The heat is on

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Image by Ben Hershey on
unsplash.com

Why heat

0.9% of the total mortality burden globally - 7 deaths per 100k pop/year (Zhao et al., 2021)

Increased morbidity - cardiovascular, respiratory, mental

Elderly, pregnant women, chronic patients, children

High economic costs, reduction labor productivity

It's getting hotter

The risk propeller
How we model heat mortality?

> - Single model initial condition large ensembles
> - 234 climate model runs from 5 models

Model	# runs
CESM1.2	84
CESM1-CAM5	40
CanESM2	50
GFDL-ESM2M	30
CSIRO-Mk3.6.0	30

Vulnerability

Hazard

What is the impact of a 100-year event?

Exposure

> - 748 location-specific risk-response functions in collaboration with the MCC network
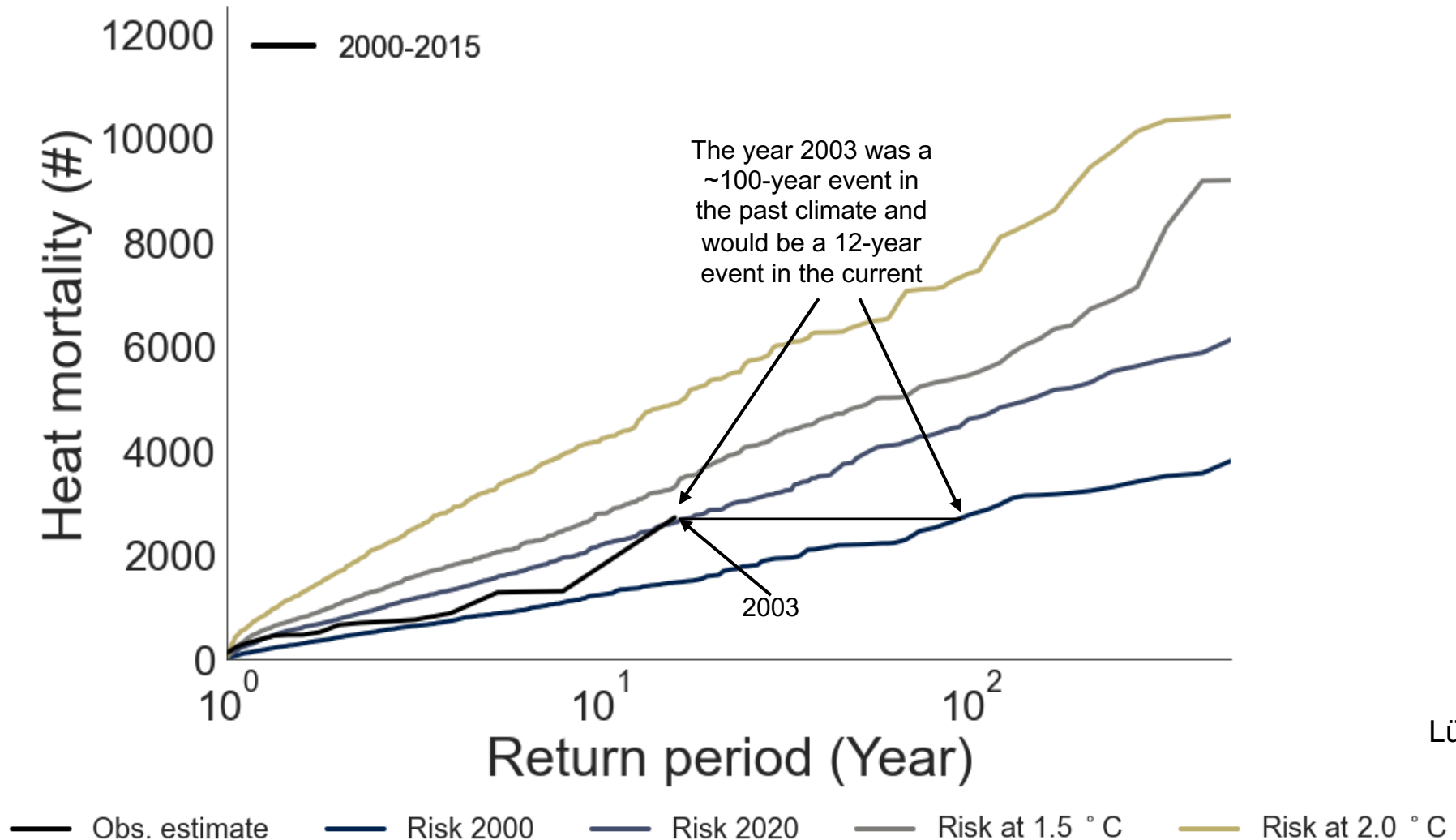

