The Climate Emergency

Director Benjamin P. Horton and PhD Student Fang Yi Tan in Antarctica

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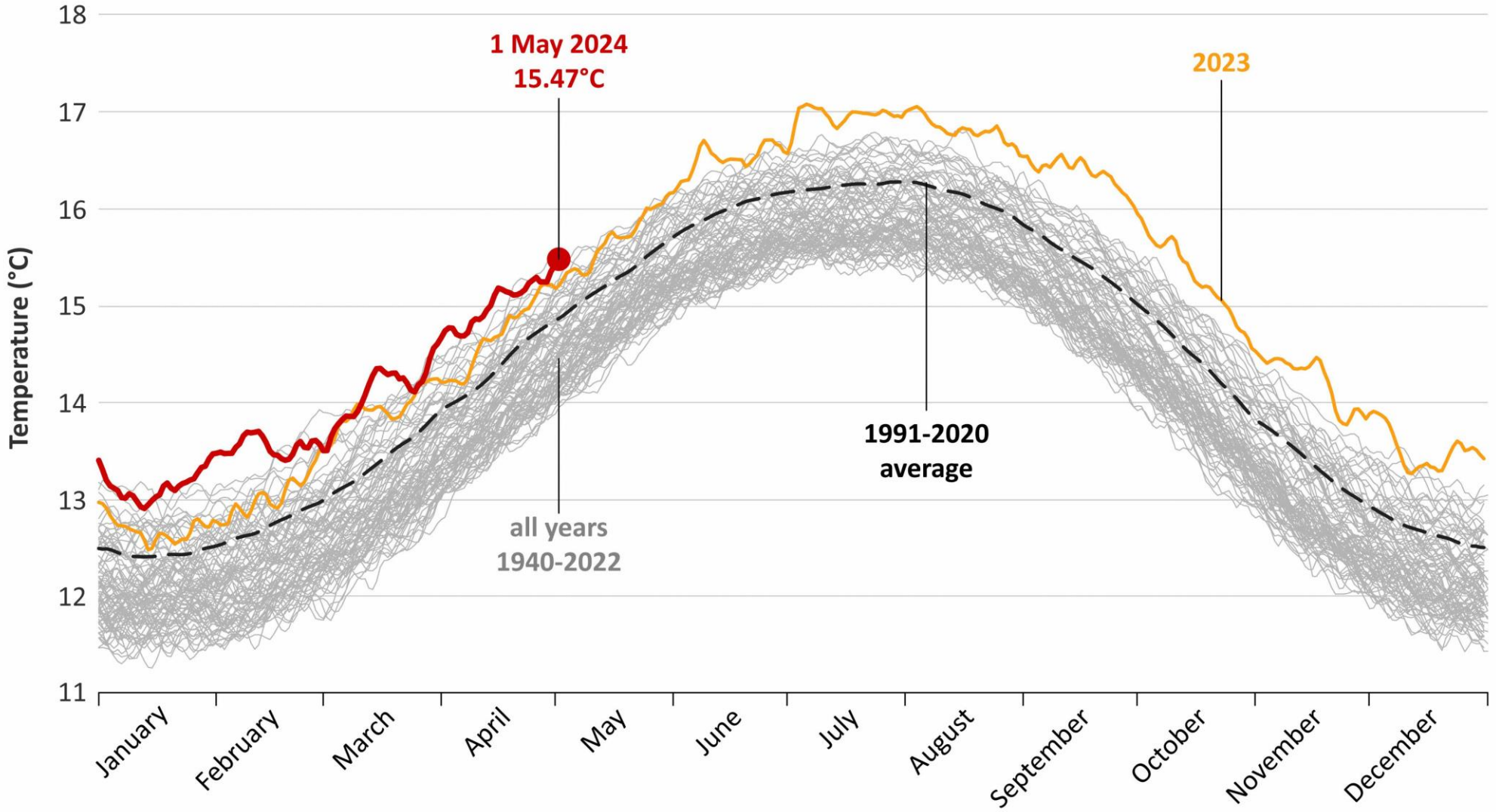
EARTH OBSERVATORY OF SINGAPORE

