

Building a Global Sensor Network





“You don’t need a weatherman to know which way the wind blows”

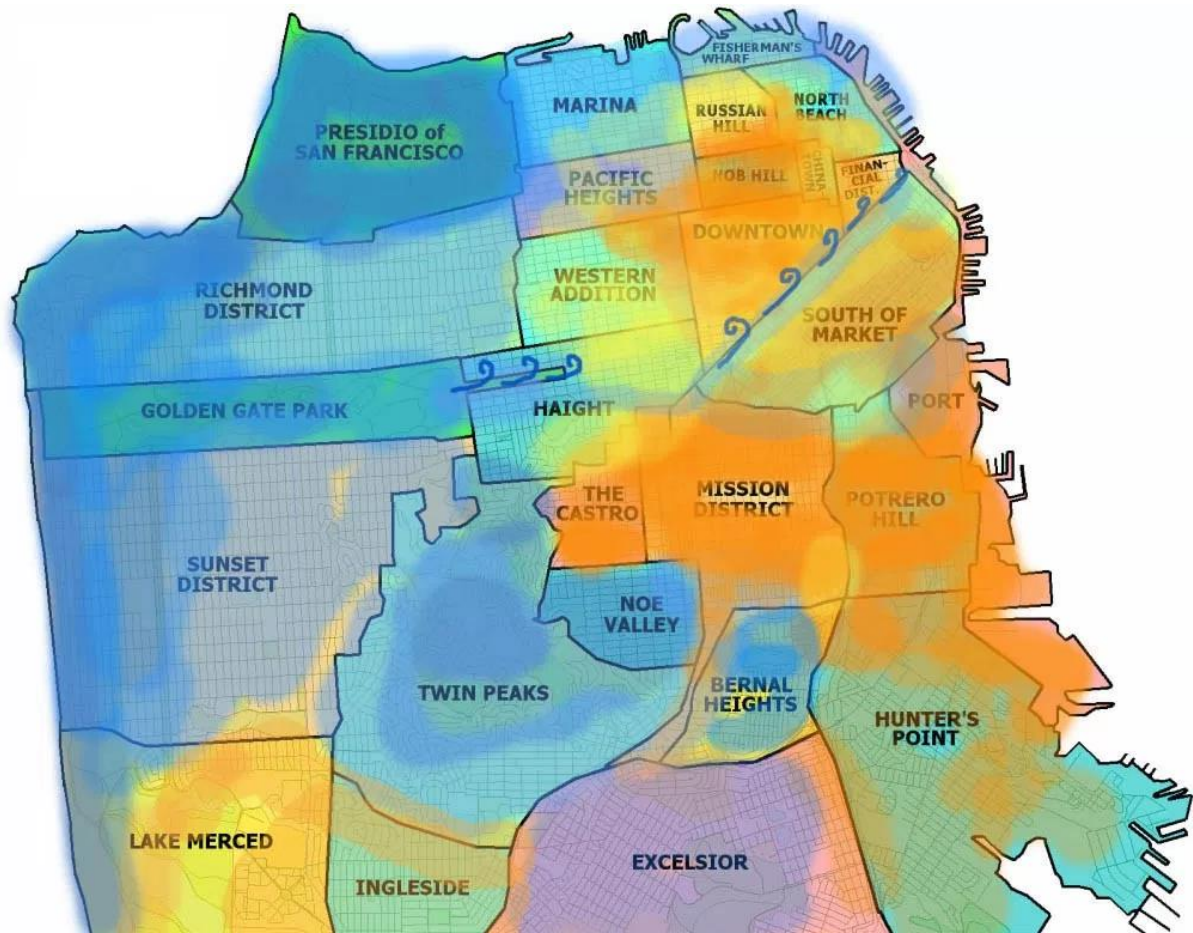
[Subterranean Homesick Blues](#)





