Impact of Chinese Covid-19 lockdown on aerosol and radiative fluxes over East Asian Marginal Seas

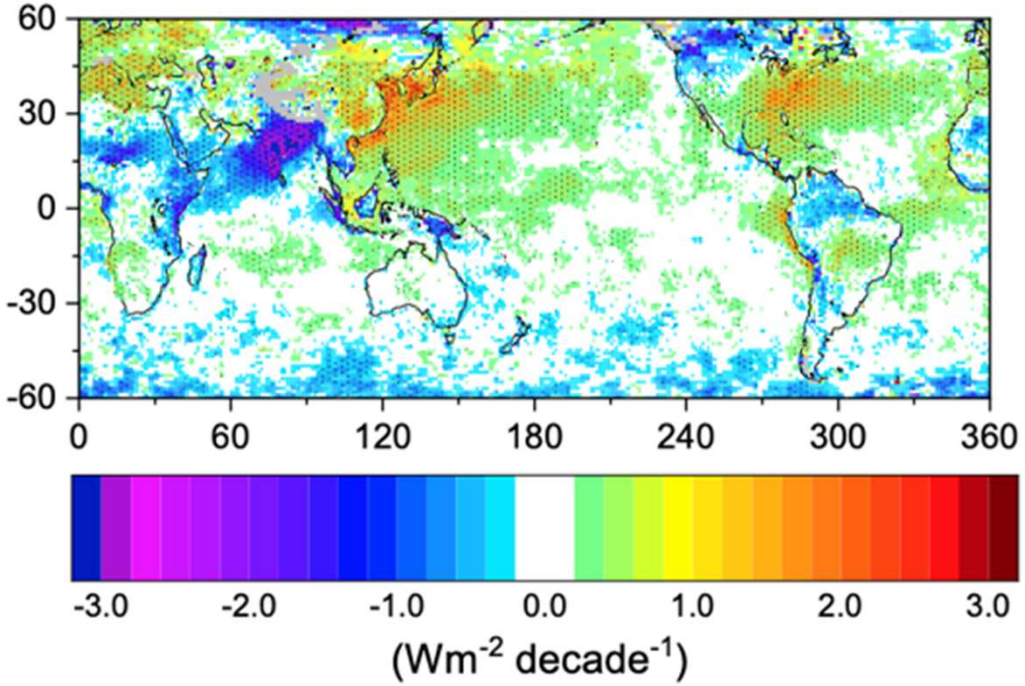
Norman Loeb, NASA Langley Research Center, USA

Yi Ming, NOAA/Geophysical Fluid Dynamics Laboratory, Princeton, USA

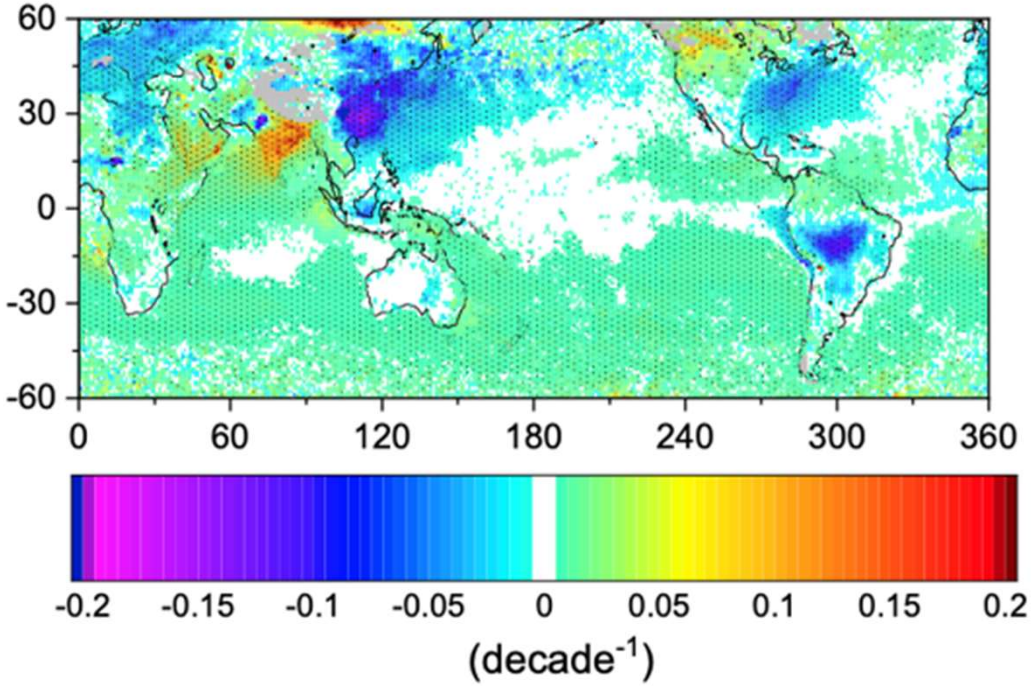
Nicolas Bellouin, Department of Meteorology, University of Reading, UK