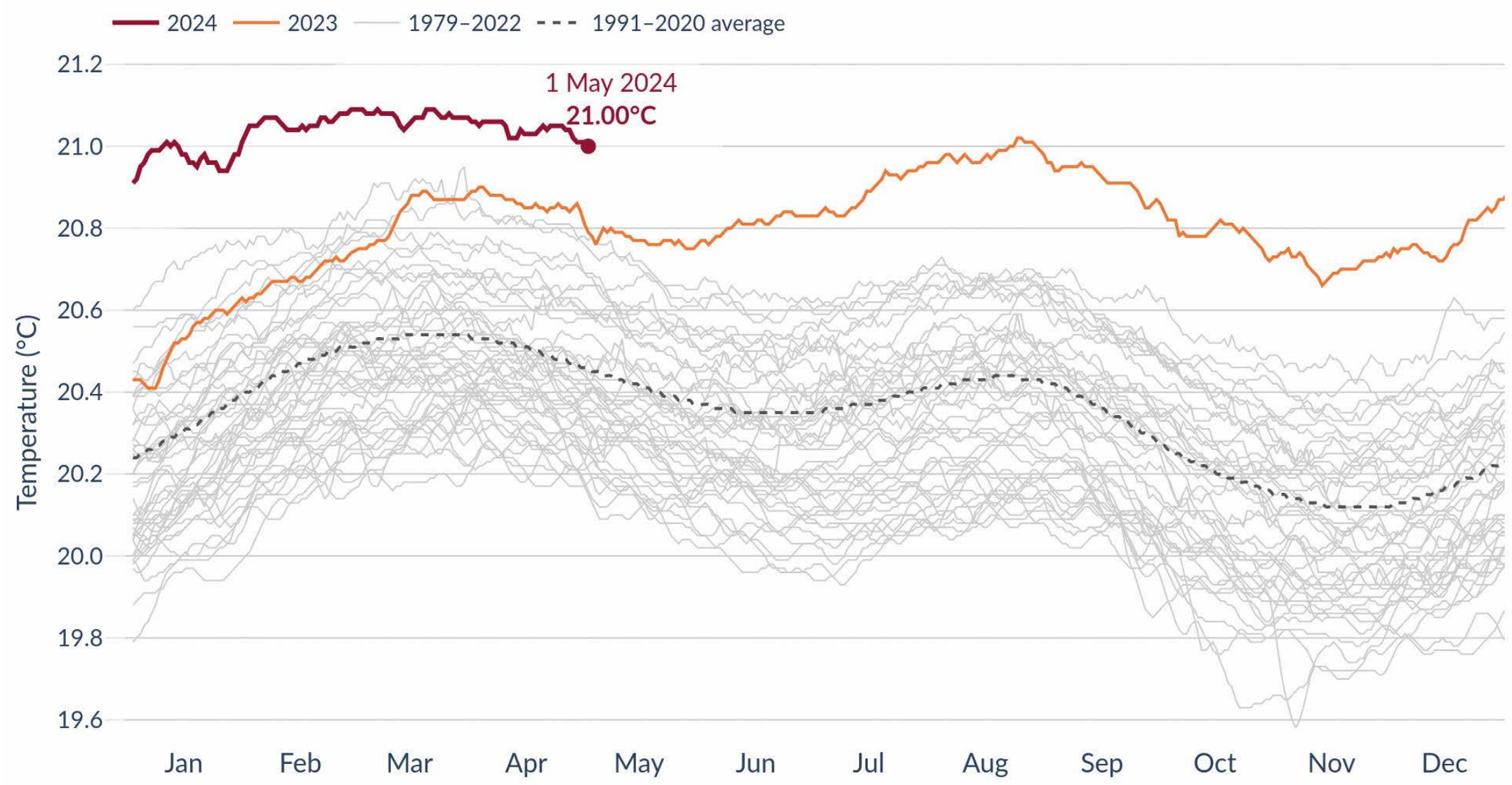
GLOBAL MEAN TEMPERATURE IS GOING UP – CURRENT SITUATION



April marked an 11th consecutive month of record global heat, the latest sign that humans are in uncharted climate territory. (The Washington Post)

Source: Copernicus C3S/ECMWF, ERA5. The graphic is modified from ClimateReanalyzer.org

