Using atmospheric models to drive health and policy analyses:

Research for HAQAST

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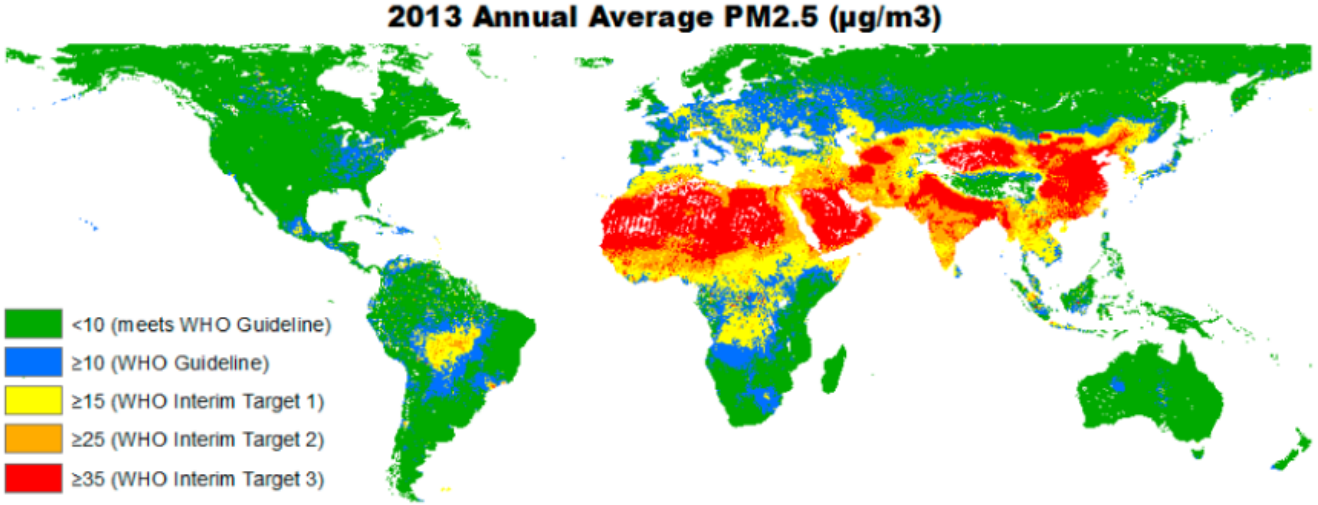
Global ozone mapping

Objective: Map present-day surface ozone concentrations for use in IHME global burden of disease assessments.

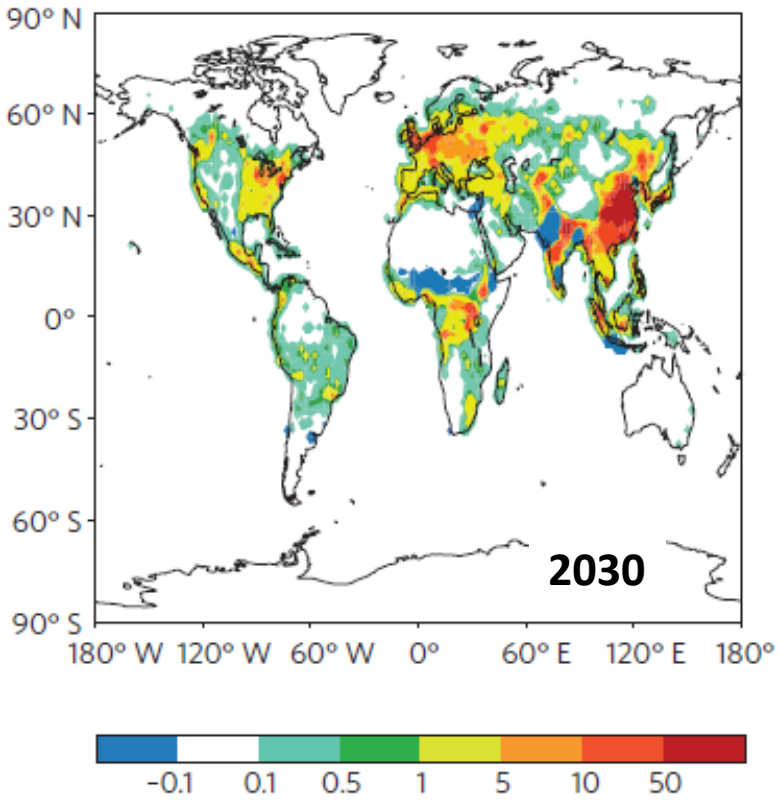
Methods: Combine surface observations from TOAR with multiple models (CCMI, HTAP, NASA 10 km simulation), using statistical methods.



