

Climate Projections for the Capital Region (2024)

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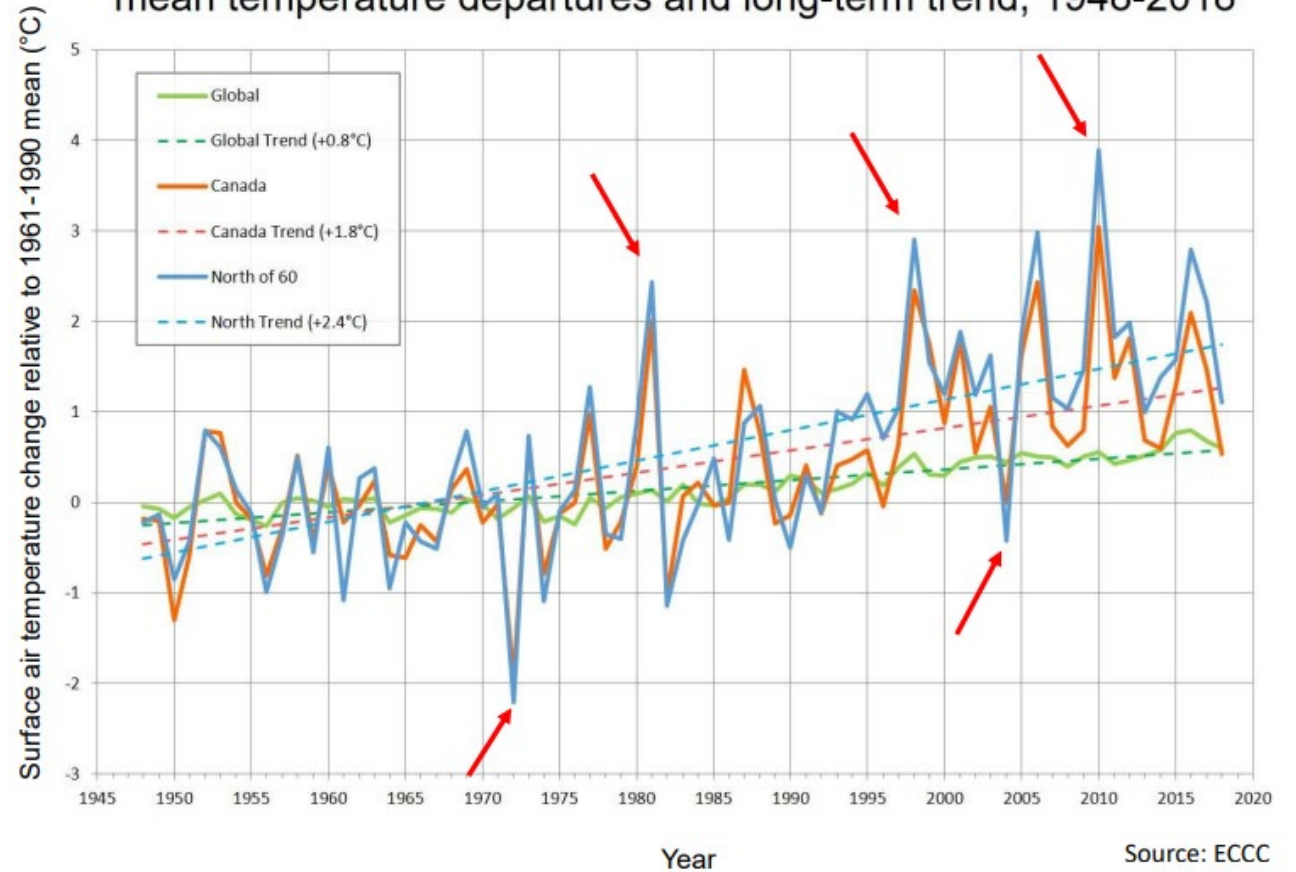
Climate Change Trends

Climate change is both:

