

Geolocated Allergen Sensing Platform (GASP)



Why we care so much?
 Approximately 50 million Americans have allergic diseases, including asthma and allergic rhinitis, both of which can be exacerbated by PM2.5.

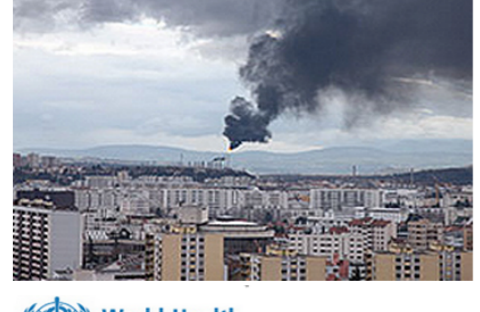
Every day in America 44,000 people have an asthma attack, and because of asthma 36,000 kids miss school, 27,000 adults miss work, 4,700 people visit the emergency room, 1,200 people are admitted to the hospital, and 9 people die.



Why we care so much?

Public health, environmental and social determinants of health (PHE)

7 million deaths annually linked to air pollution



In new estimates released, WHO reports that in 2012 around 7 million people died - one in eight of total global deaths - as a result of air pollution exposure. This finding more than doubles previous estimates and confirms that air pollution is now the world's largest single environmental health risk. Reducing air pollution could save millions of lives.

- Read the news release on air pollution attributable deaths
- Read the feature story on air pollution
- FAQs on air pollution and health pdf, 169kb
- Air pollution estimates pdf, 1,168kb
- Summary of results and method descriptions



3.7 million deaths attributable to ambient air pollution

Mortality from ambient air pollution for 2012 - summary of results pdf, 293kb

4.3 million deaths attributable to household air pollution

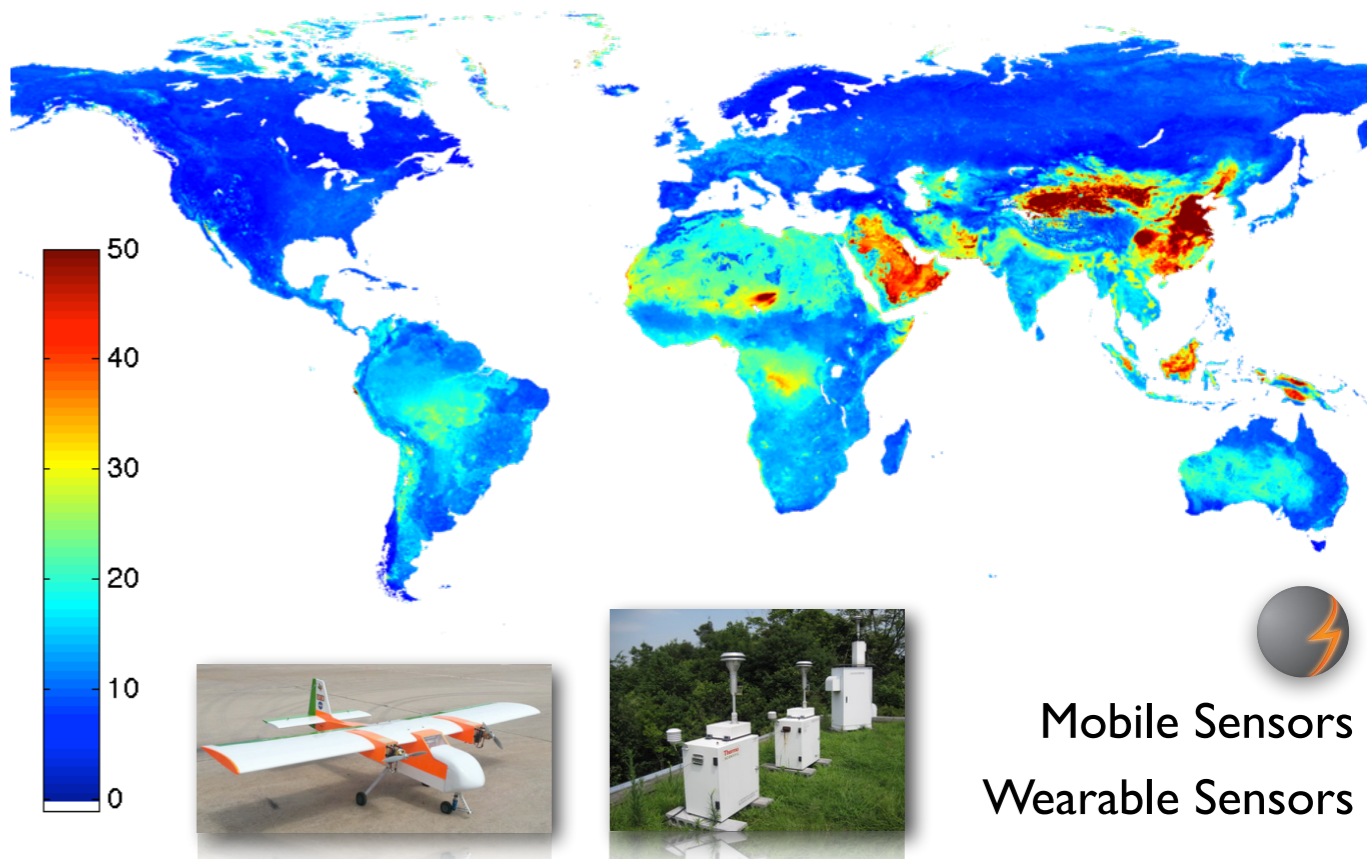
Mortality from household air pollution 2012 - summary of results pdf, 558kb

