

POST

# Technology is Undermining the Clean Air Act

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## ***Advancements in air quality monitoring are undermining the foundations of the U.S. air quality management system***

*(Houston) – November 24, 2017 – Letter from the Editor*

The foundations of the U.S. air quality management system are based on ground-based monitors. That foundation is being undermined by advancements in air quality monitoring technology.





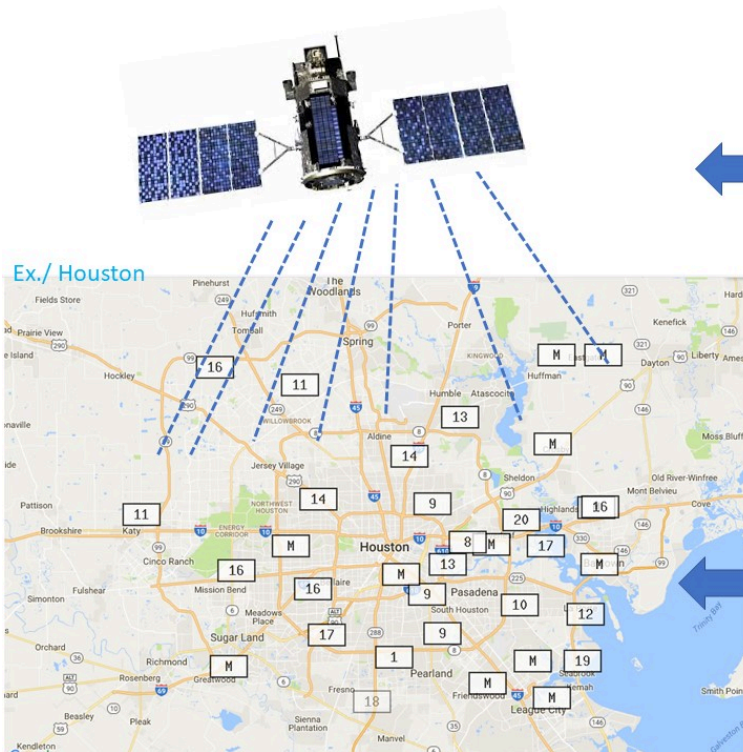
Ground-based monitors form the basis of how air quality standards are met. That's how nonattainment areas have been established. That's how air quality is protected. That's the way we had to do it in the 1970's, 80's, and 90's. But that was then. This is now. The speed of technological change has increased more in the last 10 years than it likely did in the previous 30. It has given us the ability to go to places with air quality assurance that we never thought possible before.

### **Best Way to Ensure that Everyone at Every Moment is Breathing Healthy Air**

Which is the best way to measure ambient air of the following choices (using Houston as an example)?

- **38 monitors?** (using the current ground-based monitoring system) or
- **3,000,000 monitors?** (using everyone's cell phones) or

- **500,000,000,000,000,000 monitors?(ubiquitous)(using satellites)**



**Option A:** update U.S. air quality management system to be based on billions of data points gathered from new technologies—such as satellites

or

**Option B:** Continue basing air quality management system on 38 data points

Let's be honest. The foundation of our system, ground based monitors, is going the way of the dinosaurs.

And as long as we are being honest, let's be completely honest. Our ground based monitoring system is not measuring the ambient air that we breathe. They would be more accurately called “numerically sparse, elevated, spatially diffused ambient/source monitors”. Sure they are the most accurate technology at the moment, but what are they accurately measuring? Moreover, many areas of the country don't even have any. And even in the highest monitored area in the country, Houston, there is only 38 of them.

Ground based monitors will be used for quality control, but continuing to rest the foundations of our air quality management system around such limited data points, especially when we can now measure millions or trillions of data points, is

antediluvian. It was something we did in the past because we had to. Technology was limited. It was successful in its time, but so was the typewriter. No one misses their typewriter. And no one will miss ground-based monitors. They will be used for QA/QC purposes because they are currently more accurate, but otherwise the technology is old and too limiting to continue to form the basis of the entire air quality management system (ex/ ozone nonattainment based on the 3-year average of the annual fourth-highest monitor reading's daily maximum 8-hour average).

Of course, when we move to this more comprehensive, big-data, 21st century system we will need to change the way in which nonattainment is established. It can't be based on the 4th highest of billions of data points. But whatever we come up with will be a much better system because of the increased data points. And it will move us away from the silly game we are now playing of chasing peak ozone. [We are getting to the point where we focus on chasing one or two monitors and what is happening to those monitors on the 4th highest day rather than focusing on the air shed, other points in time, and base-ozone loading].

A new day has dawned in monitoring technology. Time to move from an air quality management system based on 38 data points to trillions of data points.

*Jed Anderson is the editor of TexasEnvironmentalNews.com. Mr. Anderson is a principal attorney with the AL Law Group—and a former attorney with Baker Botts and Vinson & Elkins and an Adjunct Professor of Law at the University of Houston Law School where he taught the Clean Air Act. In addition to his legal practice, Mr. Anderson has become a national leader over the past 15 years and a hub for Clean Air Act reform efforts—writing articles, gathering people and ideas, speaking across the country, writing a book, helping to lead national efforts to transform the Act, and even himself re-writing the Act (for more information, see [www.cleanairreform.org](https://allawgp.us3.list-manage.com/track/click?u=611347db42afb8e0ce5722866&id=57f3d999d5&e=636052b3dc) (<https://allawgp.us3.list-manage.com/track/click?u=611347db42afb8e0ce5722866&id=57f3d999d5&e=636052b3dc>)).*

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