Zürich
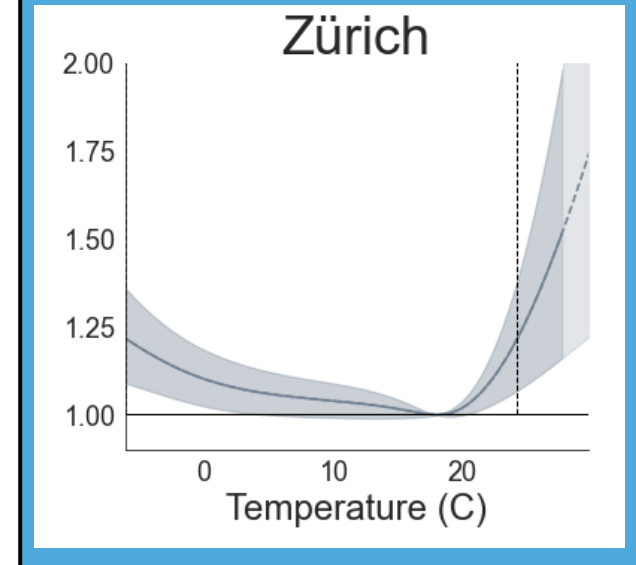
> - Daily mortality counts
> - 748 location-specific time series
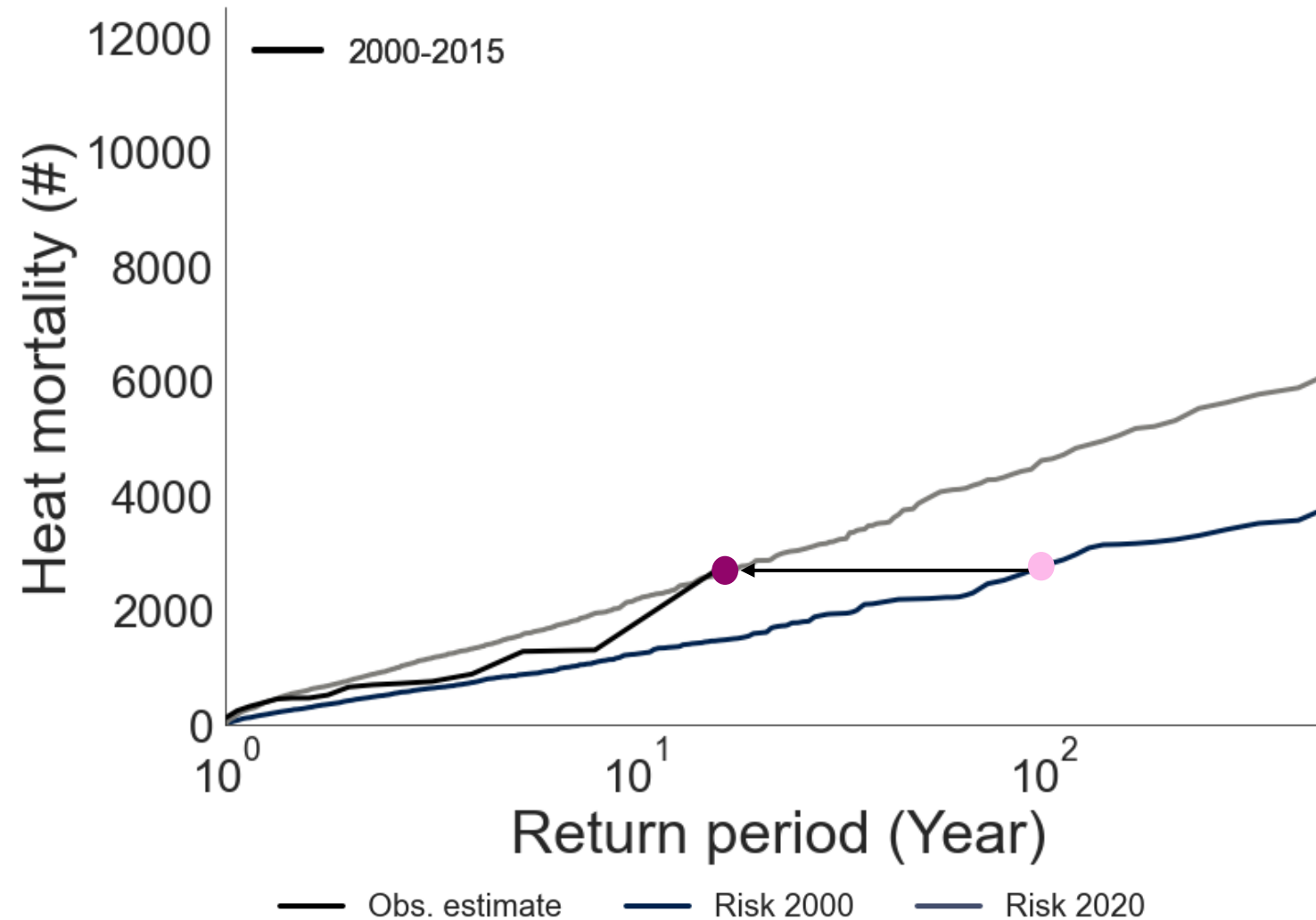
Risk of heat-mortality in Paris
What is the mortality impact of a 100-year heat season?

