

Climate Change Adaptation – From Projections to Practice

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Colin Mahony PhD RPF

Research Climatologist & Team Lead
Future Forest Ecosystems Centre
BC Ministry of Forests,
Colin.Mahony@gov.bc.ca



Future Forest Ecosystems Centre (FFEC)



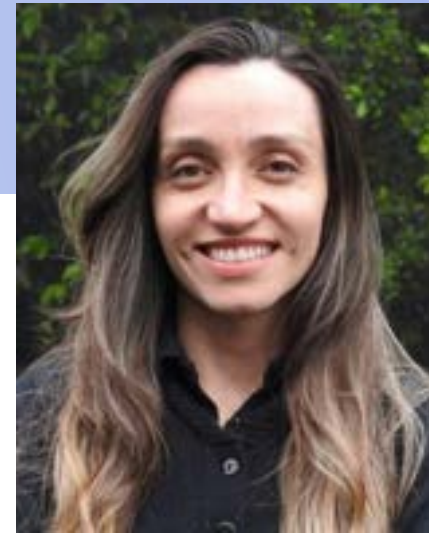
Aseem Sharma

Research Climatologist



Courtney Collins

Research Ecologist



Lilian Sales

Species Habitat
Modeler



Vivek Srivastava

Insect modeling



Susan Beale

Co-op student



Vanessa Comeau

Research Ecologist



Kiri Daust

Data Scientist



Destany Crane

Data Architect



Dr. Colin Mahony

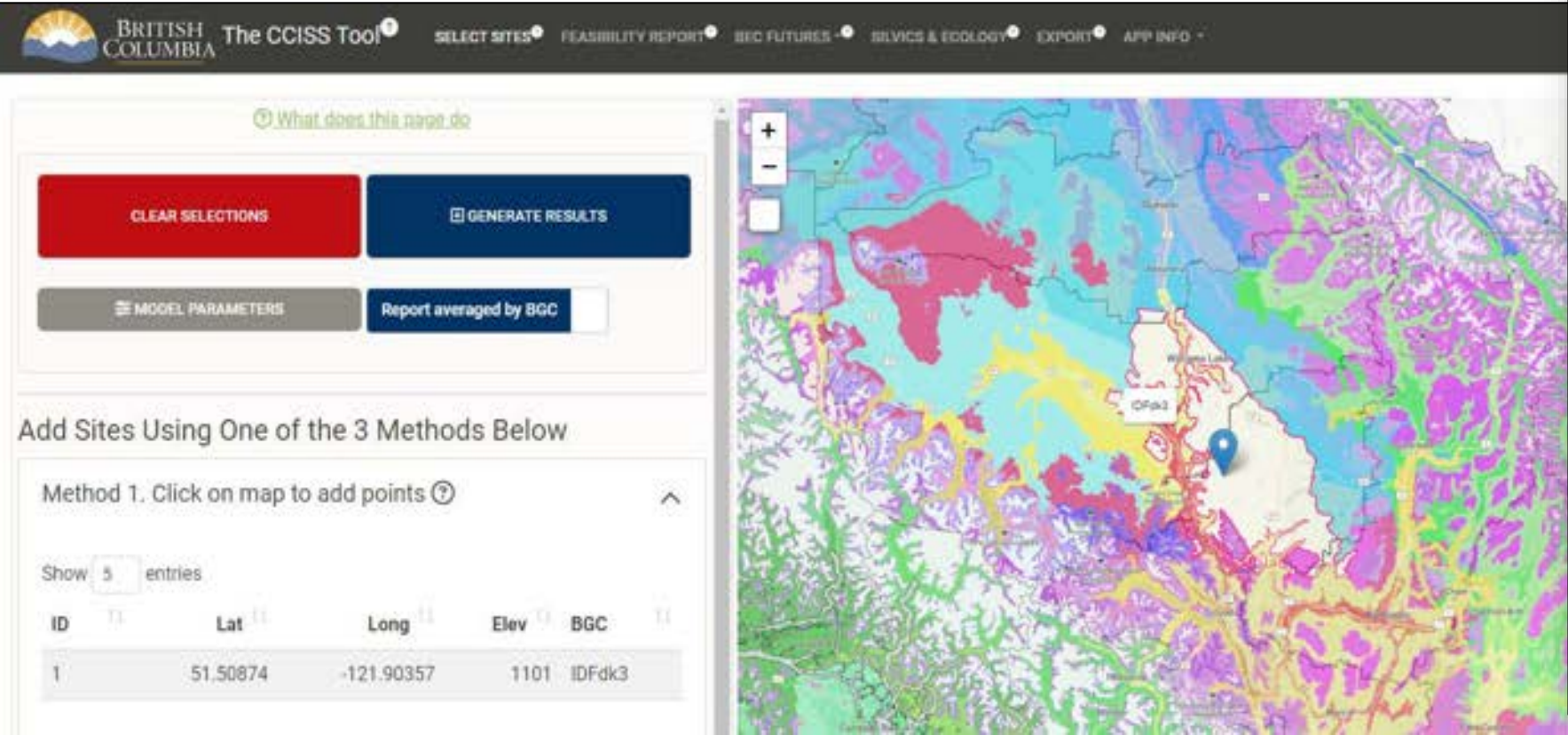
Team Lead, Research
Climatologist

The CCISS Tool - Climate Change Informed Species Selection

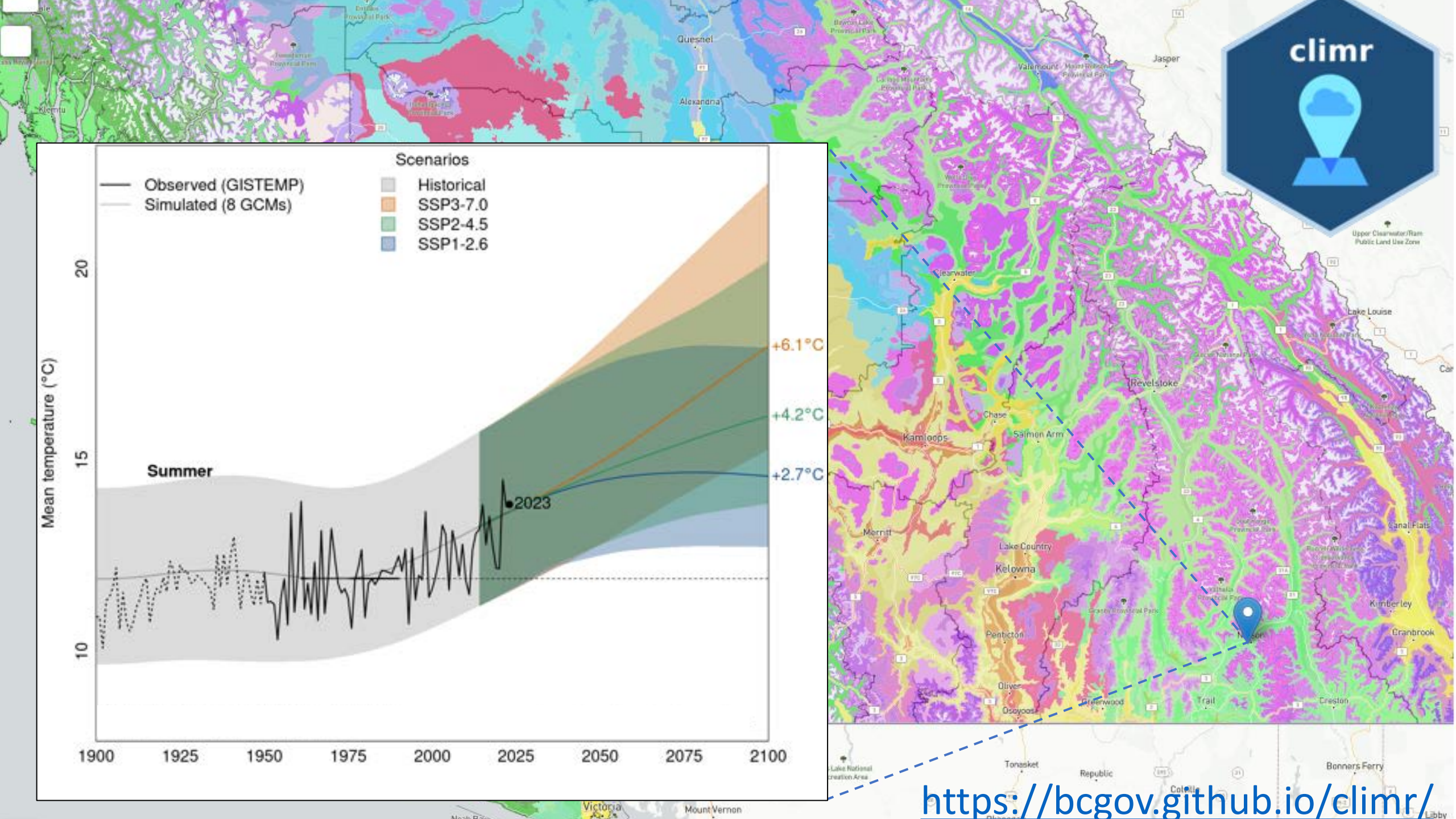
The [CCISS tool](#) shows site-specific changes in tree species feasibility at user-selected locations (Fig. 4). It is designed to support operational reforestation decisions and the development of climate-informed reforestation policy.



CCISS tool output indicating the proportion of the climate model ensemble projecting high (green), medium (blue), low (yellow), and nil (grey) reforestation feasibility of tree species for a selected location.



