

# State of Air Sensing

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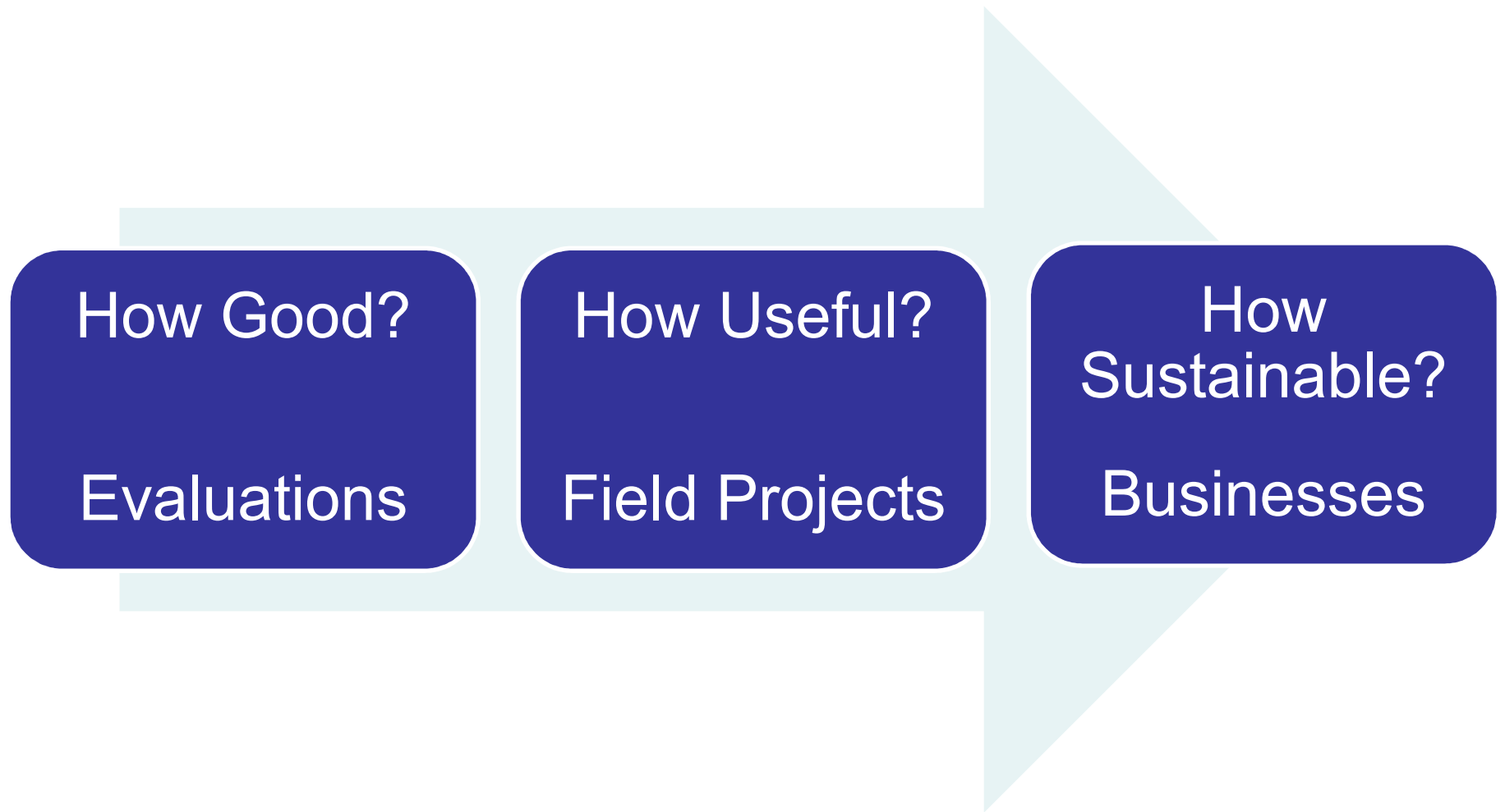
Presented to NACAA  
New Orleans, LA  
October 5, 2015



Sonoma Technology, Inc.  
*Environmental Science and Innovative Solutions*

# Air Sensing Efforts

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# Evaluations (How Good?)