1600 cities worldwide are reporting air pollution levels

Air quality in cities database - summary of results pdf, 304kb



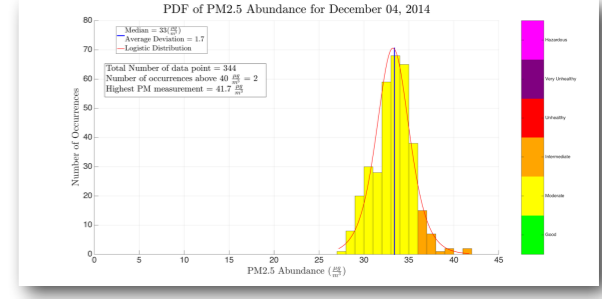
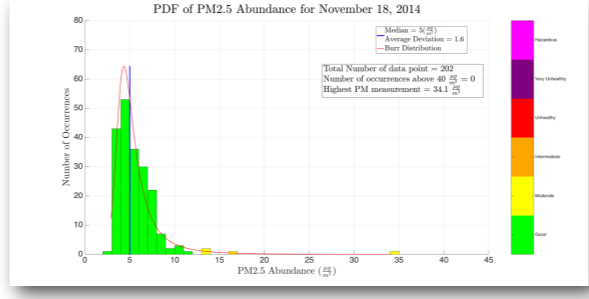
Long-Term Average 1997-present