Tree Species	Period	Modelled Feasibility
Fd: Douglas-fir	Mapped	100%
	1991-2020 (obs)	52% 48%
	2001-2020 (mod)	25% 75%
	2021-2040	42% 58%
	2041-2060	61% 38%
	2061-2080	59% 40%
Pt: lodgepole pine	Mapped	100%
	1991-2020 (obs)	46% 32% 22%
	2001-2020 (mod)	58% 17% 25%
	2021-2040	12% 34% 54%
	2041-2060	20% 34% 46%
	2061-2080	28% 29% 43%
Sx: interior spruce	Mapped	100%
	1991-2020 (obs)	48% 54%
	2001-2020 (mod)	58% 42%
	2021-2040	4% 88%
	2041-2060	29% 29% 42%
	2061-2080	29% 25% 46%
Py: ponderosa pine	Mapped	100%
	1991-2020 (obs)	22% 30% 48%
	2001-2020 (mod)	26% 75%
	2021-2040	88% 12%
	2041-2060	12% 58% 30%
	2061-2080	28% 17% 55%
	2081-2100	61% 52% 47%



BC Climate Anomaly App - https://bcgov-env.shinyapps.io/bc_climate_anomaly/

 **BRITISH COLUMBIA**

[Introduction](#) [About](#) [Anomaly App](#) [Reports](#) [Feedback & Links](#)

Filter/Selections

Select region

Western North America ▾
(Western North America, BC, Ecoprovince, Watersheds)

Select climate variable

Vapor pressure deficit (vpd) ▾
(Temperature, VPD, Precipitation, RH, Soil moisture)

Select month or season or annual

Summer ▾

Choose range of years or specific year(s)

Range of years: Specific year(s)

year range

1991 2018 — 2023

1951 1955 1961 1970 1981 1995 2007 2018 2023

Reset

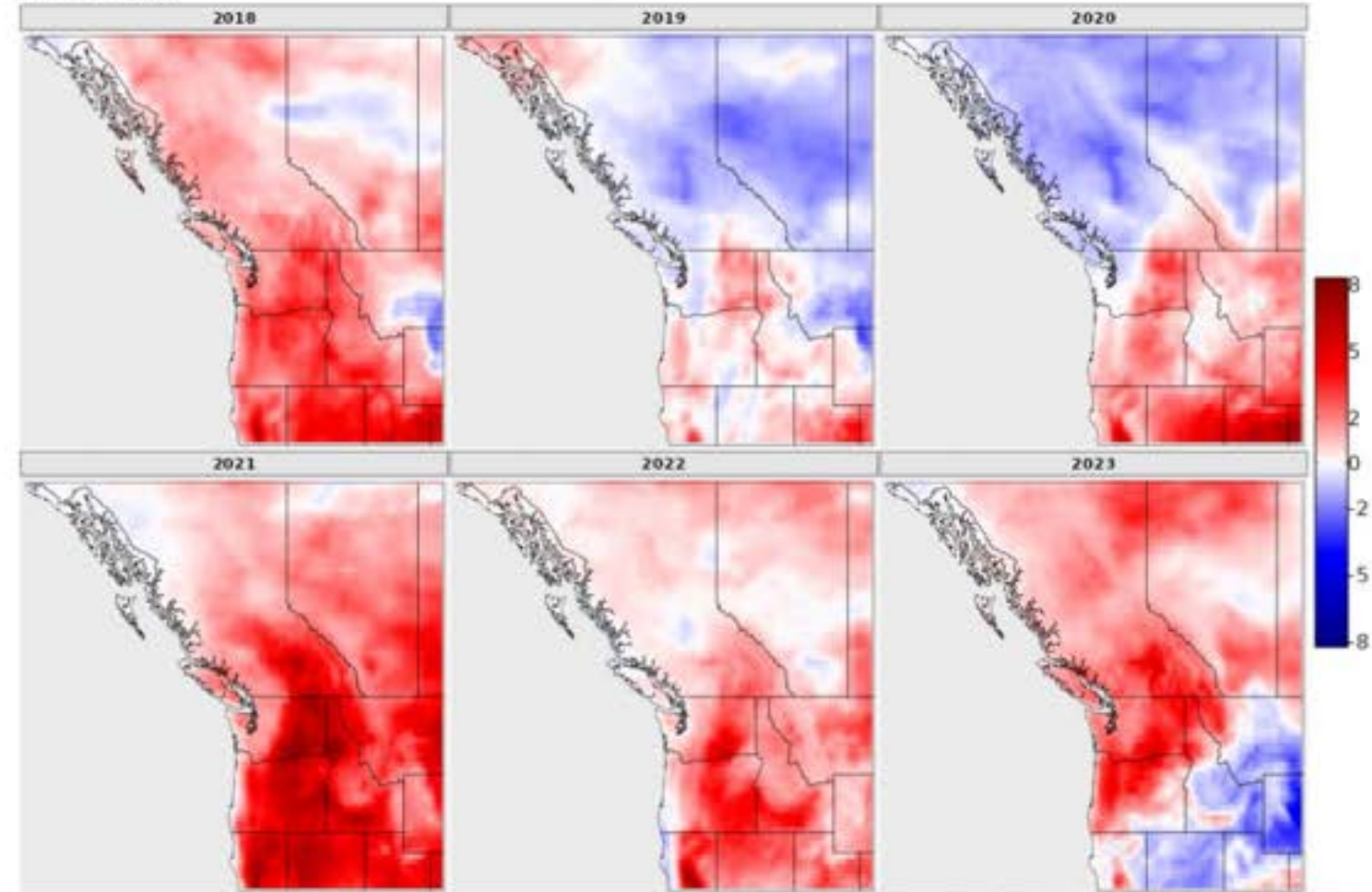
Location Map

 Canada

Leaflet | © OpenStreetMap contributors

Spatial anomaly map

Western North America vapor pressure deficit (VPD) anomaly (kPa): summer
Baseline: 1981-2010



 Download plot

 Download raster data

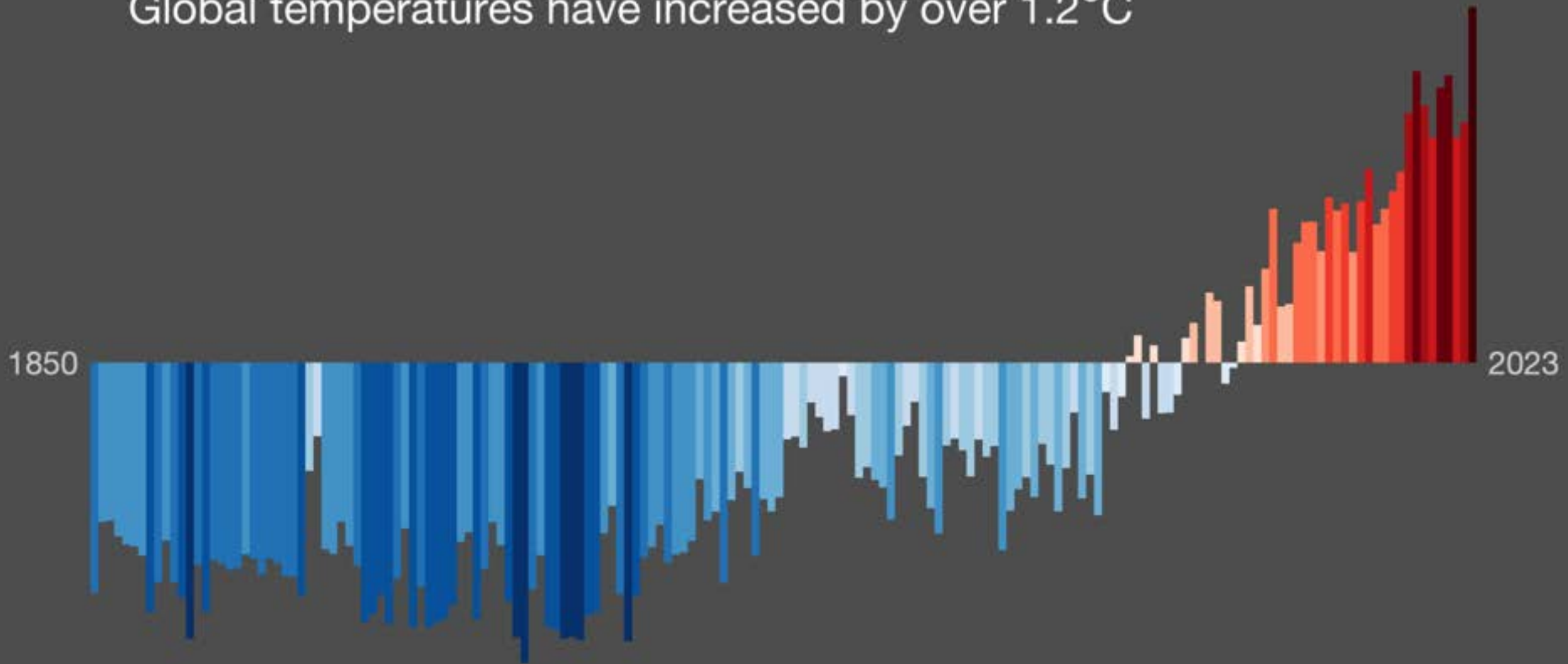
Looking forward 10 years...

**what climate risks are you
concerned about?**

Looking forward 10 years...