The year 2003 was a ~100-year event in the past climate and would be a 12-year event in the current

2003

Lüthi et al. (in prep.)

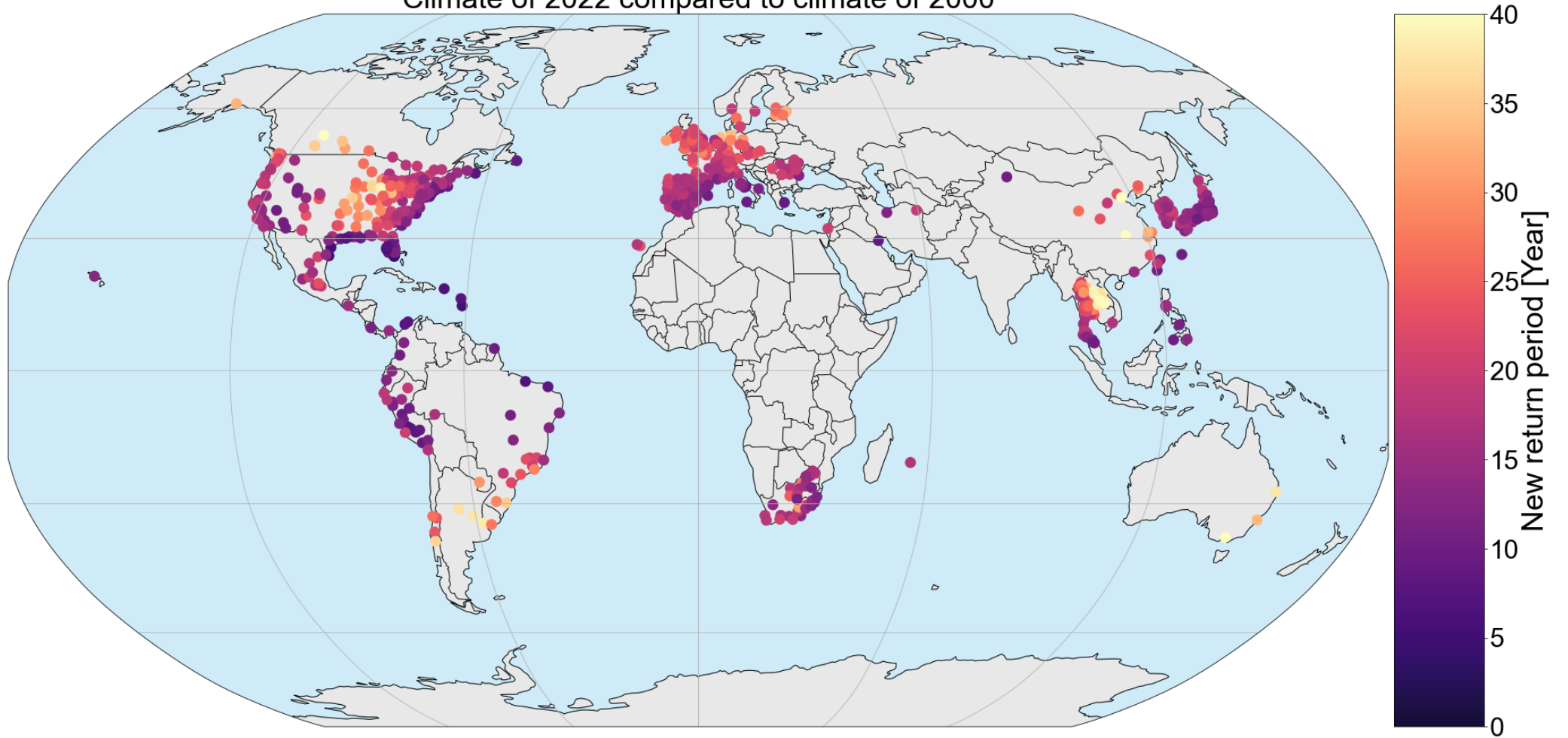Risk of heat-mortality (Paris)
What is the new return period of a 100-year season in 2000?

