

The Climate Emergency

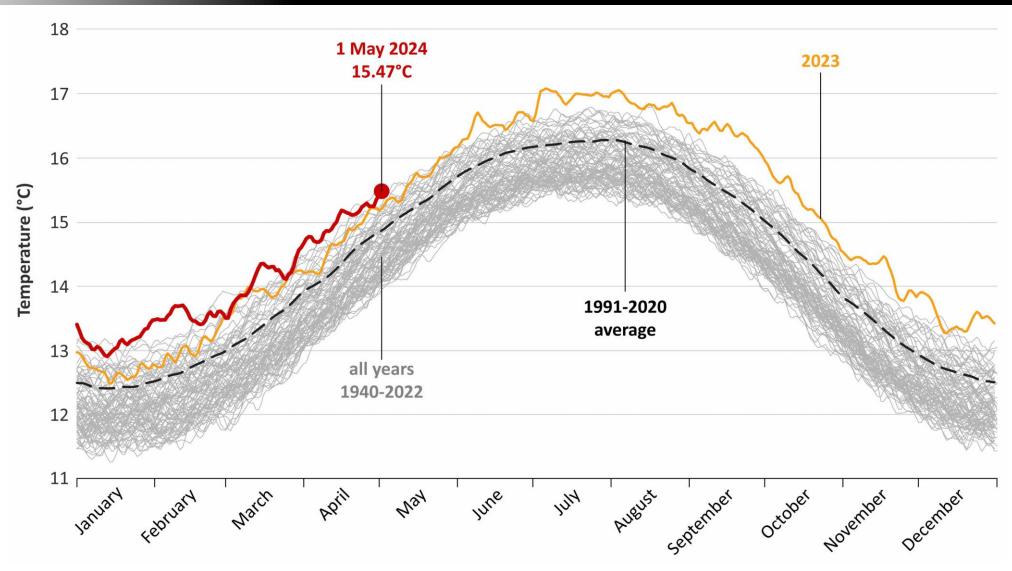
PROFESSOR BENJAMIN P. HORTON

DIRECTOR OF EOS



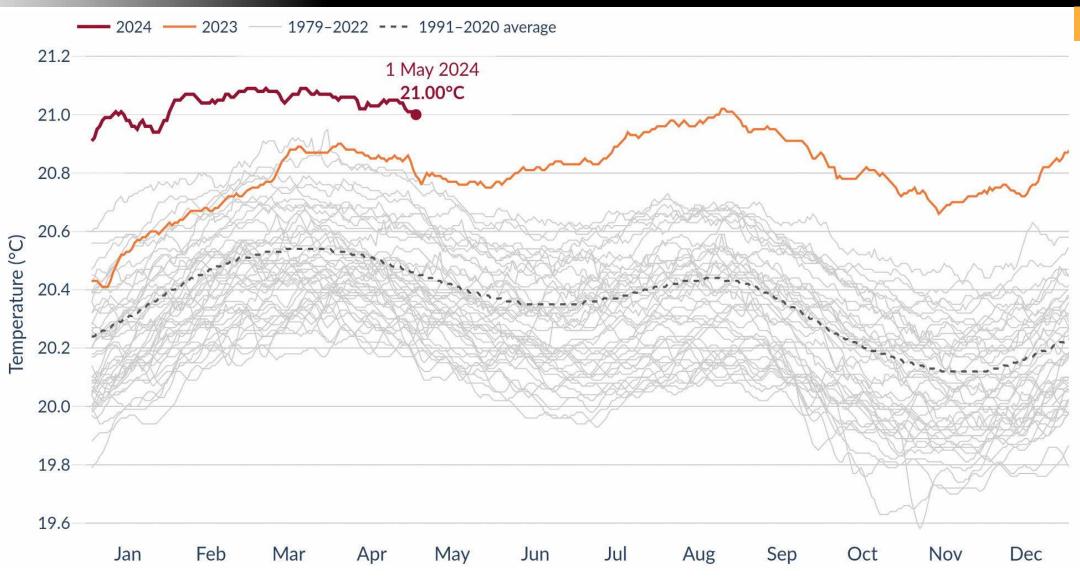


GLOBAL MEAN TEMPERATURE IS GOING UP - CURRENT SITUATION



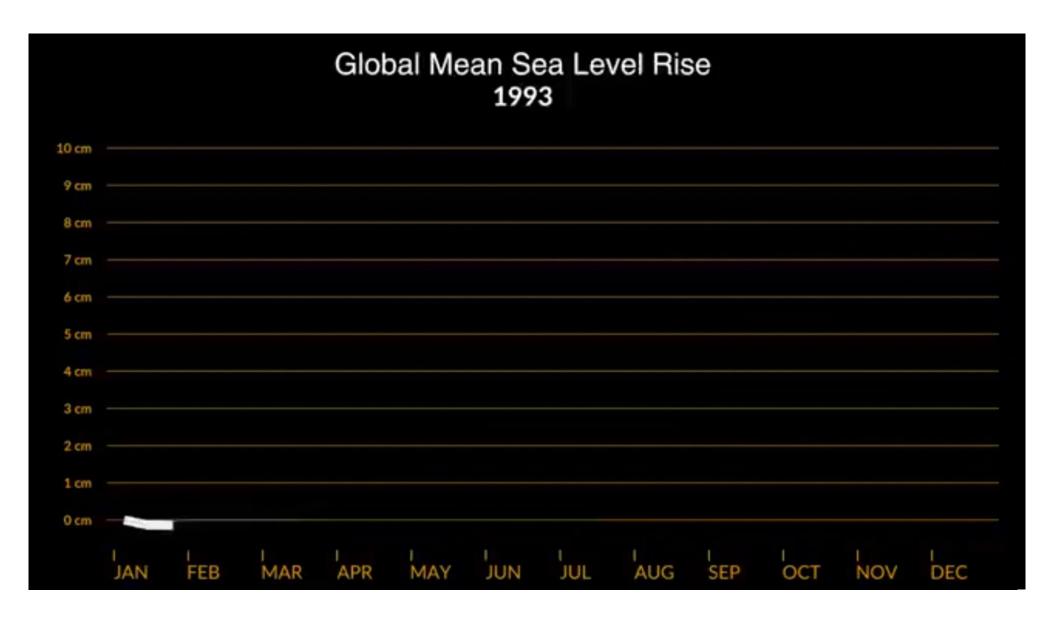
April marked an 11th consecutive month of record global heat, the latest sign that humans are in uncharted climate territory. (The Washington Post)

