

Extreme sea surface temperatures

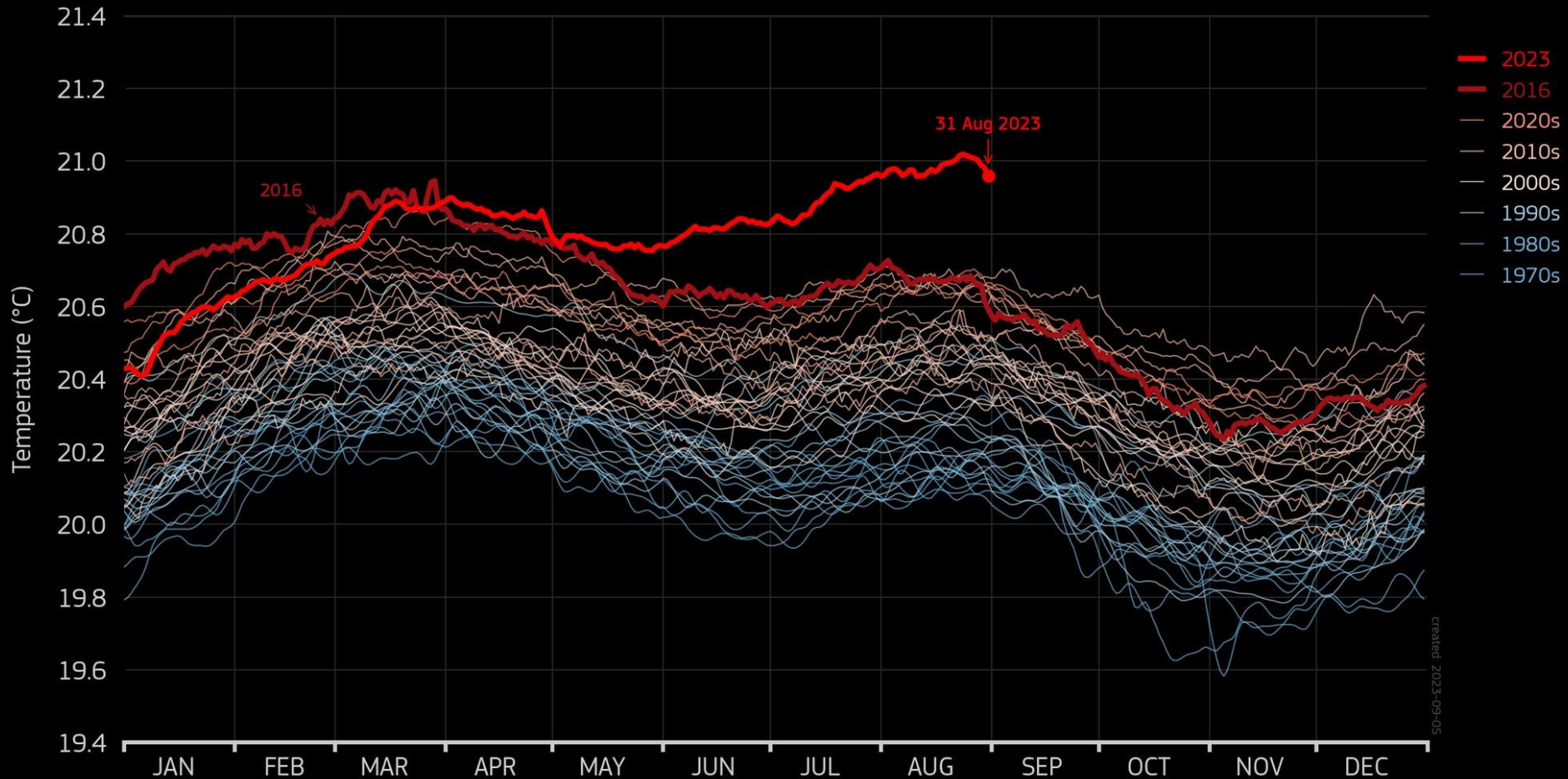
DAILY SEA SURFACE TEMPERATURE 60°S–60°N

Data: ERA5 1979–2023 • Credit: C3S/ECMWF



Climate Change Service

climate.copernicus.eu