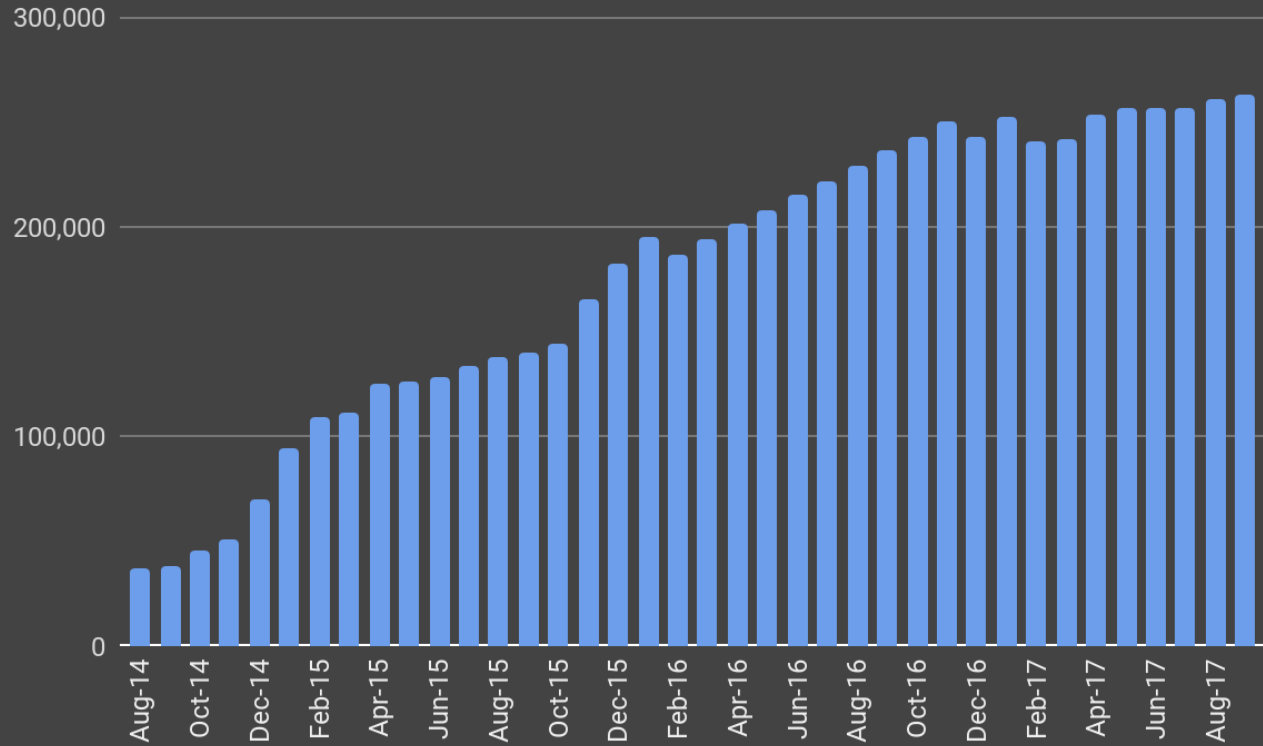


```
$ telnet rainmaker.wunderground.com
```