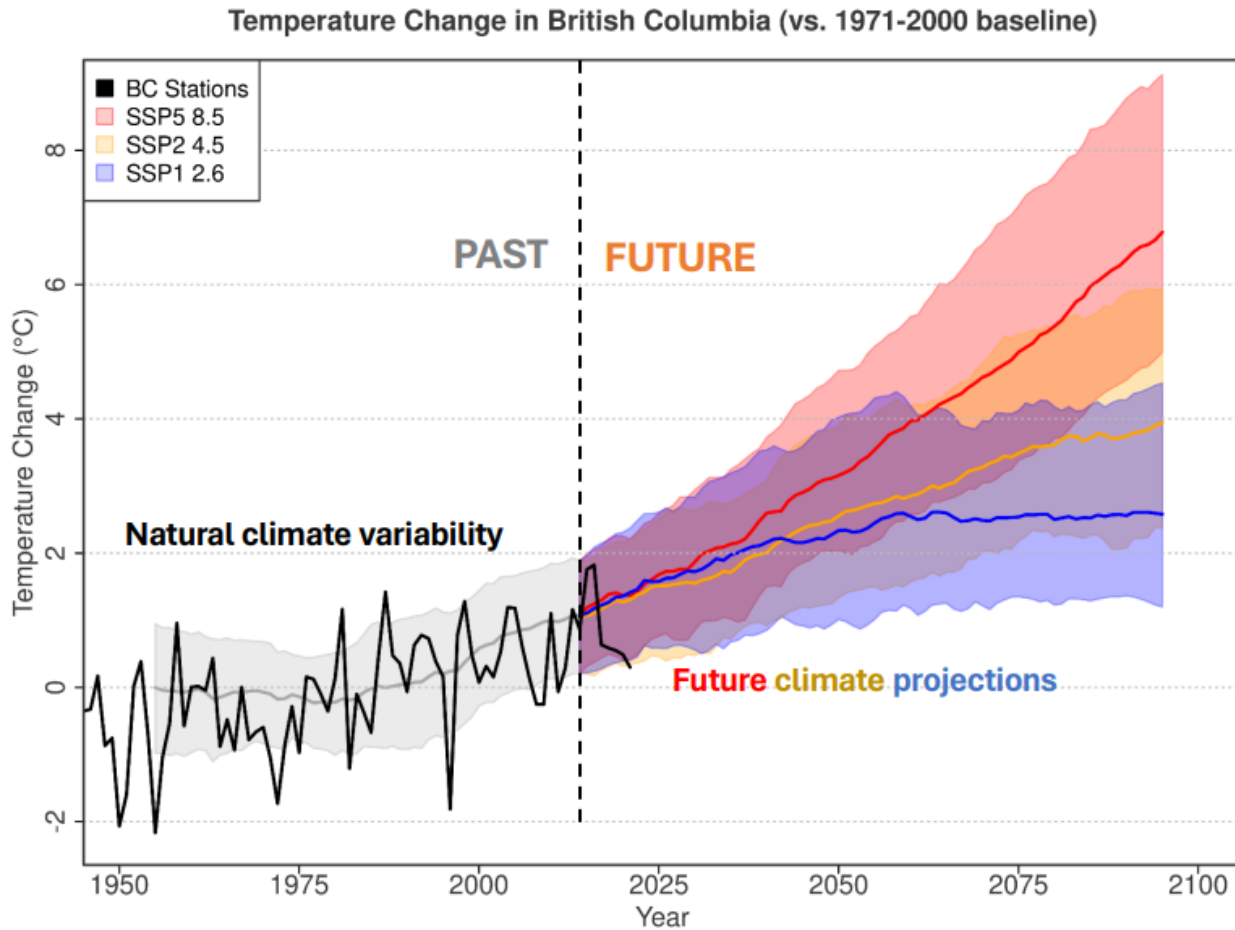
(1) Changes in average conditions over long periods of time, and