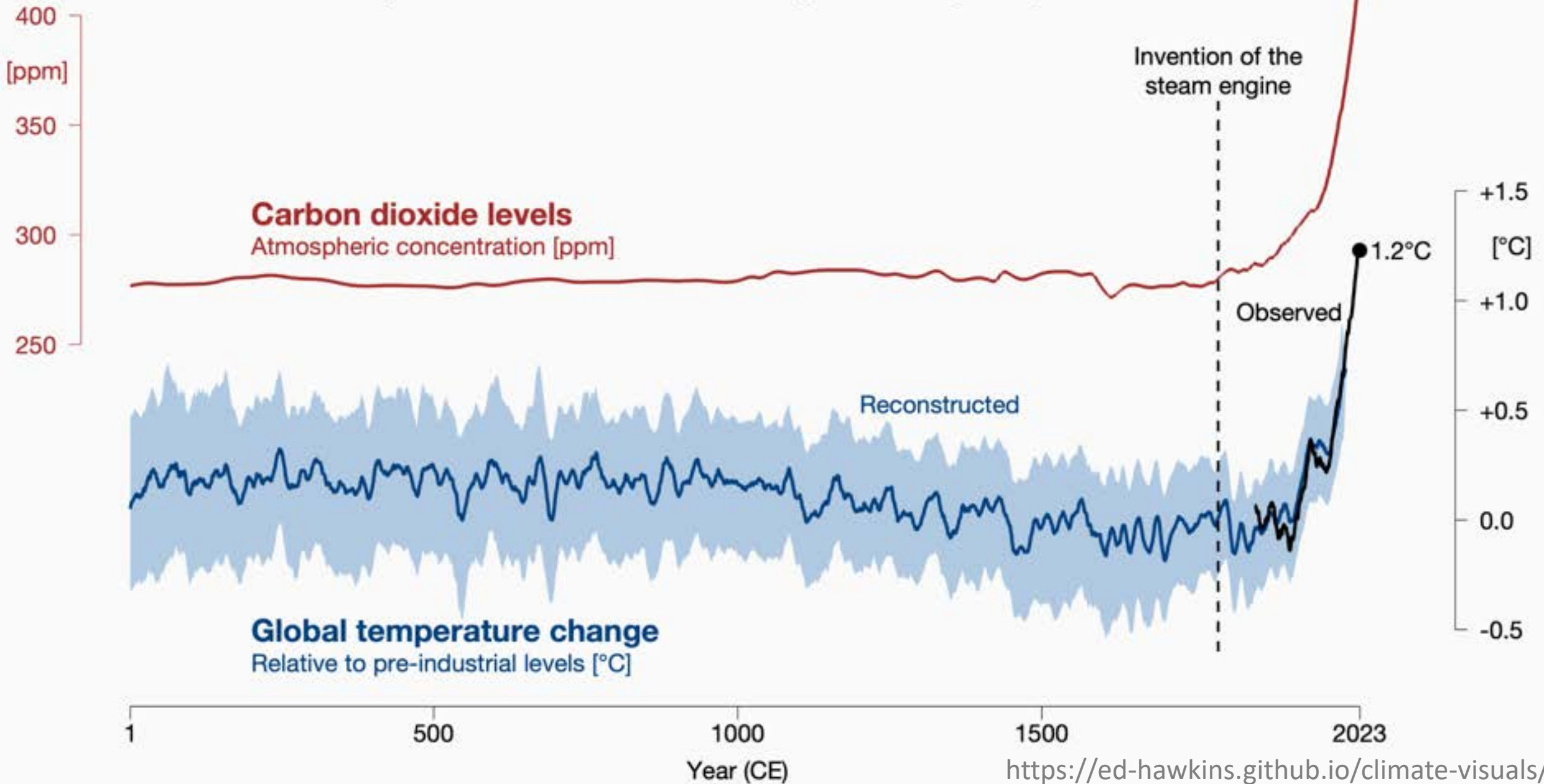
**How could we be more
resilient than today?**

Global temperatures have increased by over 1.2°C



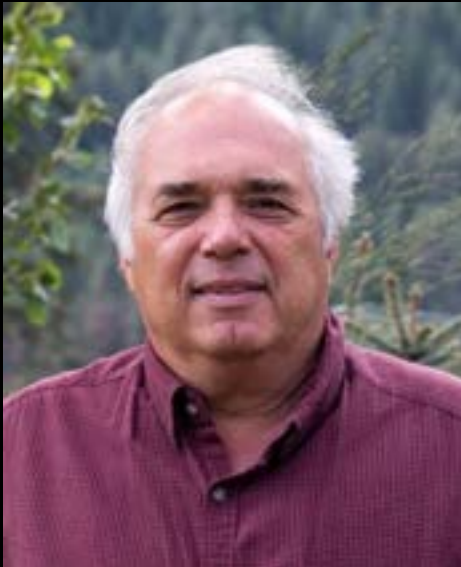
Observed changes in climate over the last 2023 years

Variations in atmospheric carbon dioxide levels and global average temperature



“I’m 60, and I thought climate change was a problem for the next generation. Now, I’m mayor of a town that no longer exists.”

Jan
Polderman,
Former
Mayor of
Lytton, BC



Renewable electricity generation is increasingly price-competitive and some sectors are electrifying

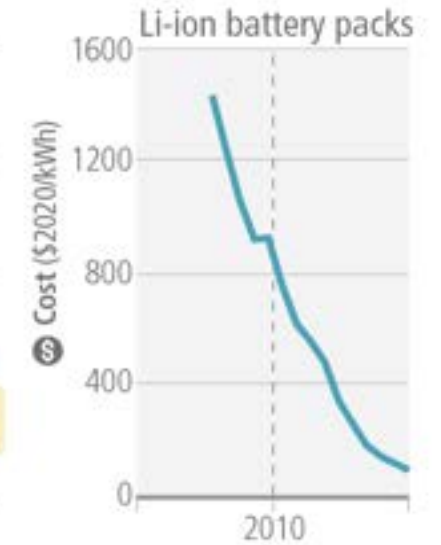
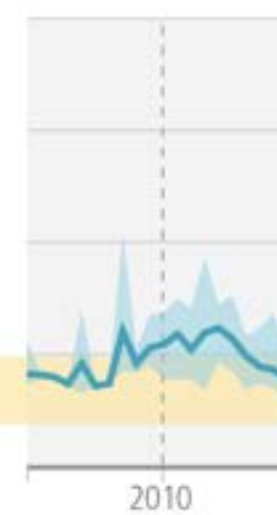
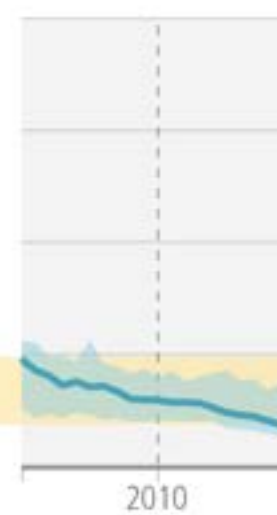
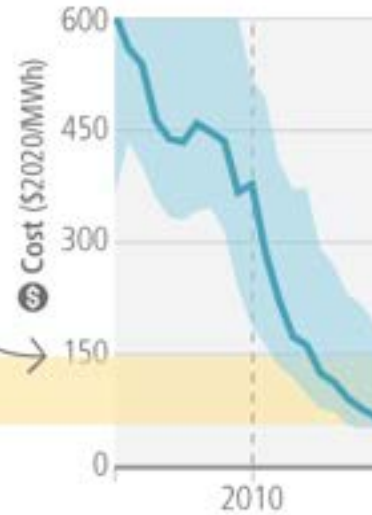


a) Market Cost

Since AR5, the unit costs of some forms of renewable energy and of batteries for passenger EVs have fallen.

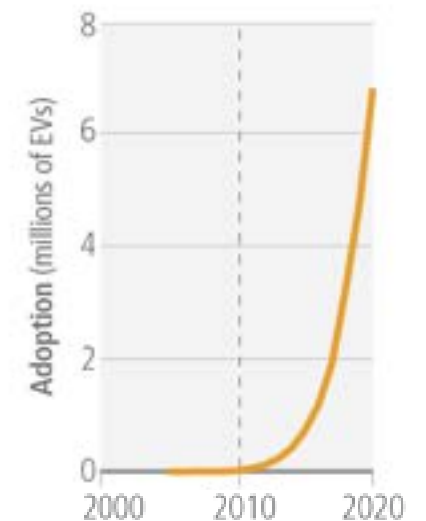
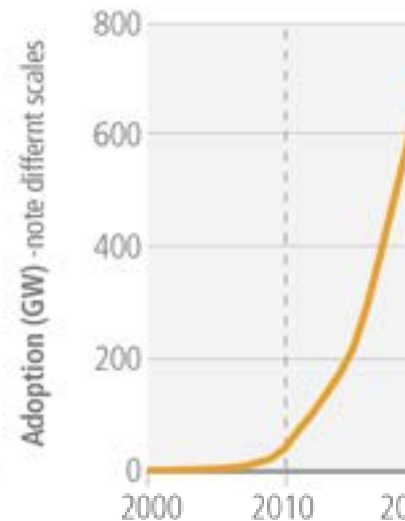
below this point, costs can be less than fossil fuels

Fossil fuel cost (2020)

