

Making it local, making it real: Free communication tools from Climate Central

Karen Florini - Vice President for Strategic Impact

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Aug. 17, 2023



About Climate Central

- Climate science research and communications NGO
- Non-advocacy
- Chiefly B2B
- Accurate, effective, ubiquitous climate communications

 the Guardian

Truthful climate reporting shifts viewpoints, but only briefly, study finds

Ohio State University researchers gauged responses to climate science versus scepticism and suggest **facts bear repeating**

Jun 20th (177 kB) ▾



Key tools & programs

- Climate Matters
- WeatherPower
- Climate Shift Index
- Realtime Climate
- Sea Level Rise

CLIMATE MATTERS



LA AUTORIDAD EN EL TIEMPO

CAMBIO CLIMÁTICO Y USO DEL AGUA

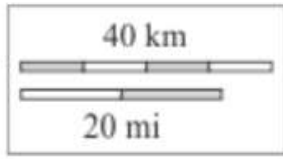
- INUNDACIONES**
Contaminan el agua potable
- CALOR**
Alimenta floraciones de algas, derrite nieve acumulada.
- SEQUÍA**
Daña cultivos, seca el suministro

CLIMATE CO CENTRAL

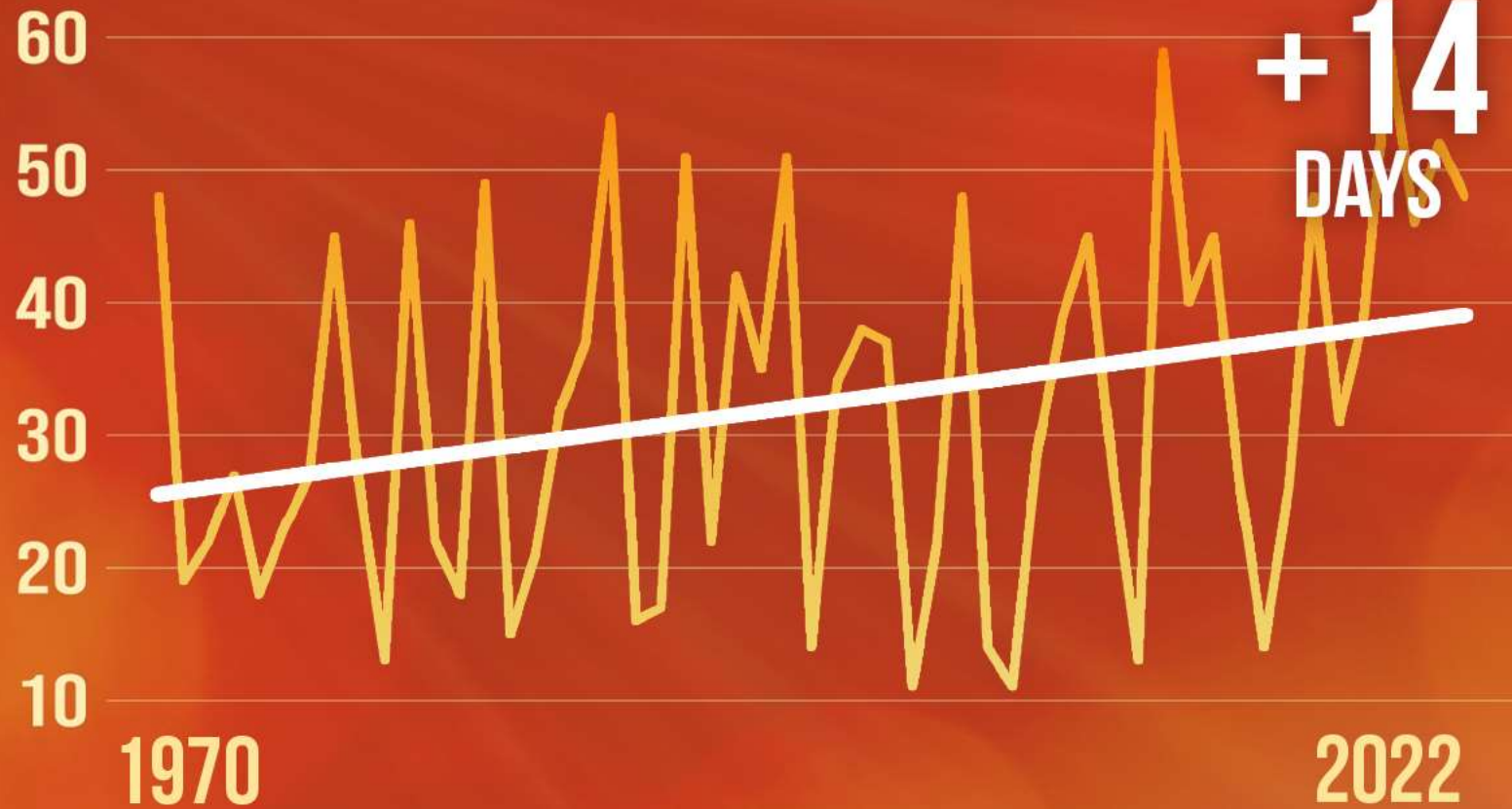
Brooke Brighton @BrookeBrighton · Jun 21
Today, meteorologists across the country are spreading the word about #showyourstripes. The initiative aims to share a snapshot of climate change in your area & bring awareness regarding the topic. The background behind me shows the climate pattern in Wisconsin from 1895-2018.



2022: ~7,000 on-air uses

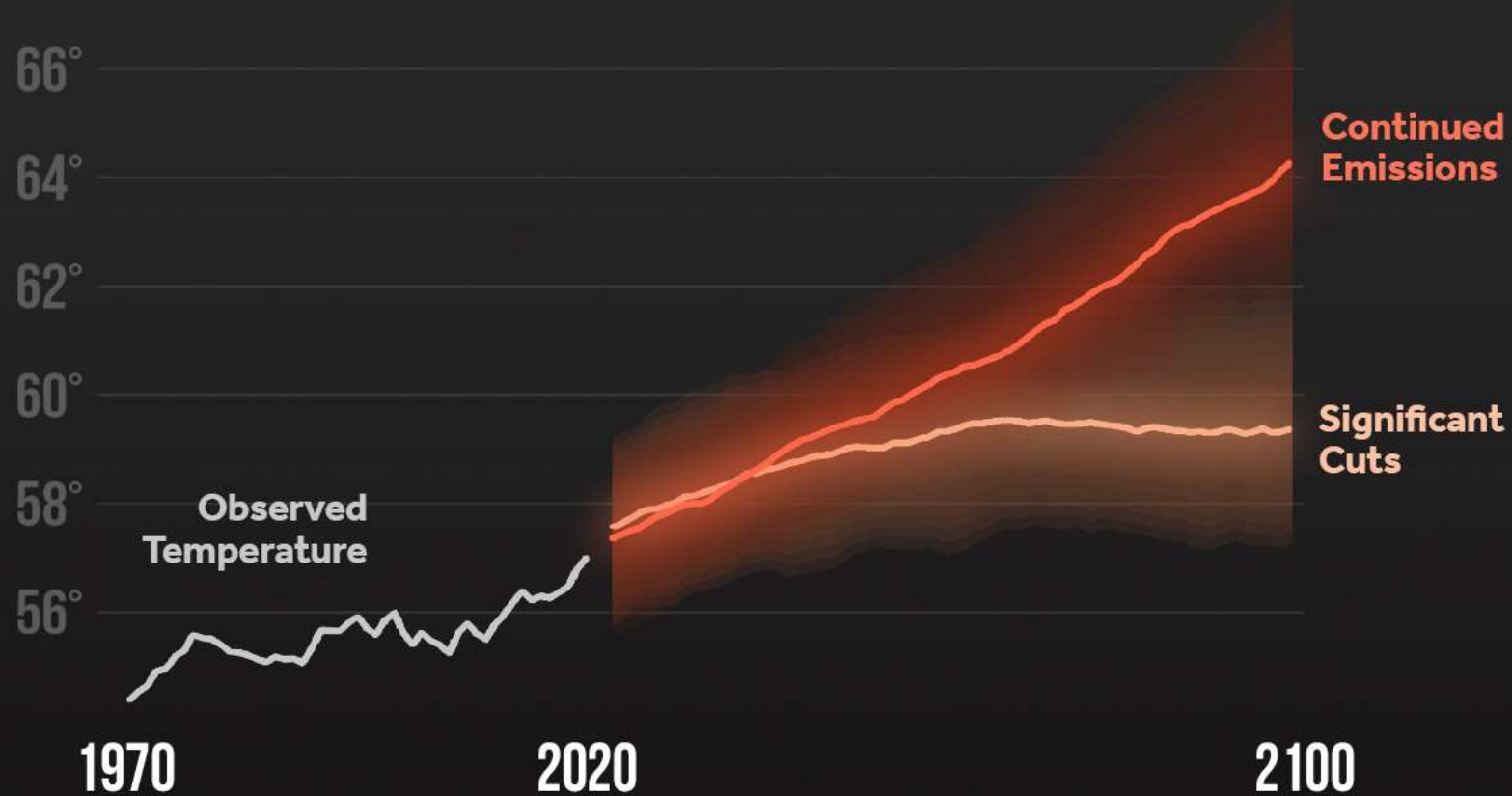


BALTIMORE DAYS ABOVE 90°



Change in annual days above 90° based on rate of change since 1970.
Source: RCC-ACIS.org