Long-term trends 2002-2020

CERES aerosol direct radiative effect



MODIS aerosol optical depth



Loeb et al. (2020, in prep)

Observed lockdown anomalies

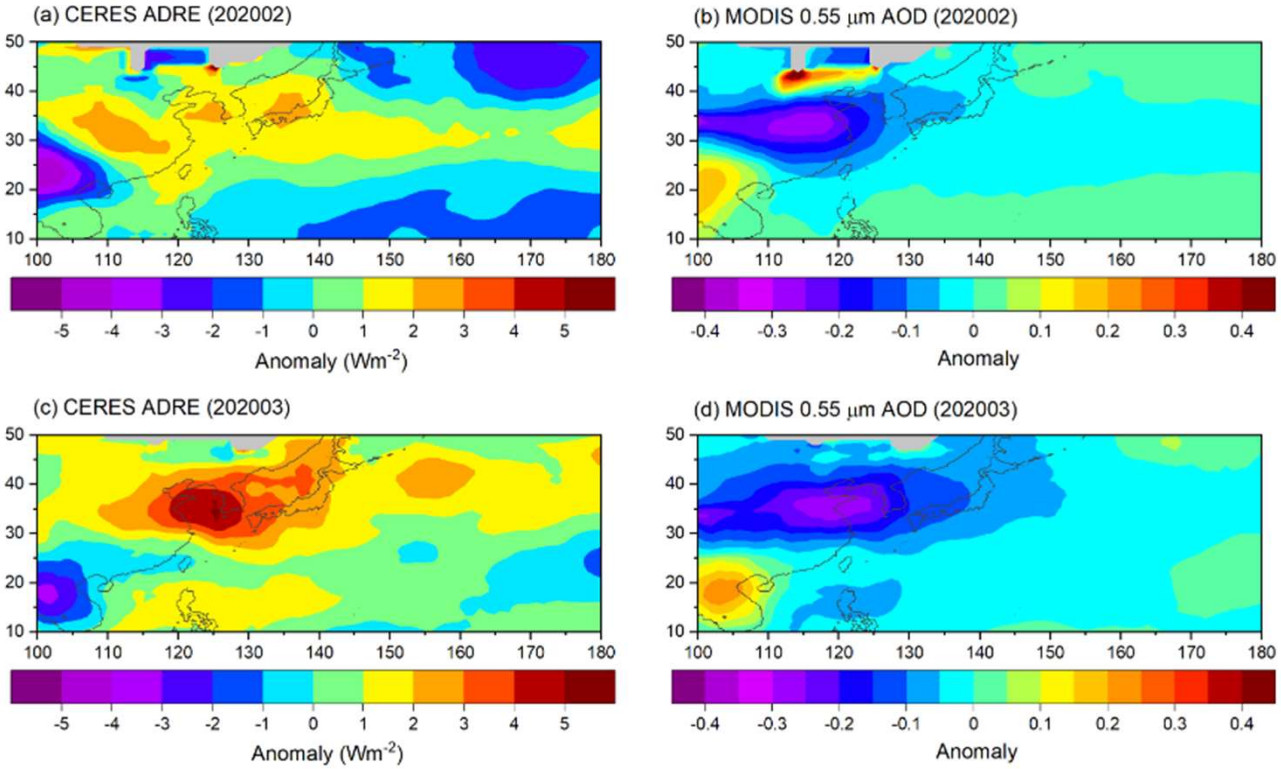
University of Reading

Clear-sky aerosol radiative effect