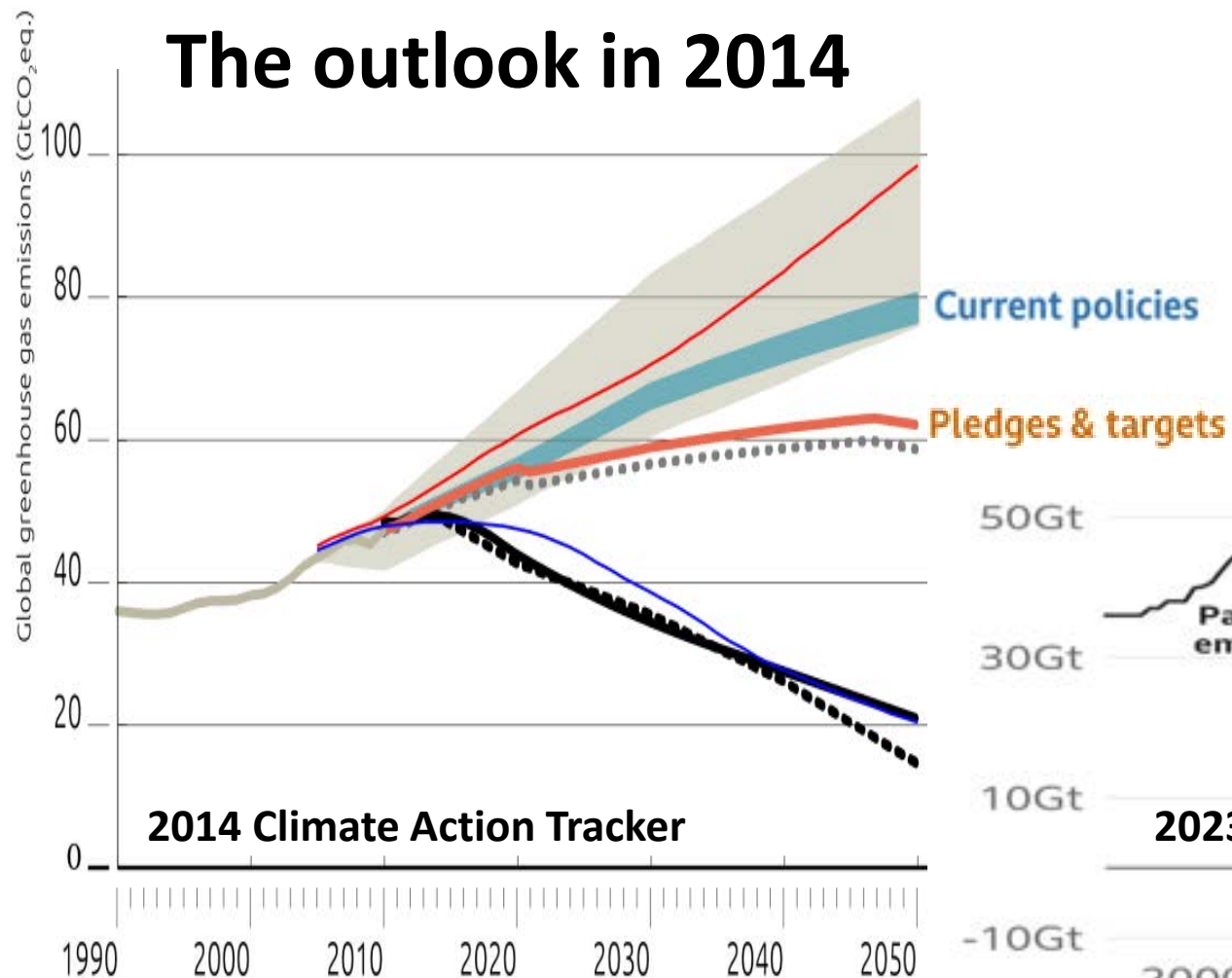


b) Market Adoption

Since AR5, the installed capacity of renewable energies has increased multiple times.



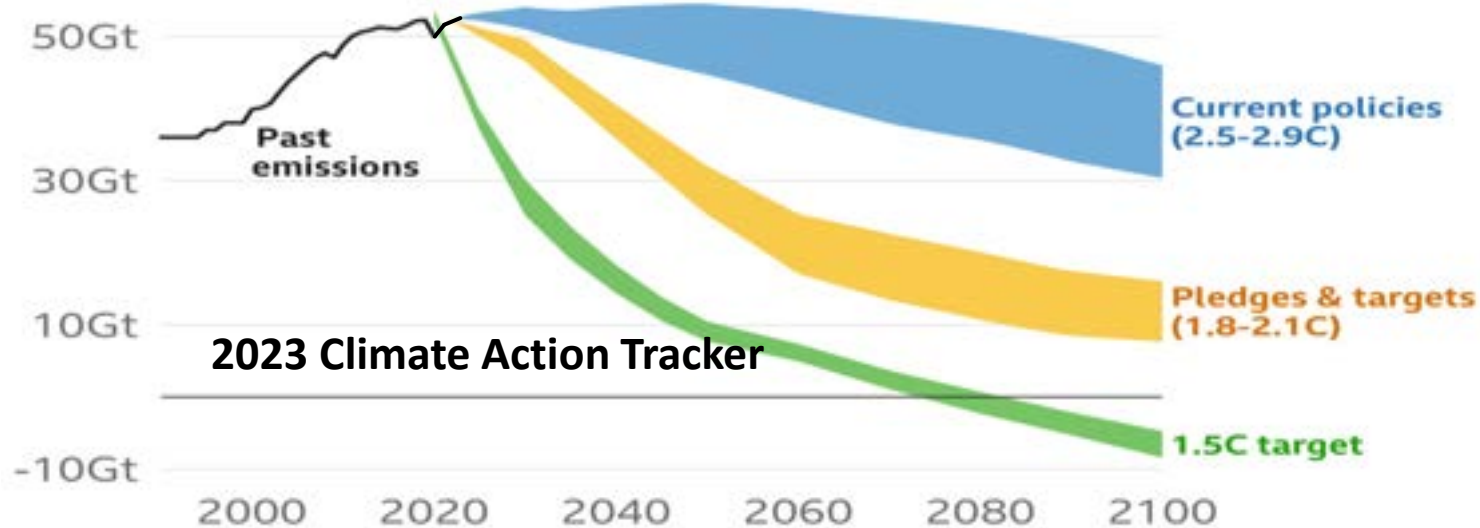
The outlook in 2014



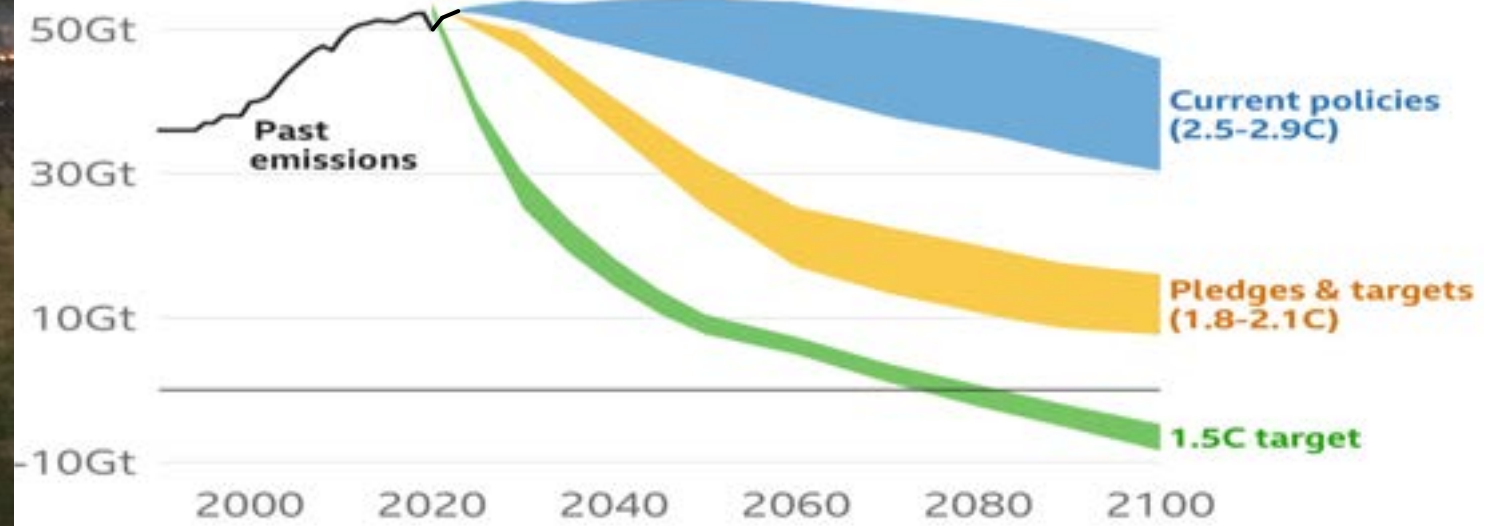
- Historic emissions
- Reference range*
- Pledge pathway (CAT assessment)
- Likely below 2°C
- 50% chance below 1.5°C in 2100
- RCP2.6
- RCP8.5
- Action incl. conditional pledges & national policies
- Current policy projections (CAT assessment)