BALTIMORE FUTURE WARMING CHOICES



Projections of annual average temperature (°F) under significant emissions cuts (SSP1-2.6) or continued emissions (SSP3-7.0)
Source: CMIP6

MORE INTENSE RAINFALL

Annual average hourly rainfall (hundredths of inches)



Average hourly rainfall is the total annual rainfall divided by the number of hours with rainfall.
Source: NCEP/NCAR, ACE2

CLIMATE CENTRAL

DROUGHT STREAKS IN 2022

Consecutive Weeks in Drought

2 10 20 30 40+

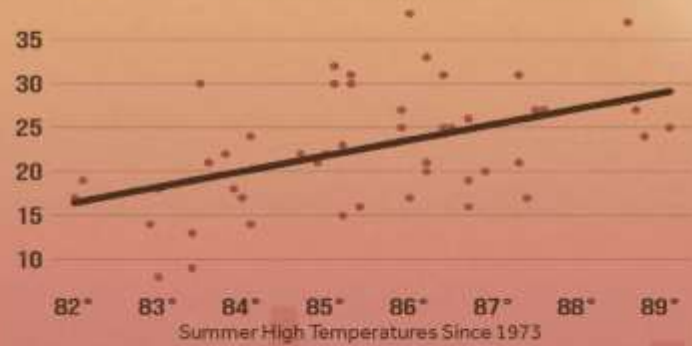


Consecutive weeks in drought (175–1275, minimum of 2 weeks in D1–D4 category)
Data accessed 11/01/2022
Source: U.S. Drought Monitor

CLIMATE CENTRAL

Salisbury Higher Temps = More Stagnant Air

Stagnant Summer Days



Stagnant Summer Days: Annual days with a temperature $\le 65^{\circ}\text{F}$ and a wind speed $\le 3\text{ mph}$ (NOAA/NCEP Reanalysis 1979-2022)

CLIMATE CO CENTRAL

Baltimore URBAN HEAT HOT SPOTS



Urban heat island intensity (UHI) by census tract. Climate Central analysis based on Bingmaps (2022) and Demographics (2022)

CLIMATE CO CENTRAL

MORE MOSQUITO DAYS

Annual days suitable for mosquitoes

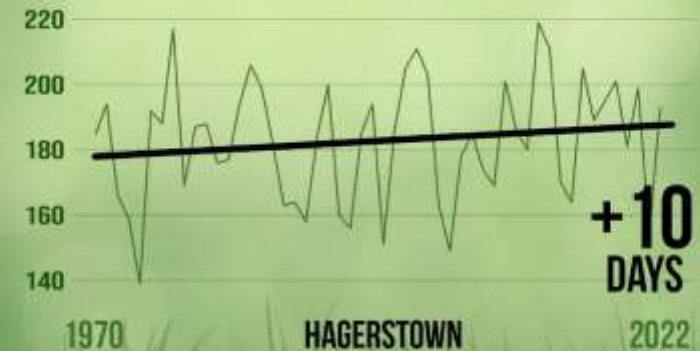


Mosquito days: $50-91^{\circ}\text{F}$, relative humidity $\ge 42\%$. Source: Samson and Drake (2015), p.494-7

CLIMATE CO CENTRAL

LONGER GROWING SEASON = LONGER ALLERGY SEASON

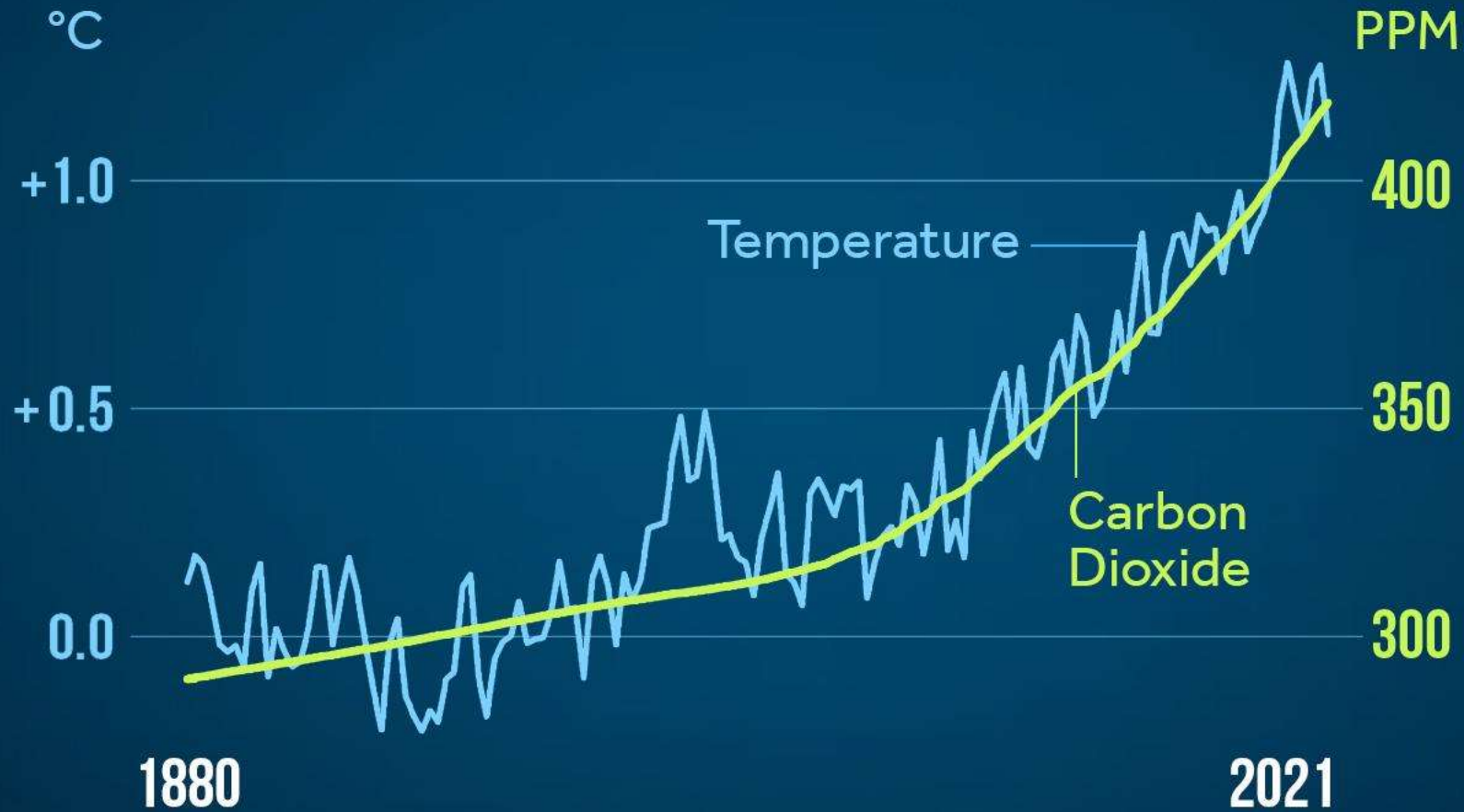
Freeze-free season (days)



Freeze-free season: $\ge 32^{\circ}\text{F}$ (no snow or ice) days per season (NOAA, 2022)