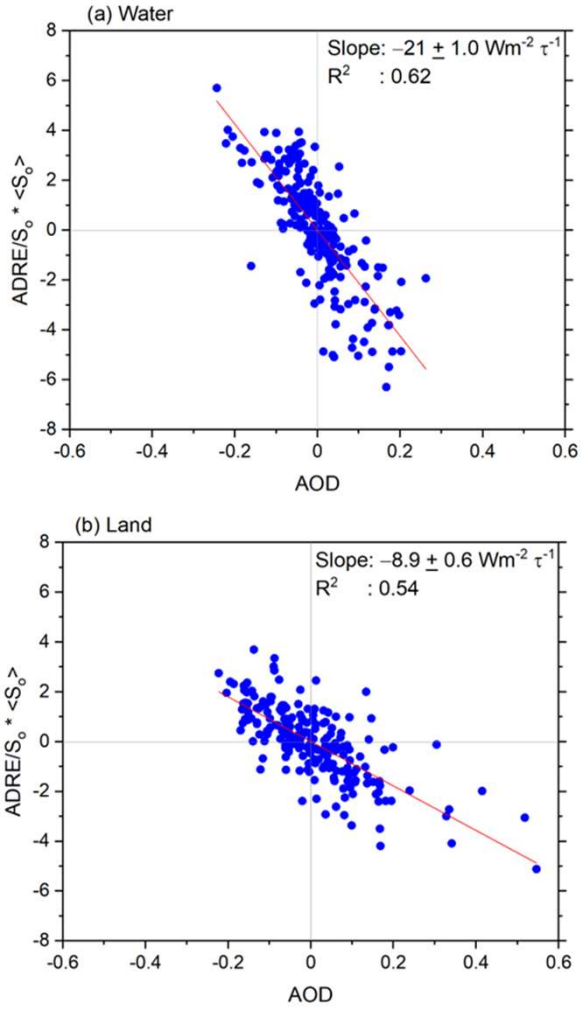
Aerosol optical depth

February 2020

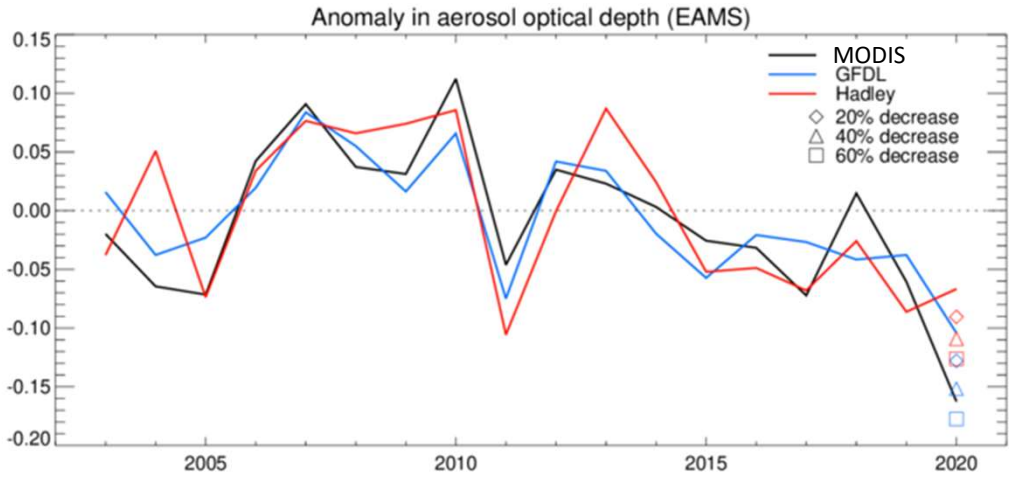
March 2020

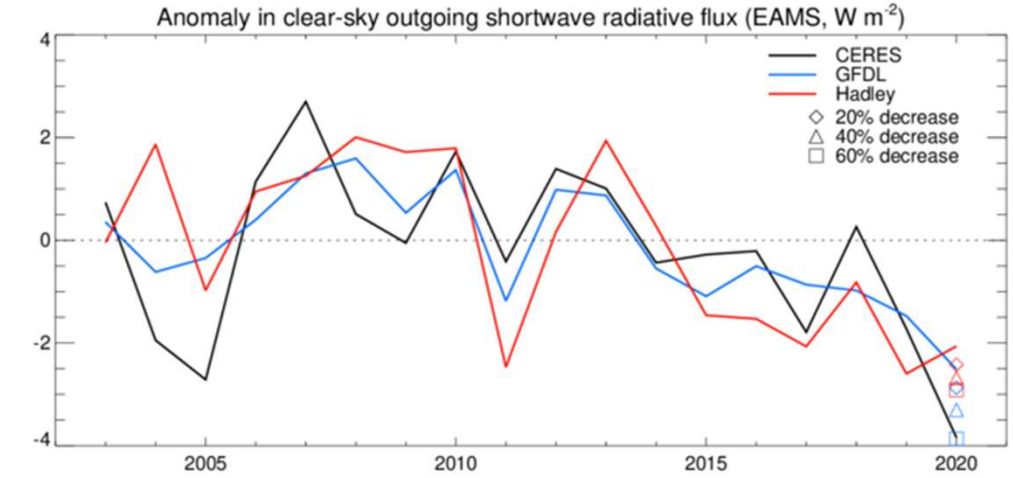


Loeb et al. (2020, in prep)



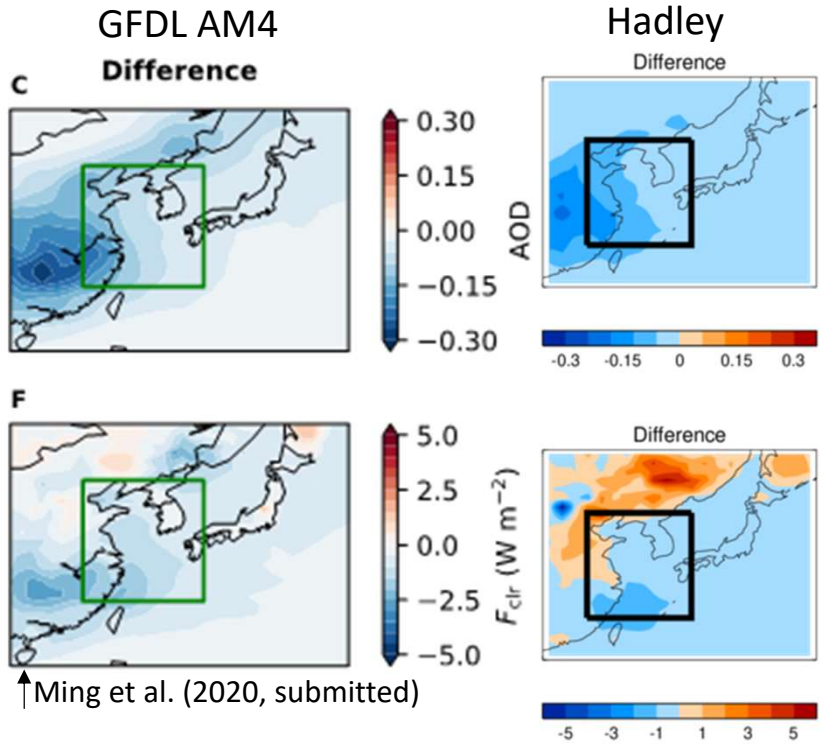
Modelling





- 2 models: GFDL AM4 and Hadley HadGEM3-GA7.1
- Nudged, atmosphere-only simulations 2003—2020
- Lockdown simulated by reductions in anthropogenic aerosol emissions

60% minus control



Ming et al. (2020, submitted)

A constraint on transport?

Meridional averages along the 35°N latitude band.