

Applications and Communication of Satellite Data for Public Health

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Overview

- ▣ Introduction to HEI
- ▣ Opportunities for collaboration
 - ▣ Research programs
 - ▣ Communications Platform: State of Global Air

HEI: Who we are

The Health Effects Institute (HEI) is an independent, nonprofit corporation chartered in 1980 to provide high-quality, impartial, and relevant science on the health effects of pollutants from motor vehicles and from other sources in the environment.

HEI's goal is "simply to gain acceptance by all parties of the data that may be necessary for future regulation."

Willam Ruckleshaus, Former EPA Administrator

HEI: What we do

- ▣ Research targeted at key questions relevant to policy decisions
- ▣ Methods development (exposure, epi, biostat)
- ▣ Reanalyses of key scientific studies
- ▣ Systematic reviews and evaluations
- ▣ Global Health research and communication

HEI: Upcoming Research Opportunities

- ▣ **RFA 19-1: APPLYING NOVEL APPROACHES TO IMPROVE LONG-TERM EXPOSURE ASSESSMENT OF OUTDOOR AIR POLLUTION FOR HEALTH STUDIES**
- ▣ ...19-1 solicits applications for studies designed to quantitatively evaluate exposure measurement error to determine the potential impact of using novel approaches to assess exposures to air pollution on health estimates.
- ▣ **Will fund up to 5 studies, 2-4 years, up to \$700K each**
- ▣ **Will be published this month, preliminary applications due in March TBD**
- ▣ <https://www.healtheffects.org/research/funding>

HEI: Current projects involving satellite data

- ▣ **Effects of low level exposures: 3 large studies**
 - ▣ **U.S. -Dominici et al.**
 - ▣ **Canada - Brauer et al./ SPARTAN**
 - ▣ **Europe - Brunekreef et al.**
- ▣ **GBD – Major Air Pollution Sources**
 - ▣ **China, India complete**
 - ▣ **Global assessment underway**
- ▣ **General support for SPARTAN network**
- ▣ **Vermeulen et al.** Long-term outdoor air pollution and cause-specific mortality in a pooled analysis of 23 Asian cohorts.
 - ▣ **Using GBD exposure estimates**

HEI: Current projects involving satellite data

- **Vermeulen et al. *Long-term outdoor air pollution and cause-specific mortality in a pooled analysis of 23 Asian cohorts.***
 - satellite derived estimates of ambient PM_{2.5} and NO₂
 - supplemented with fine scale land use data) to the residential information of study participants of
 - pooled prospective studies within the Asia Cohort Consortium
- **Guxans et al. *Air Pollution, Autism spectrum disorders, and brain imaging amongst Children in Europe – the APACHE project***
 - combine land use variables and satellite data remote sensing of aerosol optical depth to estimate different time windows of exposure of PM_{2.5} and PM₁₀.

HEI: Posted Research Opportunities

- ▣ [RFA 18-1 Assessing Improved Air Quality and Health From National, Regional, and Local Air Quality Actions](#)...HEI is seeking to fund studies to assess the health effects of air quality actions, also known as accountability research. [Accountability](#) research refers to empirical studies assessing the effects of regulatory actions, other interventions, or “natural” experiments on air pollution and health (sometimes also referred to as intervention studies).
- ▣ up to four larger 3- to 4-year studies with a funding cap of \$1,200,000 each and
- ▣ one or two smaller, 2- to 3-year methods development studies with a funding cap of \$700,000 each.
- ▣ **Preliminary Application Due Date:** February 15, 2019
- ▣ **Full Application Due Date:** May 20, 2019

HEI: Upcoming Research Opportunities

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HEI: Future Research Opportunities

- ▣ ***New* HEI Energy Research Program**
 - ▣ Another public-private partnership
- ▣ **Goals:** Fill knowledge gaps left by past and ongoing research about potential population exposures and health effects from unconventional oil and natural gas development (UOGD) across the United States
- ▣ **Research planning** underway for future RFAs
 - ▣ Population-Level Exposure Research in Multiple U.S. Regions