PROGRAMME OF THE EUROPEAN UNION



IMPLEMENTED BY

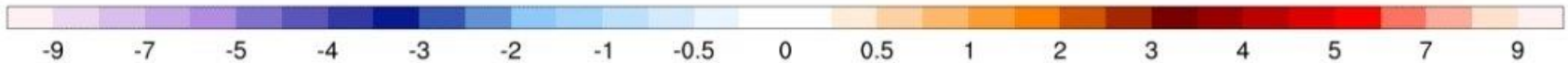
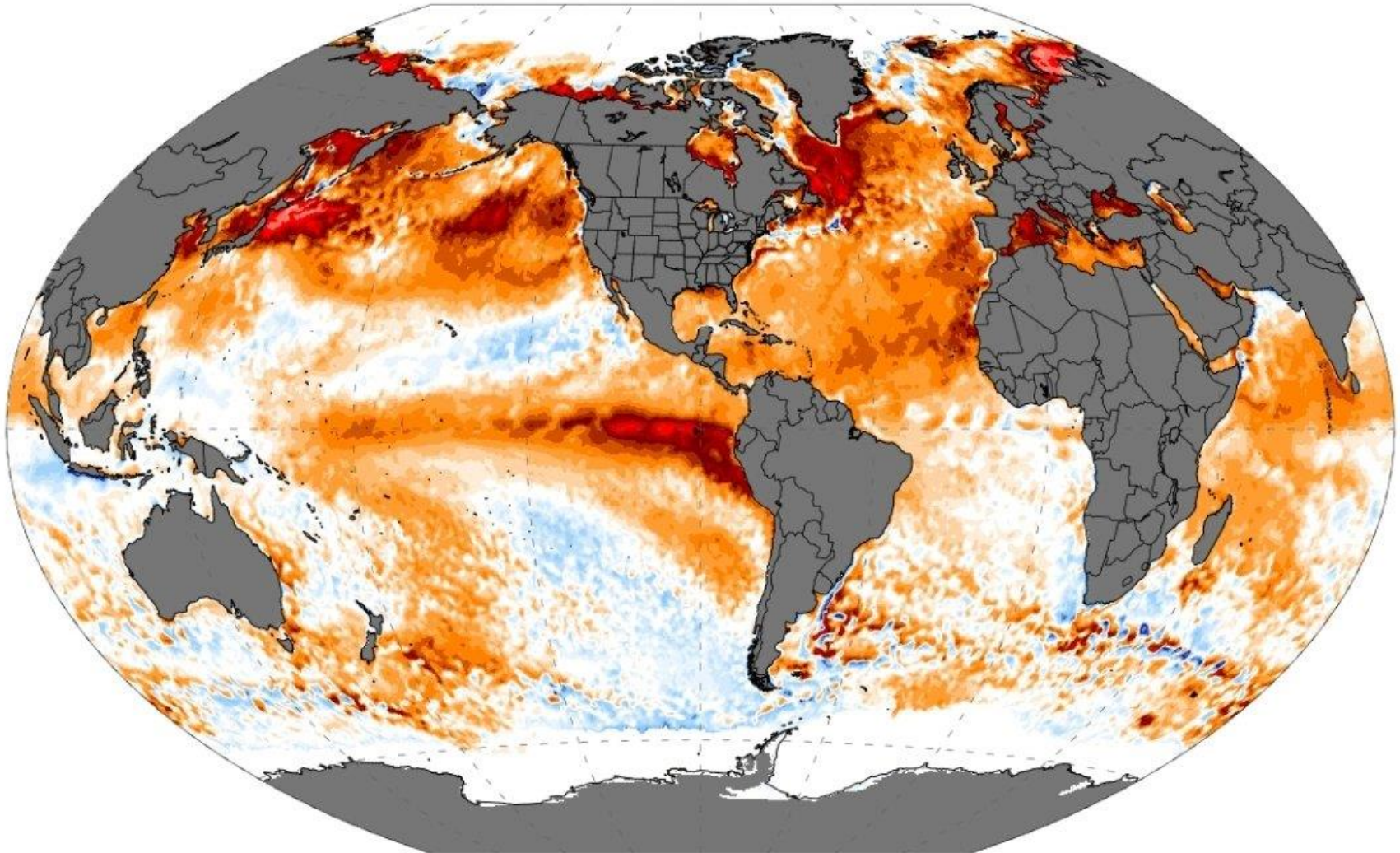
Extreme sea surface temperatures

NOAA OISST V2.1 SST Anomaly (°C) [1971-2000 baseline]

