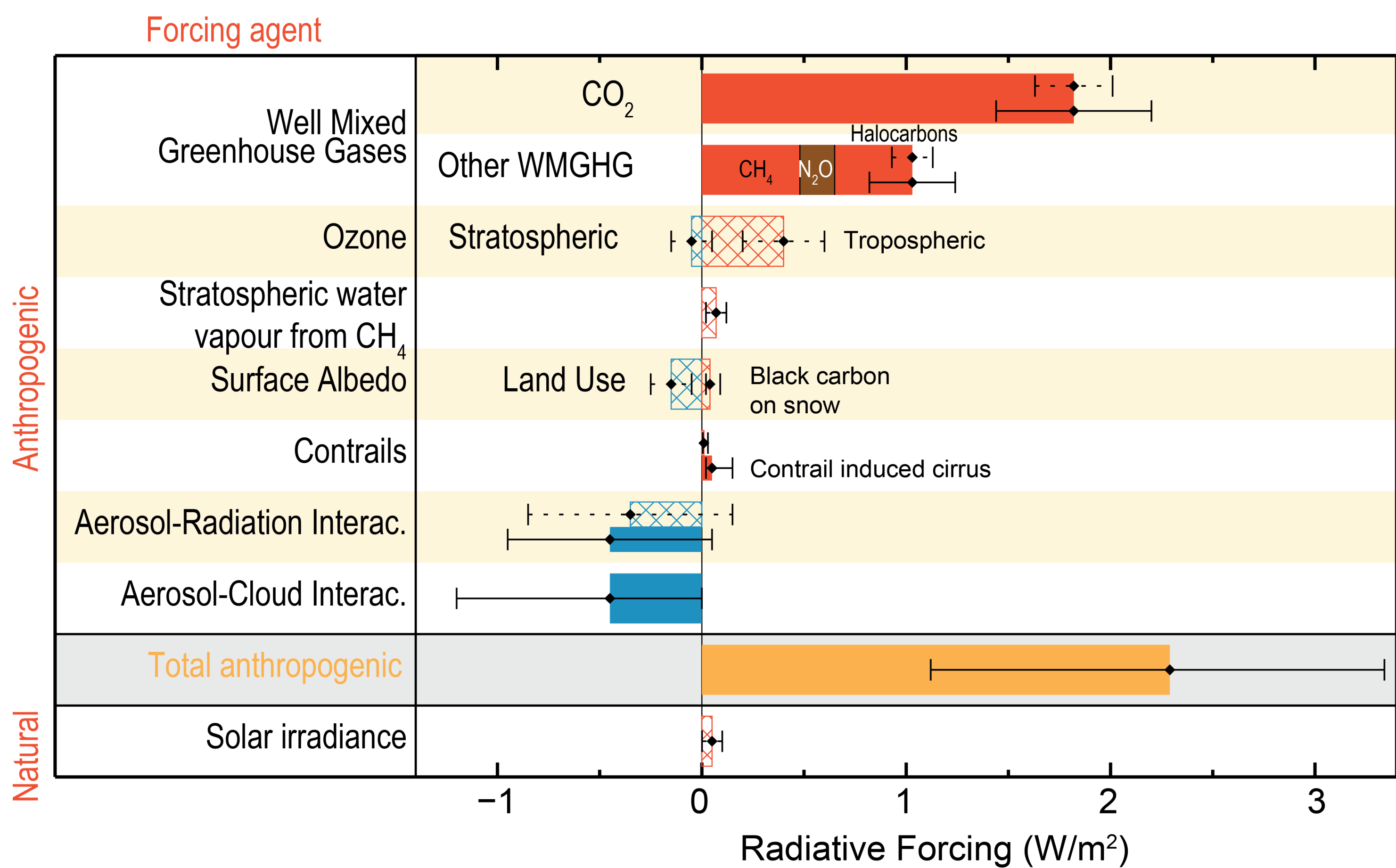