CLIMATE CO CENTRAL

TEMPERATURE & CARBON DIOXIDE



Global temperature anomalies averaged and adjusted to early industrial baseline (1881-1910)
Source: NASA GISS, NOAA NCEI, ESRL

METHANE CONCENTRATION

PPB

1900

1850

1800

1750

1700

1650

1983

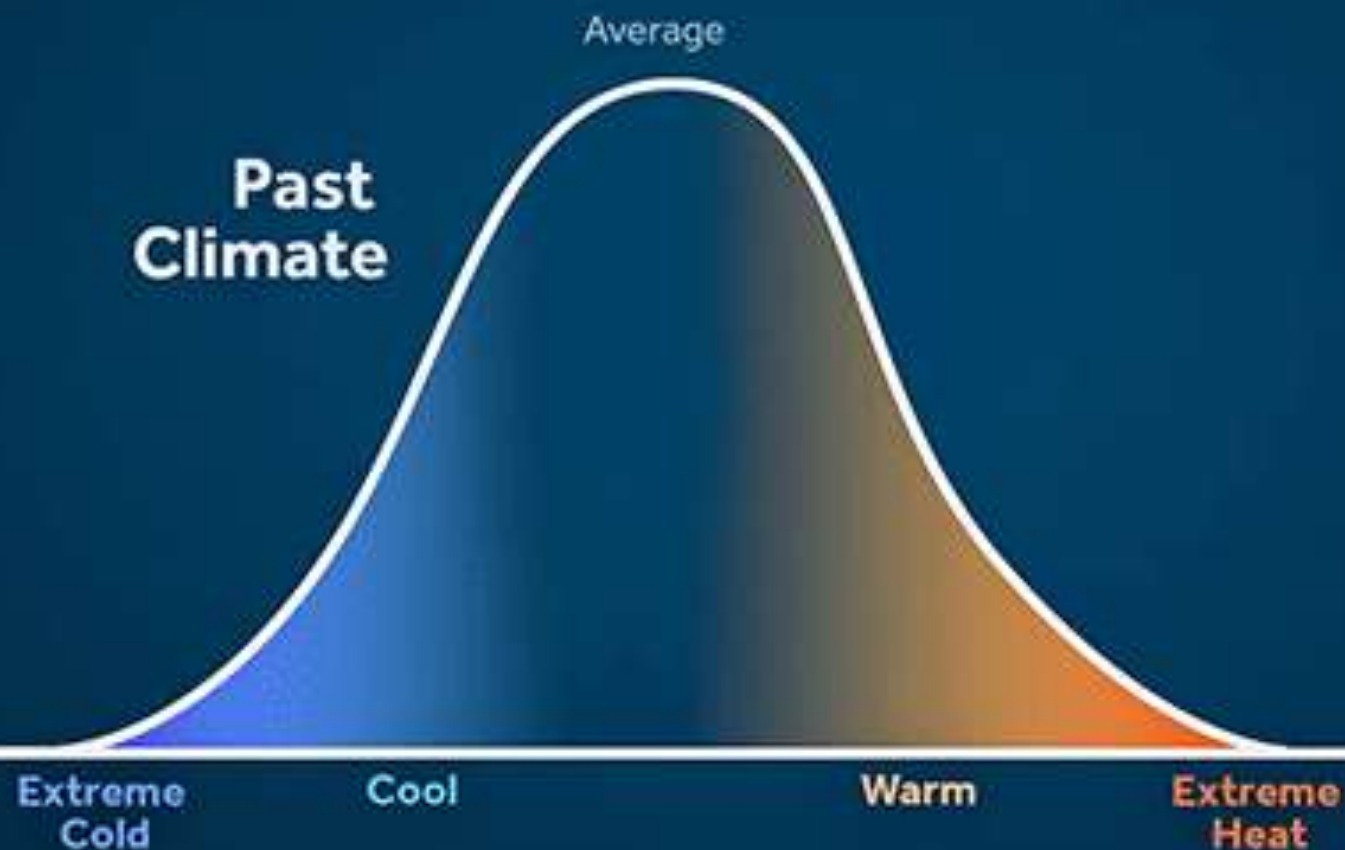
2021

80x

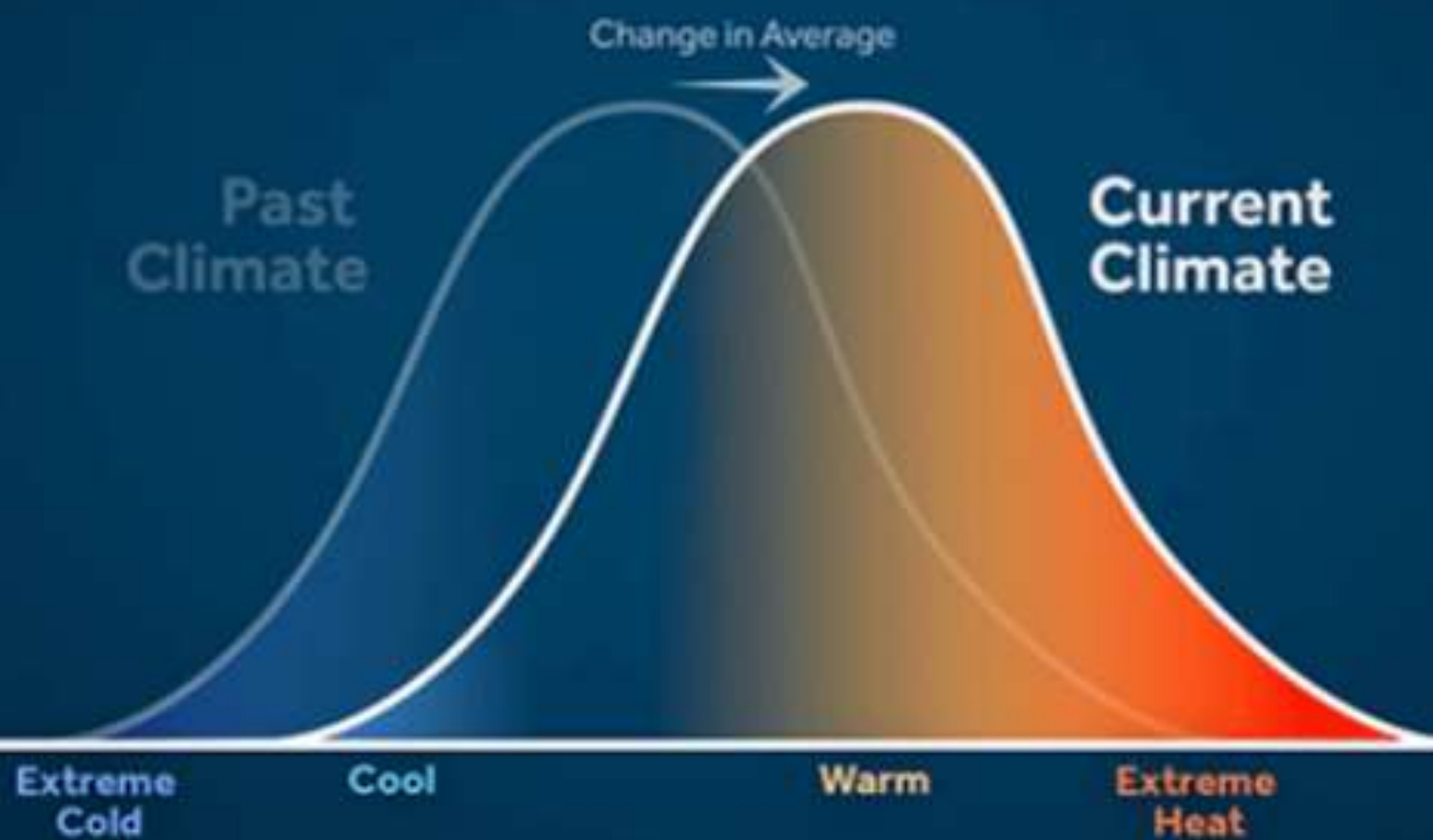
Atmospheric methane concentration
Source: US EPA

CLIMATE  CENTRAL

SMALL CHANGE IN AVERAGE **BIG CHANGE IN EXTREMES**



SMALL CHANGE IN AVERAGE **BIG CHANGE IN EXTREMES**





NEW JERSEY

Climate Friendly Homes Can Save:

Utility costs:

\$721 per year

Emissions reductions:

3.2 tons of CO2 equivalent per year

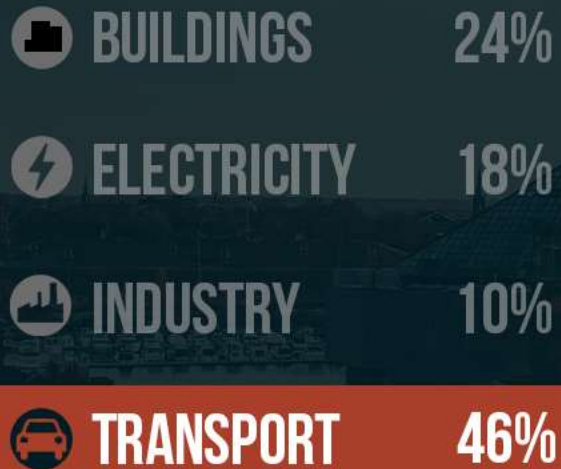
CLIMATE CO CENTRAL

Scoring per household based on 2017 data.