Sun, Aug 27, 2023 | preliminary

ClimateReanalyzer.org

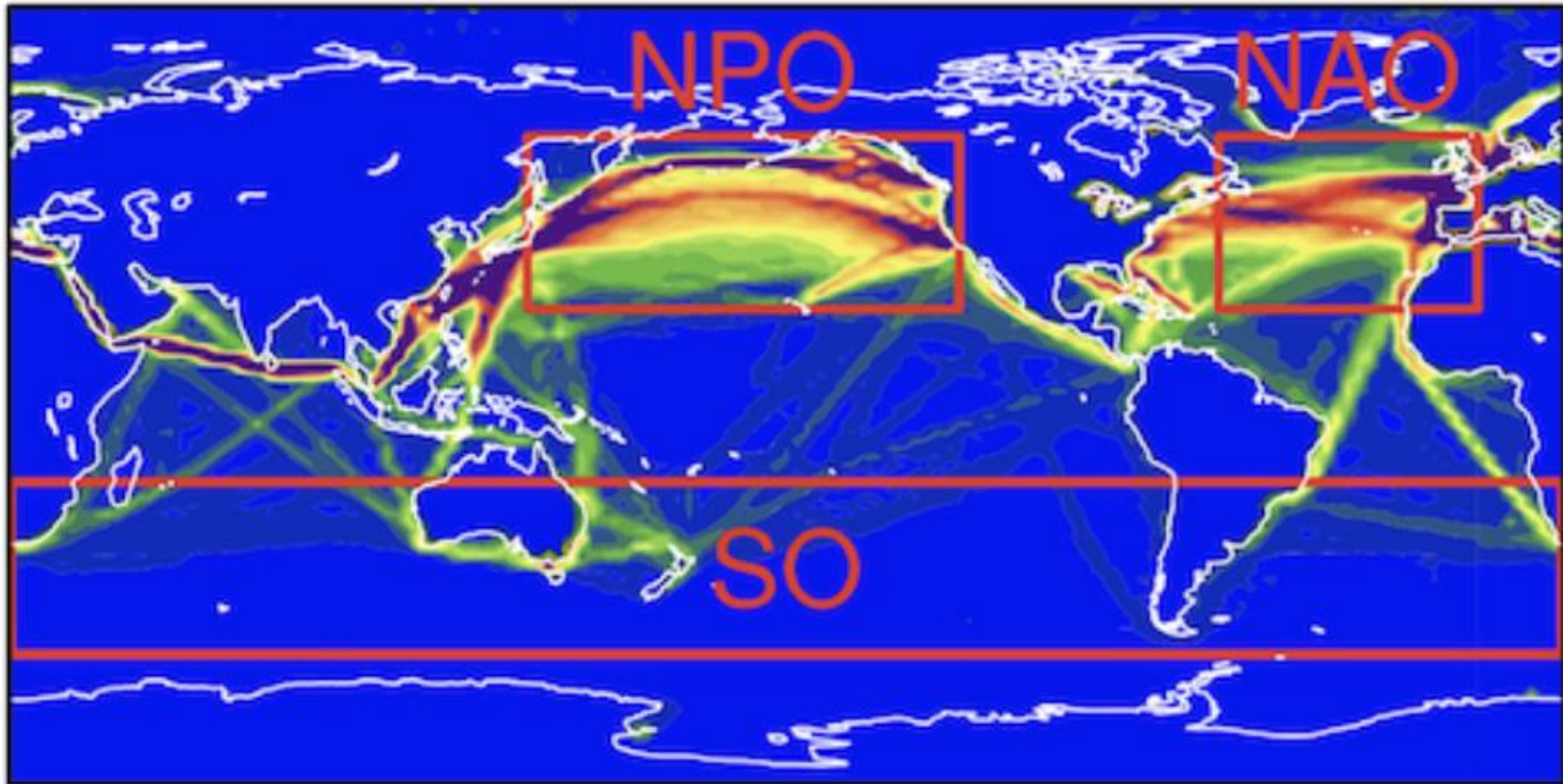
Climate Change Institute | University of Maine