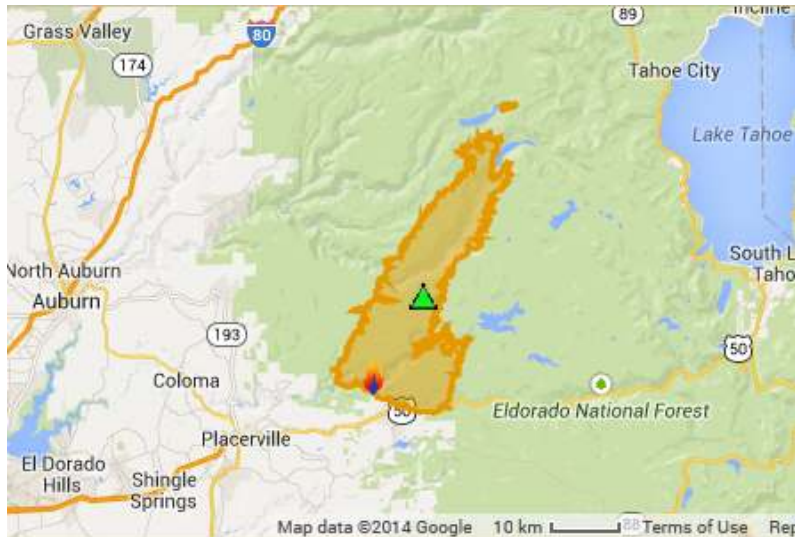
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- Organizations
  - EPA (ORD)
  - SCAQMD (AQ-SPEC)
  - EU
  - Others



# Field Projects – Smoke

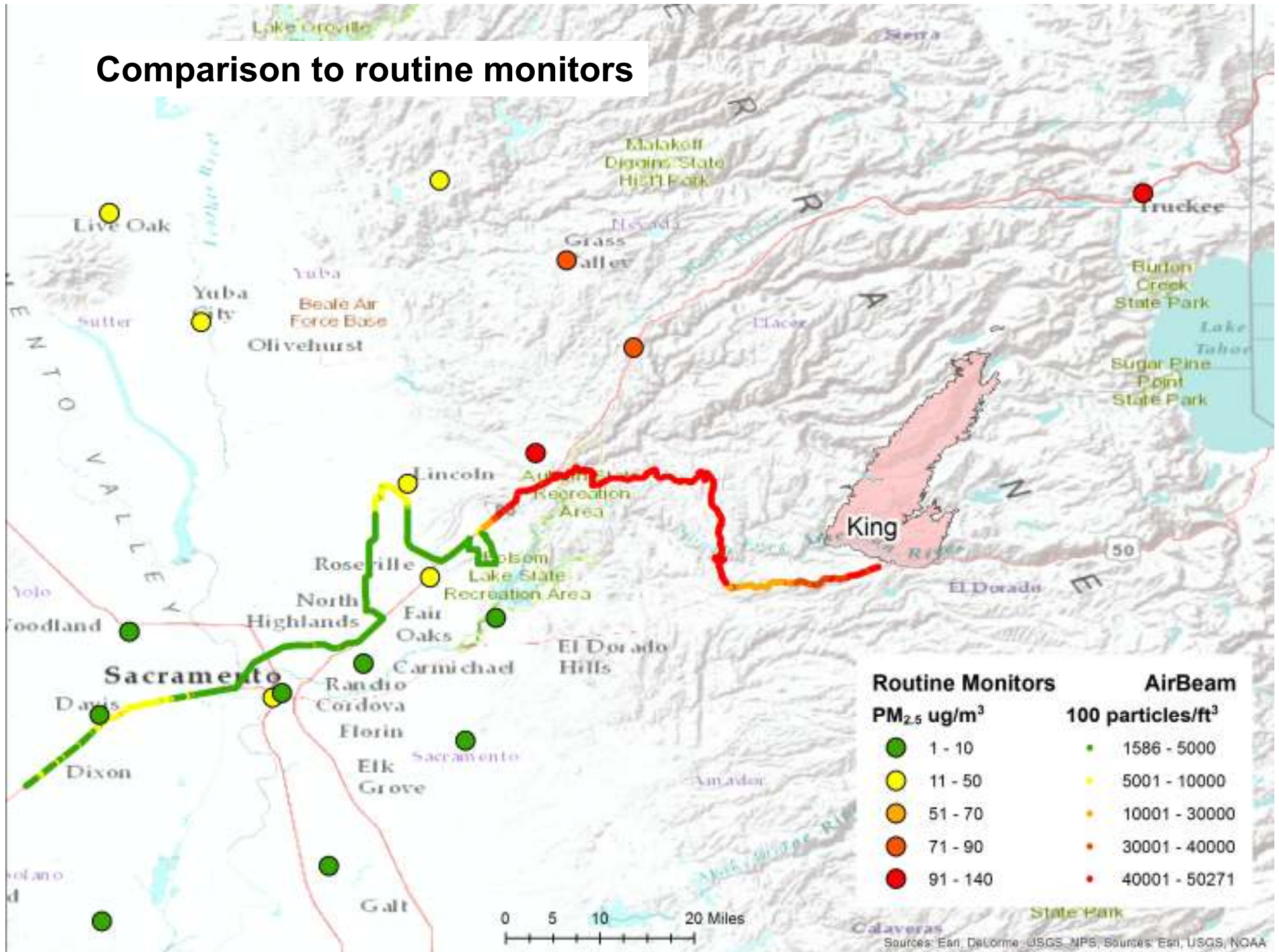
## Sensor testing during the King Fire



- Acreage Burned: 97,099
- Structures Damaged: 80
- Injuries: 6
- Total Personnel Assigned: 6,497
  - 172 hand crews
  - 418 engines
  - 21 helicopters