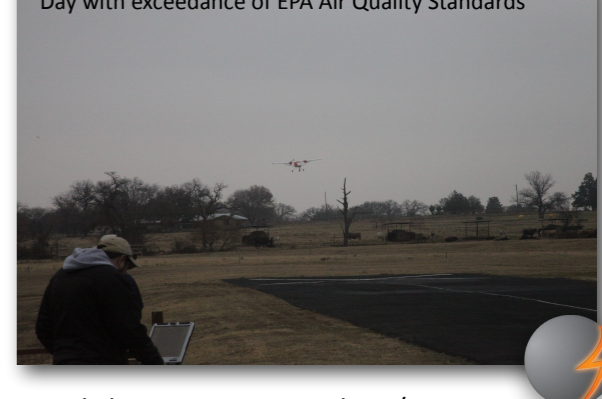
Mobile Sensors
Wearable Sensors

PM2.5 Air Quality Standards

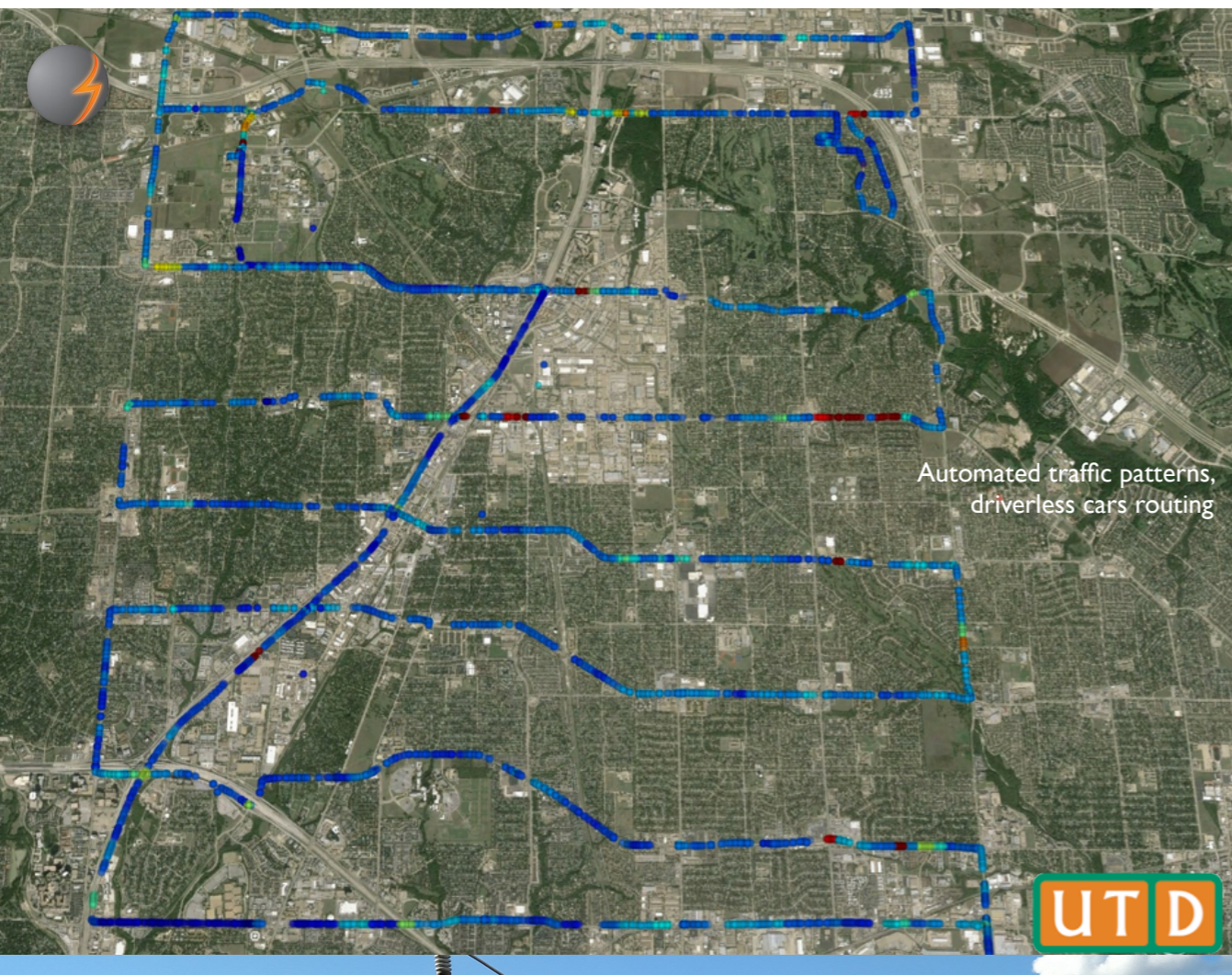
Japan	USA	WHO/EU
Annual Avg. $15\mu\text{g}/\text{m}^3$	Annual Avg. $12\mu\text{g}/\text{m}^3$	Annual Avg. $25\mu\text{g}/\text{m}^3$
24 hour Avg. $35\mu\text{g}/\text{m}^3$	24 hour Avg. $35\mu\text{g}/\text{m}^3$	Annual Avg. $20\mu\text{g}/\text{m}^3$