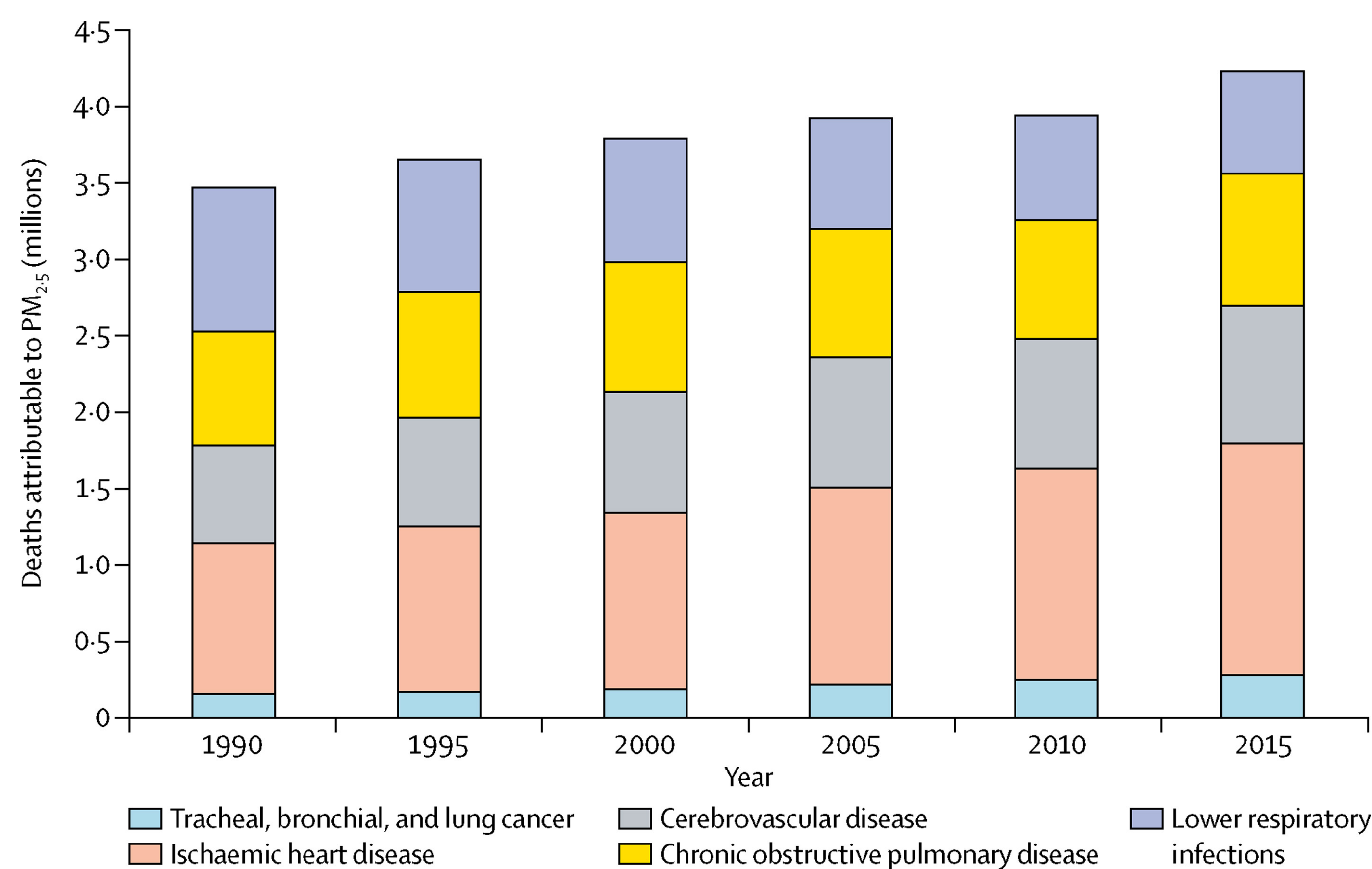