© www.climateactiontracker.org/
Ecofys/Climate Analytics/PIK

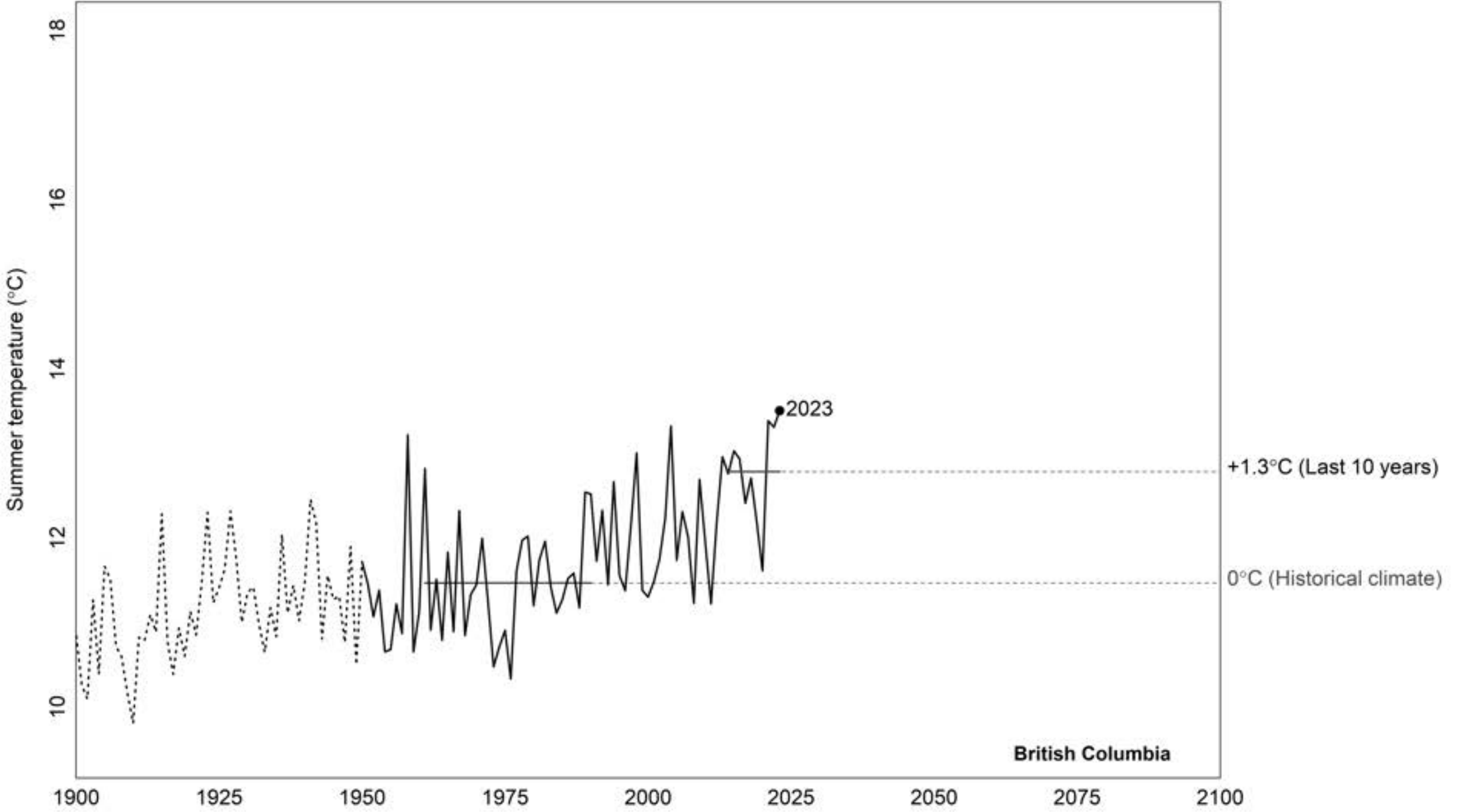
The outlook in 2023

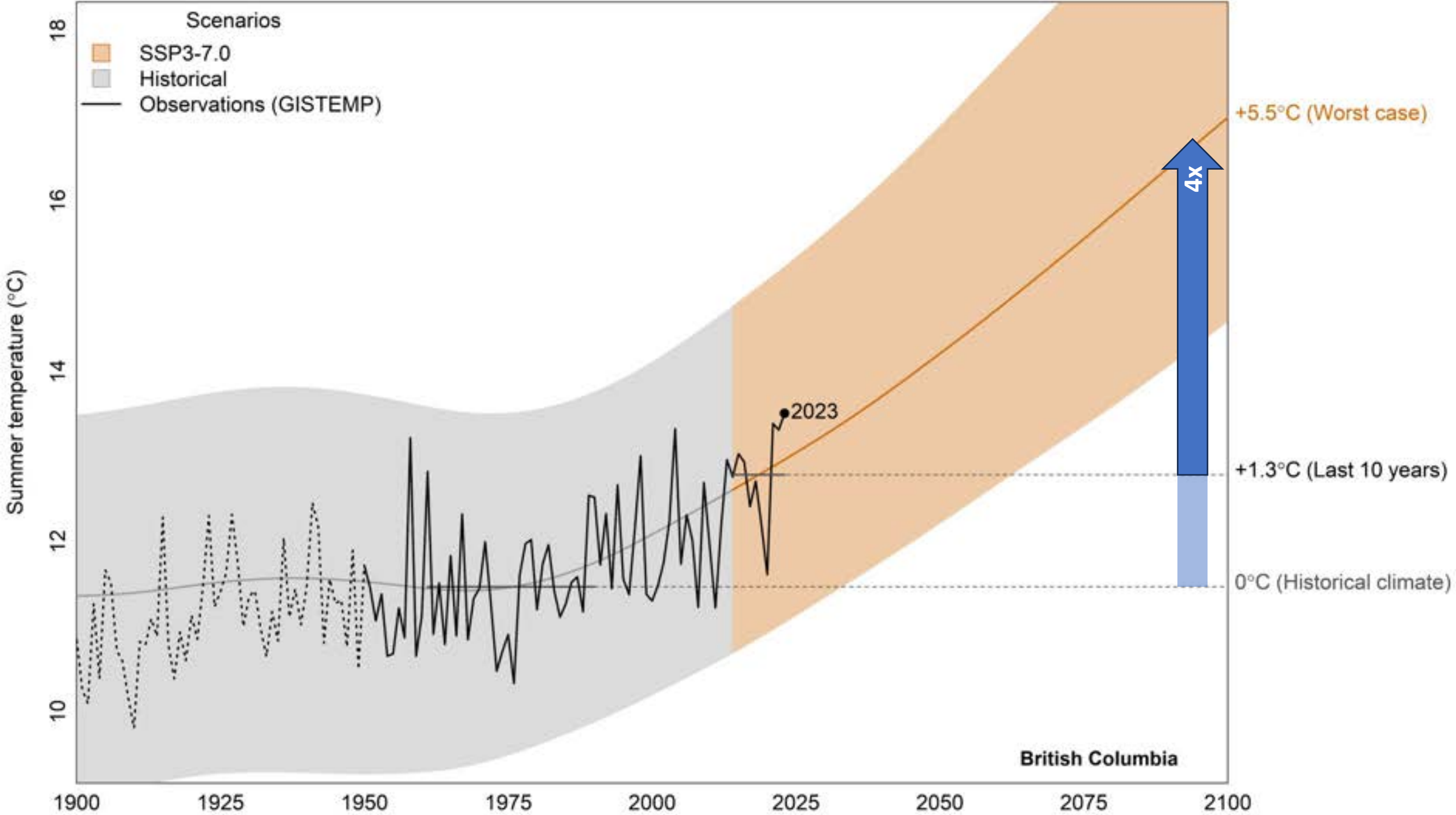


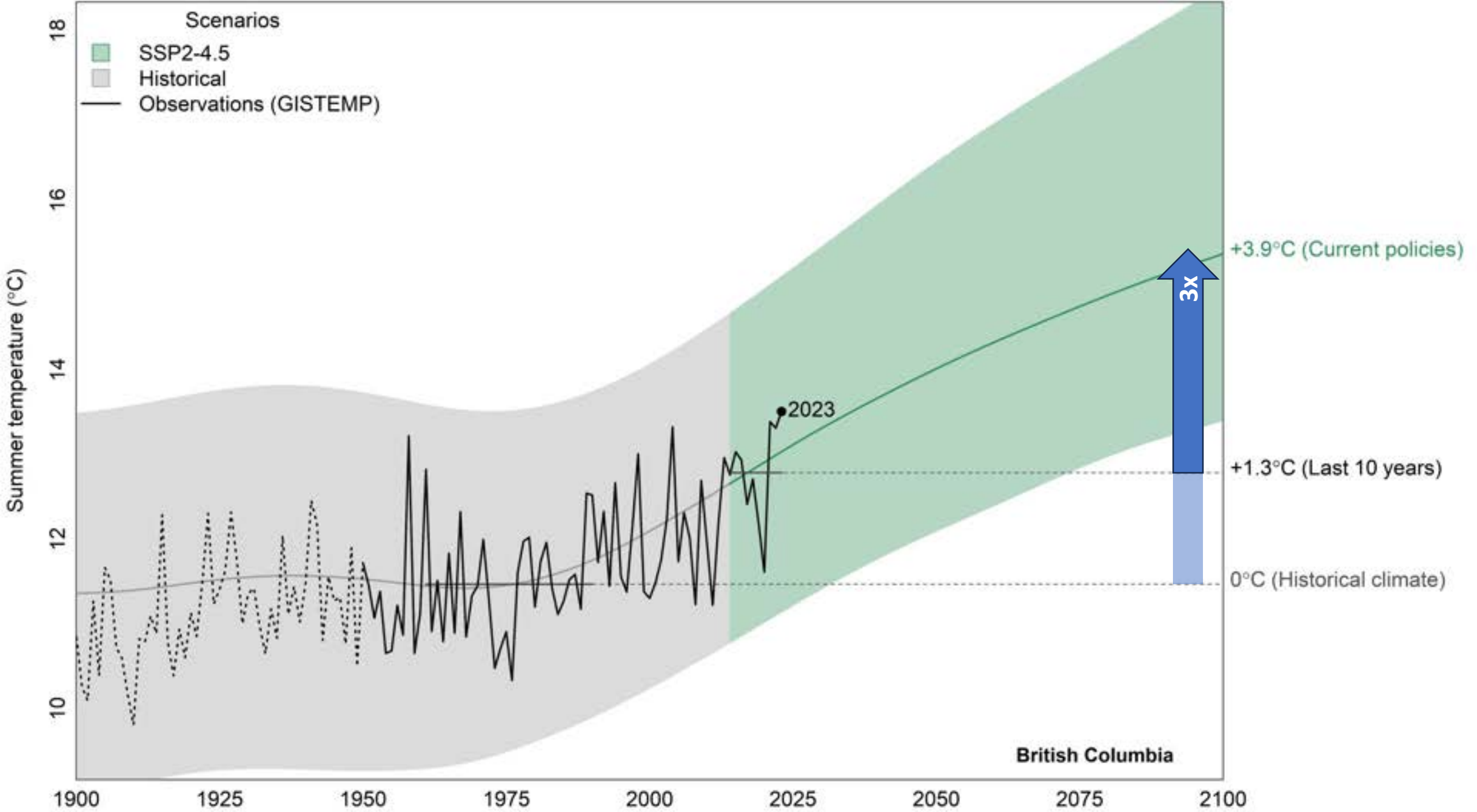
Boehm et al. 2023. State of Climate Action 2023.
<https://doi.org/10.46830/wriprt.23.00010>.