(2) Changes in the frequency and intensity of extreme events

Annual Global, National, and Northern Canada mean temperature departures and long-term trend, 1948-2018



Future Warming in BC



Climate projections are simulations of the future climate based on greenhouse gas 'scenarios'

Source: PCIC (2024)

Update Purpose

- Provide updated climate projections for the 2050s and 2080s
- Translate new global climate change projections to the regional and local scale
- Interpret what the projections imply for capital region
- Support and guide local planning and build local government staff capacity
- Provide a foundation of understanding for future, impacts-centered work



Climate Projections for the Capital Region

2024

New in 2024

- ✓ Updated modelling
- ✓ New indices for extreme heat
- ✓ Updated 'Regional Impacts' informed by local government staff
- ✓ New guidance section to support users
- ✓ GIS layers

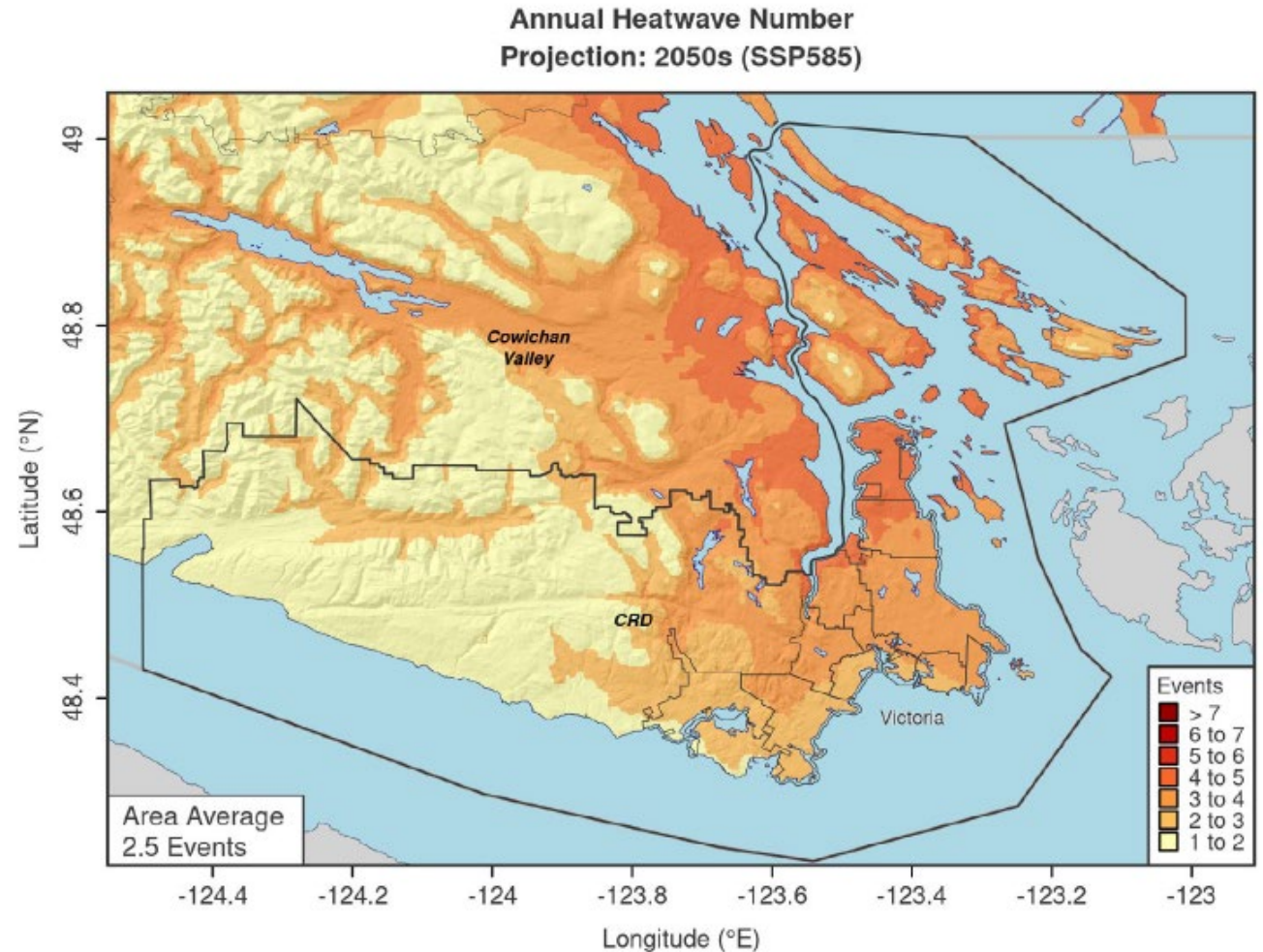


Figure 15b. Projected number of annual heatwaves in the 2050s.

What about other climate variables?