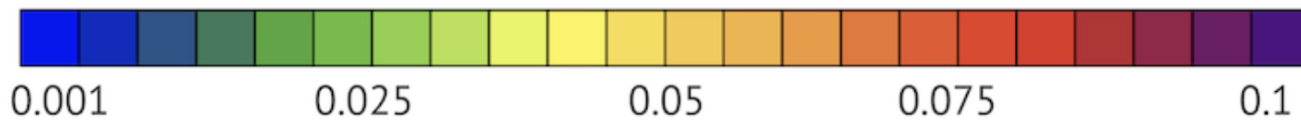
Climate crisis visible today



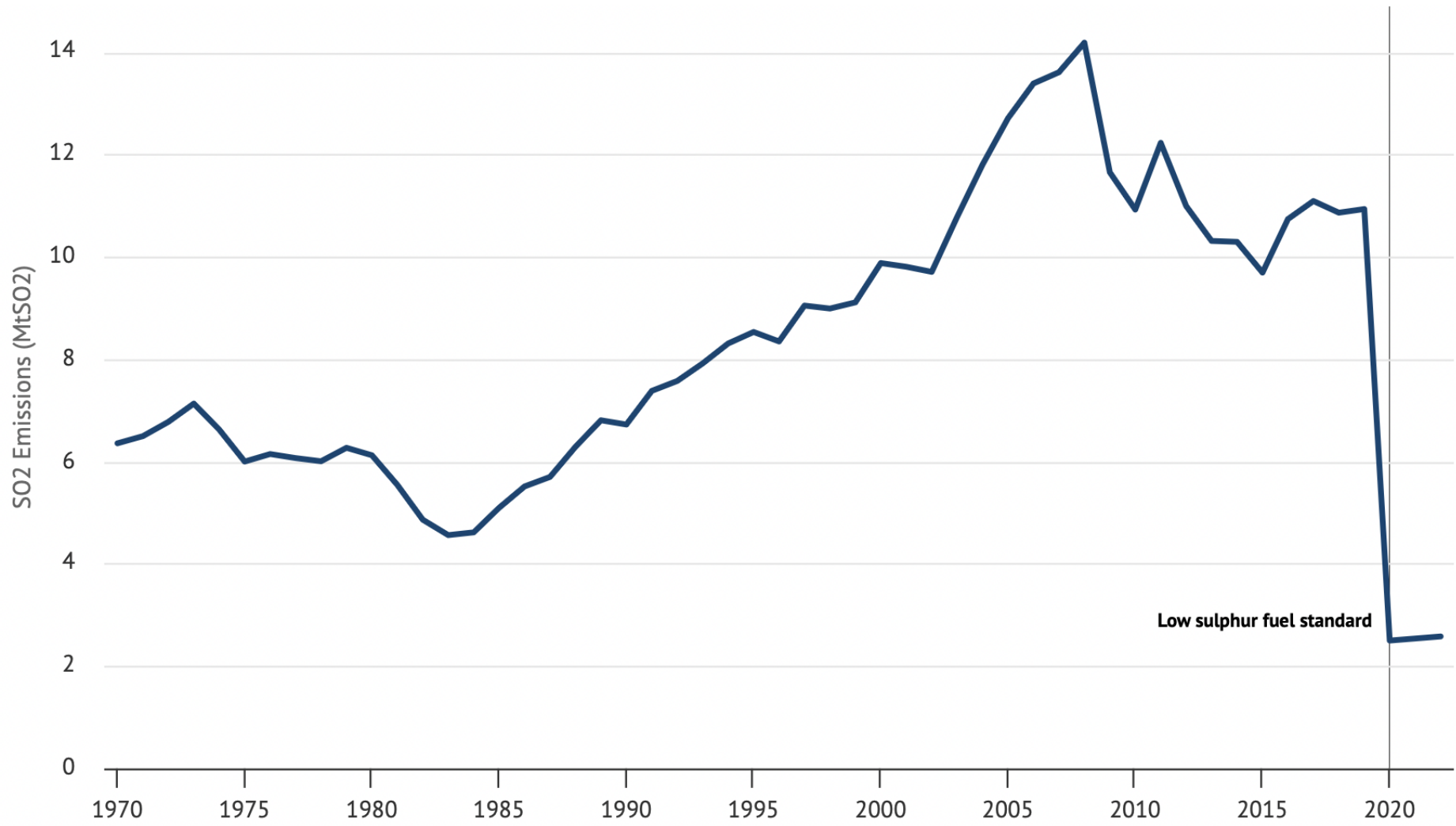
Shipping SO₂ prior to IMO regulations



(g S m⁻² yr⁻¹)