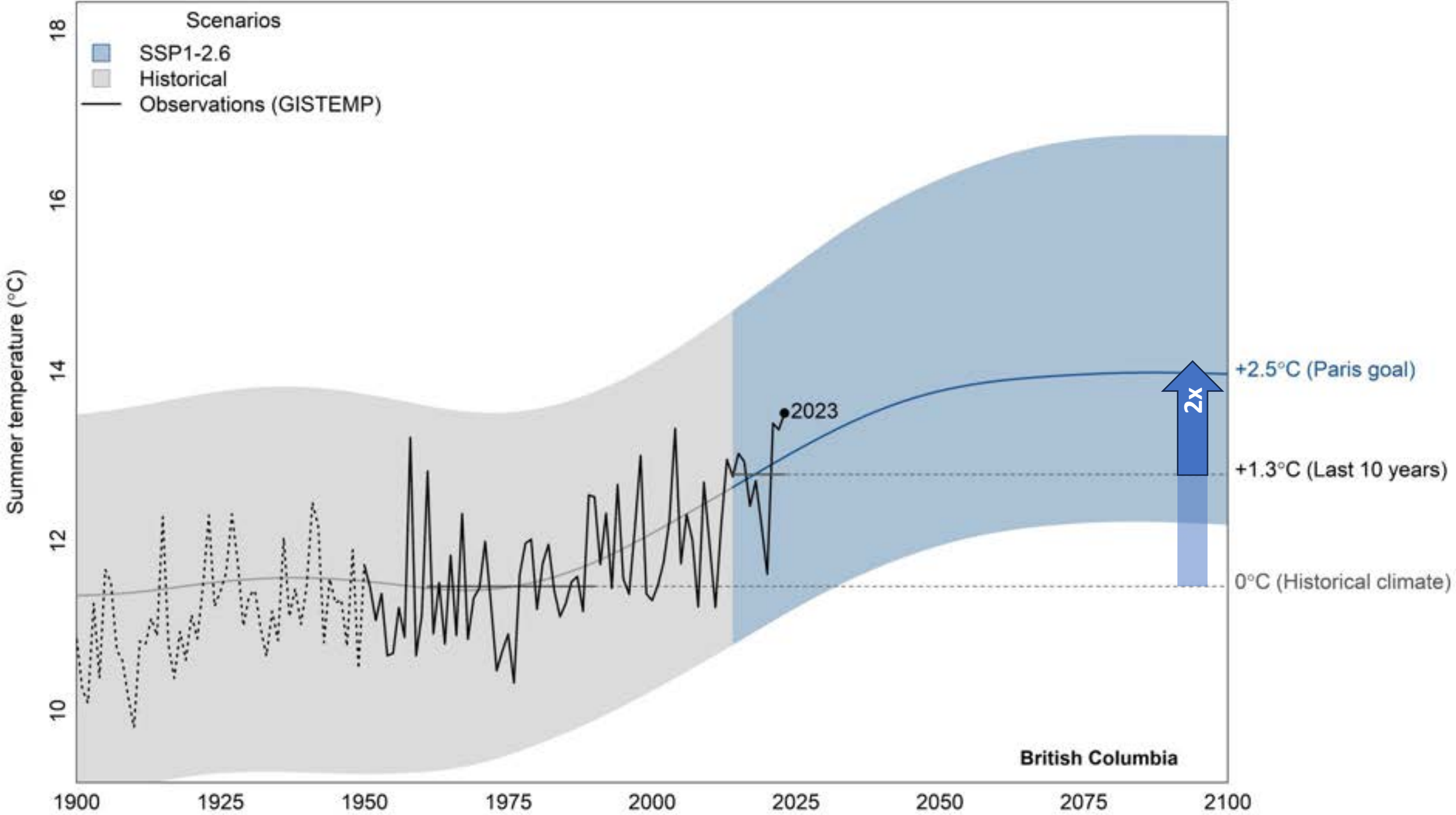


Boehm et al. 2023. State of Climate Action 2023.
<https://doi.org/10.46830/wriprt.23.00010>.











“We basically have three choices:
mitigation, adaptation and suffering.
We’re going to do some of each. The
question is what the mix will be.”

John Holdren. President of the American Association
for the Advancement of Science (2008-2009)

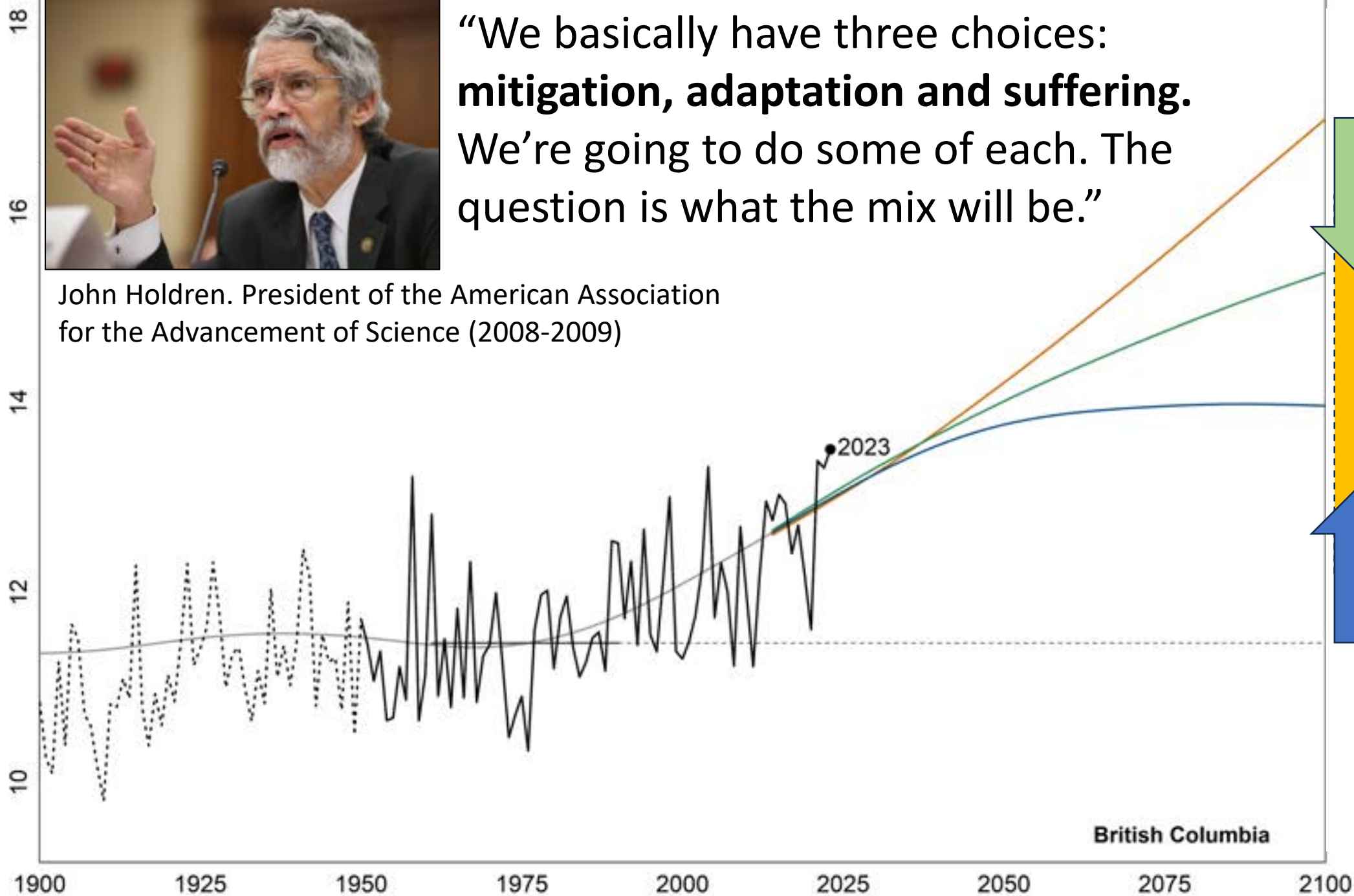




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Summer temperature (°C)