GLOBAL SEA SURFACE TEMPERATURES: 1979-2024

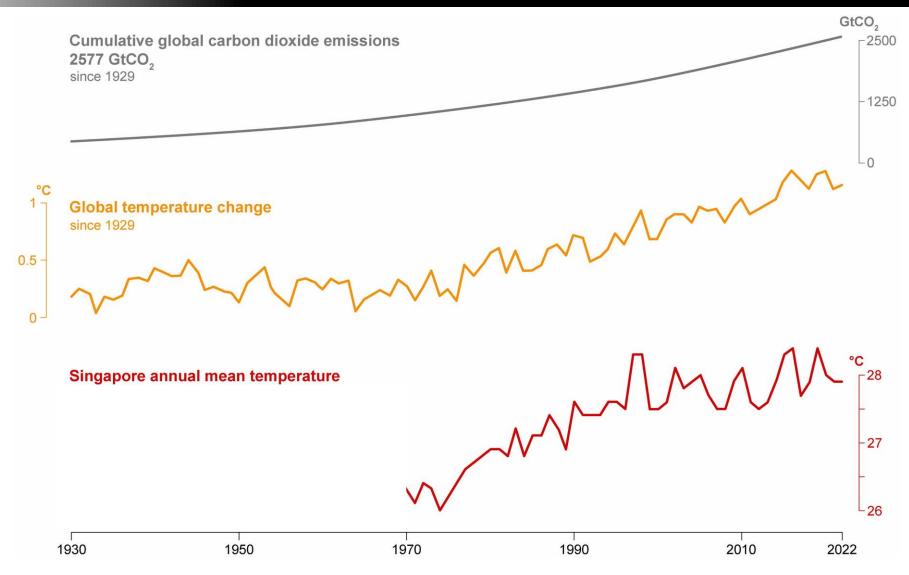


Sea surface temperatures for 2024 exceed previous records by a huge margin

GLOBAL MEAN SEA LEVEL RISE: 1993-2023

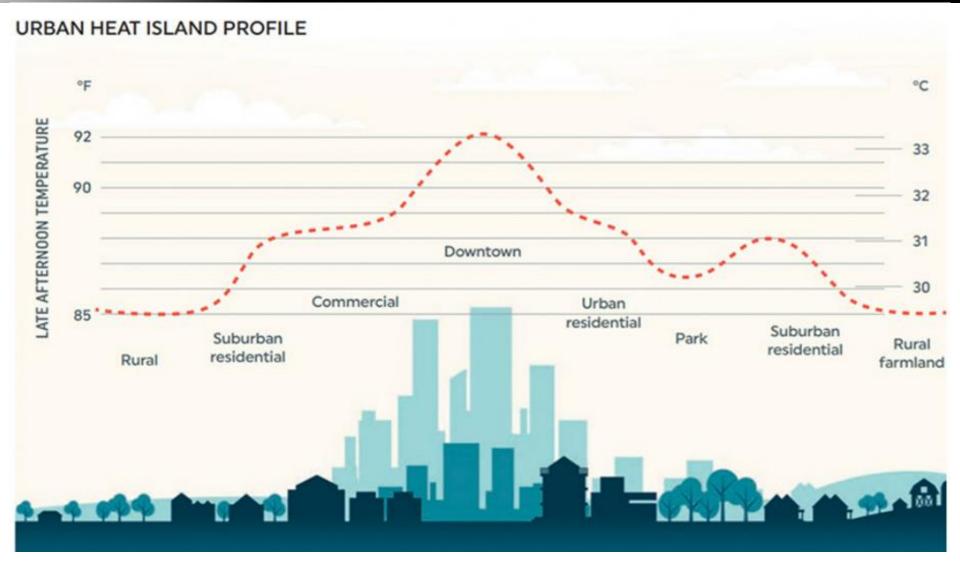


CHANGES IN CLIMATE FOR SINGAPORE



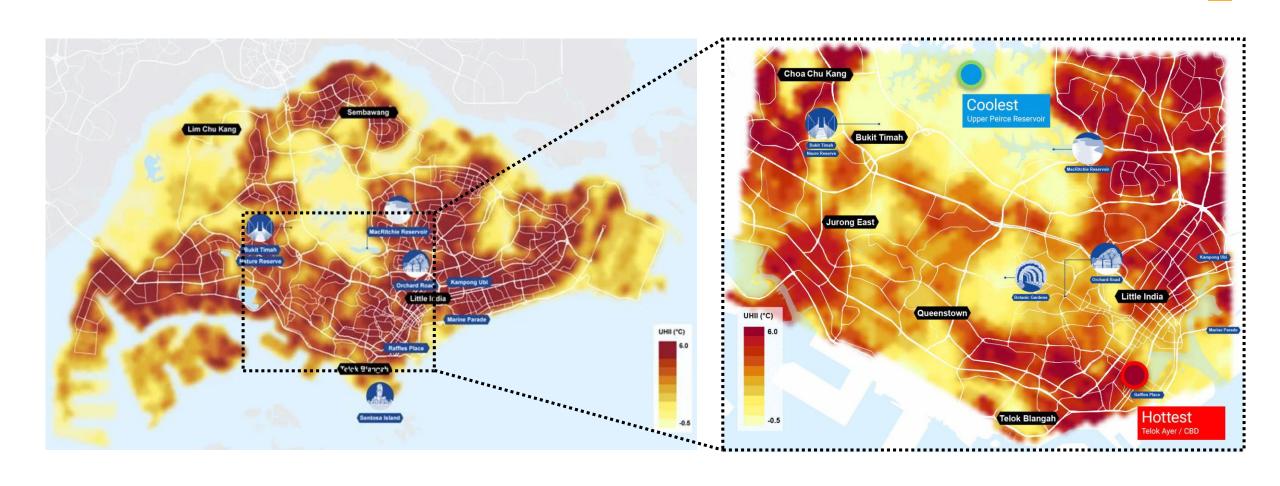
A graphic showing Singapore's annual mean temperature with global temperature change and cumulative global CO₂ emissions since 1929.