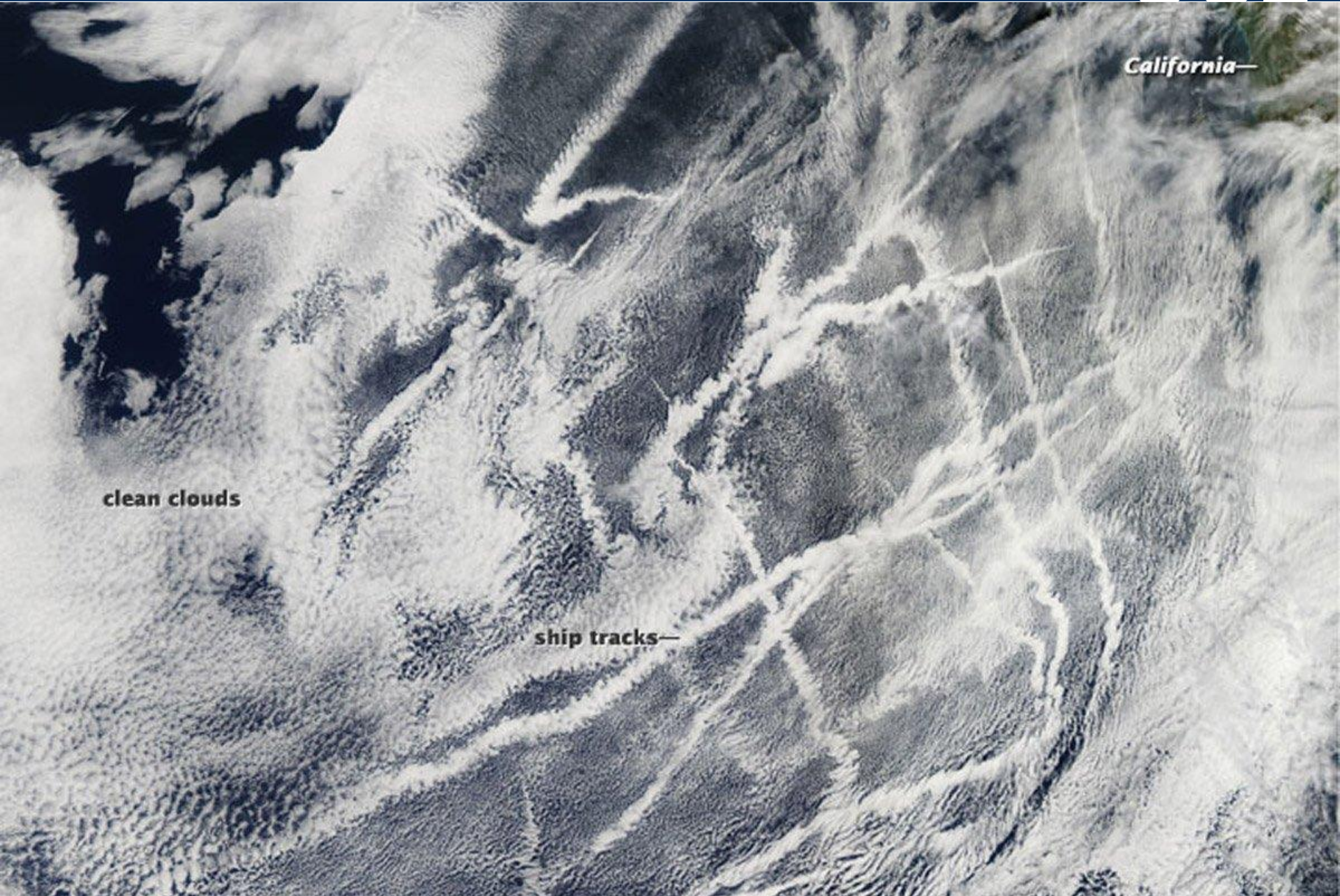


Decline in SO₂ from shipping



Source: CEDS / Simons.