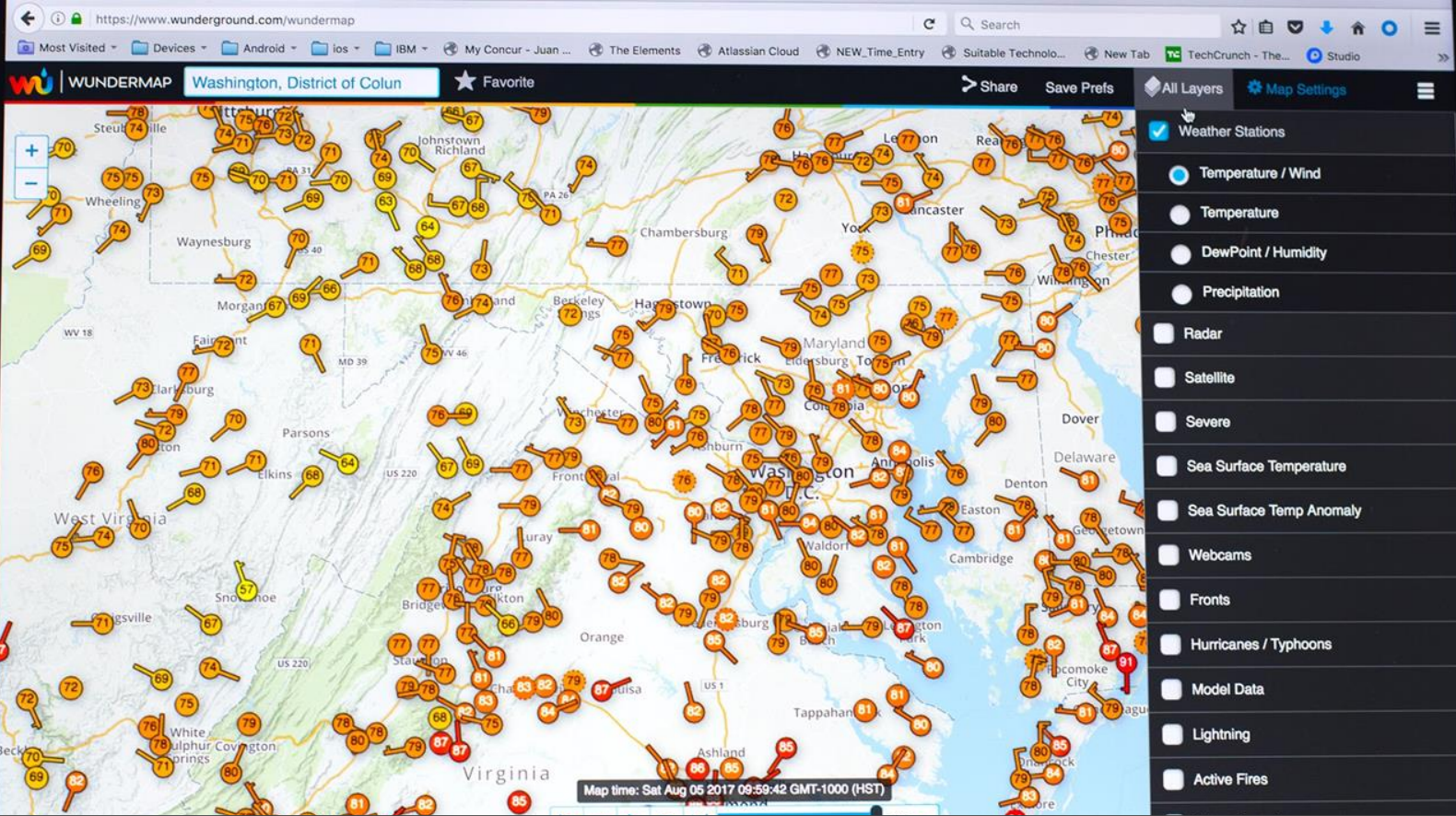




First year sign-ups: 283 stations



Weather Underground Personal Weather Station Network



Now, 263,000 Personal Weather Stations

Lesson 1: agree on
standards early

The value of the network

For PWS owners:

- A user friendly dashboard
- Real-time data & visualization on web and apps
- Sense of community



For non-PWS users:

- Hyperlocal real-time information not found elsewhere
- Archive of data
- Sense of community

“Ken,” weather station owner



“Ken” is 65 years old and retired. He was in the IT industry and made over \$150,000 a year. He’s always been passionate about weather and loves gadgets. Personal weather stations scratch both itches. He has a smart home with a smart thermostat and a garden with moisture sensors, so he has an interest in tying the PWS to his home.

Lesson 2: get to know
citizen scientists well



How to get your Gold Star

Your weather station online and data flow uninterrupted for at least five days.

Your sensor values fluctuate throughout the day -- not too slow, not too fast.

Your sensor values are within a reasonable range of other sensors in your vicinity.