Brauer et al. (2016)

Co-benefits of global GHG mitigation for air quality and health

Avoided air pollution-related deaths from global GHG reductions:

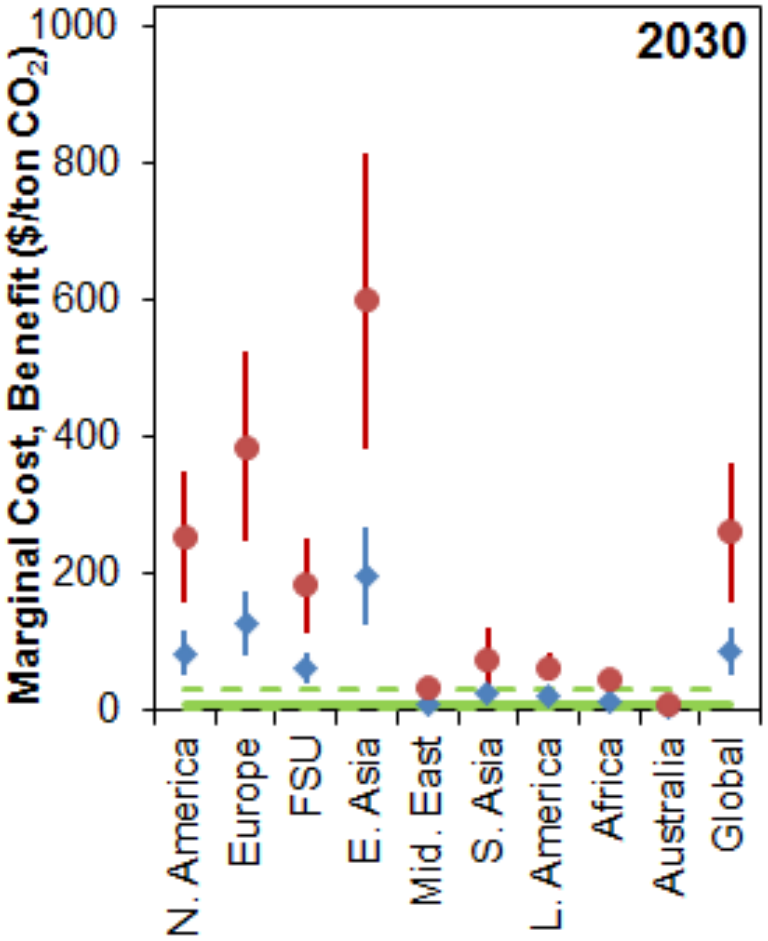


2030: 0.5 ± 0.2 million yr^{-1}

2050: 1.3 ± 0.5

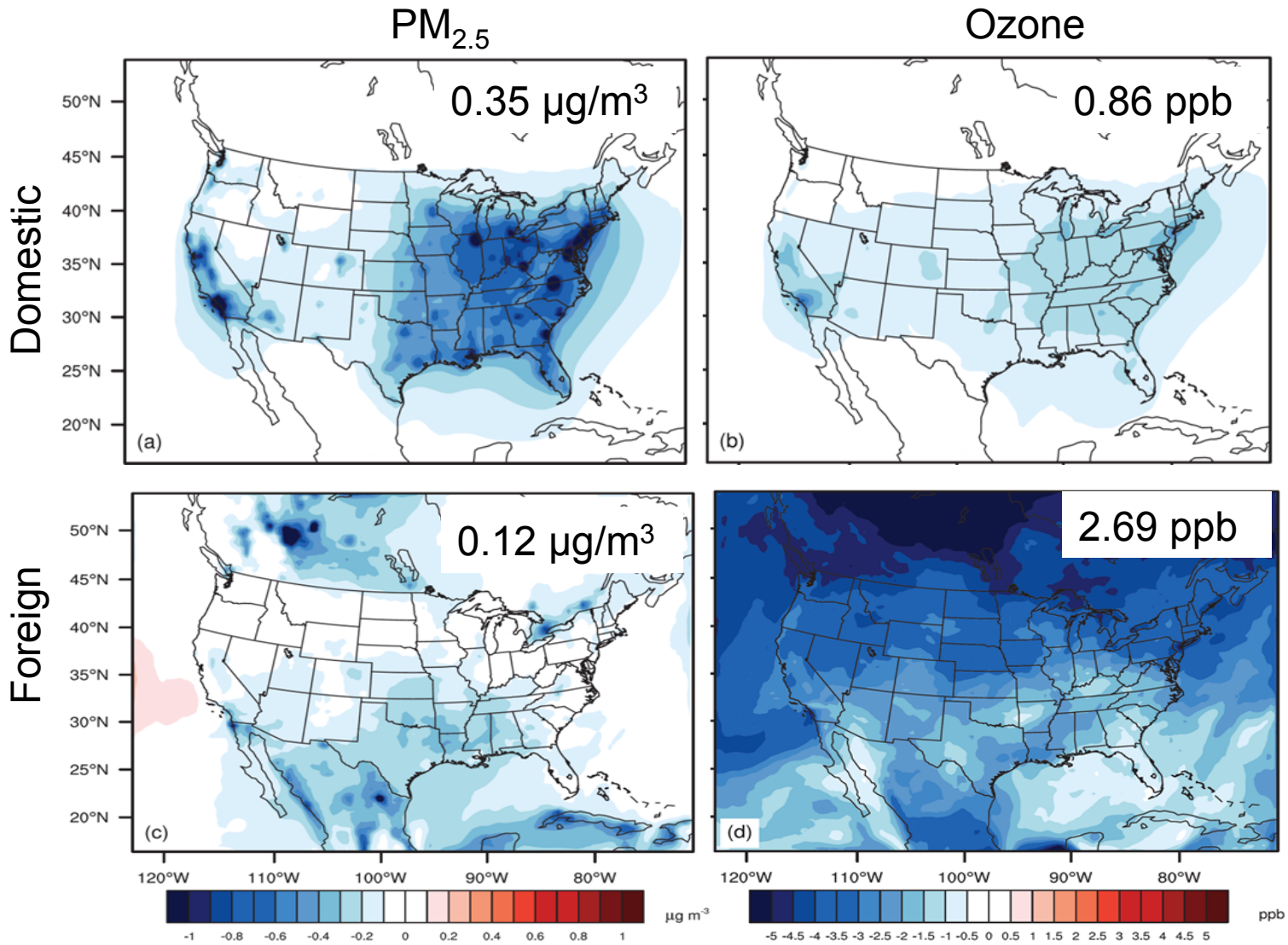
2100: 2.2 ± 0.8

Monetized health co-benefits (blue & red) vs. cost of GHG reduction (green):



West et al., NCC, 2013

Downscaling Co-benefits to USA (2050)



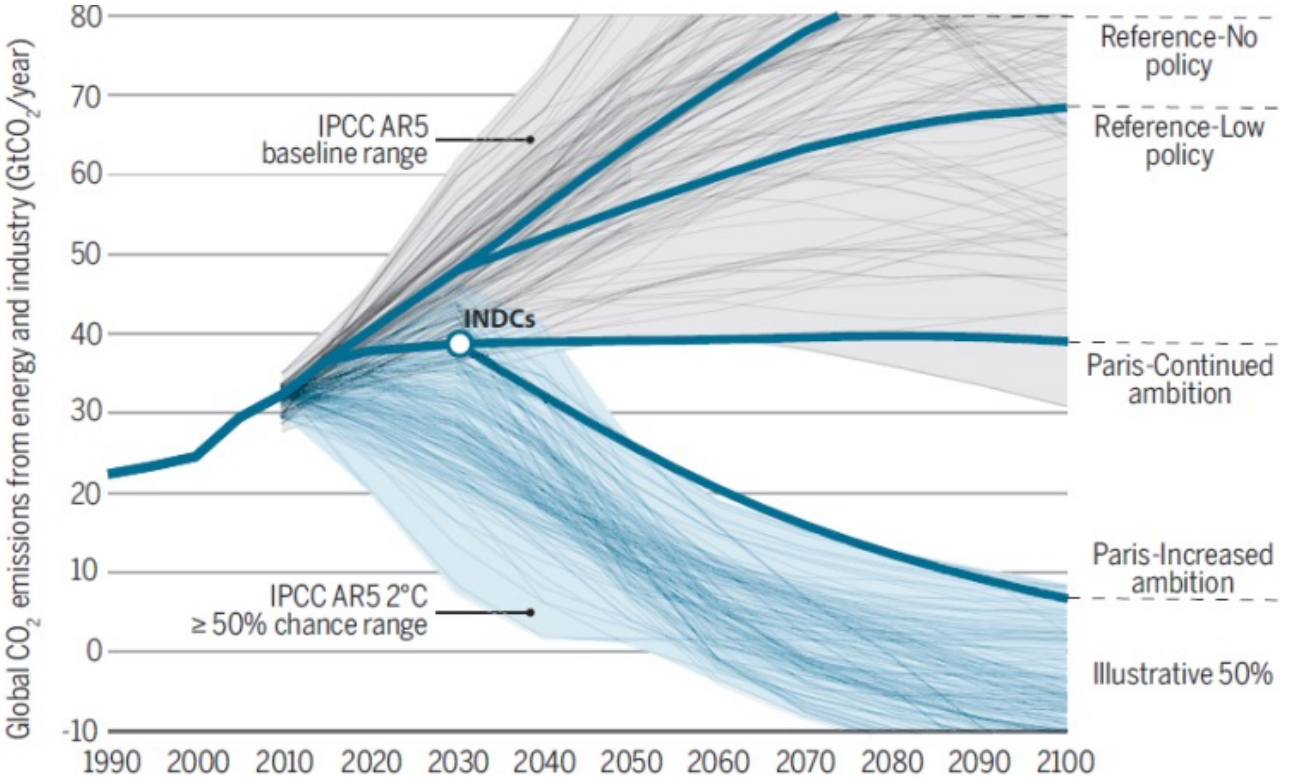
Most $PM_{2.5}$ co-benefits from **domestic** reductions.

Most ozone co-benefits from **foreign** and **methane** reductions.

Zhang et al. ACP, 2016

Air quality & health co-benefits of the Paris Agreement pledges

Methods: Use GCAM projections of future air pollutant emissions. Model in CAM-chem and assess global health effects.



Fawcett et al. (2015)

Tiger Team?

Time trends in air pollution-related health effects over the past few decades. US and/or global.