Ship tracks vs clean clouds

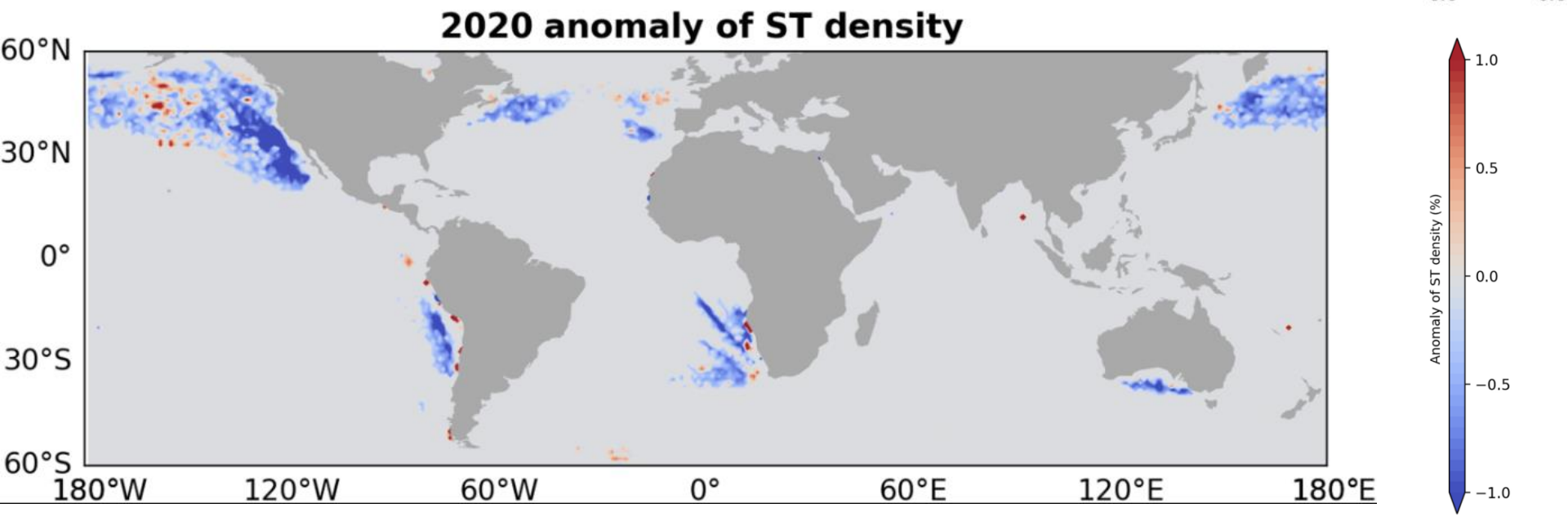
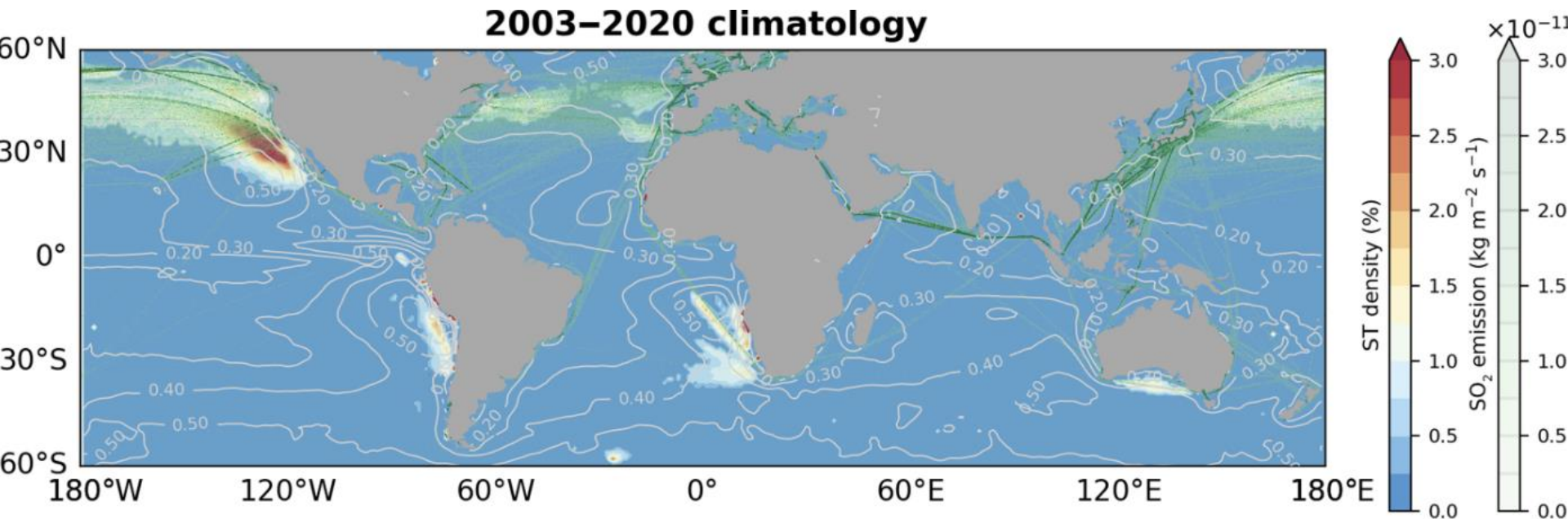