MARYLAND CLIMATE SOLUTIONS

TOP-EMITTING SECTORS



MOST TRANSPORT EMISSIONS FROM

Burning fossil fuels

CLIMATE SOLUTIONS FOR TRANSPORT

- Reduce demand
- Electric & fuel-efficient vehicles
- Walkable & bikeable cities

Top four emitting sectors. Listed source(s) cover 90-98% of GHG emissions in the state's top-emitting sector as of 2020.
Source: EPA (2021); IPCC (2022).

Resources

Content 3541

Graphics 699

Tools 11

Filter by Keyword



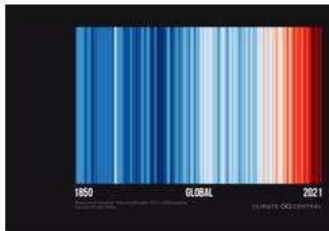
Search for cities & states

Pick dates

Search for topics...

Type

- Alaska
- Arizona
 - Arizona (state)
 - Flagstaff
 - Phoenix
 - Prescott
 - Tucson
 - Yuma • El Centro



es 2022

es day—a time to
ate change and
e iconic Warming
global Warming



Partnership Journalism • June 13, 2022

Rising seas, salt water threaten coastal farms, so farmers adapt

(with WFAE)

ls at Risk

v Climate Central
ls—and the
enefits they provide to coastal communities,
economies, and ecosystems—can, or cannot,
adapt to rising sea levels.



Climate Matters • June 1, 2022

2022 Summer Package

Summers are warming across the U.S. Since 1970, average summer temperatures have increased in 96% of 246 U.S. locations analyzed.

TEMPERATURE TRENDS

climatecentral.org/resources

Key tools & programs

- Climate Matters
- **WeatherPower**
- Climate Shift Index
- Realtime Climate
- Sea Level Rise

- State
- Media Market
- County
- Congressional District

MARYLAND SOLAR ELECTRICITY GENERATION

	YESTERDAY	TODAY	TOMORROW
ELECTRICITY GENERATED (MWH)	8,200	7,100	8,200
EQUIVALENT HOMES POWERED	253,000	220,000	252,000
HOME ENERGY SAVINGS	117%	101%	112%

Electricity Generated (mwh): Approximate electricity generated in megawatt-hours.

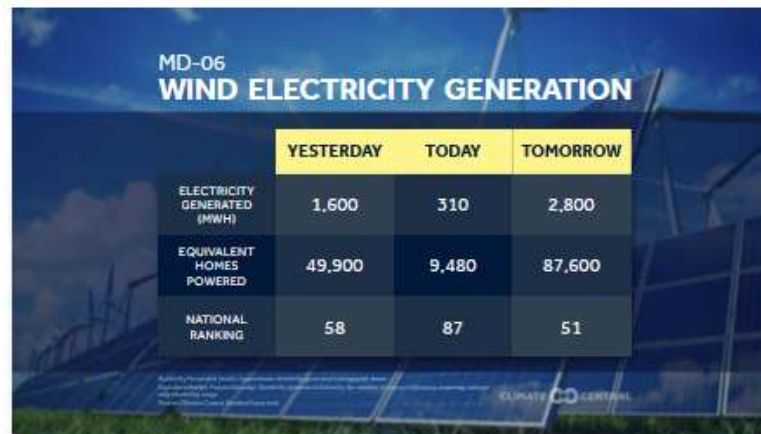
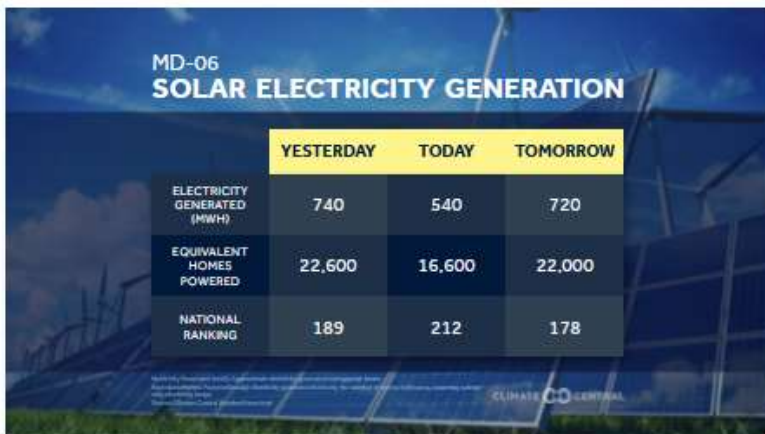
Equivalent Homes Powered: Average number of homes that can be powered by the electricity generated.

Home Energy Savings: Percentage of energy costs saved by using solar energy.

Source: Climate Central, based on data from the National Renewable Energy Laboratory (NREL).

Source: Climate Central, based on data from the National Renewable Energy Laboratory (NREL).

weatherpower.climatecentral.org



Customize and download a production-ready forecast graphic:

Choose graphic

- Wind
- Solar

Choose background

- Wind/solar image
- Black
- Transparent
- Include title

Choose language

- English
- Spanish

Choose Days (columns)

(up to 3)

- Yesterday
- Today
- Tomorrow
- Wednesday
- Thursday

Choose data (rows)

(up to 3 per graphic) [i What do these mean?](#)

- Electricity Generated (mwh)

Equivalencies:

- CO2 Avoided (tons)
- Equivalent % Homes Powered (locally)
- Equivalent Number of Homes Powered (locally)
- Equivalent Number of Homes Powered (regionally; wind only)
- Car Miles
- Trees Planted
- Smartphones Charged

Other metrics:

- Home Energy Savings (solar only)
- Power Index (0-10 scale)
- National Ranking (out of 436 congressional districts)
- State Ranking (out of 8 congressional districts)

Download Graphic

Key tools & programs

- Climate Matters
- WeatherPower
- **Climate Shift Index**
- Realtime Climate
- Sea Level Rise

Climate Shift Index

[What is the Climate Shift Index?](#)