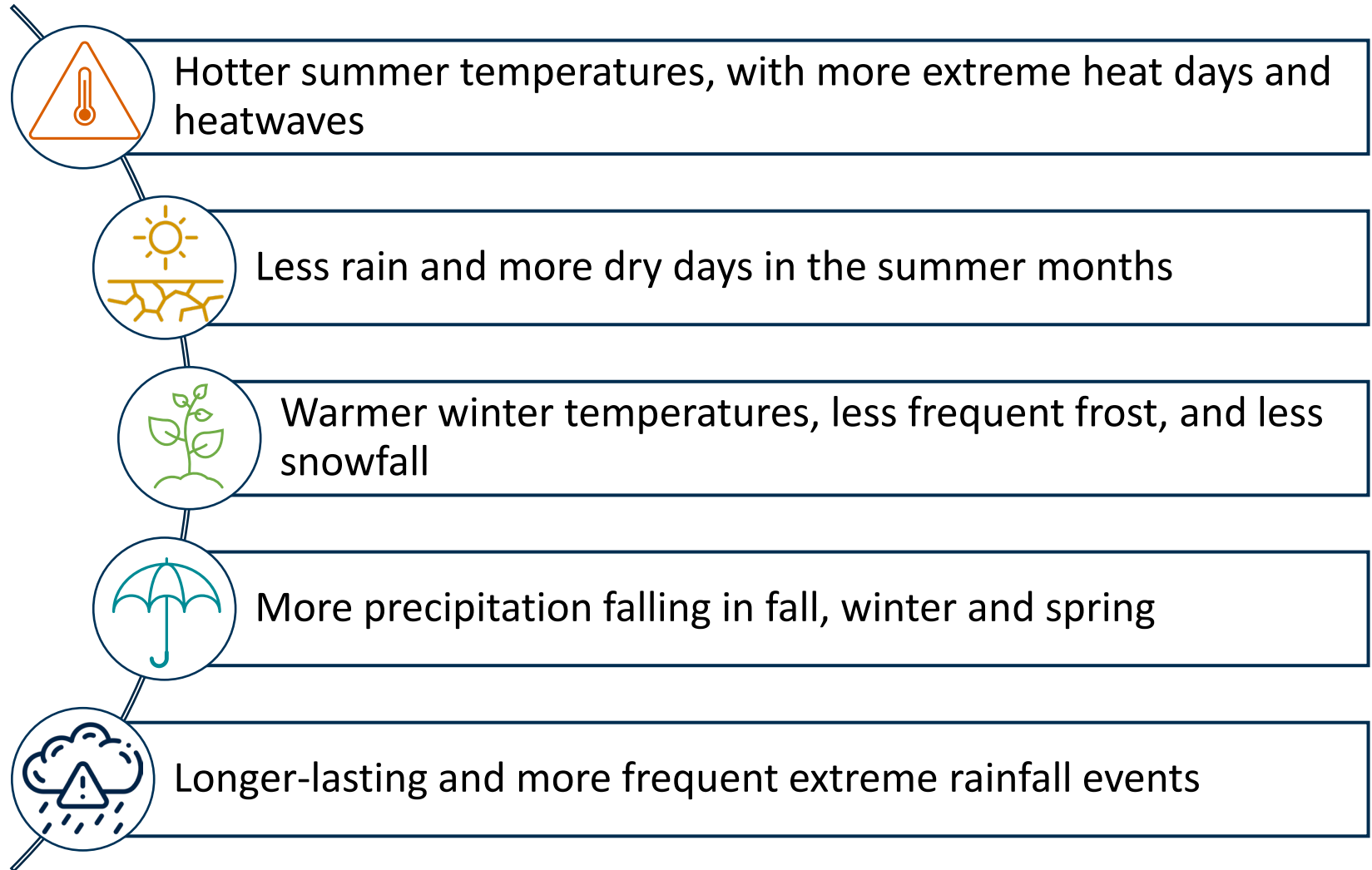
Climate projections

High confidence	Temperature, Extreme Heat	<ul style="list-style-type: none"> Hot Days Days above 25°C, 30°C Maximum Temperature
Medium confidence	Precipitation	<ul style="list-style-type: none"> Wet Days Total Precipitation Max one-day precipitation
