



Contacts

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Introduction

RAM (Remote Air Monitoring) is leading the charge for environmental change and compliance. Floating methane, carbon dioxide, and hydrogen sulfide particulates that are being released into the air we breathe are quickly becoming a problematic issue that is often overlooked. This is quickly becoming a primary focus on the impact of air quality of the environment, which is why it is important to realize and understand as to why forming a real time **RAM Air Quality Study (RAQS)** is necessary. Many companies are not aware as to how much CO₂ and methane emissions are actively being deposited into the atmosphere from present and past drilling operations and production facilities. This is where RAM comes in. We actively monitor, identify, and record air emissions data to accurately identify the particulate presence of CO₂, Methane, and H₂S emissions that are escaping into the atmosphere on current and past drilling locations. This allows our clients to not only take action to help curtail these harmful emissions, but also take a proactive role in making their locations safer by knowing the precise amounts of H₂S that are actively present in the air prior to arriving at producing locations. We utilize state of the art air monitoring equipment sensors that are tailored to your specific needs to allow our clients to detect harmful environmental particulate emissions in real time and allow them to take action to reduce their overall carbon footprint. We perform engaging environmental studies to allow you to obtain EPA compliant certifications to offset overall carbon emissions that lead to Federal Tax breaks. You will be able to rest easy, knowing that you are actively doing your part to make our planet a better place for generations to come. Let's explore the benefits of what RAM can do for you!



Equipment

RAM utilizes state of the art equipment that can be tailored with a variety of sensors that fit your specific needs. RAM can outfit one or all the sensors listed below in any combo you would prefer and allow you to be able to see immediate results in real time! We custom configure our field sensors to our client's needs, so that they can obtain the air measurements that are pertinent to your application.

- Total VOC (PID)
- Methane (CH₄)
- Carbon Dioxide (CO₂)
- Carbon Monoxide (CO)
- Hydrogen Sulfide (H₂S)
- Nitrogen Dioxide (NO₂)
- Ethanol (C₂H₅OH)
- Ozone (O₃)
- IAQ
- RESP-IRR

Features

- Cloud Native IoT Device
- Solar Powered, Battery Backed
- LTE/WiFi Communication Protocols
- Instant Live Data Access via Secure Portal
 - Customizable Dashboard
 - Industry Standard API's
- Wind Speed & Wind Direction
- Fast. Reliable. Accurate
- Multiple Sensor Options including Methane.

Base Model Specifications

- 25W Solar Panel
- 30Ah Ternary Lithium Battery
- Anemometer – 0 to 200 MPH
- Radios:
 - LTE
 - WiFi
 - GPS
- 10 years onboard local storage, remote reset
- 1 second data sampling / variable value store
- TVOC (Total Volatile Organic Compound)
 - Range: 0 ppb – 60,000 ppb
- Temperature and Humidity Sensor
 - Range: -40 to 85°C
- Humidity 0 - 90% RH
- Size: 24" x 13" x 11"
- Weight: 14lbs



Sensor Specifications and Additional Sensors

Sensor	Lower Range	Upper Range	Resolution
Total VOC (PID)	1 ppb	60,000 ppb	1 ppb
Methane (CH ₄)	50 ppm	1,000,000 ppm	50 ppm
Carbon Dioxide (CO ₂)	0 ppm	10,000 ppm	10 ppm
Carbon Monoxide (CO)	0 ppm	500 ppm	1 ppm
Hydrogen Sulfide (H ₂ S)	0 ppm	50 ppm	0.15 ppm
Nitrogen Dioxide (NO ₂)	0 ppm	20 ppm	0.1 ppm
Ethanol (C ₂ H ₅ OH)	0 ppm	200 ppm	0.2 ppm
Ozone (O ₃)	0 ppm	20 ppm	0.1 ppm
IAQ	0 ppm	100 ppm	0.15 ppm
RESP-IRR	0 ppm	20 ppm	0.15 ppm

