view of how tidal flooding will expand as sea levels rise.

The model incorporates NOAA tidal datum information, 1-foot sea-level rise projection from CIRCA, high-resolution elevation data, and coastal topography and bathymetry.

The dataset is updated as new sea-level rise projections and elevation datasets become available.

Credits

CIRCA

CIRCA_Coastal_Storm_Surge_10_year

Tags

CIRCA, Storm Surge, 10-Year Return Interval, Coastal Flooding, Climate Change, Sea Level Rise, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA 10-year (10% annual chance) storm surge dataset, maps areas of Connecticut and WestCOG projected to be inundated by a 10-year return interval storm surge event. It supports hazard mitigation planning, coastal resilience assessments, and climate adaptation decision-making.

Description (Abstract)

The CIRCA 10-year (10% annual chance) storm surge dataset represents modeled storm-surge extents associated with a 10-year-return-interval coastal storm, reflecting relatively frequent but still damaging surge events. This dataset is part of CIRCA's suite of coastal hazard layers developed to support statewide resilience planning.

The 10-year return interval scenario is designed to show moderate, recurring surge impacts, helping communities understand how even lower-intensity storms can cause flooding under current climate conditions.

The dataset is updated as new sea-level rise projections, elevation data, and coastal modeling techniques become available.

Credits

CIRCA

CIRCA_Coastal_Storm_Surge_10_year_20in_SLR

Tags

CIRCA, Storm Surge, 10-Year Return Interval, Coastal Flooding, Climate Change, Sea Level Rise, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA 10-year (10% annual chance) storm surge under a 20-inch sea level rise scenario dataset maps areas of Connecticut and WestCOG projected to be inundated by a 10-year return interval storm surge event with 20 inches of sea level rise consistent with the 2050 planning horizon. It supports long-range hazard mitigation planning, coastal resilience assessments, and climate adaptation decision-making.

Description (Abstract)

The CIRCA 10-year (10% annual chance) storm surge with 20 inches of sea level rise dataset represents modeled storm-surge extents associated with a 10-year return-interval coastal storm through the 2050 planning horizon, reflecting relatively frequent but still damaging surge events in future scenarios. This dataset is part of CIRCA's suite of coastal hazard layers developed to support statewide resilience planning.

This scenario is designed to show moderate, recurring surge impacts, helping communities evaluate risks to infrastructure, neighborhoods, and critical facilities that may be exposed during lower-intensity coastal storms in the future.

The dataset is updated as new sea-level rise projections, elevation data, and coastal modeling techniques become available.

Credits

CIRCA

CIRCA_Coastal_Storm_Surge_30_year

Tags

CIRCA, Storm Surge, 30-Year Return Interval, Coastal Flooding, Climate Change, Sea Level Rise, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA 30-year (3.33% annual chance) storm-surge dataset maps areas of Connecticut and WestCOG projected to be inundated by a 30-year-return-interval storm-surge event. It supports hazard mitigation planning, coastal resilience assessments, and climate adaptation decision-making.

Description (Abstract)

The CIRCA 30-year (3.33% annual chance) storm surge dataset represents modeled storm-surge extents associated with a 30-year-return-interval coastal storm, reflecting moderately infrequent but high-impact surge events. This dataset is part of CIRCA's suite of coastal hazard layers developed to support statewide resilience planning.

The 30-year return interval scenario illustrates more severe surge impacts than more frequent events, helping communities evaluate risks to infrastructure, neighborhoods, and critical facilities that may be exposed during stronger coastal storms.

The dataset is updated as new sea-level rise projections, elevation data, and coastal modeling techniques become available.

Credits

CIRCA

CIRCA_Coastal_Storm_Surge_30_year_20inSLR

Tags

CIRCA, Storm Surge, 30-Year Return Interval, Coastal Flooding, Climate Change, Sea Level Rise, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA 30-year (3.33% annual chance) storm surge under a 20-inch sea level rise scenario dataset maps areas of Connecticut and WestCOG projected to be inundated by a 30-year return interval storm surge event with 20 inches of sea level rise consistent with the 2050 planning horizon. It supports long-range hazard mitigation planning, coastal resilience assessments, and climate adaptation decision-making.

Description (Abstract)

The CIRCA 30-year (3.33% annual chance) storm surge with 20 inches of sea level rise dataset represents modeled storm-surge extents associated with a 30-year return-interval coastal storm through the 2050 planning horizon, reflecting moderately infrequent but high-impact surge events in future scenarios. This dataset is part of CIRCA's suite of coastal hazard layers developed to support statewide resilience planning.

This scenario illustrates more severe surge impacts than those from more frequent events, helping communities evaluate risks to infrastructure, neighborhoods, and critical facilities that may be exposed to stronger coastal storms in the future.

The dataset is updated as new sea-level rise projections, elevation data, and coastal modeling techniques become available.

Credits

CIRCA

CIRCA_Coastal_Storm_Surge_100_year

Tags

CIRCA, Storm Surge,100-Year Return Interval, Coastal Flooding, Climate Change, Sea Level Rise, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA 100-year (1% annual chance) storm surge dataset maps areas of Connecticut and WestCOG projected to be inundated by a 100-year-return-interval storm-surge event. It supports hazard mitigation planning, coastal resilience assessments, and climate adaptation decision-making.