California—

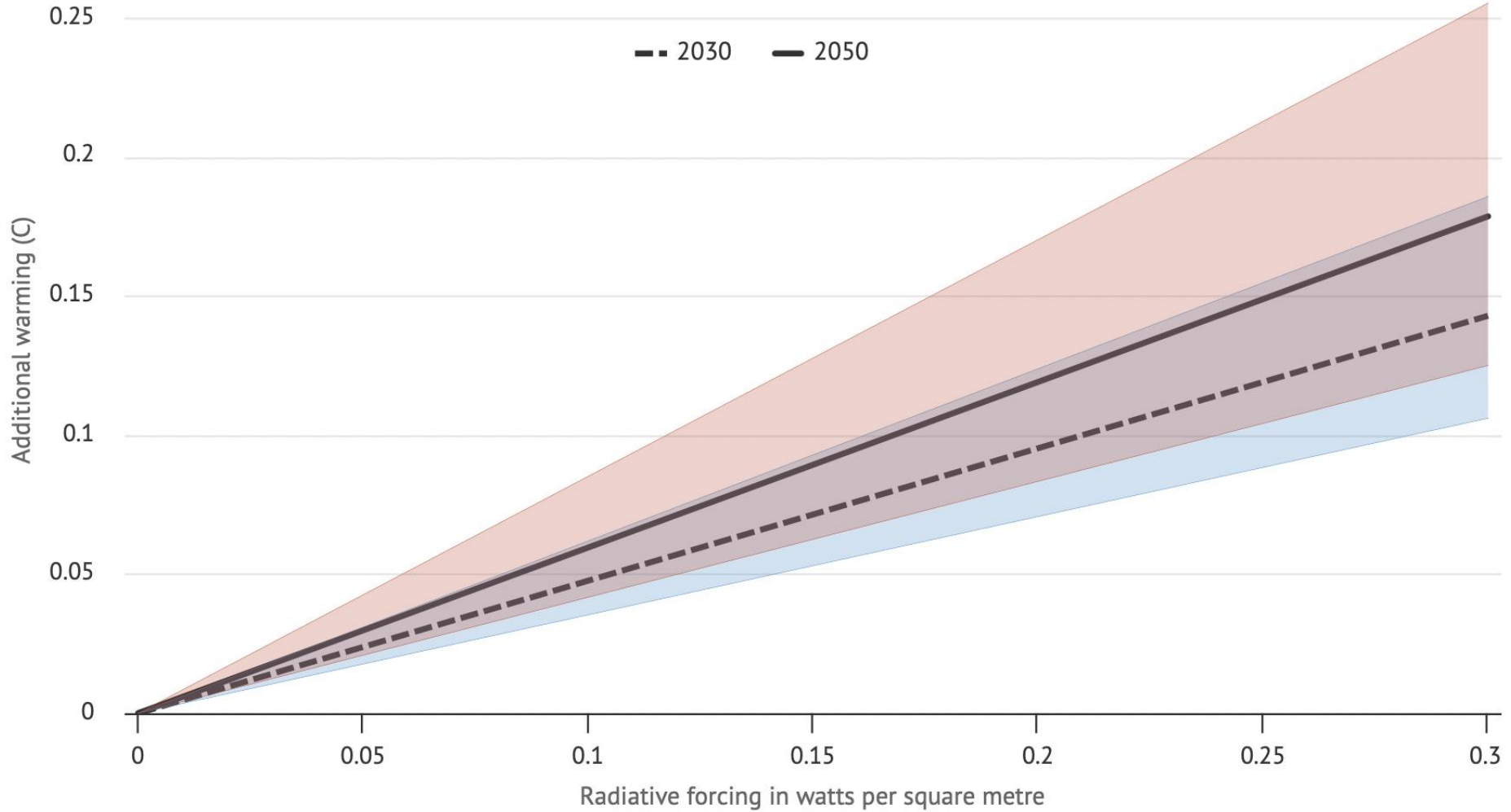
clean clouds

ship tracks—

Shipping tracks before and after 2020



Warming due to lower shipping SO2



Source: Carbon Brief / FaIR model.

MCB & Climate intervention

a

CH₄, BC,
O₃, etc.

CCU

CCS

b

CO₂

CDR

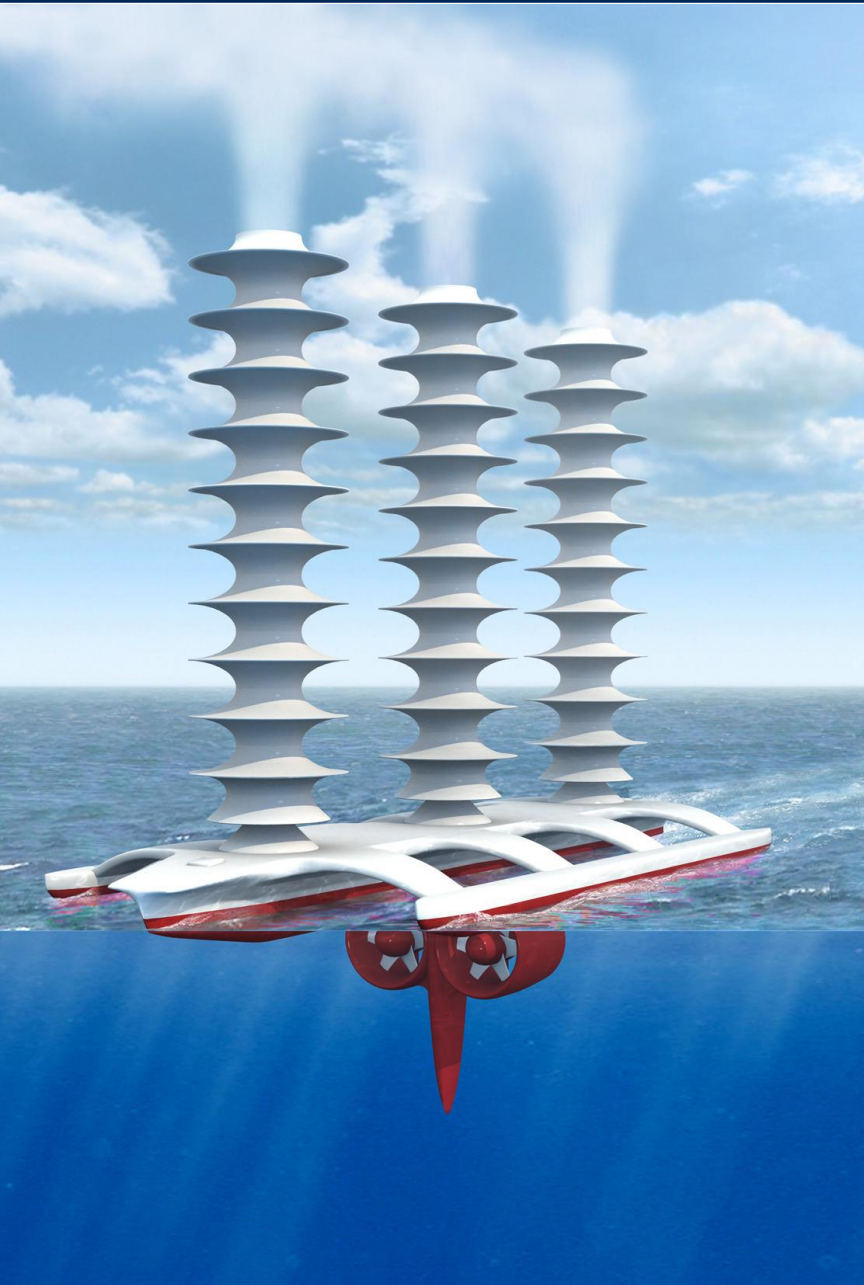
- 1 | Large-scale afforestation
- 2 | Bioenergy with carbon capture and storage (BECCS)
- 3 | Biochar production and burial
- 4 | Soil carbon enrichment
- 5 | Ocean iron fertilisation (OIF)
- 6 | Enhanced weathering and ocean alkalinisation
- 7 | Direct air CO₂ capture and storage (DACCS)