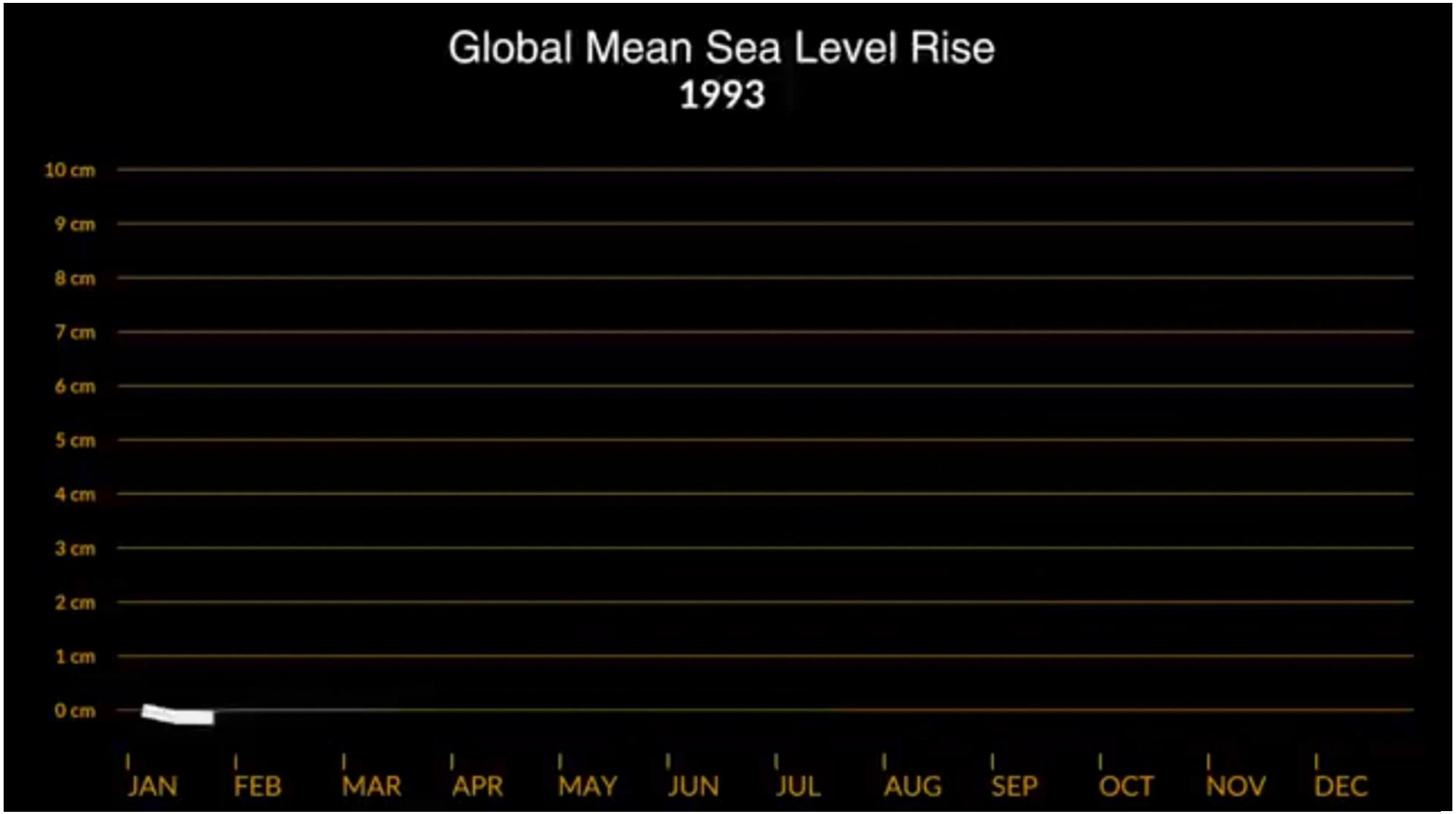
GLOBAL SEA SURFACE TEMPERATURES: 1979-2024



