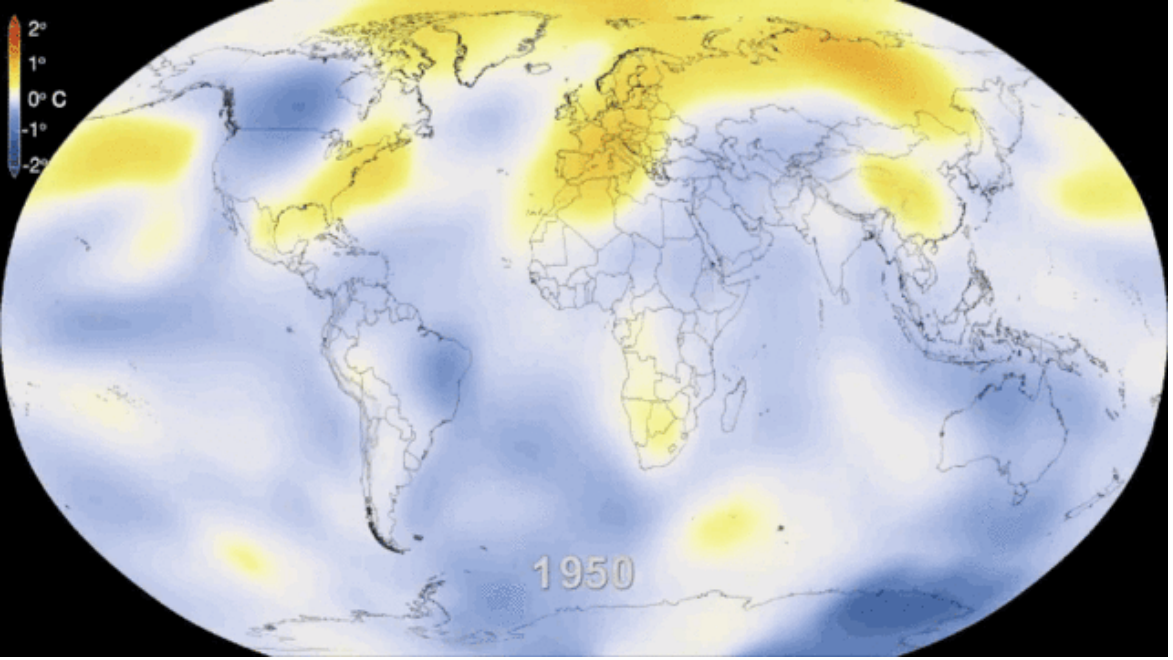
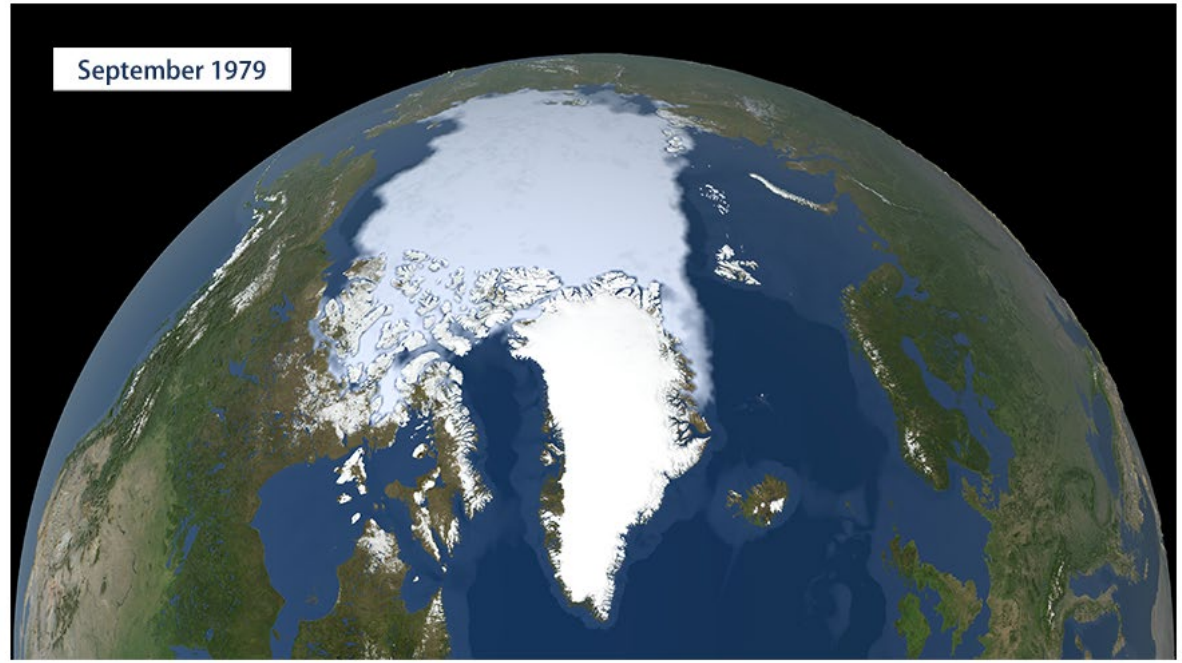
CITY OF MILWAUKIE