Change in return period
Change in return period - current warming

Change in return period of a 100-year event
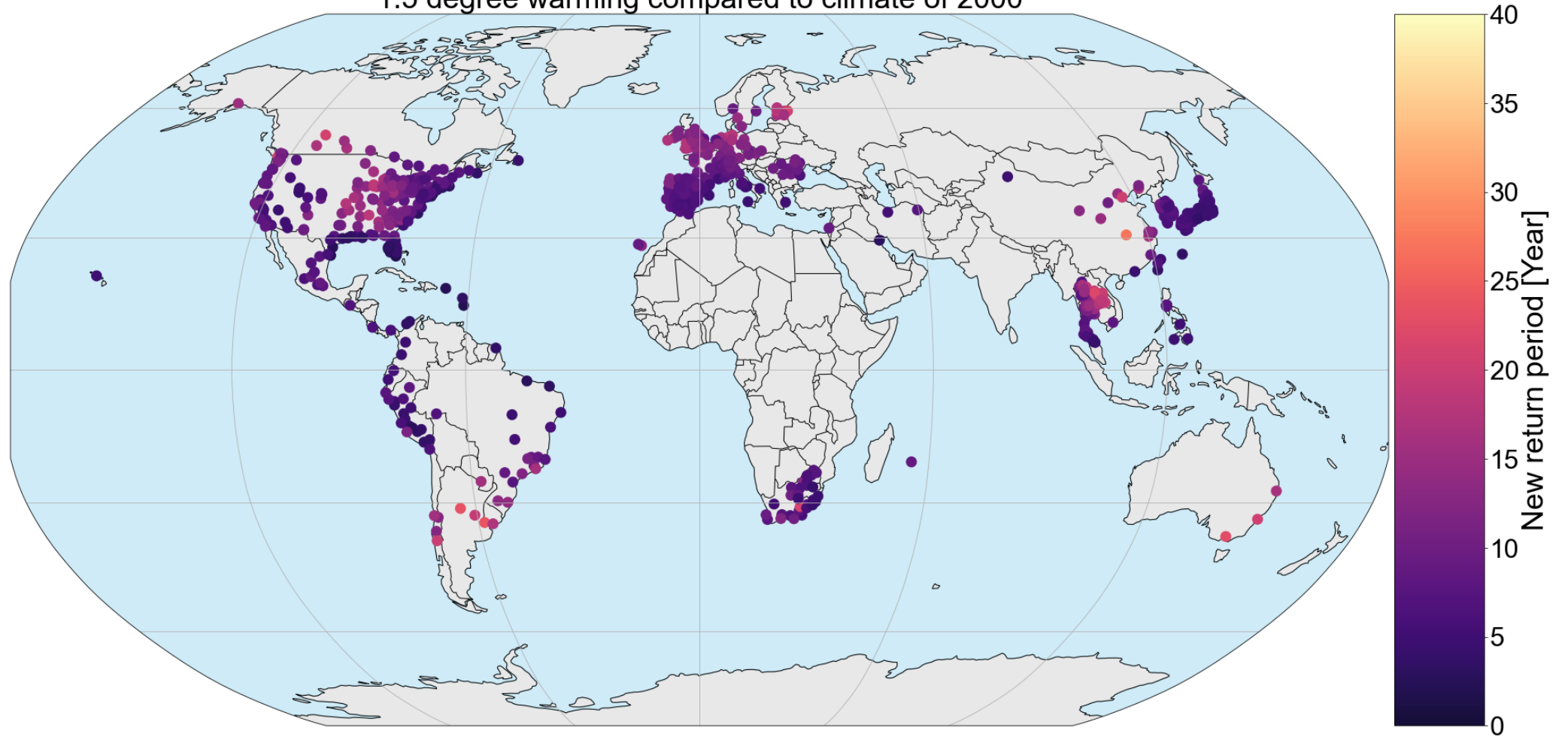Climate of 2022 compared to climate of 2000

New return period [Year]

Lüthi et al. (in prep.)