Sea surface temperatures for 2024 exceed previous records by a huge margin

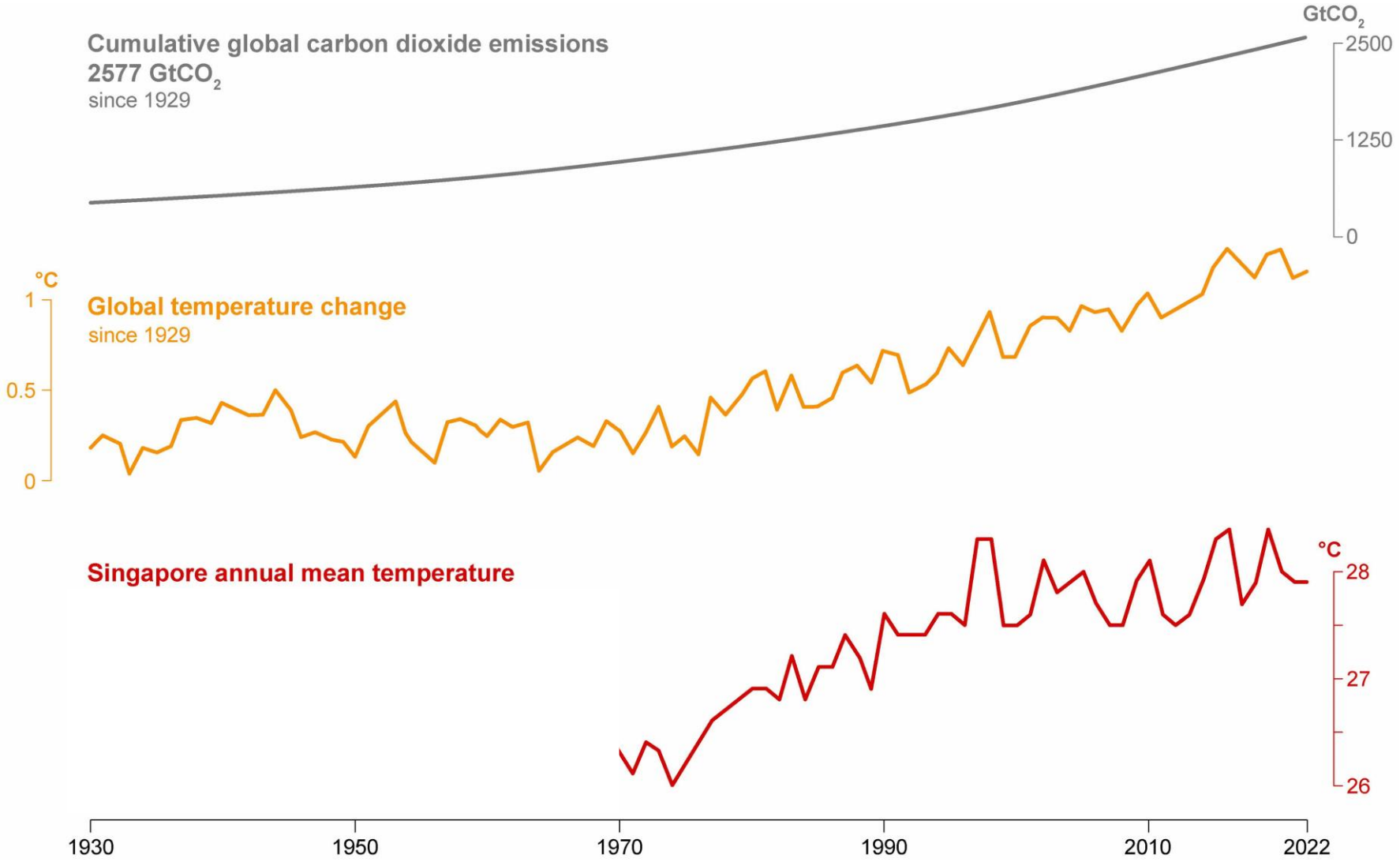
Source: Copernicus C3S/ECMWF, Data: ERA5