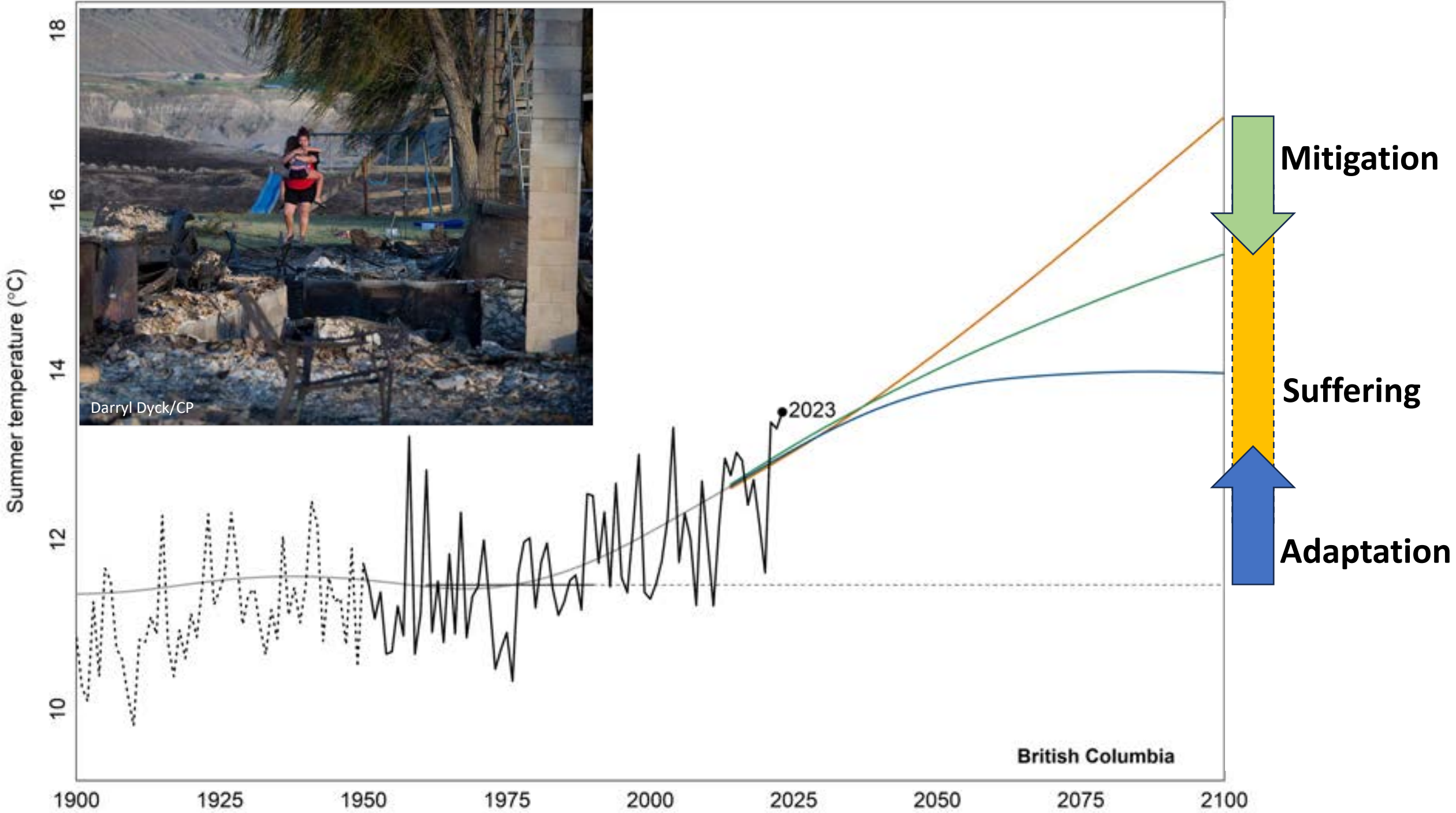


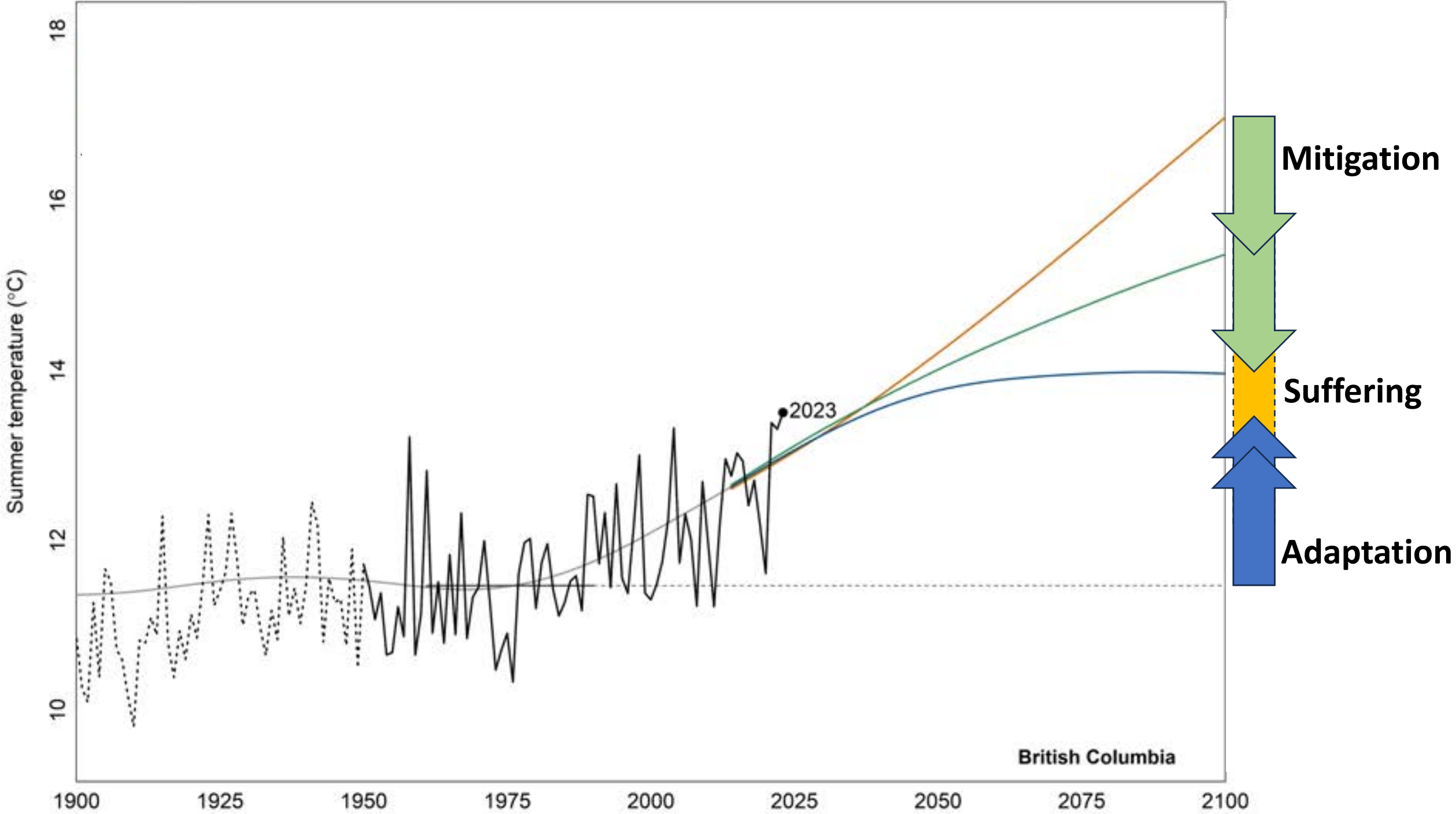
British Columbia

Mitigation

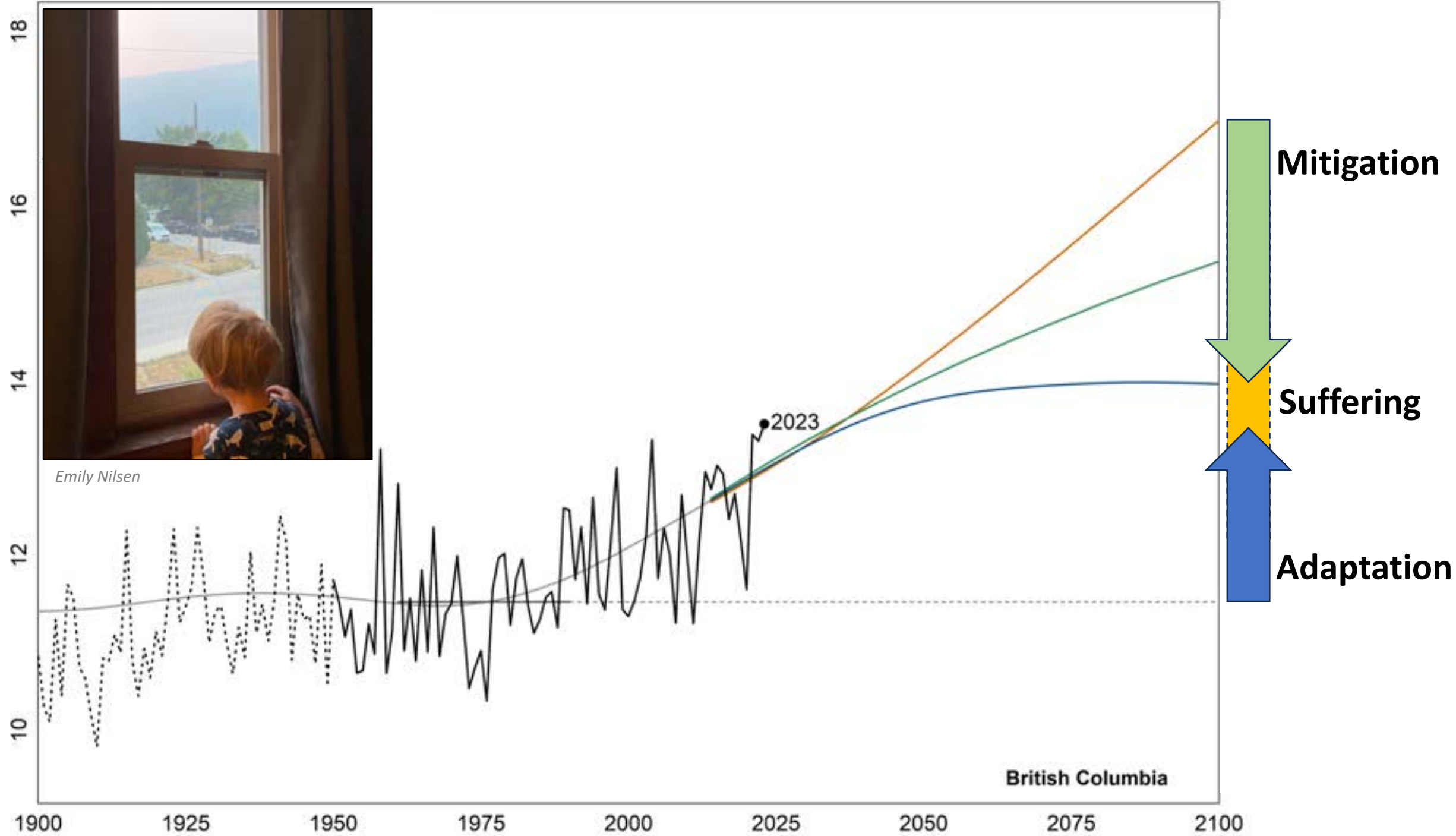
Suffering

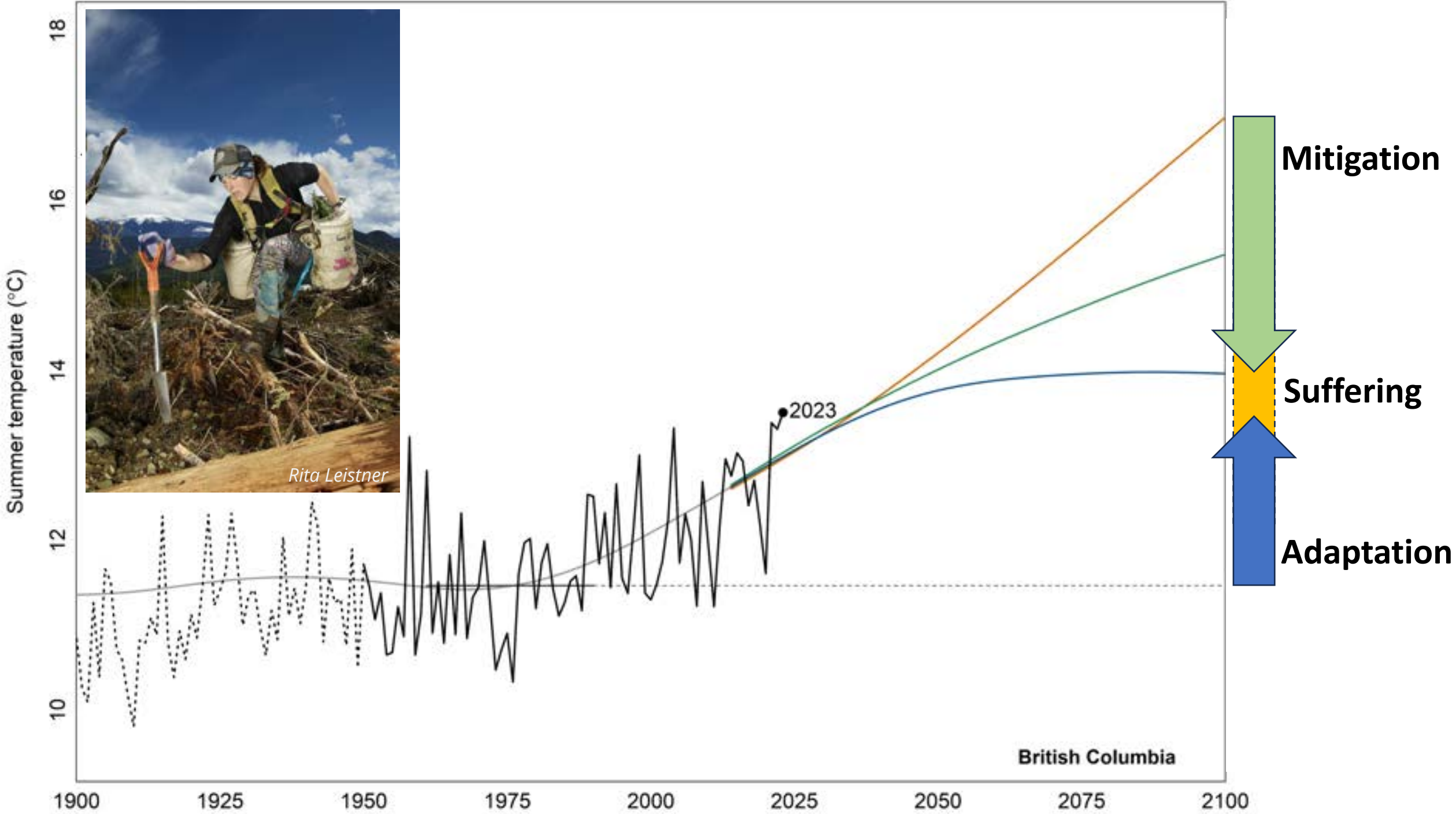
Adaptation





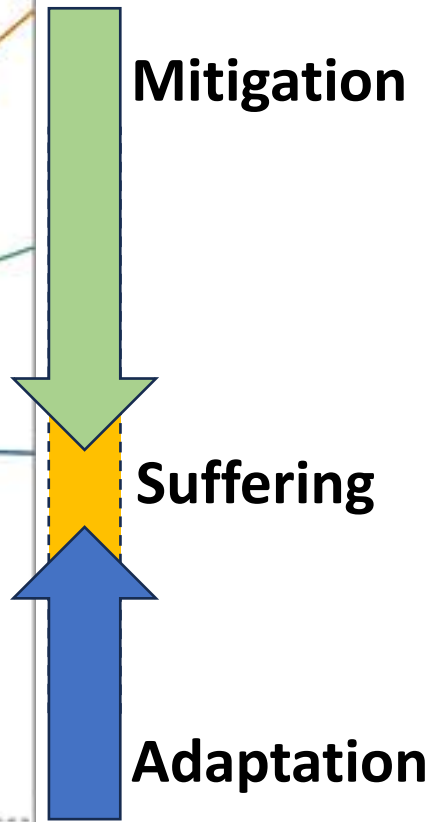
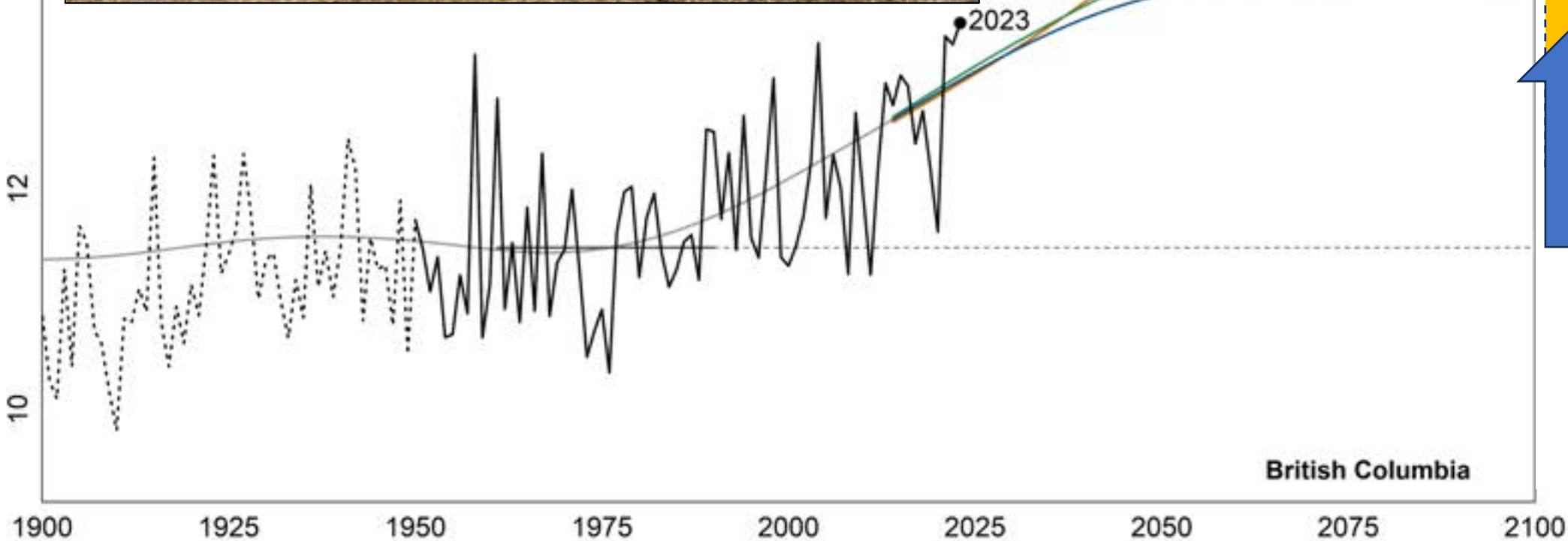
Summer temperature (°C)





Summer temperature (°C)

18
16
14
12
10



Overcoming barriers to adaptation

Barriers

Solutions

Failures of imagination



Build storylines of the future

Tokenism