Low confidence	Wind, storms, snow accumulation, hydrology	<ul style="list-style-type: none"> Storminess Storm Surges Wind

Coastal Flood Inundation Mapping



High Level Results



Warmer Temperatures

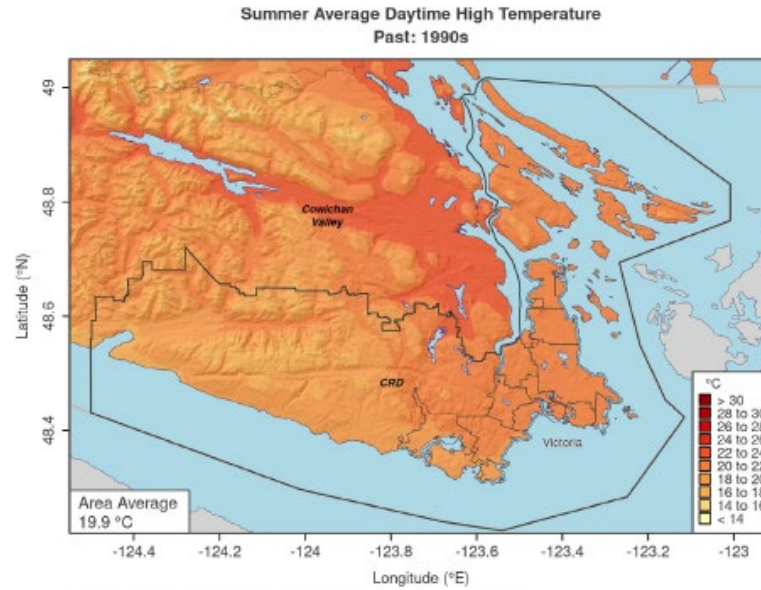


Figure 4a: Summer average daytime high temperature in the Past.