# Atmospheric Aerosol: The missing link between Climate and Air Quality

## RADIATIVE FORCING



## AIR QUALITY



Atmospheric aerosol are Essential Climate Variables:

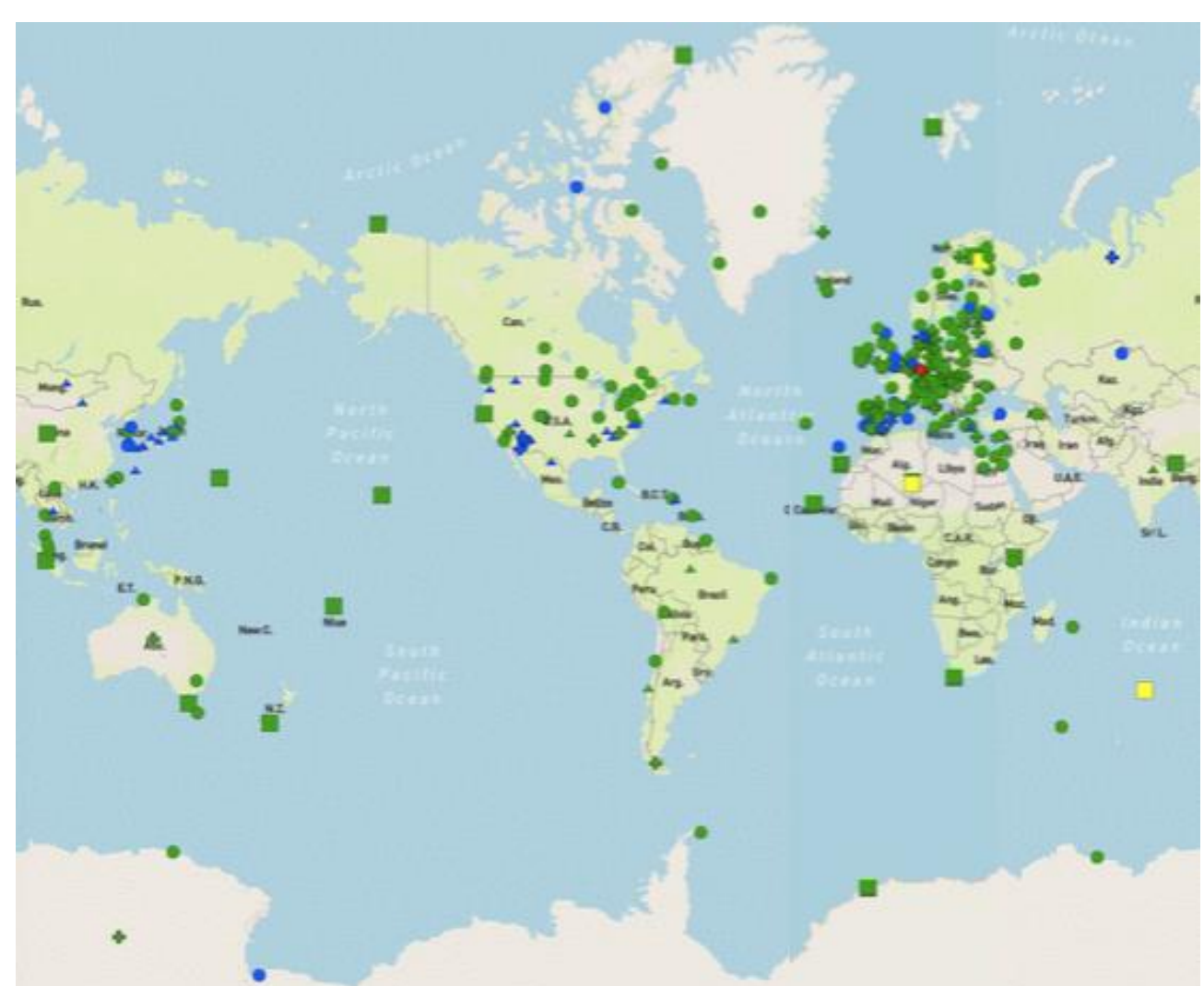
- They tend to produce atmospheric cooling;
- Effect on precipitation → very high uncertainty to predict their role in modifying precipitation patterns and intensity;
- High uncertainty linked to their role in cloud formation;
- Global average hides regional variability that can lead to local warming.

- Ambient atmospheric aerosol are responsible for almost 4 million premature deaths in the world each year;
- Air quality regulations and cleaner technologies have improved air quality in some regions, but many areas in the world remain with very poor air quality;
- To maximize positive effects of clean air policies, potentially altered precipitation patterns in a changing climate have to be considered as increased aridity implies less pollutant removal.