# Comparison to routine monitors



# Field Project – Forest Service Proof of Concept

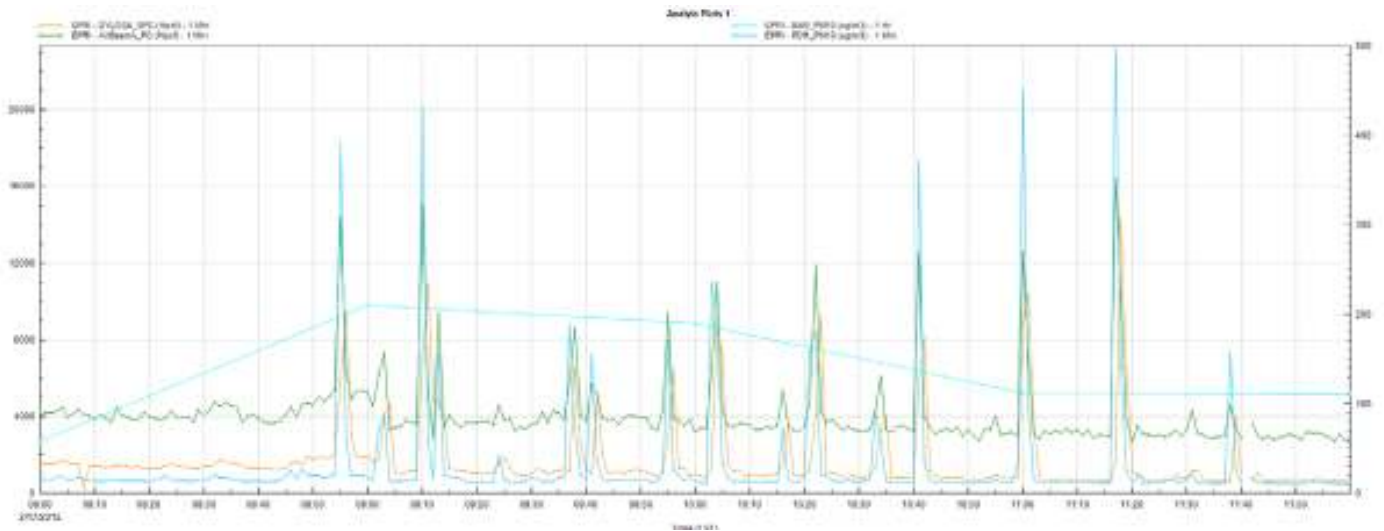
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- 2016 demonstration with Air Resource Advisors (ARA)
- System
  - In-vehicle PM sensors
  - Real-time reporting
  - Website and mobile mapping
- Applications
  - Outreach
  - Logistics
  - Forecasting and model verification

# Field Project – EPRI

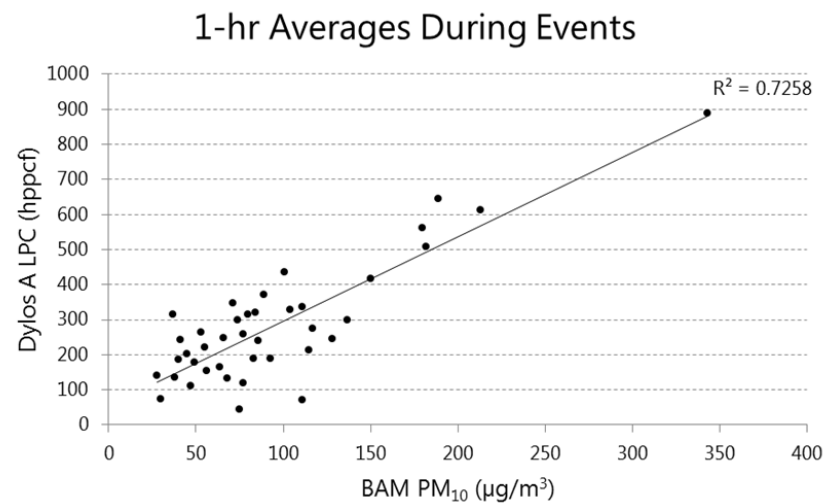
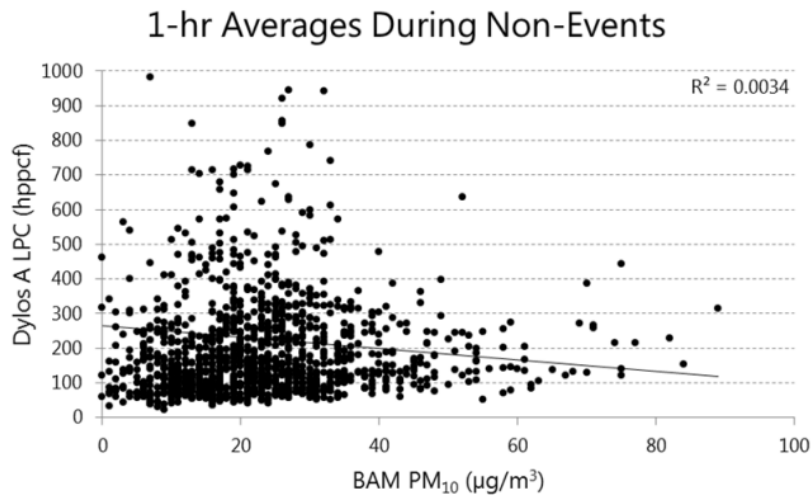