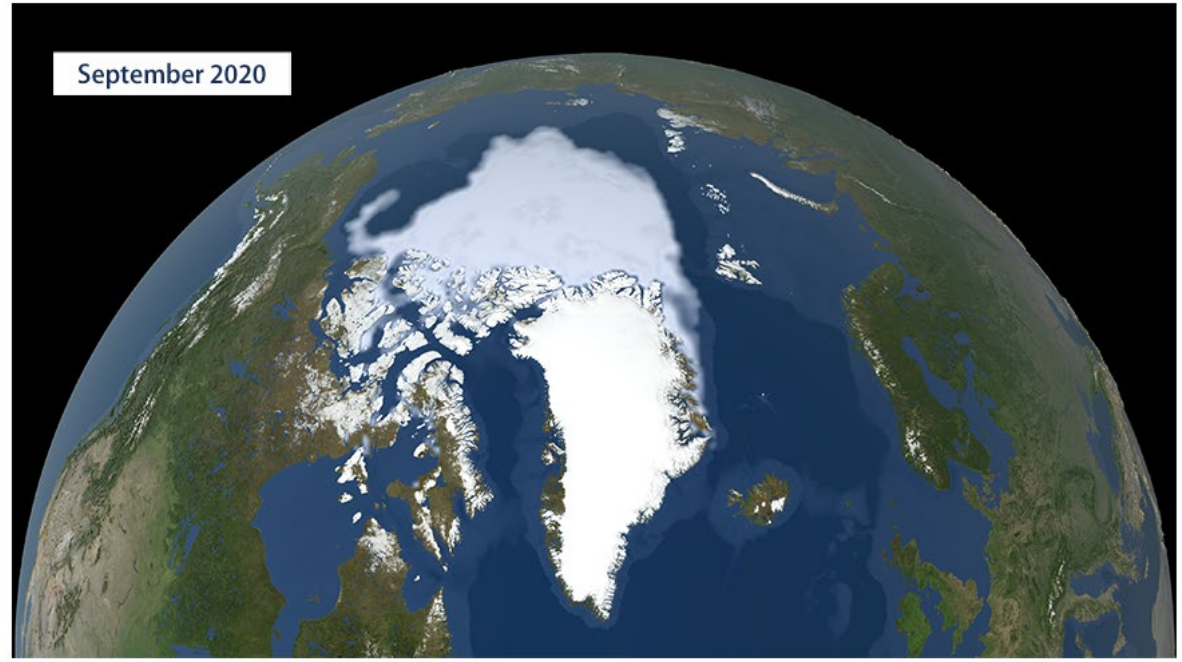
Mitigating and Adapting to Climate Chaos