Search Location

Choose A Date

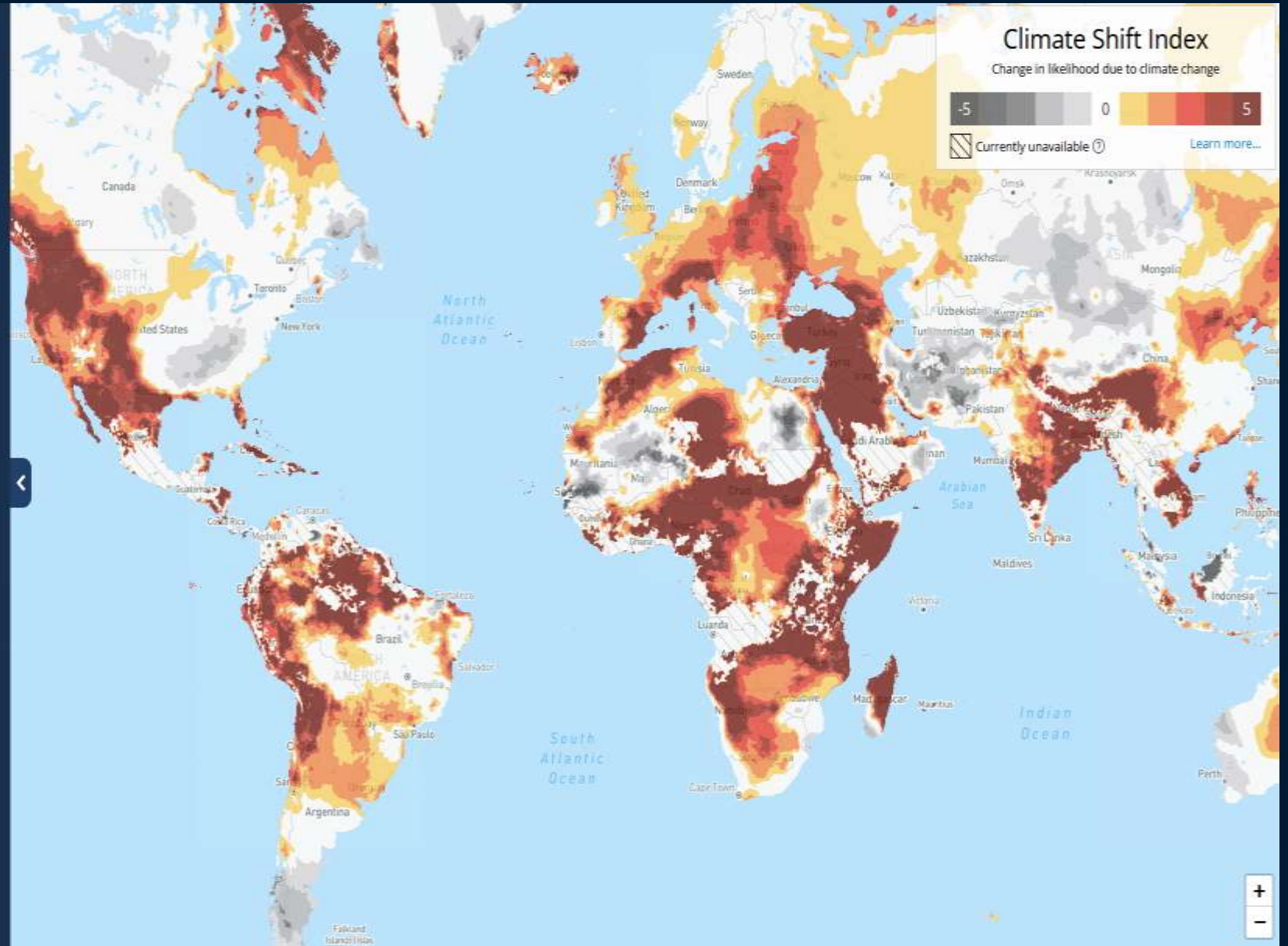
08/16/2023

The map shows the Climate Shift Index™ (CSI) for the daily average temperature. High CSI values mean climate change made the temperatures more likely.

Share

Sign up for our free climate data email →

Forecast Generated On 16 Aug 2023



Climate Shift Index

What is the Climate Shift Index?

Search Location

Cambridge, US (MD)



Choose A Date

08/14/2023

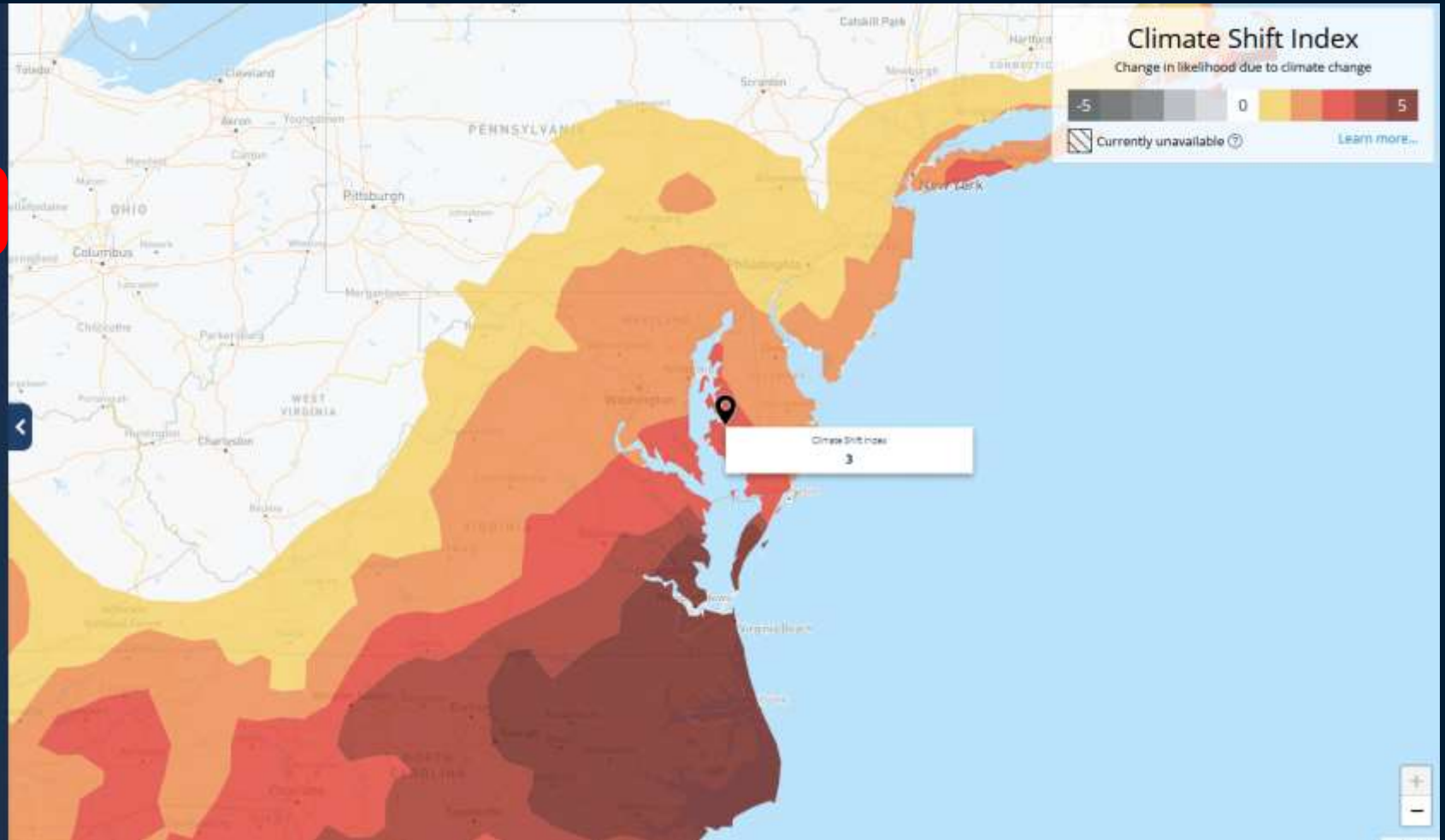
The map shows the Climate Shift Index (CSI) for the daily average temperature. High CSI values mean climate change made the temperatures more likely.

Share



Sign up for our free climate data email →

Forecast Generated On 14 Aug 2023



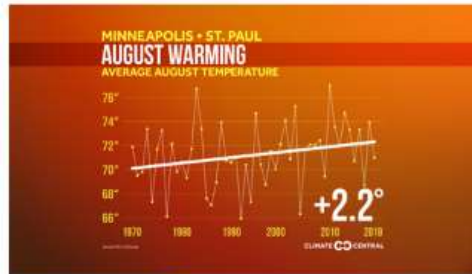
Key tools & programs

- Climate Matters
- WeatherPower
- Climate Shift Index
- **Realtime Climate**
- Sea Level Rise

From: Sean Sublette <ssublette@climatecentral.org>
Sent: Monday, August 24, 2020 11:05 AM
To
Subject: more August heat

Hi Daniel,

We've noticed the heat is continuing for Minneapolis. Below is a new graphic for the month that can help you tell the climate story. You can find similar ones in our [media library](#).



Get the high-res version [here](#).

[Share this on Twitter](#)

Additional versions available:

[In Spanish](#)

[With no title](#)

[With no title and a transparent background](#)

Email me if you have questions.

Thanks,
Sean

[Click here](#) if you don't want more [spammy](#) Climate alerts like this

[firstname]

From: Sean Sublette
To:
Sent: Dec 15, 2020 10:13am
Subject: Alert: see how much wind energy Burlington is producing - today

Hi Jane!