Sensors detect short bursts of dust



# Field Project – EPRI

Good agreement during events





# Businesses – Startups (2 years ago)

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CubeSensor

Canary

Lapka

Sensordrone

# Businesses – Startups

Sensly - A Smart, Portable Pollution Sensor For Your Home

by AirKade Tech Ltd



sensly<sup>∞</sup>

558

backers

£29,119

pledged of £18,800 goal

26

hours to go

Back This Project



# Businesses – AQ Instrument Companies

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MetOne



[TSI](#)

# Businesses – Big Companies

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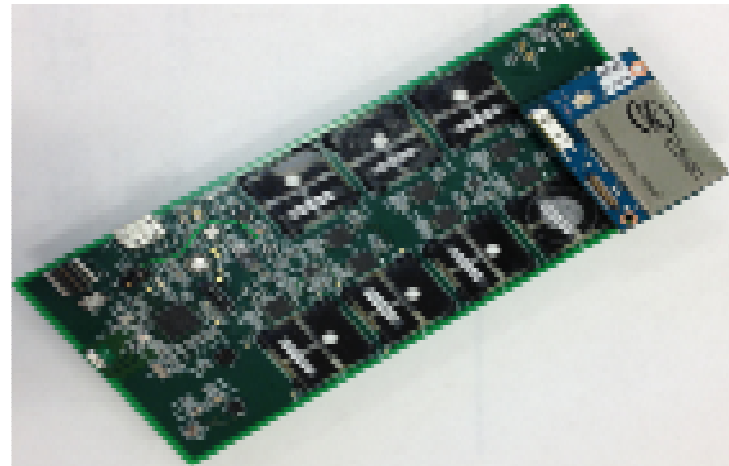
## Intel® Edison Air Quality Platform

### Measures

- EPA criteria pollutants
- Industrial gases (SO<sub>2</sub>, H<sub>2</sub>S)
- Sound pressure level
- UV, temperature, RH, BP

### Intel® Edison onboard

- Dual-core CPU and single-core microcontroller
- Integrated Wi-Fi\* and BLE
- 1 GB DDR and 4 GB FLASH memory
- 40 multiplexed GPIO
- Cloud-connected software



# Future of Air Sensing



Metric	2014		
Pollutants	Ozone, CO, NO <sub>2</sub> , PM		
No. of Devices	1000s		
Users	Researchers, communities		
Companies	Startups, instrument developers		
Quality	Variable		
Price	\$300-\$2500		

# Future of Air Sensing



Metric	2014	2016	
Pollutants	Ozone, CO, NO <sub>2</sub> , PM	PM <sub>2.5</sub>	
No. of Devices	1000s	1 million +	
Users	Researchers, communities	AQ agencies, industry	
Companies	Startups, instrument developers	Large tech companies	
Quality	Variable	Improving	
Price	\$300-\$2500	\$50-\$100	

# Future of Air Sensing



Metric	2014	2016	2019
Pollutants	Ozone, CO, NO <sub>2</sub> , PM	PM <sub>2.5</sub>	Benzene, BC, some toxics
No. of Devices	1000s	1 million +	10 million +
Users	Researchers, communities	AQ agencies, industry	Cities, individuals
Companies	Startups, instrument developers	Large tech companies	"Phone" manufacturers
Quality	Variable	Improving	Very good
Price	\$300-\$2500	\$50-\$100	<\$50

# Contact

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