GLOBAL MEAN SEA LEVEL RISE: 1993-2023



Source: Mike Hudema on LinkedIn

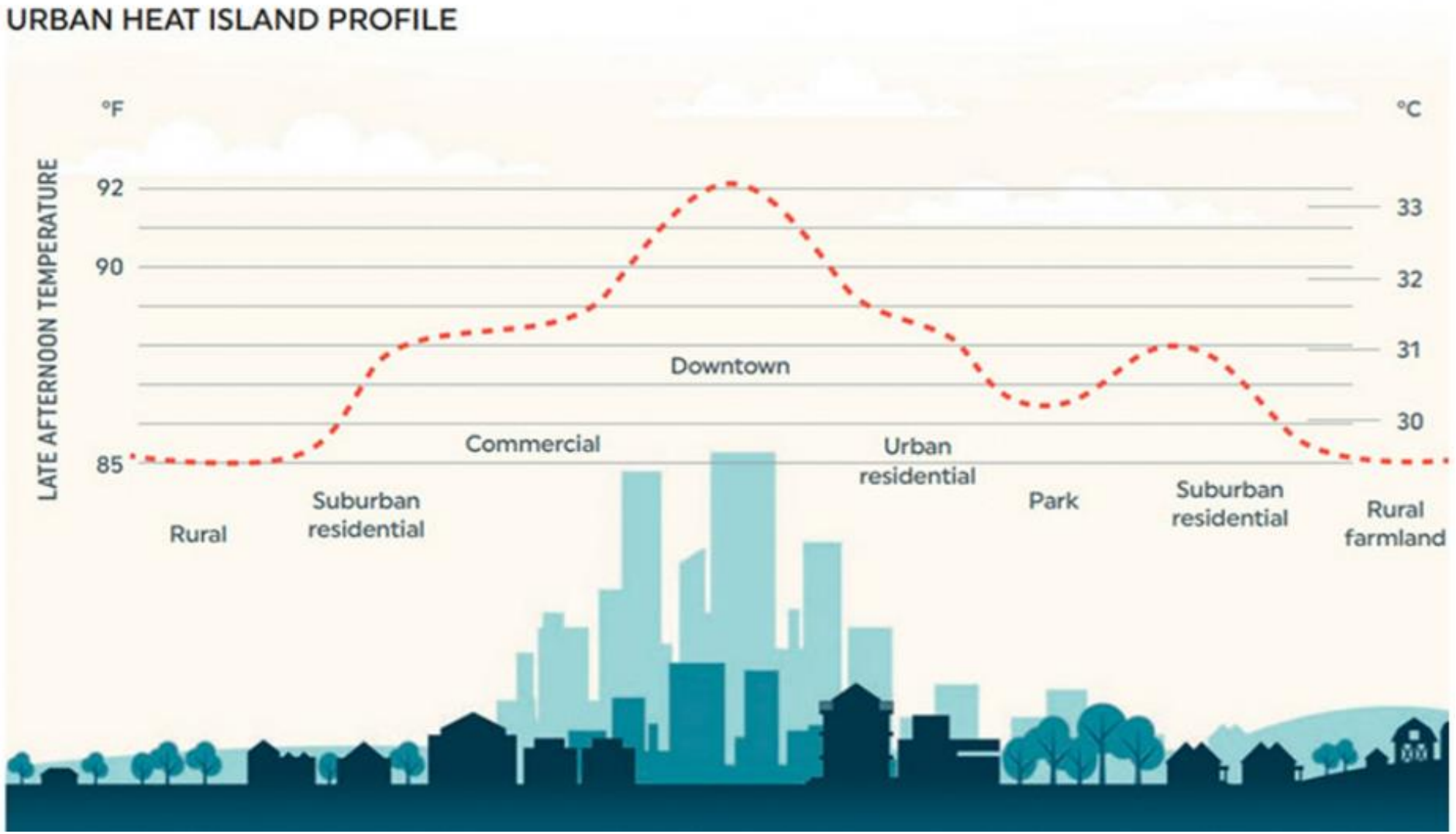
CHANGES IN CLIMATE FOR SINGAPORE



A graphic showing Singapore's annual mean temperature with global temperature change and cumulative global CO_2 emissions since 1929.

Source: Professor Ed Hawkins, Singapore's Third National Climate Change Study (V3)