Description (Abstract)

The CIRCA 100-year (1% annual chance) storm surge dataset represents modeled storm-surge extents associated with a 100-year-return-interval coastal storm, reflecting rare but severe surge events. This dataset is part of CIRCA's suite of coastal hazard layers developed to support statewide resilience planning.

The 100-year return interval scenario illustrates major surge impacts, helping communities evaluate risks to infrastructure, neighborhoods, and critical facilities that may be exposed during major coastal storms.

The dataset is updated as new sea-level rise projections, elevation data, and coastal modeling techniques become available.

Credits

CIRCA

CIRCA_Coastal_Storm_Surge_100_year_20inSLR

Tags

CIRCA, Storm Surge,100-Year Return Interval, Coastal Flooding, Climate Change, Sea Level Rise, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA 100-year (1% annual chance) storm surge under a 20-inch sea level rise scenario dataset maps areas of Connecticut and WestCOG projected to be inundated by a 100-year return interval storm surge event with 20 inches of sea level rise consistent with the 2050 planning horizon. It supports long-range hazard mitigation planning, coastal resilience assessments, and climate adaptation decision-making.

Description (Abstract)

The CIRCA 100-year (1% annual chance) storm surge with 20 inches of sea level rise dataset represents modeled storm surge extents associated with a 100-year return interval coastal storm through the 2050 planning horizon, reflecting rare but severe surge events in future scenarios. This dataset is part of CIRCA's suite of coastal hazard layers developed to support statewide resilience planning.

This scenario illustrates the impacts of a major surge, helping communities evaluate risks to infrastructure, neighborhoods, and critical facilities that may be exposed during future coastal storms.

The dataset is updated as new sea-level rise projections, elevation data, and coastal modeling techniques become available.

Credits

CIRCA

CIRCA_Coastal_Storm_Surge_500_year

Tags

CIRCA, Storm Surge, 500-Year Return Interval, Coastal Flooding, Climate Change, Sea Level Rise, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA 500-year (0.2% annual chance) storm surge dataset, maps areas of Connecticut and WestCOG projected to be inundated by a 500-year return interval storm surge event. It supports hazard mitigation planning, coastal resilience assessments, and climate adaptation decision-making.

Description (Abstract)

The CIRCA 500-year (0.2% annual chance) storm surge dataset represents modeled storm surge extents associated with a 500-year return interval coastal storm, reflecting rare but highly destructive surge events. This dataset is part of CIRCA's suite of coastal hazard layers developed to support statewide resilience planning.

The 500-year return interval scenario illustrates extreme surge impacts, helping communities evaluate risks to infrastructure, neighborhoods, and critical facilities that may be exposed during catastrophic coastal storms.

The dataset is updated as new sea-level rise projections, elevation data, and coastal modeling techniques become available.

Credits

CIRCA

CIRCA_Coastal_Storm_Surge_500_year_20inSLR

Tags

CIRCA, Storm Surge, 500-Year Return Interval, Coastal Flooding, Climate Change, Sea Level Rise, Hazard Mapping, Connecticut

Summary (Purpose)

The CIRCA 500-year (0.2% annual chance) storm surge under 20 inches of sea level rise scenario dataset, maps areas of Connecticut and WestCOG projected to be inundated by a 500-year return interval storm surge event with 20 inches of sea level rise consistent with the 2050 planning horizon. It supports long-range hazard mitigation planning, coastal resilience assessments, and climate adaptation decision-making.

Description (Abstract)

The CIRCA 500-year (0.2% annual chance) storm surge with 20 inches of sea level rise dataset represents modeled storm surge extents associated with a 500-year return interval coastal storm through the 2050 planning horizon, reflecting rare but highly destructive surge events in future scenarios. This dataset is part of CIRCA's suite of coastal hazard layers developed to support statewide resilience planning.

This scenario illustrates the impacts of extreme surges, helping communities evaluate risks to infrastructure, neighborhoods, and critical facilities that may be exposed to catastrophic coastal storms in the future.

The dataset is updated as new sea-level rise projections, elevation data, and coastal modeling techniques become available.

Credits

CIRCA

CONUS_WUI_block_1990_2020_change_v4

Tags

environment, fragmentation, Wildland Urban Interface, environment, Housing Growth, Coterminous United States, United States, sprawl, wildland fire, WUI

Summary (Purpose)

To provide a spatially detailed national assessment of the Wildland Urban Interface (WUI) and WUI change between 1990 and 2020 across the coterminous U.S. to support wildland fire research, policy and management, and inquiries into the effects of housing growth on the environment.

Description (Abstract)

The Wildland-Urban Interface (WUI) is the area where houses meet or intermingle with undeveloped wildland vegetation. This makes the WUI a focal area for human-environment conflicts such as wildland fires, habitat fragmentation, invasive species, and biodiversity decline. Using geographic information systems (GIS), we integrated U.S. Census and USGS National Land Cover Data, to map the Federal Register definition of WUI (Federal Register 66:751, 2001). These data are useful within a GIS for mapping and analysis at national, state, and local levels.

Credits

N/A