Looks like it's especially windy in Burlington. Here's a graphic showing how much wind electricity is now being generated in your area. Create your own customized and downloadable version with different ways to show the data - including equivalent numbers of trees planted, cars miles driven, smartphones charged, and more - using our [WeatherPower tool](#).

Email me if you have questions.

Thanks,

Sean



Get the high-res version [here](#)

Gmail

Climate change fingerprint detected in Mobile
1 message

Climate Central <alerts@climatecentral.org> Mon, Jan 27, 2022 at 8:48 AM
Reply-To: realtime@climatecentral.org
To: Karen Flores <karen.flores@gmail.com>

Hi Karen,

Today is expected to be unusually warm in Mobile. The Climate Shift Index is expected to reach level 2 today. Events reaching Climate Shift Index level 2 indicate a strong climate-related event and show that climate change is having a measurable impact on conditions in Mobile.

I've included today's Climate Shift index map.

You can learn more about the Climate Shift Index and explore conditions for the next three days at our [Climate Shift Index tool](#).

Questions or comments? Contact Karen Flores, VP of Programs, Climate Central: kflores@climatecentral.org

[Full size image here](#)



[Click here](#) if you receive spammy alerts or prefer not to get text from Realtime. Does not affect this.

Sign up for Climate Matters and Realtime Climate

Get local climate analysis and customizable
as-it-happens email alerts

Please complete the form below to sign up for Climate Matters and Realtime Climate alerts. After signing up, you'll be able to customize your alerts by location, topic, and frequency.

*First Name	*Last Name
<input type="text"/>	<input type="text"/>
*Email Address	
<input type="text"/>	
*Organization type	*Organization Name
<input type="text"/>	<input type="text"/>
Job Title	*Location
<input type="text"/>	<input type="text"/>
Address	



[climatecentral.org/media-signup](https://www.climatecentral.org/media-signup)

Key tools & programs

- Climate Matters
- WeatherPower
- Climate Shift Index
- Realtime Climate
- Sea Level Rise

Key tools & programs

- Sea Level Rise
 - Coastal Risk Screening Tool
 - Risk Finder
 - Picturing Our Future
 - FloodVision

COASTAL RISK SCREENING TOOL
LAND PROJECTED TO BE BELOW ANNUAL FLOOD LEVEL IN 2030

Explore sea level rise and coastal flood threats by adjusting the controls below.

[DETAILS AND LIMITATIONS](#)

YEAR
2030

CHANGE OTHER SETTINGS

[Video Tutorial](#)



PROJECTION TYPE
sea level rise + annual flood

POLLUTION PATHWAY OR SEA LEVEL SCENARIO
intermediate

LUCK
medium

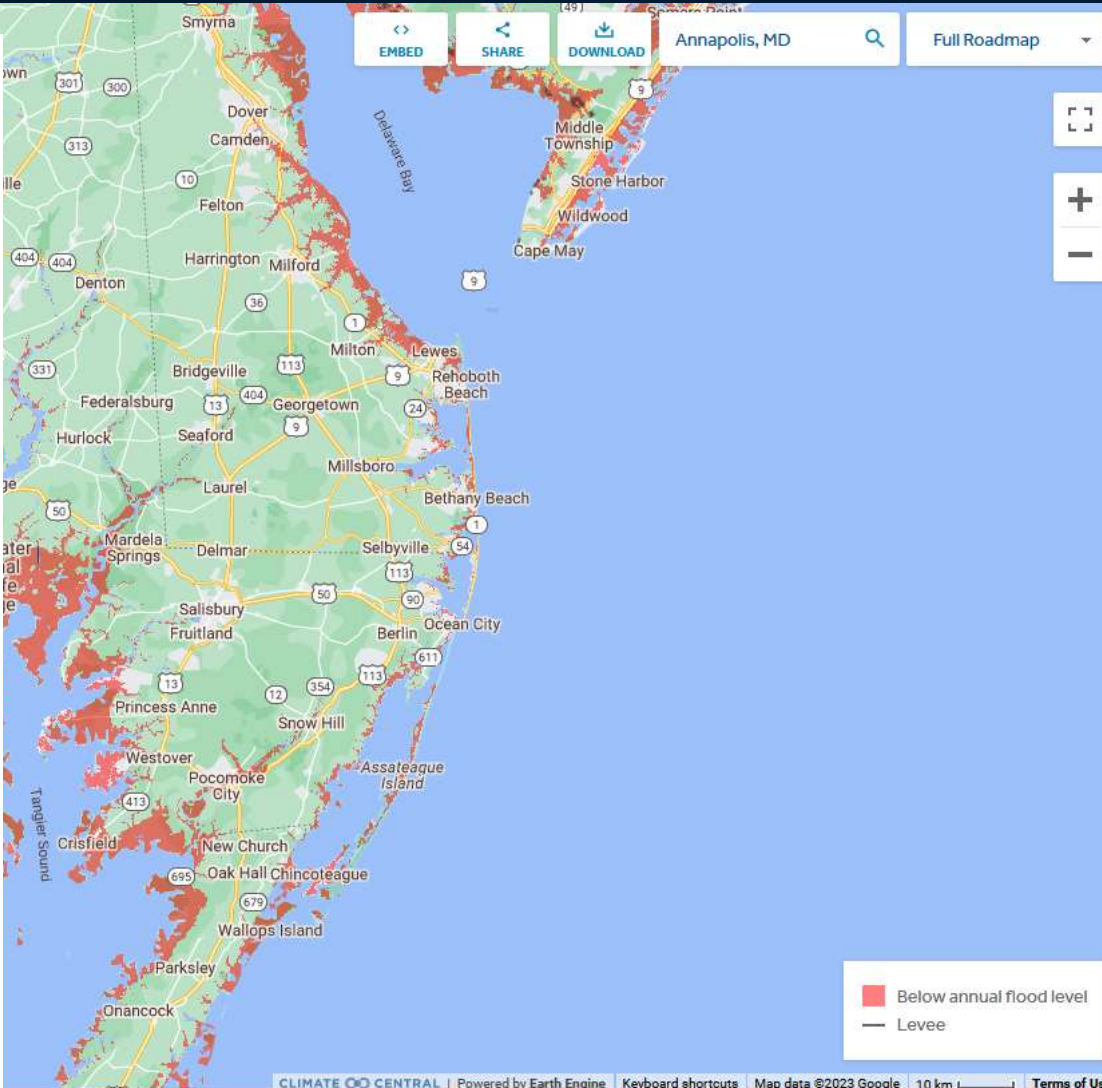
AREAS TO SHOW AS THREATENED

- All land below water level
- Exclude all potentially protected areas

SEA-LEVEL-PROJECTION SOURCE

- Leading Consensus (IPCC 2021)
- More Comprehensive and Less Certain (IPCC 2021)
- NOAA 2022 (U.S. only)
- Mid-range Legacy Projections (Kopp et al. 2014)
- Pessimistic Legacy Projections (Kopp et al. 2017)

DONE



CHOOSE MAP

View areas at risk by

- YEAR
- WATER LEVEL
- TEMPERATURE
- WARMING CHOICES
- ICE SHEETS
- ELEVATION DATASET
- AFFORDABLE HOUSING
- WETLANDS
- WETLANDS GAIN/LOSS

