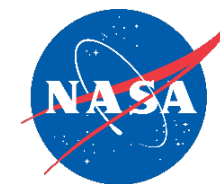
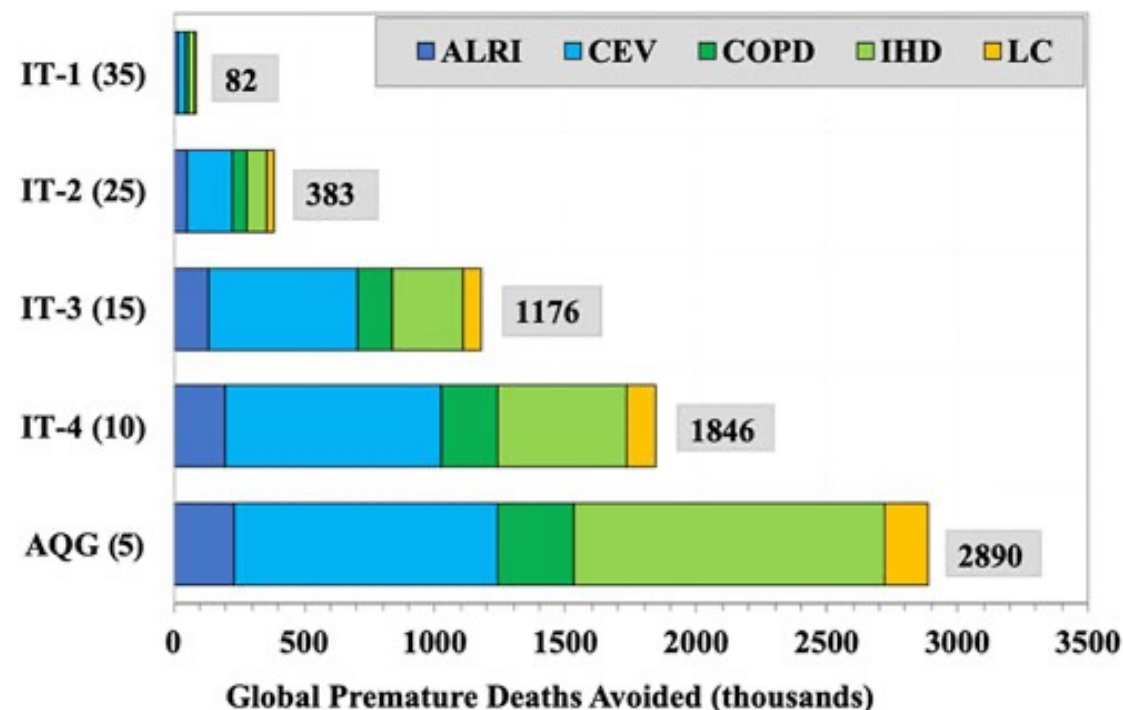


Aerosol Reanalysis Quantifies Global Premature Mortality from PM2.5 pollution



- PM2.5 , namely particulate matter (PM) with an aerodynamic diameter of smaller than 2.5 μm , is a major air pollutant that comes from diverse sources, such as fossil fuel combustion for industrial and residential uses, biomass burning from wildfires and crop field clearance, dust storms, biogenic and biological activities of the ecosystems, burst of ocean bubbles, and volcanic eruptions.
- Being over 30 times smaller than a human hair, these fine particles can easily enter our respiratory systems and cause significant health risks. Globally, premature deaths are attributable to long-term exposure of ambient PM2.5.
- Using NASA’s MERRA-2 aerosol reanalysis product along with an integrated exposure-response model, the team found that attaining the World Health Organization (WHO) guideline of 10 $\mu\text{g}/\text{m}^3$ globally would have avoided 1.8 million or 64% of premature deaths.
- The most recent update of the WHO guideline to 5 $\mu\text{g}/\text{m}^3$ would potentially save an additional one million—for a total of 2.8 million—lives.



Estimated health benefits or global premature deaths (thousands) avoided due to the complete success of enforcing air pollution control worldwide to meet WHO Interim Targets

Causes of death include ischaemic heart disease (IHD), cerebrovascular disease (CEV) or stroke, lung cancer (LC), chronic obstructive pulmonary disease (COPD), and acute lower respiratory infection (ALRI).

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