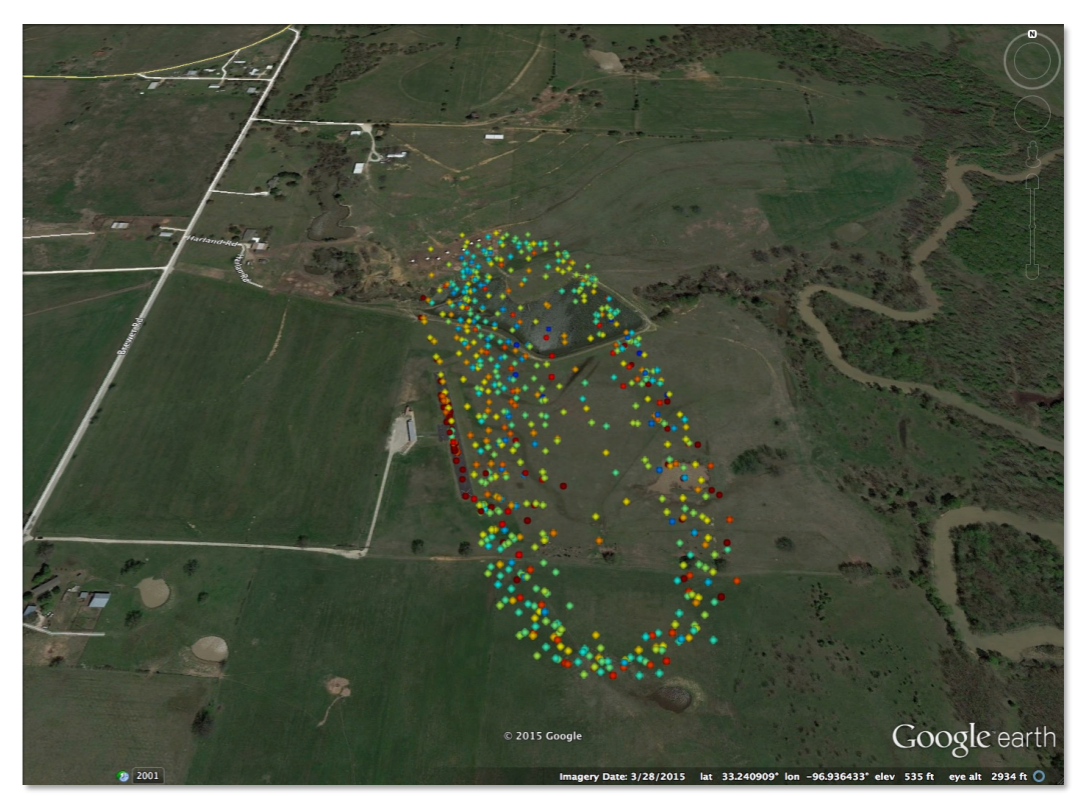
Flight on Nov 18, 2014 clear skies



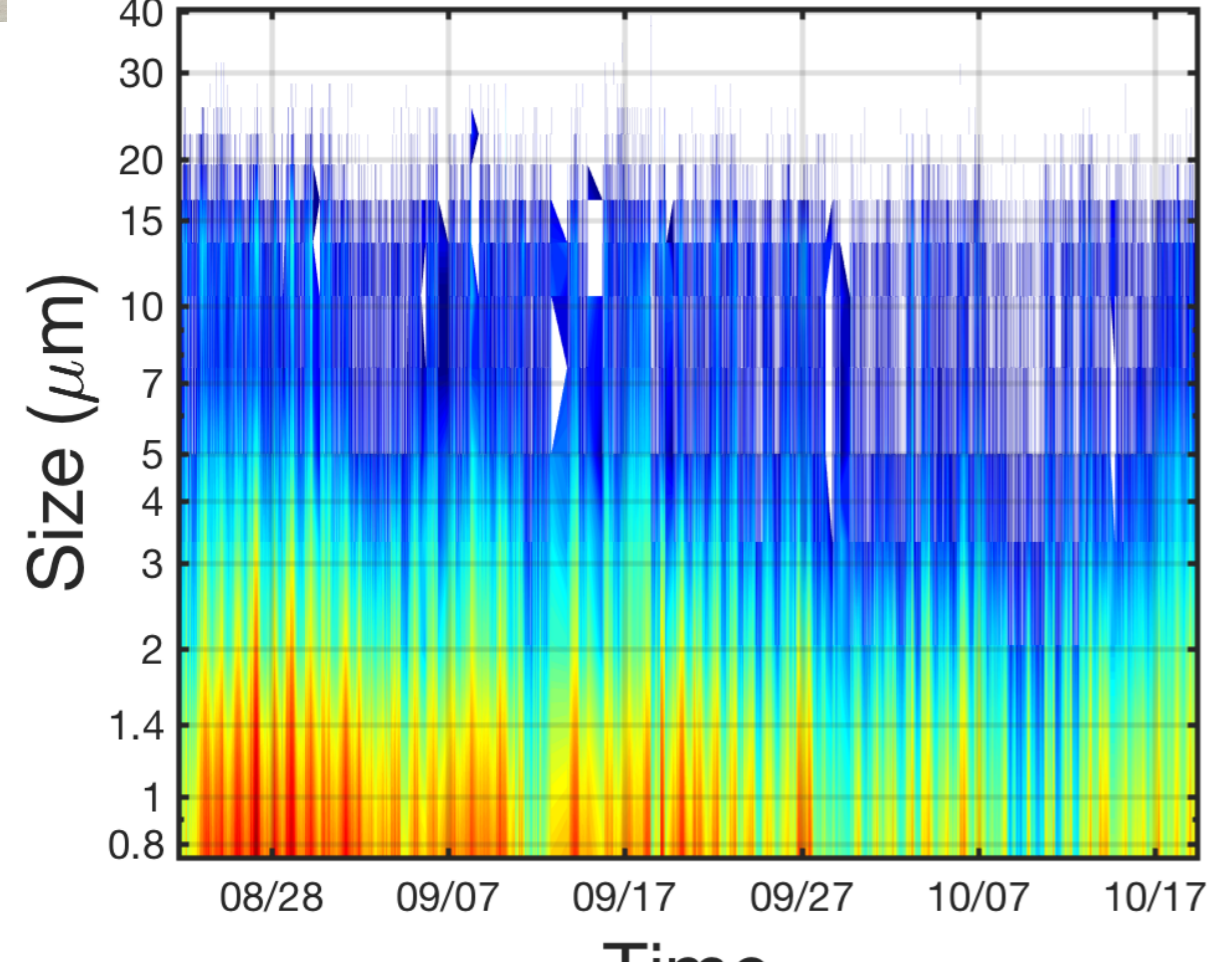
Flight on Dec 04, 2014 hazy/overcast



Automated traffic patterns, driverless cars routing



Site: (35.042705, -85.305654) Log₁₀ of Counts



Site: (35.042705, -85.305654) 10 minute moving average