Respond proportional to the risks

Technocracy



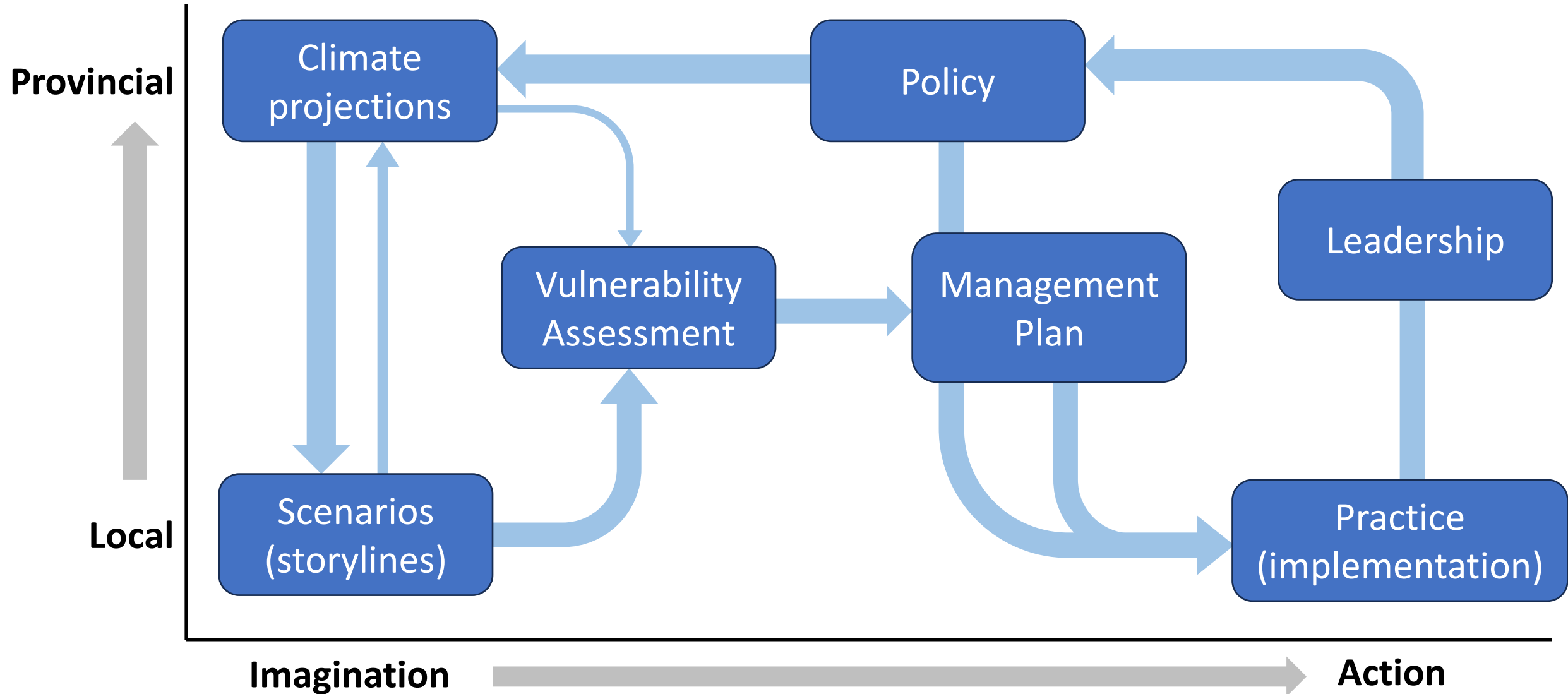
Empower local decisions/knowledge

Treating the symptoms



Leadership on stabilization of the climate

Adaptation – from projections to practice



Key messages

- 1. The future is not written.** Adaptation is made possible by the phaseout of fossil fuels.
- 2. Local knowledge and imagination is central** in adapting to climate change in forest management

Make your own projections

<https://bcgov-env.shinyapps.io/cmip6-BC/>