## ACTION NEEDED TO RESPOND TO CHALLENGES POSED BY ATMOSPHERIC AEROSOL

1

Improve the Observation system for Aerosol in particular in Less Developed and Remote Regions

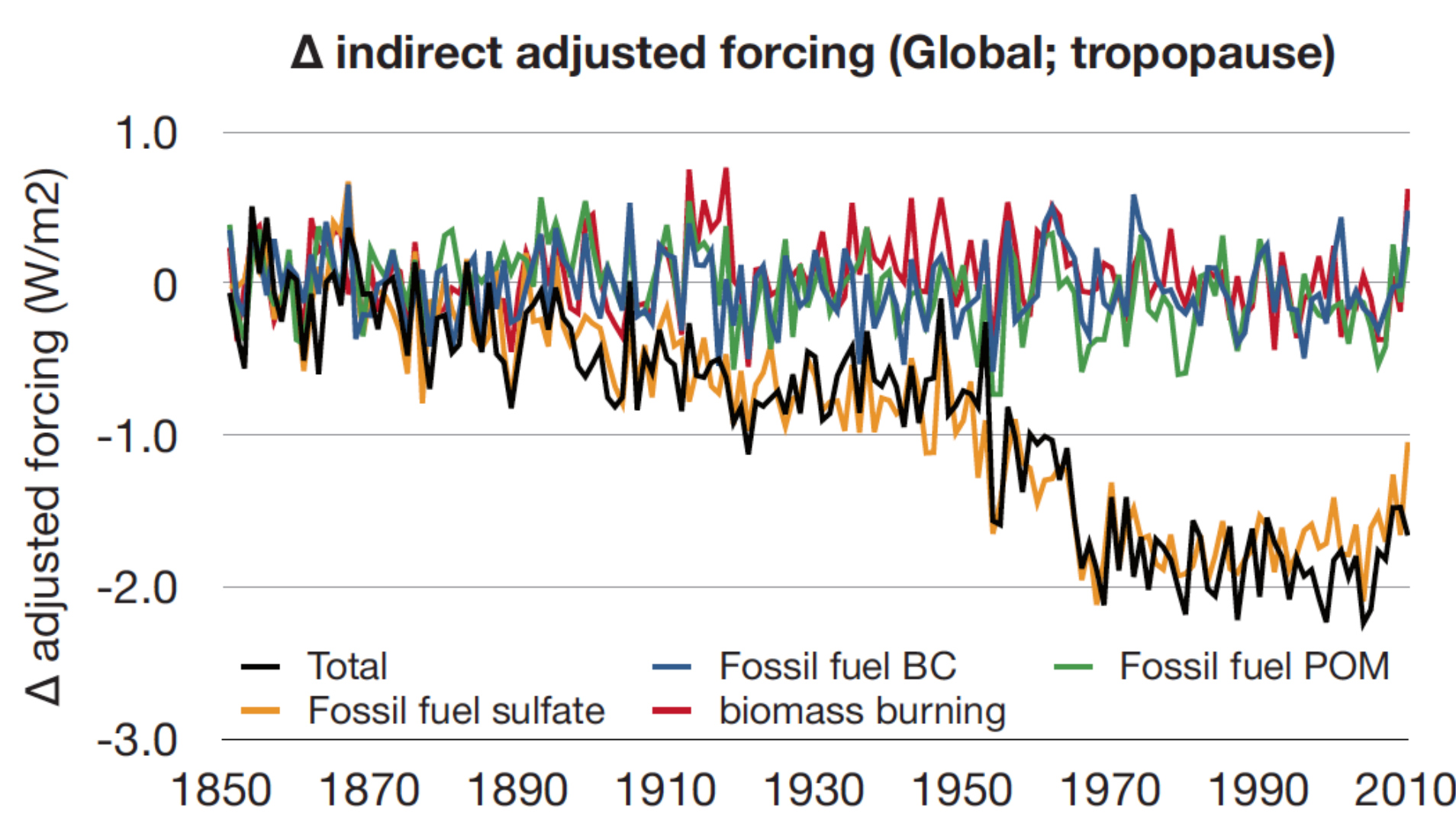


The Global Atmosphere Watch network for aerosol stations (GAW/SIS).