COASTAL RISK SCREENING TOOL

LAND PROJECTED TO BE BELOW ANNUAL FLOOD LEVEL IN 2030

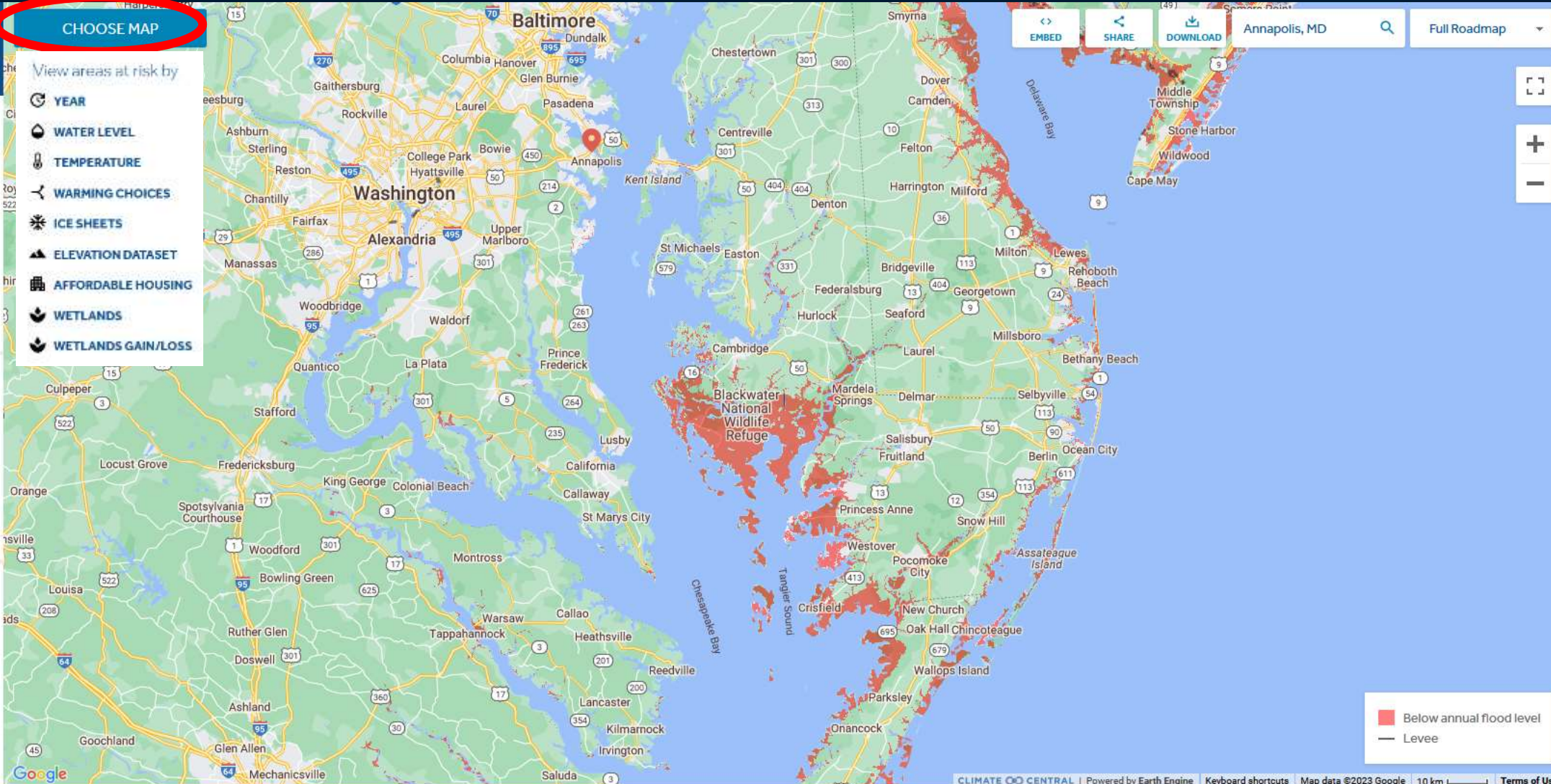
Explore sea level rise and coastal flood threats by adjusting the controls below.

DETAILS AND LIMITATIONS

YEAR
2030

CHANGE OTHER SETTINGS

Video Tutorial



EMBED SHARE DOWNLOAD Annapolis, MD Full Roadmap

LAND BELOW 4.0 FEET OF WATER

A water level of 4.0 feet above the high tide line could be reached through combinations of sea level rise, tides, and storm surge.

[DETAILS AND LIMITATIONS](#)

WATER LEVEL

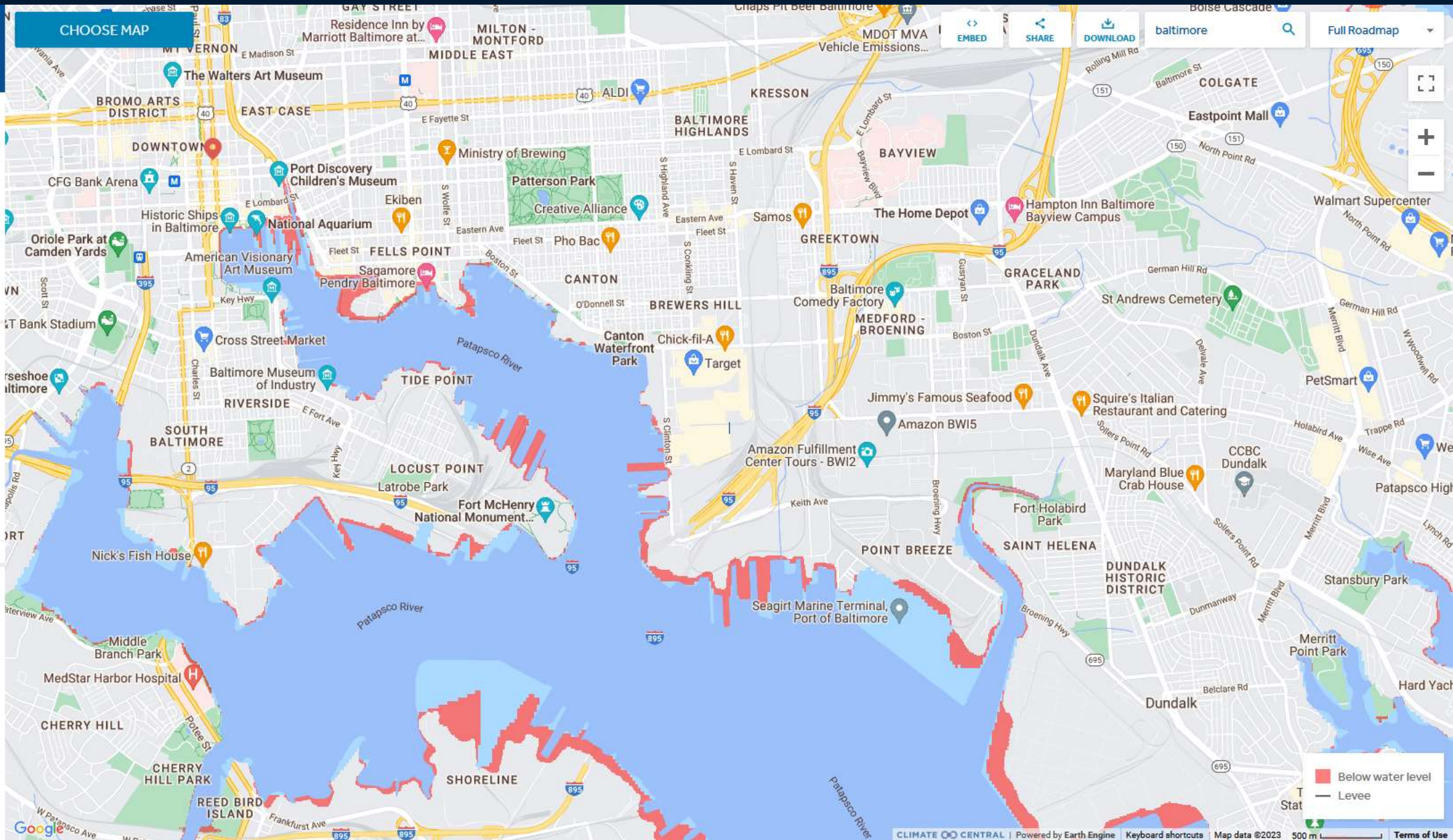
4.0 ft



Feet Meters

[CHANGE OTHER SETTINGS](#)

[Video Tutorial](#)



Key tools & programs

- Sea Level Rise
 - Coastal DEM/Coastal Risk Screening Tool
 - Risk Finder
 - Picturing Our Future
 - FloodVision

Water level (ft) ?



What Is at Risk?