c

RFG

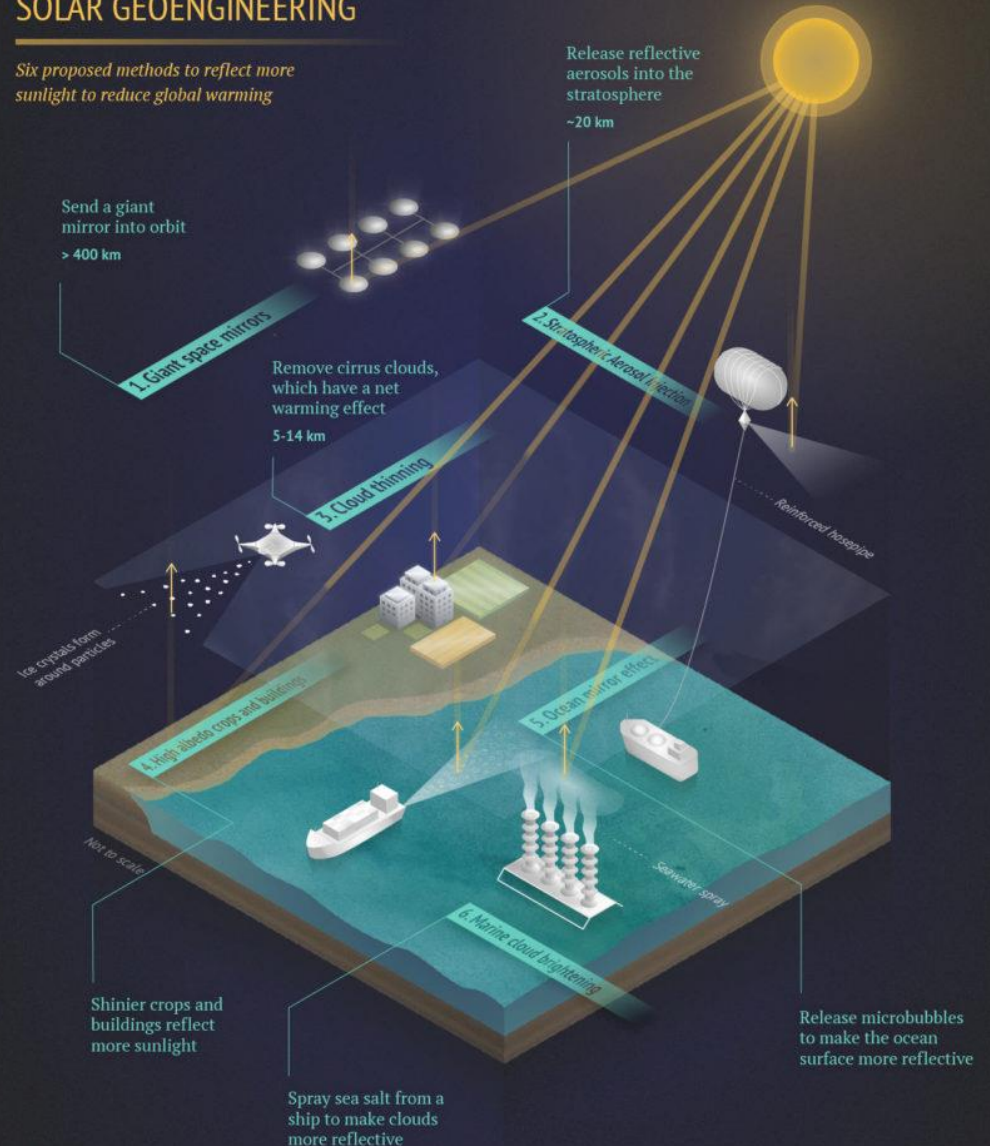
- 8 | Space mirrors
- 9 | Stratospheric aerosol injection (SAI)
- 10 | Cirrus cloud thinning (CCT)
- 11 | Marine sky brightening (MSB)
- 12 | Surface-based brightening

Marine Cloud Brightening



SOLAR GEOENGINEERING

Six proposed methods to reflect more sunlight to reduce global warming



Seawater sprayer technology



To protect coral reefs



Could Greece play a leading role?

January 15, 2013