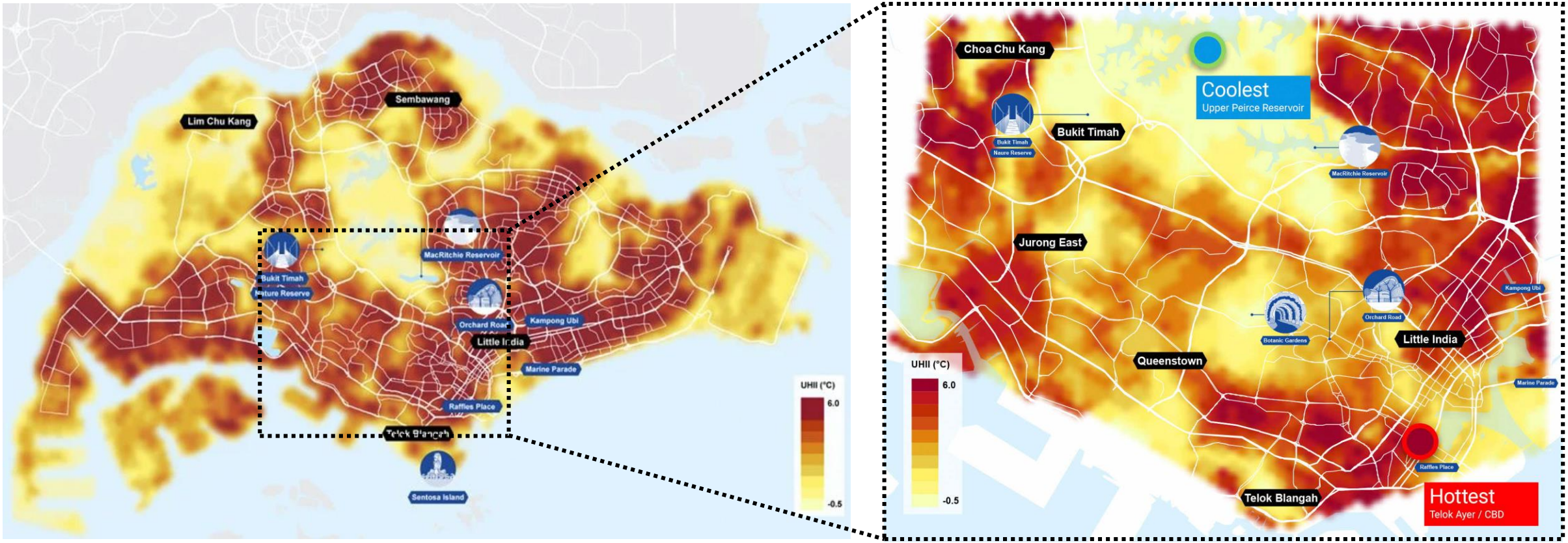
SINGAPORE'S URBAN HEAT ISLAND PROBLEM



The urban heat island effect causes cities to become much warmer than rural areas.
A hot and sunny afternoon can increase the temperature in urban areas by 1-3°C, compared with the air in nearby rural areas.

Source: Lawrence Berkeley National Laboratory

SINGAPORE'S HOTTEST AND COOLEST PLACES



Water and lush jungle at the Upper Pierce Reservoir Park, directly in the middle of the Central Catchment Area, provide a continuous cooling effect, leading to a difference of **6.5 degrees** in comparison to CBD.

Source: Arup

SCORCHING HEAT

The climate projections are based on three greenhouse gas emission scenarios:

Low emissions

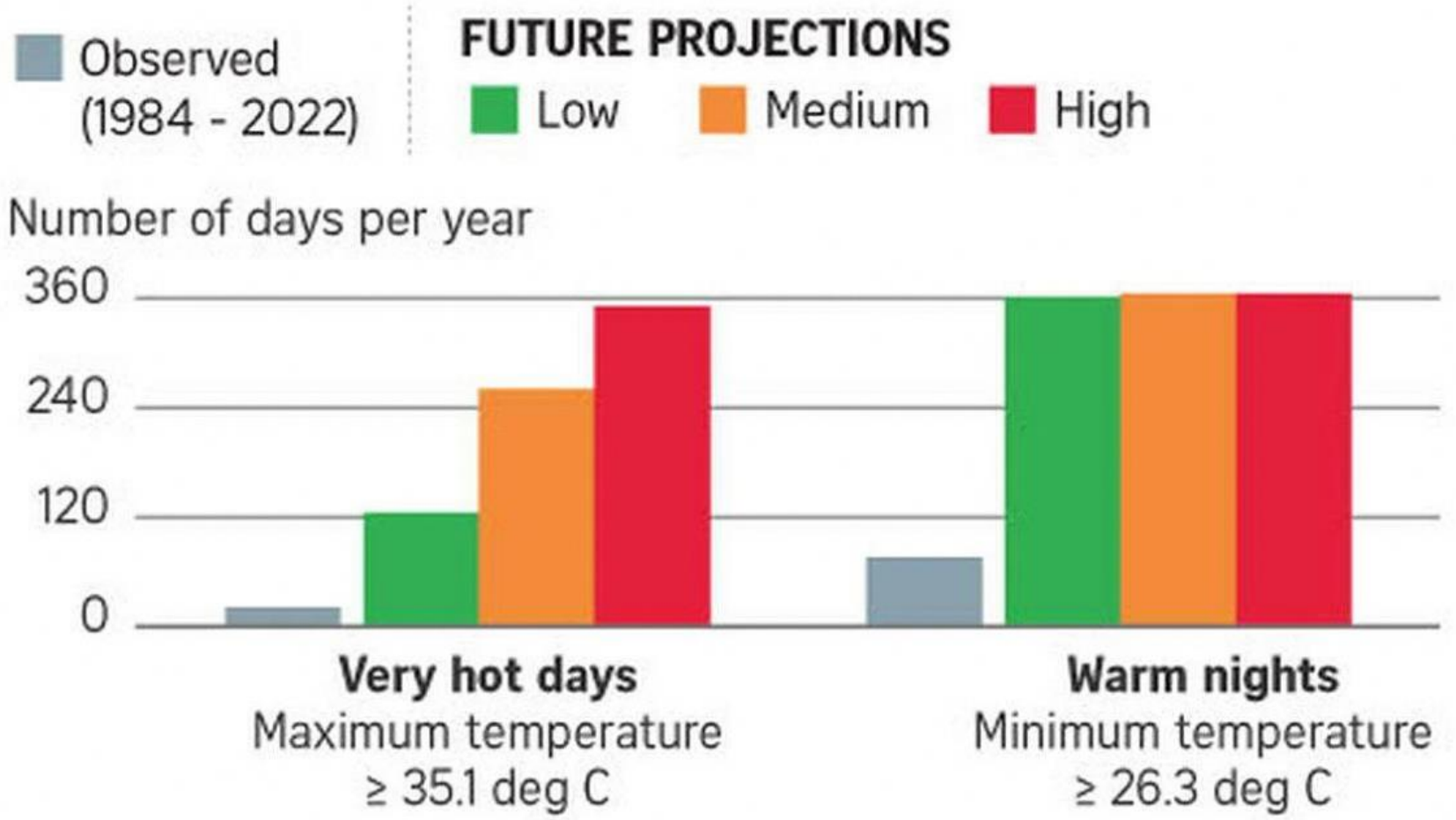
Carbon emissions are strongly reduced, net zero is achieved after 2050, and temperatures rise **1.8°C** by 2100.