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Change in return period – 1.5 degree warming

Change in return period of a 100-year event
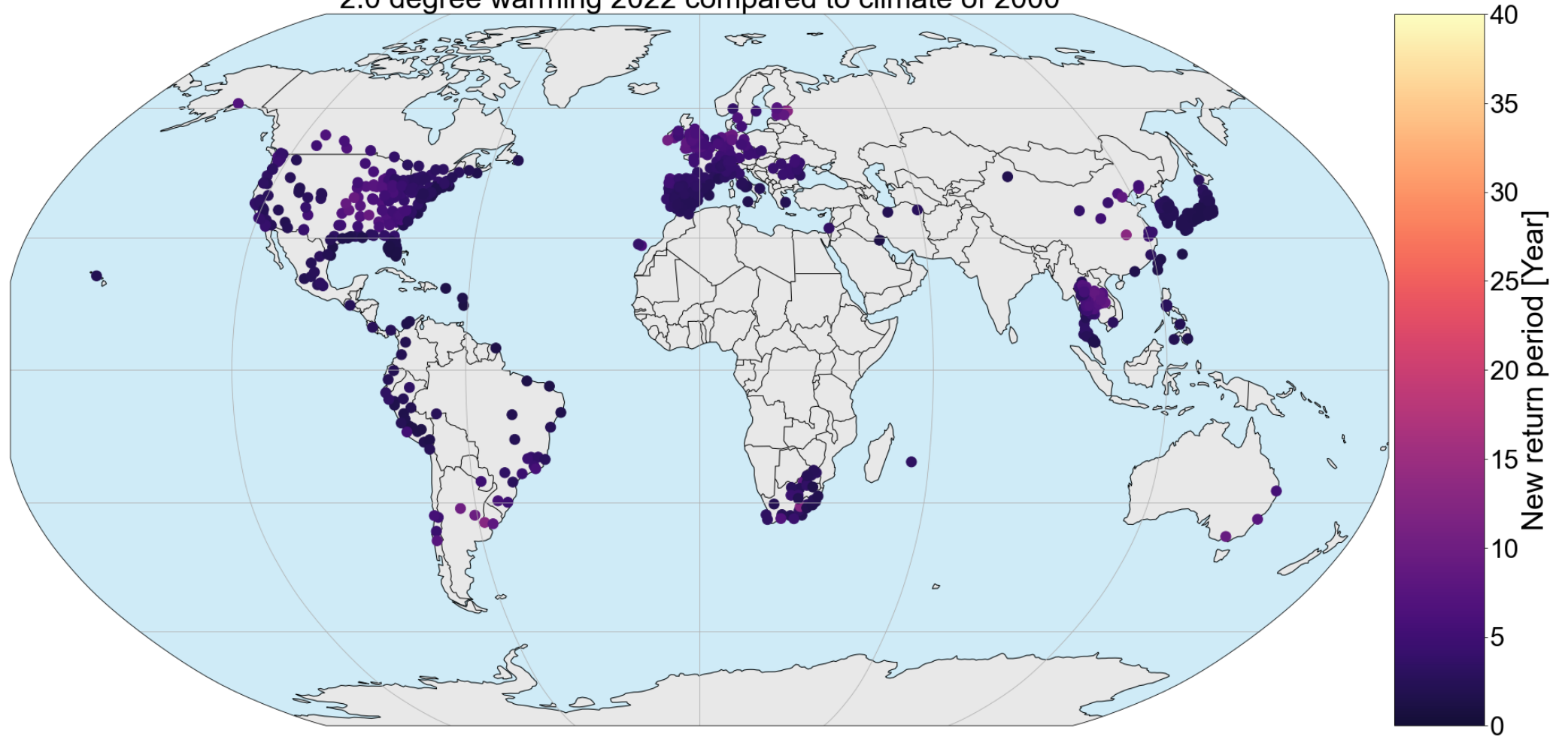1.5 degree warming compared to climate of 2000

Lüthi et al. (in prep.)