State of Global Air

www.stateofglobalair.org

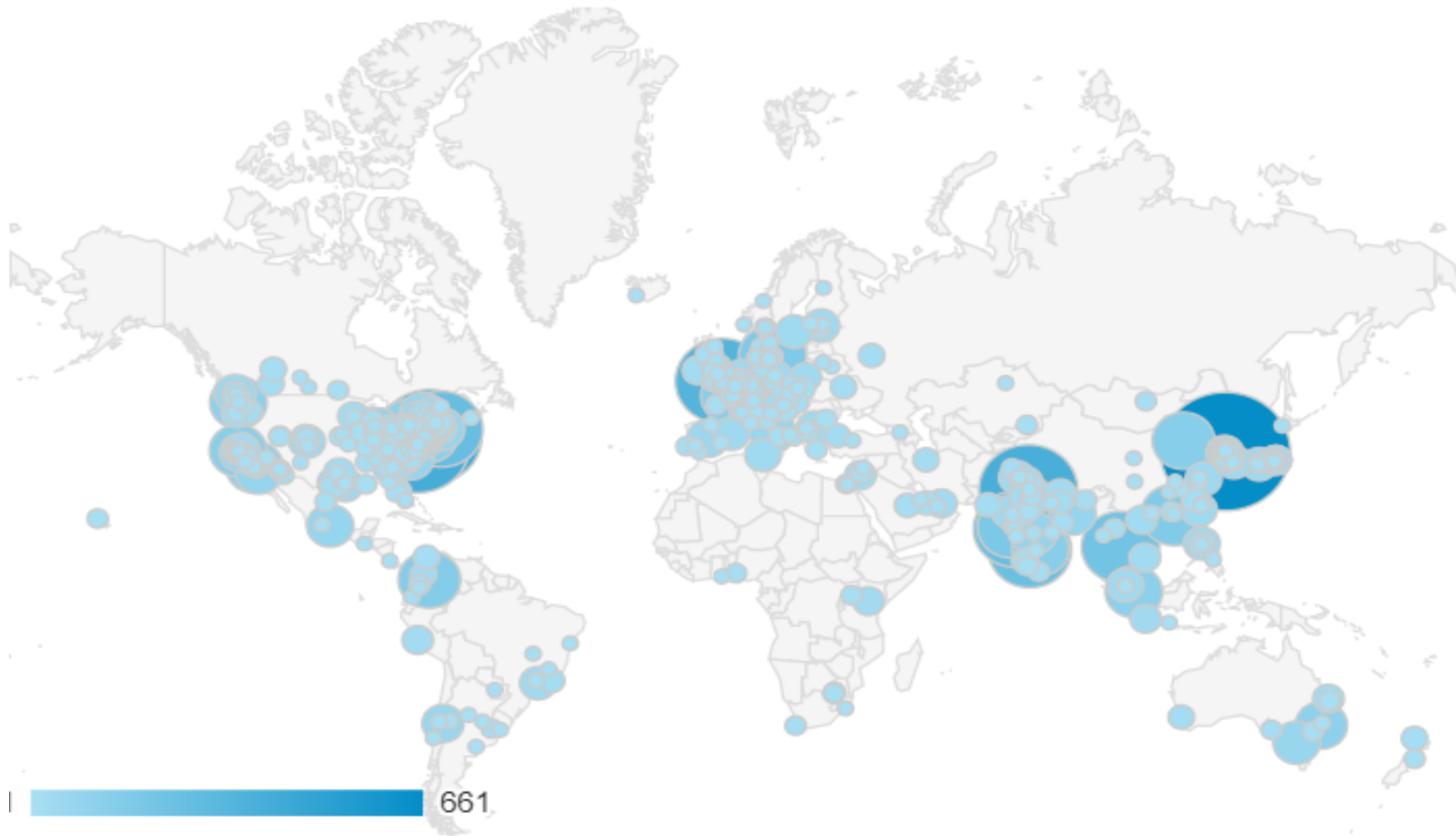
Goals:

- Communication of levels and trends in air quality and health impact around the world, based on IHME GBD
- Data access – only site where GBD exposure data currently available.
- Simple tools for presenting and comparing data

Audiences:

- general public, journalists, policy makers, NGOs

The screenshot shows the homepage of the 'State of Global Air 2018' website. The header is dark blue with navigation links: 'HOW CLEAN IS YOUR AIR?', 'IMPACT ON YOUR HEALTH', 'EXPLORE THE DATA', 'READ THE REPORT', and 'WHAT'S NEW'. A '+ Share' button is on the right. Below the header, the HEI and IHME logos are on the left. The main title 'STATE OF GLOBAL AIR /2018' is in large white and yellow text. A yellow badge says 'NEW FOR 2018'. Below the title, a tagline reads: 'Your source for the latest global, regional, and country-specific data on air quality and health.' The main content area features four cards: 1. 'How clean is the air you breathe?' with a sunset image, stating 'Nearly 95% of the world's population live in areas where fine particle levels exceed global air quality guidelines. NEW for 2018 - Data on exposures to household air pollution!'. 2. 'What is the impact on your health?' with a person walking in a hazy environment, stating 'Air pollution is linked to illness and early death and is the fourth leading risk factor globally. Household air pollution is the eighth leading risk factor!'. 3. 'Explore the interactive data.' with a line graph, stating 'Explore your country's air and health using this unique site. View maps, compare trends, and download data. NEW for 2018 - Data on household air pollution and health!'. 4. 'Read the report.' with a world map, stating 'View the latest analysis of air quality and health findings meant for citizens, policy makers, journalists, and scientists. NEW for 2018 - The role of household air pollution!'.



State of Global Air Activity

Year 2: Using the data around the world



A new Health Effect that 95% of the v – causing 6.1M d heart disease, stro study helps outlin greatest & where mikebloom.bg/2

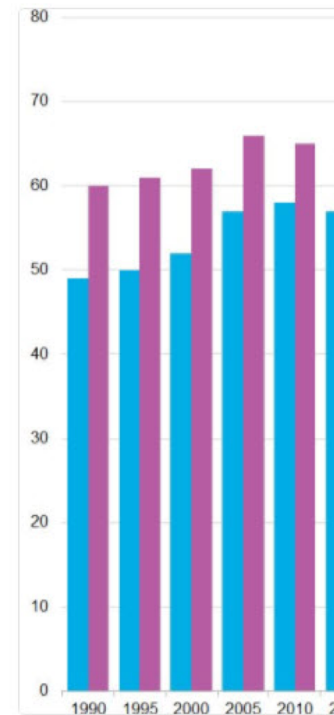


7:02 AM - 24 Apr 2018

97 Retweets 137 Likes



In the latest **State of Global Air** report, India has had more ambient particulate matter pollution than China since at least 2013. While China is slowly improving slightly, India's is steadily worsening. stateofglobalair.org/data/#/air/tab...



0 25 14 8:15 AM - 25 Apr 2018

Simon Kuestenmacher
@simongerman600

#Infographic shows the number of deaths from air pollution. etc. The general trend in all countries get hit hard neither afford clean adequate medical buff.ly/2qIGTP1



8:15 AM - 25 Apr 2018

62 Retweets 71 Likes

3 62 71



Over 7 Billion People Face Unsafe Air: **State of Global Air 2018**
One in Three Globally Face a "Double Burden": Exposed to Household Burning
and Outdoor Air Pollution. stateofglobalair.org/whats-new/pres... Nitudateka neza
ngo tubeho neza turashira 🤔🤔 #CleanCooking



'State of Global Air': More Air Quality Lies from the Health Effects Institute
junkscience.com/2018/04/state-... via @JunkScience



'State of Global Air': More Air Quality Lies from the ...
The air pollution scare industry is in panic mode, led by the Health Effects Institute.
junkscience.com

What's next? : Evolution of a global platform

	2017	2018	2019 (in progress)	2020
Geographic Scale	Global, country	Global, country	Global, country	Global, country, Subnational, urban?
Long-term Exposure (Population-Weighted)	PM _{2.5} (Ann. Avg.) Ozone (seasonal)	PM _{2.5} Ozone Household AP 'Total' Air Pollution (health only)	PM _{2.5} Ozone Household AP 'Total' Air Pollution (health only)	PM _{2.5} Ozone Household AP 'Total' Air Pollution (health only) NO ₂ ? Source-related? Other?
Health Metrics (Numbers, rates)	Deaths DALYs	Deaths DALYs	Deaths DALYs Life Expectancy	

Collaboration and Support for State of Global Air

HEI Staff

- ▣ **Katherine Walker**, Principal Scientist
- ▣ **Pallavi Pant**, Staff Scientist
- ▣ **Kathryn Liziewski**, Research Assistant
- ▣ **Kethu Manokaran**, Research Assistant
- ▣ **Annemoon van Erp**, Managing Scientist
- ▣ **Hilary Selby Polk**, Managing Editor
- ▣ **Aaron Cohen**, Consulting Scientist

Collaborations



Foundation Sponsors



- ▣ Oak Foundation