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.

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.

SCORCHING HEAT

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



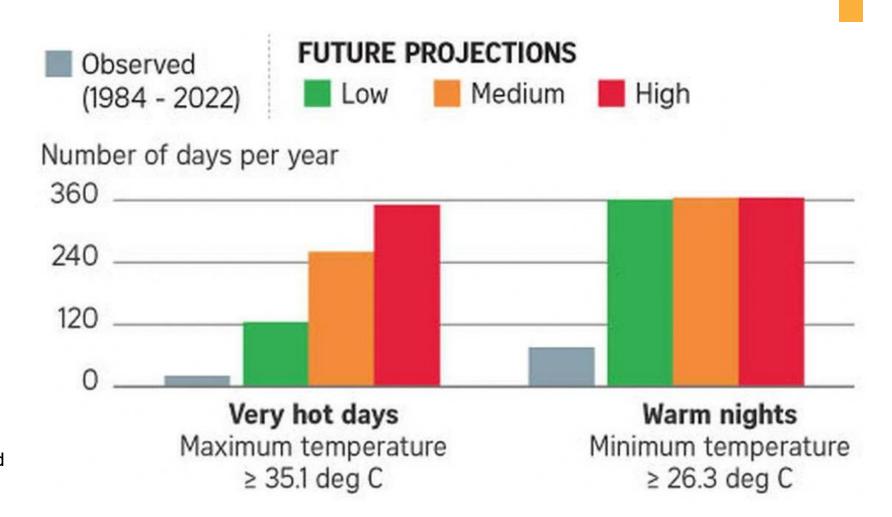
Carbon emissions are strongly reduced, net zero is achieved after 2050, and temperatures rise **1.8°C** by 2100.