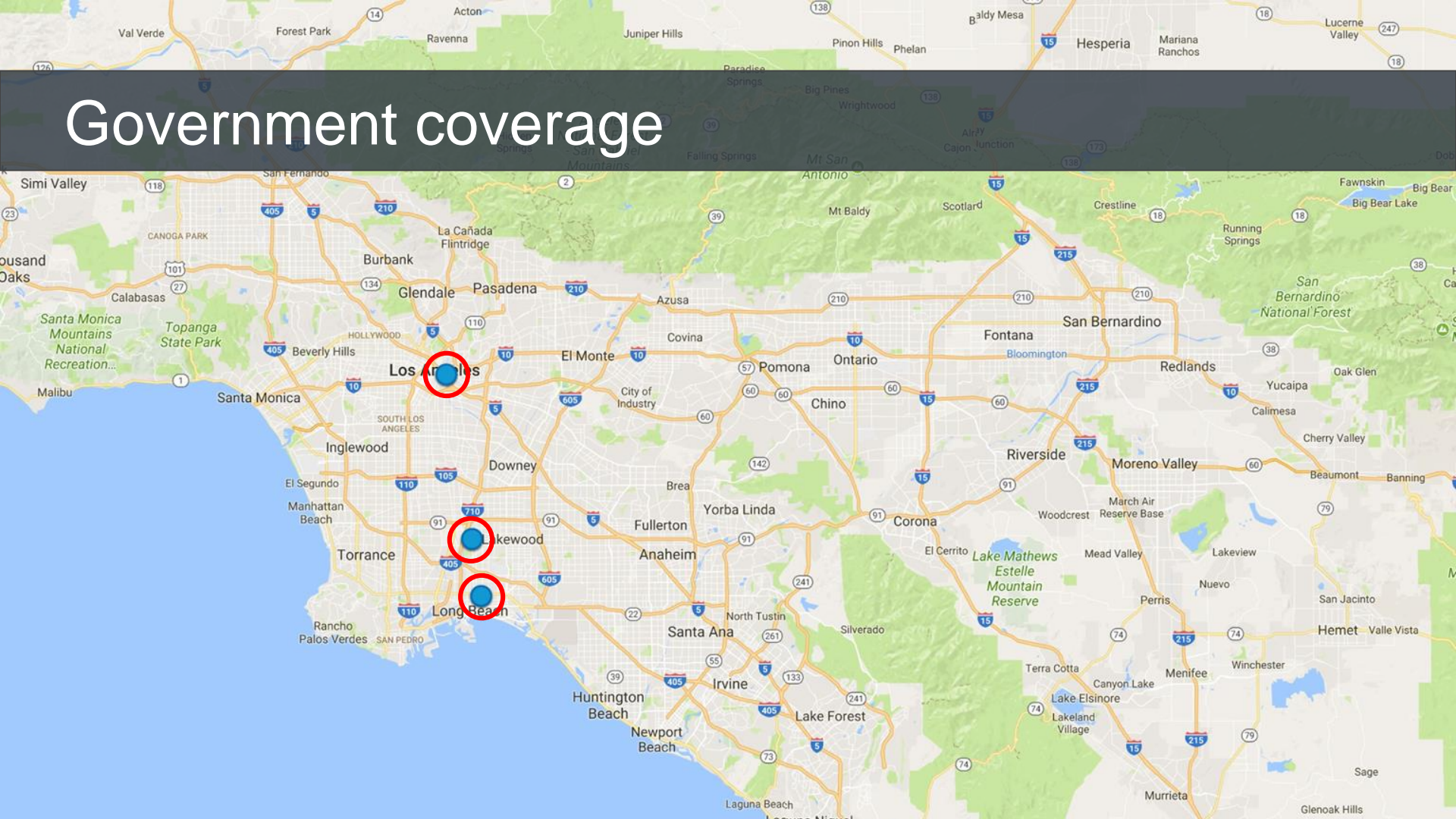


Lesson 3: give small
rewards

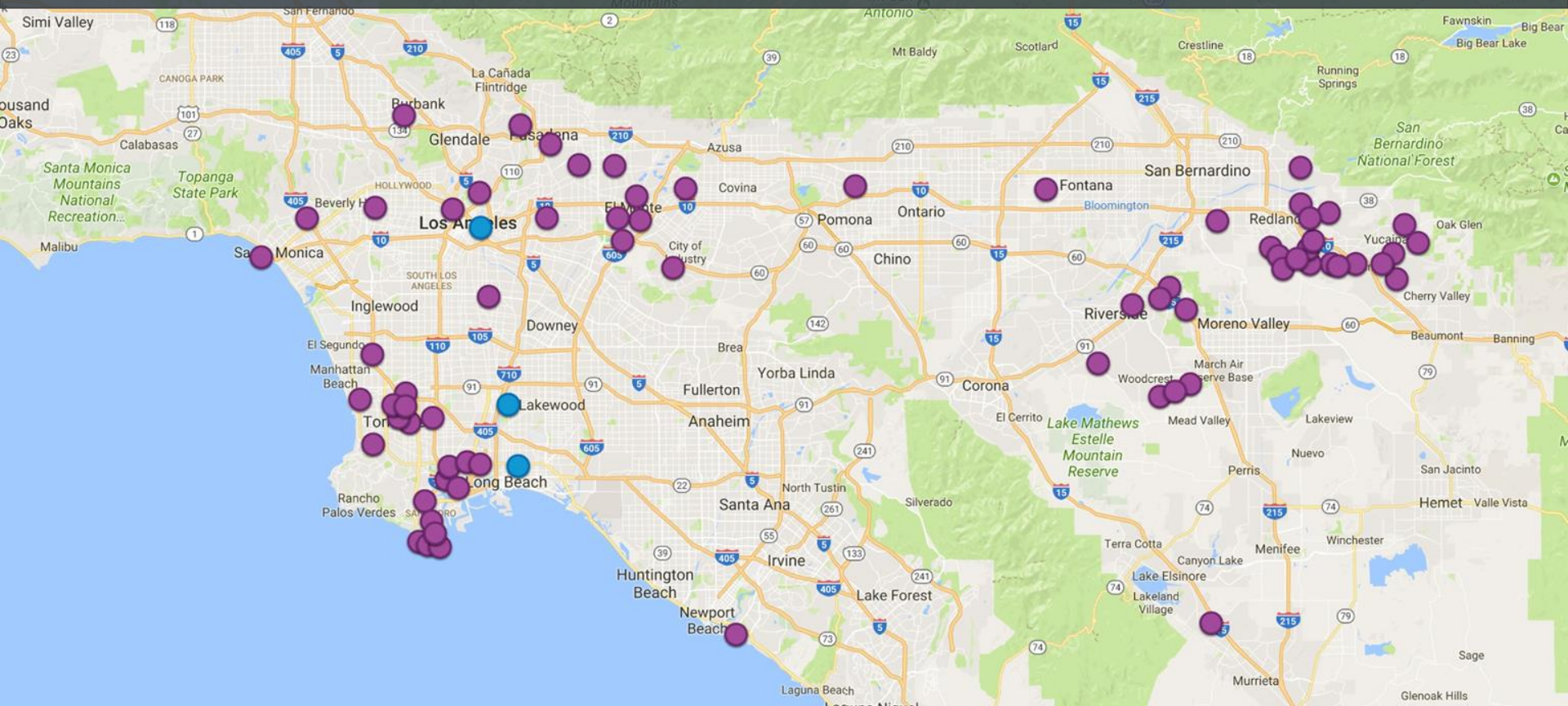
The Next Phase

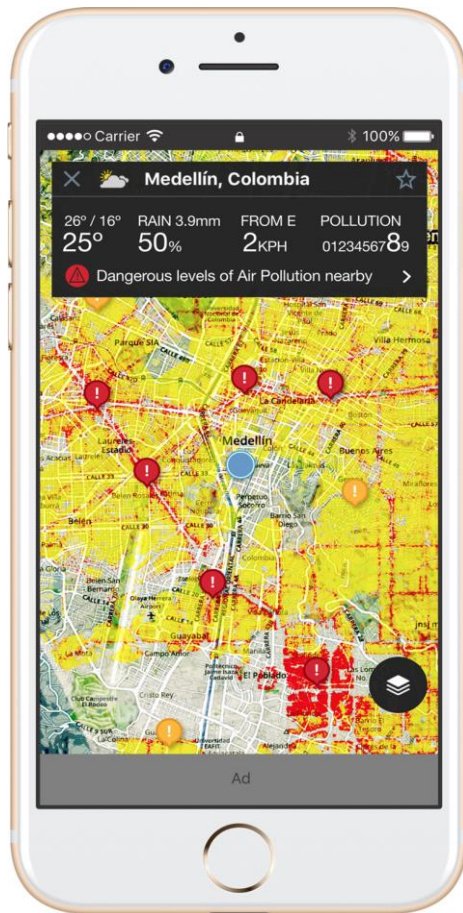
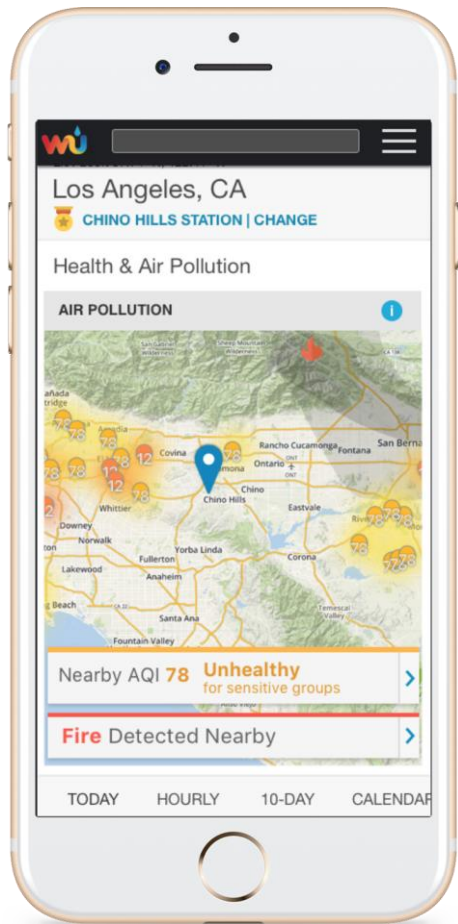


Government coverage



PurpleAir's coverage





Where we need help

How do you do quality control with AQ data?

How do you communicate AQ information?

Should we continue to use AQI?

How do we calibrate low-cost sensors with government resources?

WU Network

Collections. We model several sensors on one device, so if one sensor on a five-sensor device is out, we can exclude just the faulty sensor.

Location. Data tagged with real-time lat-long and altitude.

Extensibility. Flexible schema to accommodate any environmental sensor. Plus extensive meta-tagging.

Scale. Data is stored in The Weather Company's massive storage infrastructure.

Availability. Device owners can get the data back out through Weather Underground's modern, developer-friendly weather API's.

Kourosch Karimkhany

kourosch.karimkhany@weather.com

M: (415) 505-7608