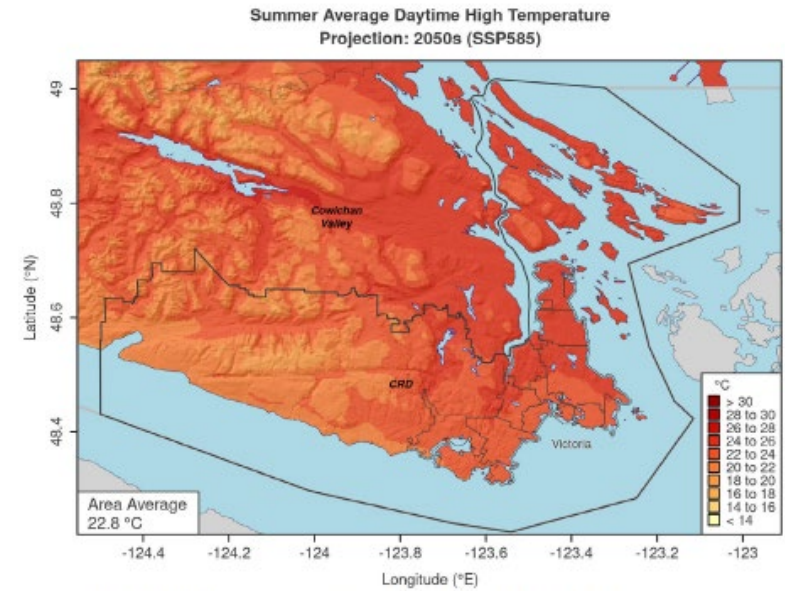


Figure 4b: Projected summer average daytime high temperature in the 2050s.

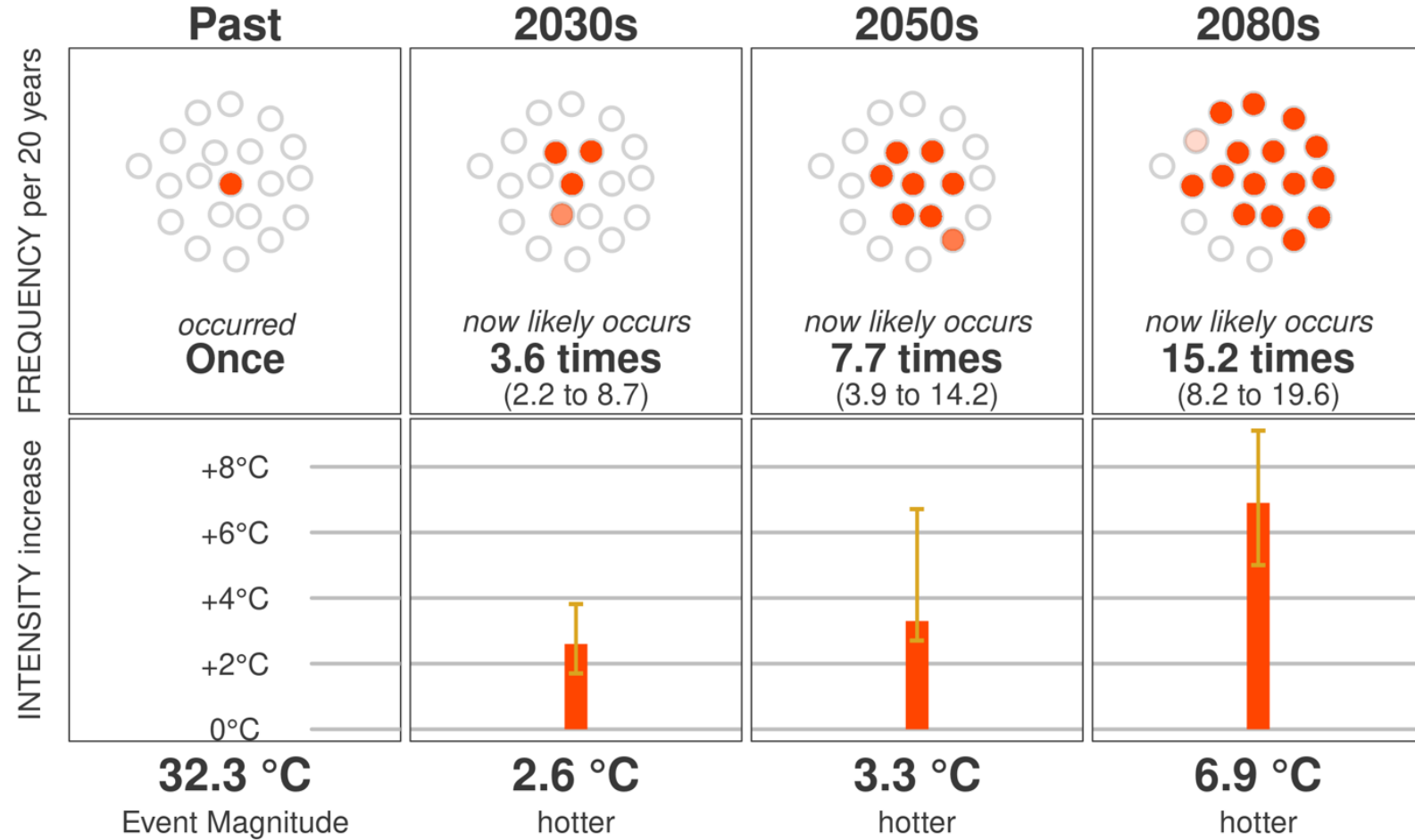
Table 1: Regional Average Daytime High Temperature (TX)