- Support initiatives to establish global long-term aerosol monitoring station in each country
- Maintain capacity to observe aerosol from space
- Ensure quality of data, data curation and open access from dedicated centres

2

Develop capacity to predict aerosol impact on climate and air quality at regional/local scales

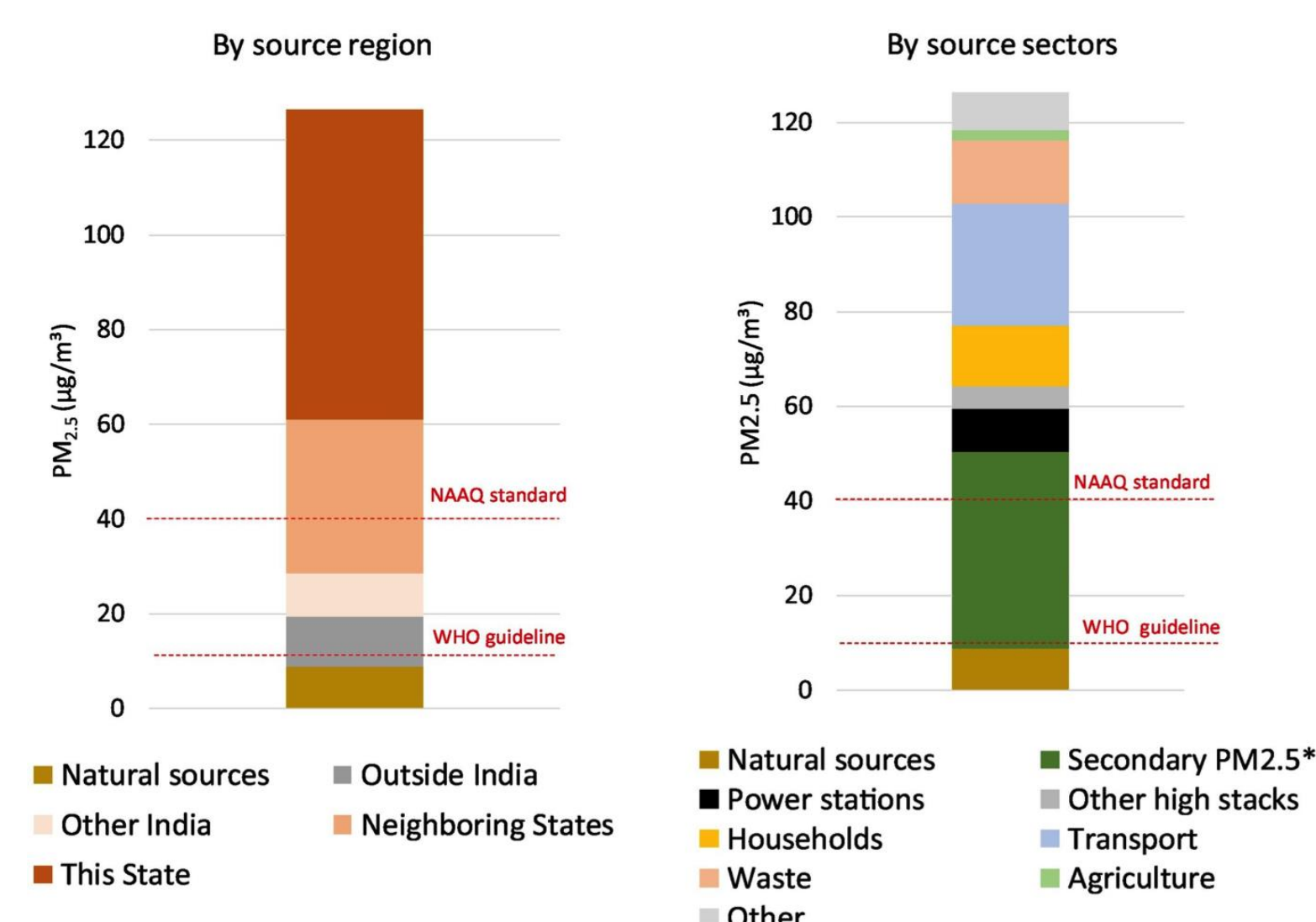


Time series of global mean adjusted forcing due to the indirect effect of aerosols relative to the preindustrial (Takemura, ACP, 2012).

- Support process research in the field of aerosol formation, aerosol cloud interaction, etc.
- Support infrastructure for high performance computing in atmospheric science
- Support policy-making with sound science

3

Develop concerted policy responses for climate and air quality issues accounting for the regional context



Source of particulate emission for New Delhi National Capital Territory in 2015 (Purohit et al., 2016).

- Engage research communities to develop services related to air quality and climate
- Communicate on urgent needs for actions to reduce particulate emissions
- Develop low emission zones and favour social well-being