Medium emissions

Emissions remain the same before starting to decline by 2050, and temperatures rise **2.7°C** by end of century.

High emissions

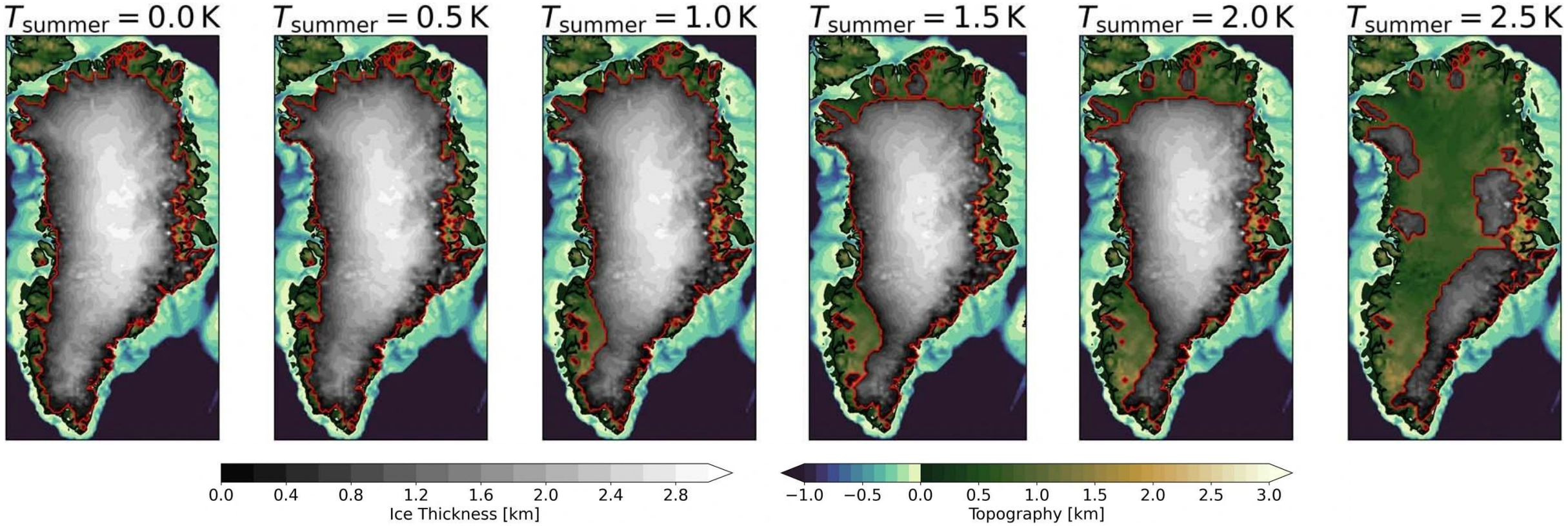
Emissions almost double by 2050 with aggressive reliance on fossil fuels, and temperatures soar **4.4°C** by 2100.



The projected values indicate the maximum number of days per year that can occur under each scenario.