	Past (°C)	2050s Change (°C)	2080s Change (°C)
Winter	6	2.1 (1.6 to 3.5)	3.5 (2.8 to 6.5)
Spring	12	2.1 (1.4 to 4.0)	3.5 (2.6 to 6.3)
Summer	20	2.9 (2.3 to 5.1)	4.7 (4.1 to 8.7)
Fall	13	2.7 (2.2 to 4.6)	4.0 (3.6 to 7.2)
Annual	13	2.5 (2.0 to 4.4)	3.9 (3.4 to 7.0)

Heat

20-Year Event

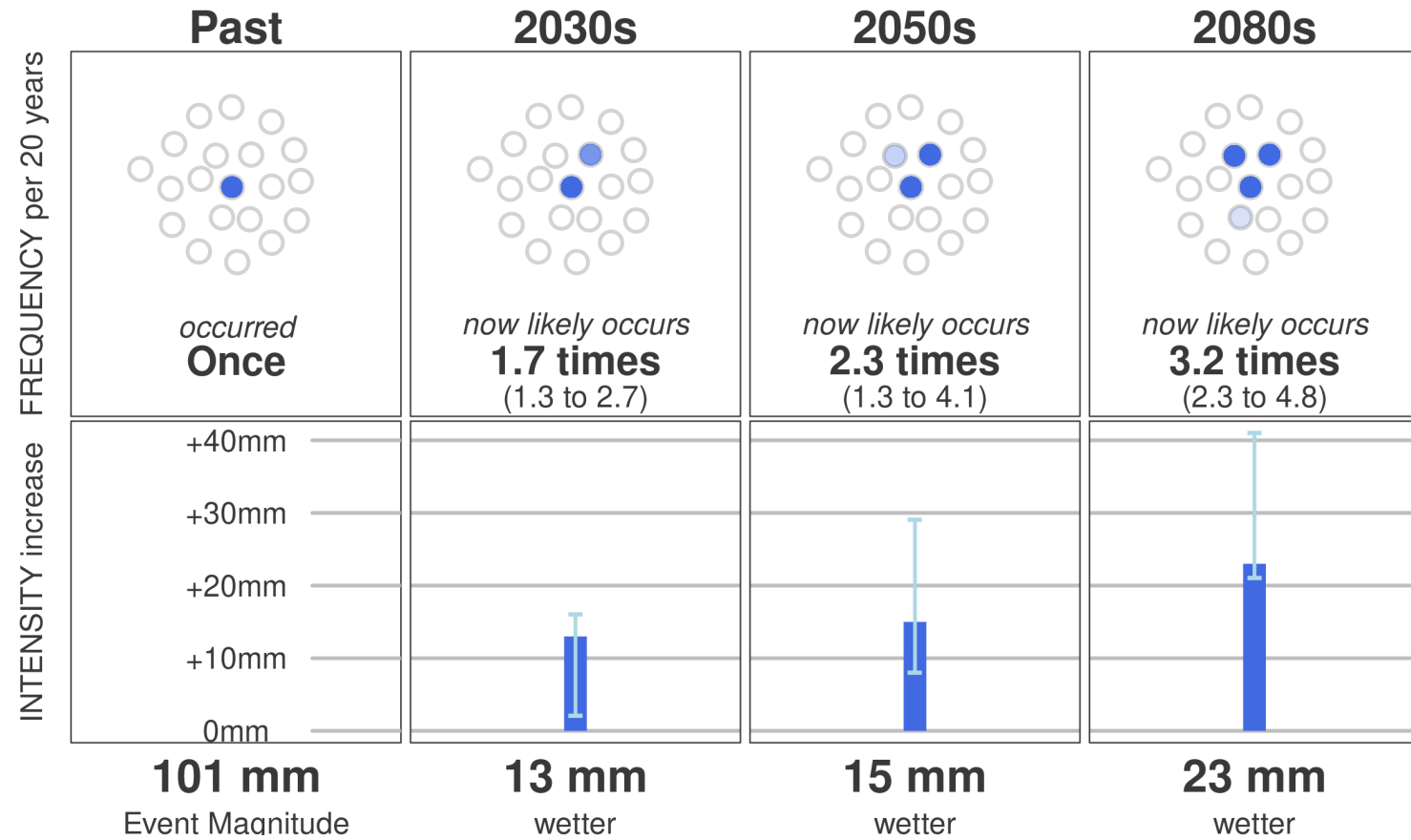
Frequency and increase in intensity of an extreme daytime high temperature event that occurred once in 20 years on average in the past (1981-2010)