[Tutorial video](#) ⓘ ⚙️

- Population
- Buildings
- Infrastructure
- Contamination Risks
- Land

Total population below 6 ft in Maryland

Population: All ▾	Total
Population	72,937
Caucasian population	64,149
Medium social vulnerability population	31,614
Low social vulnerability population	23,542
High social vulnerability population	17,780
Population of color	9,976
African-American population	7,343

Sources: Raw population data, [Census 2010](#); elevation data, [lidar](#); administrative boundaries, [US Census](#). [Details](#)

Values exclude sub-6ft areas potentially protected by levees or other features. ⓘ

English

Future Flood Risk to Homes

Home Value Home Count New Homes

Total homes at risk of yearly coastal flooding by 2050

Home vintage: Built any year* Geographical breakdown: Maryland by county



Number of homes at risk



Legend values are bin upper limits

Top threats on map

Worcester Co.	6,539
Somerset Co.	3,401
Dorchester Co.	2,106
Anne Arundel Co.	725
Baltimore city	636

Climate pollution scenario

High Medium Low

Include Antarctic dynamics

Advanced

Places within Maryland

- [Counties](#)
- [Postal Codes](#)
- [Congressional Districts](#)
- [State Senate Districts](#)
- [State Assembly Districts](#)
- [Metropolitan Planning Organizations](#)
- [Towns](#)

Key tools & programs

- Sea Level Rise
 - Coastal Risk Screening Tool
 - Risk Finder
 - **Picturing Our Future**
 - FloodVision

Picturing Our Future

Climate and energy choices this decade will influence how high sea levels rise for hundreds of years. Which future will we choose?

See Visuals

See risk maps [CT](#) | See the research [CT](#)



Search locations

Search by keyword

+ Media Type

+ Region

+ Temperature

Found sea level rise visuals for 190 locations. Click to view full-size.

List [Map](#)



Abu al-Abbas al-Mursi Mosque

Alexandria, Egypt

PHOTOREALISTIC IMAGE AFRICA 1.5°C 3°C ANIMATED GIF



Lalbagh Fort

Dhaka, Bangladesh

PHOTOREALISTIC IMAGE ASIA 1.5°C 3°C ANIMATED GIF

Baltimore, United States

Baltimore Convention Center



Present-day sea level

Baltimore, United States

Baltimore Convention Center

CLIMATE
CENTRAL

**Multi-century sea level rise
after 1.5°C of global warming**

Baltimore, United States

Baltimore Convention Center

CLIMATE
CENTRAL

**Multi-century sea level rise
after 3.0°C of global warming**

Key tools & programs

- Sea Level Rise
 - Coastal Risk Screening Tool
 - Risk Finder
 - Picturing Our Future
 - FloodVision



go.climatecentral.org/floodvision



bs & Ribs

ZACHARY'S JEWELERS

ZACHARY'S JEWELERS

ZACHARY'S JEWELERS

ZACHARY'S JEWELERS

ZACHARY'S JEWELERS

2
Handicapped
Parking

Blue mailbox with USPS logo and various stickers

Recycle



SIMULATION

NOAA 2022 Intermediate-High Sea Level Rise Scenario for 2070 + 1% annual chance flood
Water Height: 8' 4" above MHHW
© 2023 Climate Central

Estimated % of adults who think global warming is happening (nat'l avg. 72%), 2021

Select Question: Global warming is happening

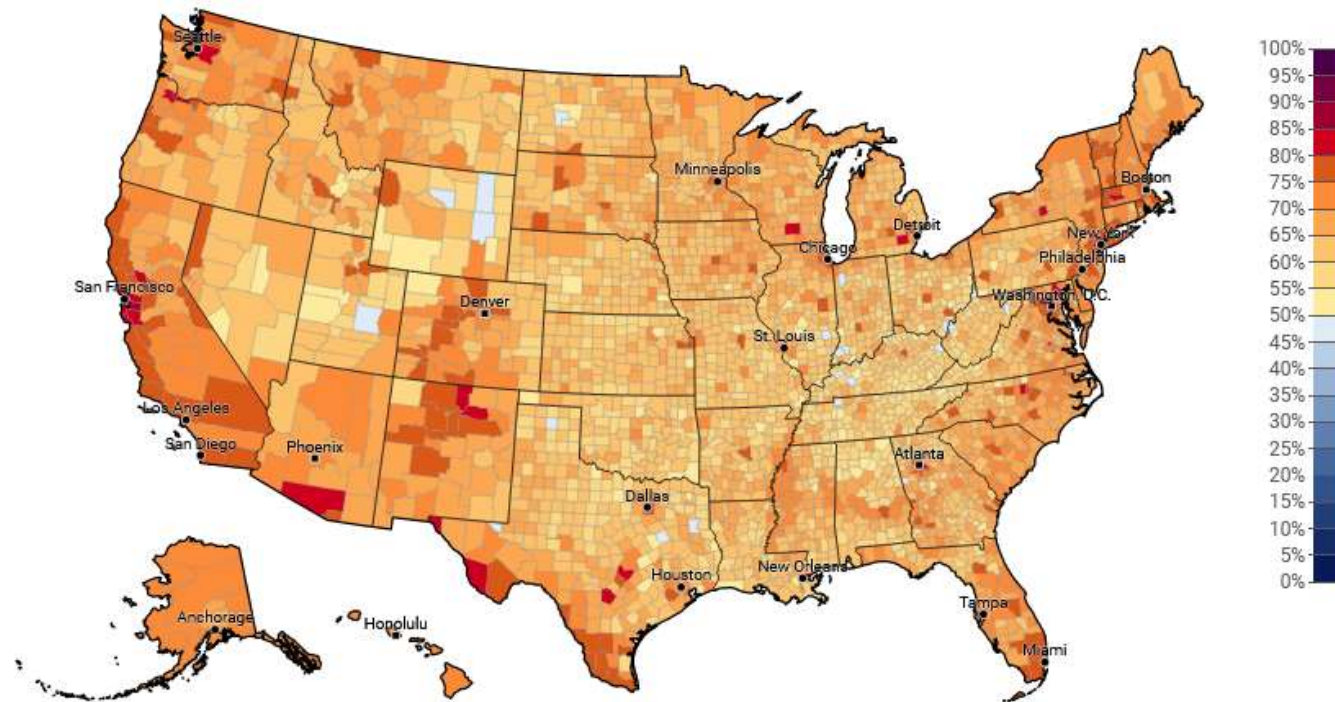


Click map or: Select a State

Select a County

Absolute Value

National States Cong. Districts Metro Areas **Counties**



<https://climatecommunication.yale.edu/visualizations-data/ycom-us/>



Beliefs

- Global warming is happening
- Global warming is caused mostly by human activities
- Most scientists think global warming is happening
- Global warming is affecting the weather
- Has personally experienced the effects of global warming

Risk Perceptions

- Worried about global warming
- Global warming will harm plants and animals
- Global warming will harm future generations
- Global warming will harm people in developing countries
- Global warming will harm people in the US
- Global warming will harm me personally
- Global warming is already harming people in the US

Policy Support

- Fund research into renewable energy sources
- Citizens should do more to address global warming
- Corporations should do more to address global warming
- Local officials should do more to address global warming

- My Governor should do more to address global warming
- Congress should do more to address global warming
- Regulate CO2 as a pollutant
- Set strict CO2 limits on existing coal-fired power plants
- Require utilities to produce 20% electricity from renewable sources
- Provide tax rebates for energy-efficient vehicles or solar panels
- Require fossil fuel companies to pay a carbon tax
- Drill for oil in the Arctic National Wildlife Refuge
- Expand offshore drilling for oil and natural gas off US coast
- Schools should teach about global warming
- The President should do more to address global warming
- Global warming should be a high priority for the next President and Congress

Behaviors

- Discuss global warming at least occasionally
- Hear about global warming in the media at least once a week

Public Opinion on Climate Change, 2021

Public opinion data come from the Yale Climate Opinion Maps (YCOM), which are based on a statistical model that employs nationally representative Climate Change in the American Mind (CCAM) surveys conducted between 2008 and 2021. The model combines geographic, census, socioeconomic, and political data with CCAM survey data collected by the Yale Program on Climate Change Communication and George Mason University Center for Climate Change Communication (combined n > 28,000). For more information about the survey question wording and methodology, please visit YCOM: climatecommunication.yale.edu/visualizations-data/ycom-us

Beliefs

Global warming is caused mostly by human activities



Maryland



Maryland counties

Global warming is happening



Most scientists think global warming is happening



Global warming is affecting the weather



Risk Perceptions

Worried about global warming



Maryland



Maryland counties

Global warming will harm future generations



Global warming will harm people in the developing countries



Global warming will harm people in the US



Global warming will harm me personally



Behaviors

Discuss global warming at least occasionally



Hear about global warming in the media at least once a week



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Job Title	*Locations
<input type="text"/>	<input type="text"/>
Address	



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Karen Florini - Vice President for Strategic Impact

kflorini@climatecentral.org

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