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Change in return period – 2 degree warming

Change in return period of a 100-year event
2.0 degree warming 2022 compared to climate of 2000
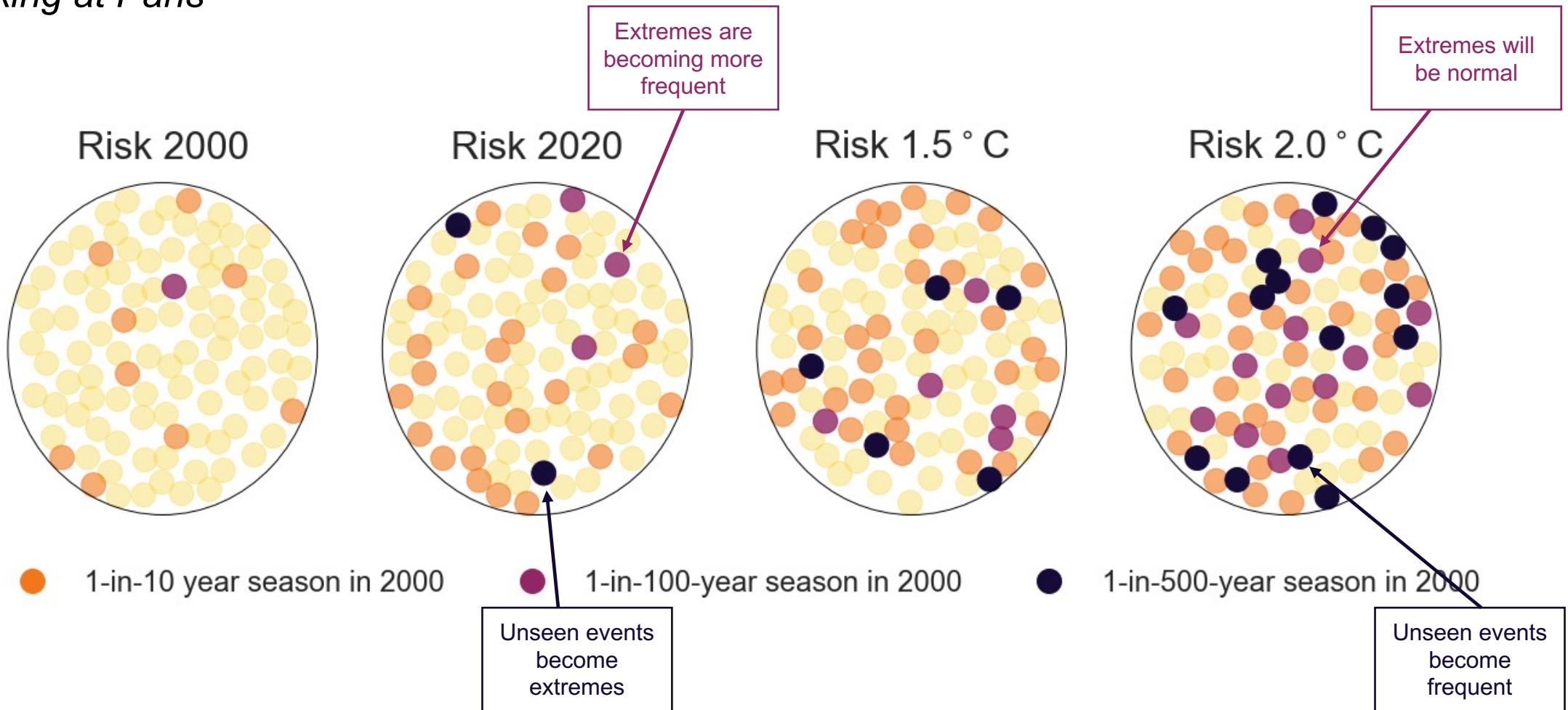
Lüthi et al. (in prep.)

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Change in return period
What does a change in return periods mean?
Looking at Paris

Lüthi et al. (in prep.)

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Wrapping up

Risk of heat mortality is changing rapidly

What used to be extreme is becoming normal

New extremes are uncharted territories

Next for me is adaptation – let's have a chat

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