Precipitation

20-Year Event

Frequency and increase in intensity of an extreme rainfall event that occurred once in 20 years on average in the past (1981-2010)



Regional impacts



Health and Wellbeing



Water Supply and Demand



Rainwater Management and Sewerage



Ecosystems and Species



Buildings and Energy Systems



Transportation



Food and Agriculture



Recreation and Tourism

Guidance for Users

Seasonal Patterns and Climate Change

- ✓ Increasing temperatures year-round
- ✓ Fewer frost days and a longer growing season
- ✓ Shifting heating and cooling demands

Key sectors: Agriculture, Biodiversity, Parks, Infrastructure



Temperature


TX	Daytime high temperature, averaged over all days in a year or season
TM	Hottest daytime high temperature in a year or season
TN	Number of days in a typical year when the daytime high is above 25°C

Extreme Precipitation and Flooding

In this data package, there are no direct indices for flooding. Rainfall extremes may trigger flooding under certain circumstances.

- ✓ More precipitation occurring over short time periods
- ✓ More days with heavy rainfall

Key sectors: Public Works/Engineering, Infrastructure, Biodiversity, Health, Agriculture, Watershed




Precipitation

PR	Total Precipitation
Rain	Total Rainfall
Snow	Total Snowfall

Increasing Temperatures and Extreme Heat

- ✓ Hotter daytime temperatures
- ✓ Warmer nighttime temperatures
- ✓ Heat waves becoming hotter and more frequent

Key sectors: Emergency Management, Health, Biodiversity, Watershed



Daytime Temperatures

TX	Daytime high temperature, averaged over all days in a year or season
TXx	Hottest daytime high temperature in a year or season
SU Summer Days	Number of days in a typical year when the daytime high is above 25°C

Next Steps – Share Results

Climate Projections for the Capital Region report	Complete data package (maps, tables, GIS files)
<ul style="list-style-type: none">✓ Raise awareness about climate change✓ Present information to stakeholders✓ Include in a strategic plan✓ Evaluate high-level climate impacts	<ul style="list-style-type: none">✓ Conduct a detailed study✓ Hazard, Vulnerability & Risk Assessments✓ Specific design variables (e.g., emissions scenario, time period, subregion of interest)