Natalie Rogers
Climate and Natural Resources Manager
(she/her)
City of Milwaukie

The Greenhouse Effect



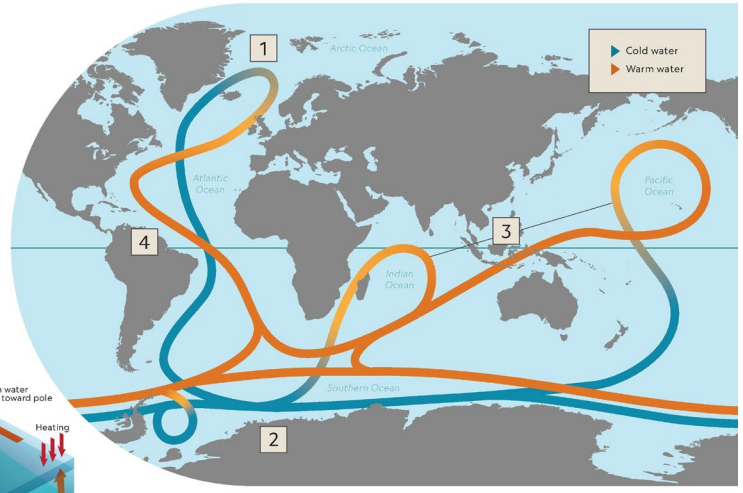




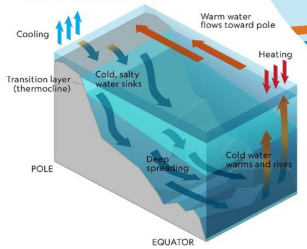
THE GLOBAL CONVEYOR BELT

The global conveyor belt is a system of ocean currents that transport water around the world. While wind primarily propels surface currents, deep currents are driven by differences in water densities in a process called thermohaline circulation. Density depends on both the temperature (thermo) and salinity (haline) of the water. Along this conveyor belt, heat and nutrients are moved around the world in a leisurely 1000-year cycle.

As it transports heat, the global conveyor belt keeps Earth's climate stable. However, scientists have recently noticed a slowdown in ocean circulation. With climate change and rising temperatures, the process may slow down even more and bring extreme temperatures to different regions around the world.



OCEAN WATER FLOW



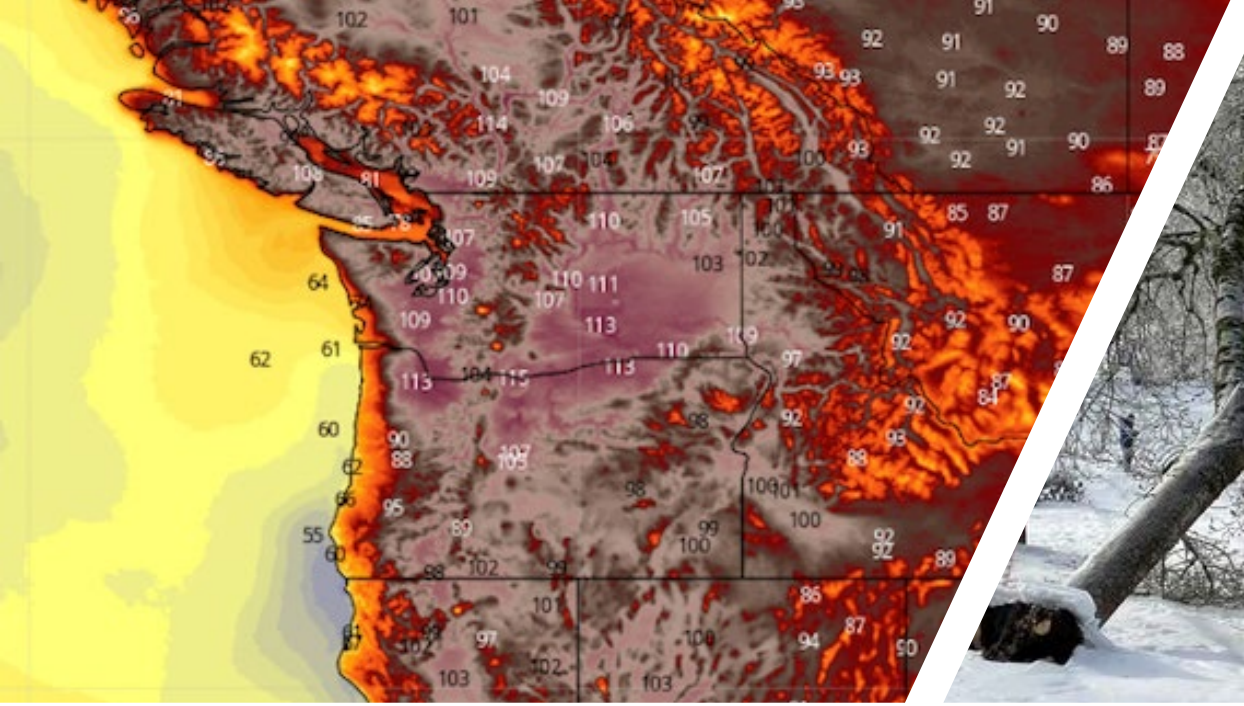
1 At the poles, cold ocean water becomes saltier and denser from evaporation and ice formation. The cold, salty, dense water sinks and slowly spreads.