Medium emissions

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

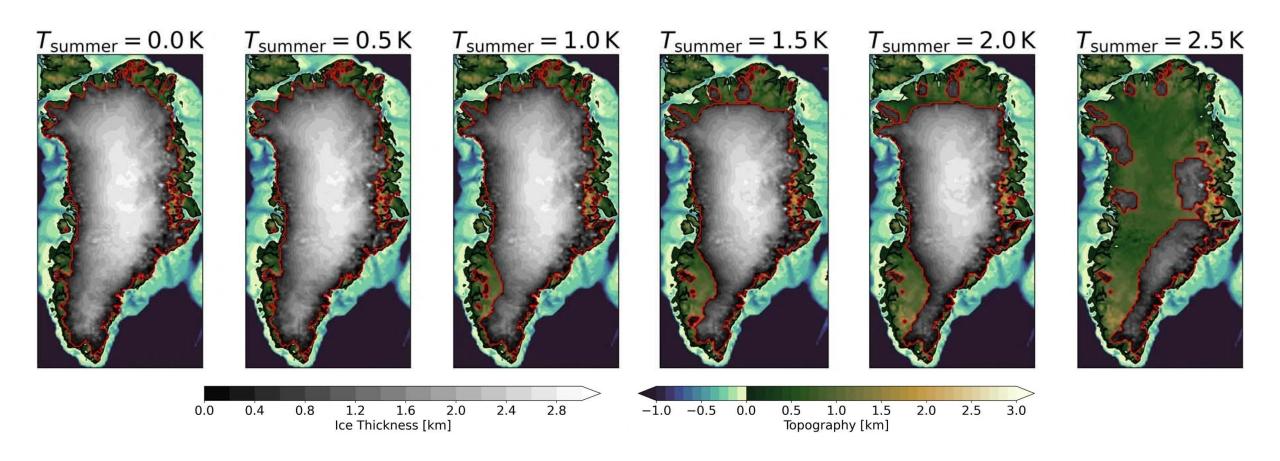
High emissions

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.

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).

SEA LEVEL RISE FROM A COLLAPSING GREENLAND ICE SHEET AMAN IDUSTRIAN NINENAS 1 Sultan Ibrahim Stadium Johor Bahru Taman Kelulut TAMAN Teha Kampung KOTA MASAI PERKA (FELD TUNGG TAMAN BUKIT DAHLIA Sembawang BUKIT INDAH DANGA BAY TAMAN PELANGI Park Pasir Gudang TAMAN PASIR PUTIH ZJ Frozen Food 😩 TANJUNG Johor Bahru City Square KAWASAN PERINDUSTRIAN TANJUNG LANGSAT Sarang Buaya KAMPONG NIOR Morizon Hills Golf KAMPUNG BELUNGKOR Gelang Patah Sungei Buloh SEMBAWANG Eco Galleria Golf and Resort MALAYSIA WOODLANDS EGOLAND Malaysia Punggol Coney Island (West Entrance) Iskandar Puteri PUTERIHARBOUR Sebana Cove Resort Forest City Golf Waterway Point NORTH EASTERN SELETAR Sunway Big (2) Box Retail Park Compass One Hillion mall Wild Wild Wet Loyang Tua Pek Kong DESARU MINI ZO Nature Park KAMPUNG PAYA PENDAS, MALAYSIA Chestnut MENGKUANG Nature Park ANG MO KIO TANJUNG PELEPAS Aviation Park Paya Lebar Jewel Changi Airport Pengerang KAMPUNG Staging Ground Junction 8 CNEX KAMPUNG JAWA TAMPINES WESTERN WATER Rifle Range CATCHMENT The Woodleigh Mall Nature Park Singapore 6 Changi City Point Discovery Centre Jurong Hill Park CHANGI BAY Singapore Botanic CLEMENT ON Orchard West Gardens Coast Park d Jamek QUEENSTOWN t Timbul Haw Par Villa Singapore Jurong Island Universal Studios Singapore WESTERN Tuas Lamp Post 1 😉 Sultan Shoal Lighthouse Sisters' Islands Marine Park Turi Beach Resort Semakau Landfill Nongsa Beach W PT VME Process Pulau Pawai Pier Temporarily closed Below tideline SENGKOEANG Google CLIMATE OO CENTRAL | Powered by Earth Engine CLIDDI V RAHAN





PROFESSOR BENJAMIN P. HORTON DIRECTOR OF EOS