Adapted from: Singapore's Third National Climate Change Study, NEA Straits Times Graphics

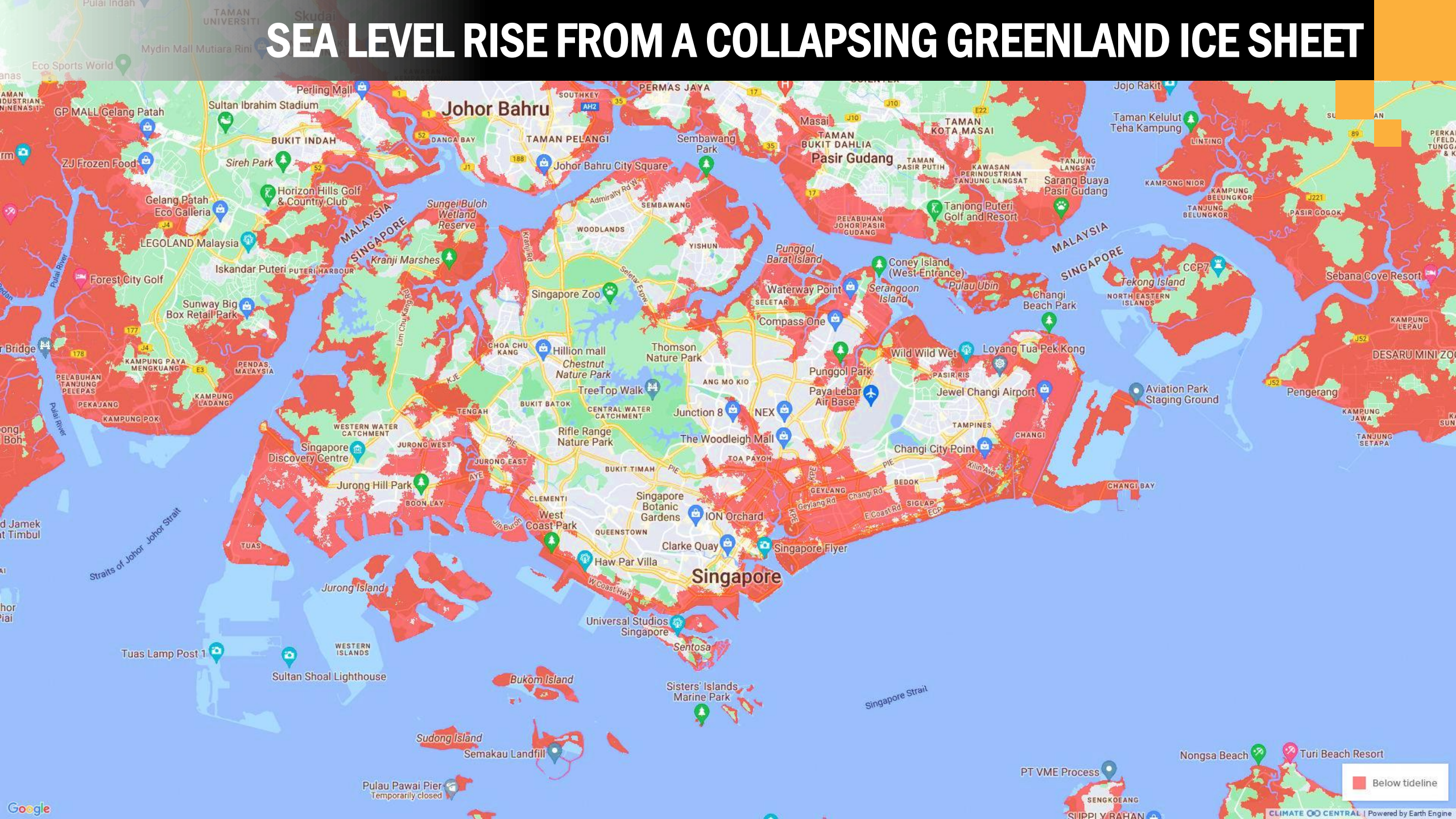
WARMING SCENARIOS OF GREENLAND ICE SHEET



Spatial maps of the Greenland ice sheet after 100 kyr for warming scenarios without mitigation for PISM (Parallel Ice Sheet Model) with the dEBM (diurnal Energy Balance Model).

Source: Bochow et al.

SEA LEVEL RISE FROM A COLLAPSING GREENLAND ICE SHEET



“Powered by hope and driven by courage, we will transform our future”

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