2 Because there are no continents to block the water, the current can flow freely around Antarctica. Some water moves into the Indian Ocean while another current travels to the Pacific Ocean.

3 Deep water surfaces in a process called upwelling.

4 The warm surface current flows north toward Greenland, completing the cycle.

NATIONAL GEOGRAPHIC



Pacific Northwest Continues to Bake Beneath 'Heat Dome'

A wave of ocean air provided some relief after Portland, Ore., reached 116 degrees on Monday. Temperatures reached the 90s there on Tuesday, forecasters said.

SCIENCE ENVIRONMENT

Salem Issues Another Drinking Water Advisory Over Cyanotoxins

By Ericka Cruz Guevarra (OPB)
Portland, Ore. June 6, 2018 10:53 a.m.

UPDATE (1:40 p.m. PT) — Salem has issued yet another drinking water advisory Wednesda the city's vulnerable populations – just four days after lifting an initial advisory that prompted Kate Brown to issue an emergency and activate the National Guard.

Extreme weather closes Oregon freeways, roads, prompts calls to stay home

By OPB staff (OPB)
Jan. 3, 2022 10:01 a.m. **Updated:** Jan. 3, 2022 6:06 p.m.

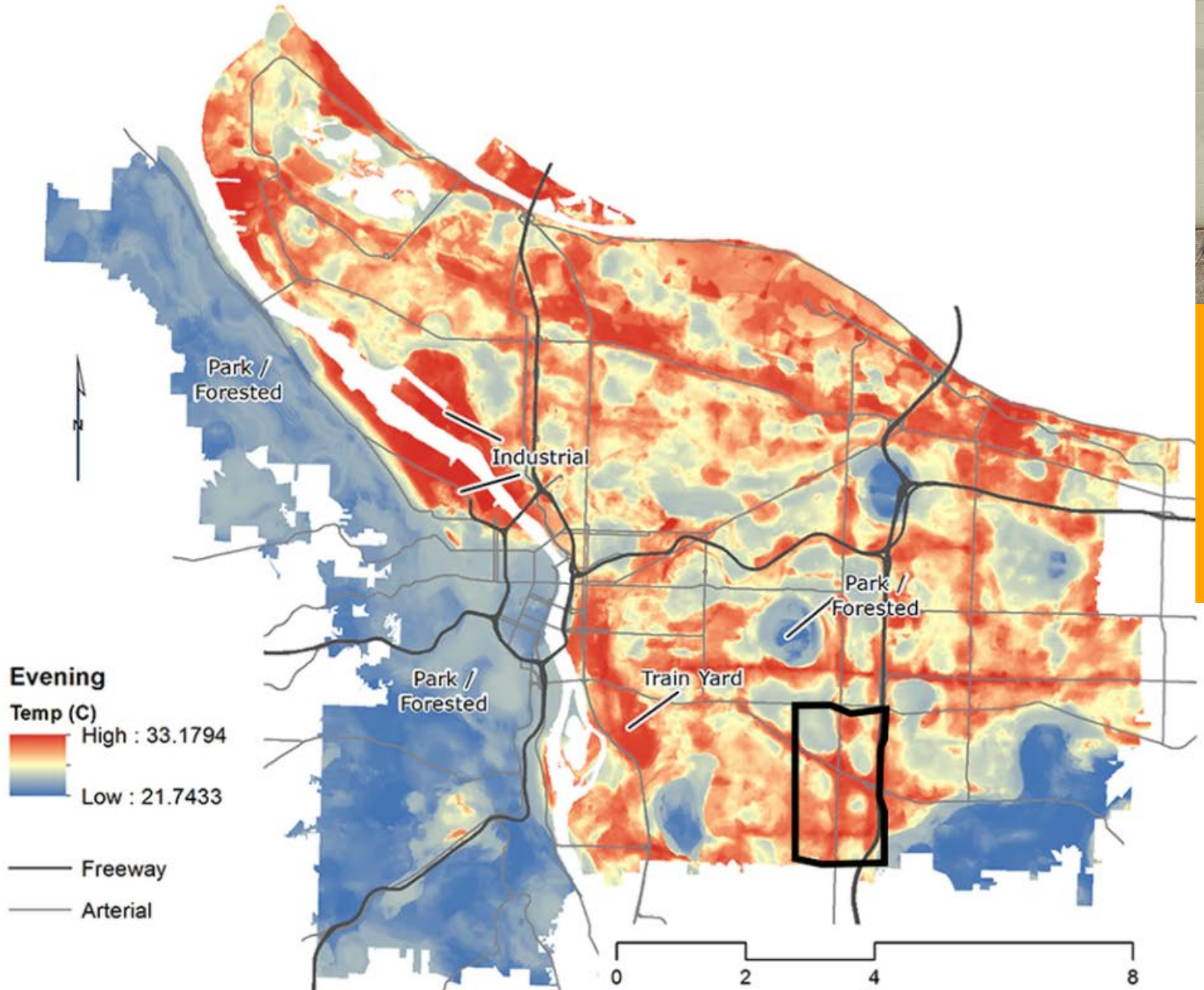
In Eastern Oregon, Interstate 84 was intermittently closed and reopened through the afternoon, and the interstate was closed through the Columbia River Gorge

Weather

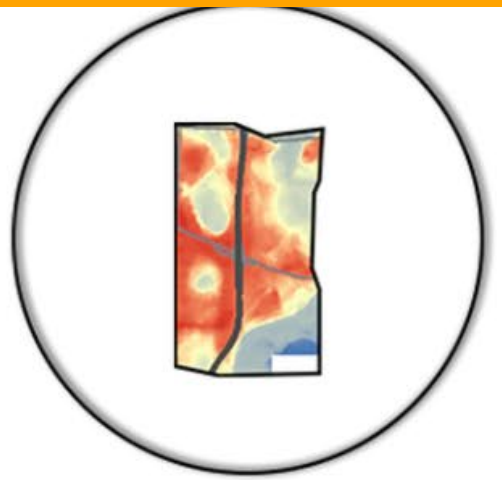
Sewer overflow into the Willamette prompts warning to stay away from the river

Updated: Nov. 13, 2021, 3:09 p.m. | Published: Nov. 13, 2021, 3:09 p.m.

Shandas Heat Map HOT SPOT: Shandas' map showing the hottest areas of Portland during the evening. The inset shows ZIP code 97266, where Shandas found the hottest temperatures in Portland



At about 4 pm, the temperature in the air was **124 degrees**. That was 9 degrees hotter than the city's average, and 25 degrees higher than what Shandas measured in Northwest Portland. And the **sidewalk was superheated to 180 degrees**. Walking on it barefoot would give you third-degree burns. *wweek.com/news/city/2021/07/14/this-is-the-hottest-place-in-portland/*




How resilient is the city landscape?
What investments are threatened by climate change?
How responsible is local government for considering these threats in actions and investments?


Milwaukie, Oregon
~22,000 residents
Past ecosystem:
Riparian lowlands, wetlands, upland forest
Current ecosystem:
Above ground/underground creeks, urban matrix, urban forest
High risk: Flooding, storm event, heat event


By 2030; Net-zero emissions from electricity
By 2035: Net-zero emissions from all building energy
By 2040: 40% canopy cover
By 2045: Community Carbon Neutrality
WIND
350
THE FUTURE is
Building Energy & Efficiency
Materials Use, Purchasing & Recovery

Vehicles and Fuels

Land Use and Transportation

Materials and Waste

Natural Resources

Building Energy

Public Health and Preparedness

53 City-Led Actions
Mitigate, Capture, Adapt

Prioritize Community Co-benefits

The positive effect an action aimed at one objective may have on other objectives

Urban Canopy

- Heat island mitigation
- Community health improvements
- Energy reduction
- Habitat preservation/supplementation
- Floodplain and stormwater mitigation
- Historical, cultural, spiritual benefits

Transportation

- Infrastructure location
- Multimodal, first/last mile
- Electrified transportation

Utility infrastructure

- Infrastructure location
- Climate adapted green infrastructure
- Multipurpose

Building energy

- Microgrids and local renewables
- Climate adapted green infrastructure
- Electrification

Maximizing benefits for the community

Thank you!

Natalie Rogers
Climate and Natural Resources Manager

RogersN@milwaukieoregon.gov

milwaukieclimateaction.com