Detailed spec sheets available upon request

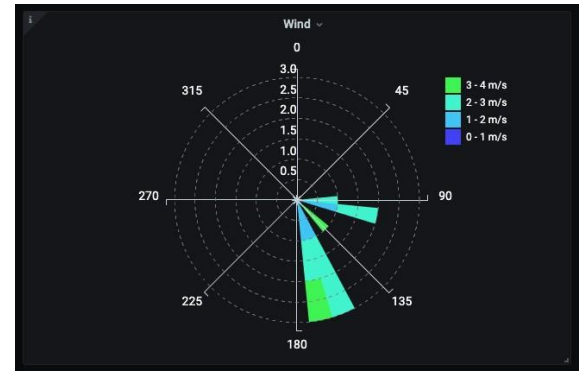
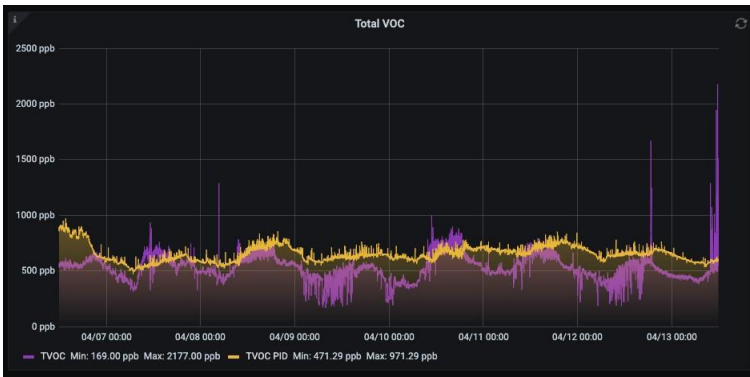
Grafana hosted by AWS

Our team has performed extensive R&D on all our air monitoring sensors that can read ppm's of harmful VOC's that are well below set EPA standards. RAM can configure readings that allow you to view data every second, or one reading per minute. If you want sporadic readings throughout the day, we can do that as well. We fully cater to your needs. After the air sensors are in place, you will be set up with a personalized login to actively check your air quality levels at your discretion at any time of the day, 24/7.

Time	AM-0012	AM-0006	AM-0007	AM-0009
2021-03-09 15:18:00	969 ppb	830 ppb	248 ppb	1203 ppb
2021-03-09 15:19:00	949 ppb	801 ppb	336 ppb	1218 ppb
2021-03-09 15:20:00	872 ppb	812 ppb	296 ppb	1218 ppb
2021-03-09 15:21:00	895 ppb	796 ppb	280 ppb	1263 ppb
2021-03-09 15:22:00	862 ppb	836 ppb	274 ppb	1157 ppb
2021-03-09 15:23:00	826 ppb	805 ppb	256 ppb	1149 ppb
2021-03-09 15:24:00	876 ppb	798 ppb	283 ppb	1229 ppb

Example Time Series Data – sub sampled at 1 min with Grafana



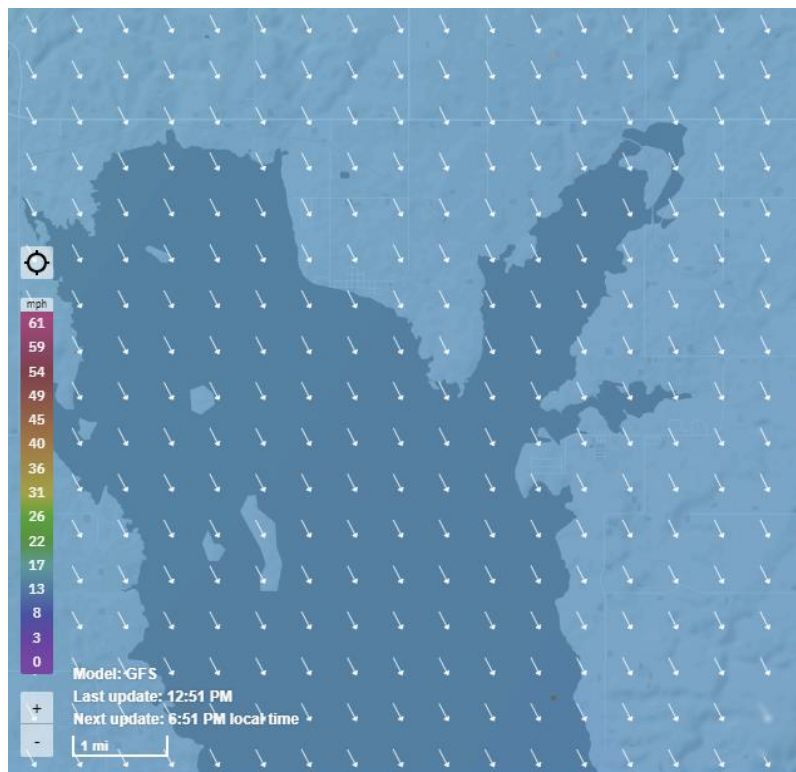


Example Total Wind – Charting provided by Grafana

RAM Air Quality Study (RAQS)

Initial Air Pattern Study

As we all know, wind patterns vastly vary from day to day, even hour to hour. For this reason, RAM technicians will perform an in-depth air pattern study to determine ideal placement for the sensors that are to be utilized during the RAQS. Proper placement of sensors is crucial to getting the most accurate data results during the primary RAQS study. This initial study allows us to determine the historic wind patterns that are typical for your specific location.

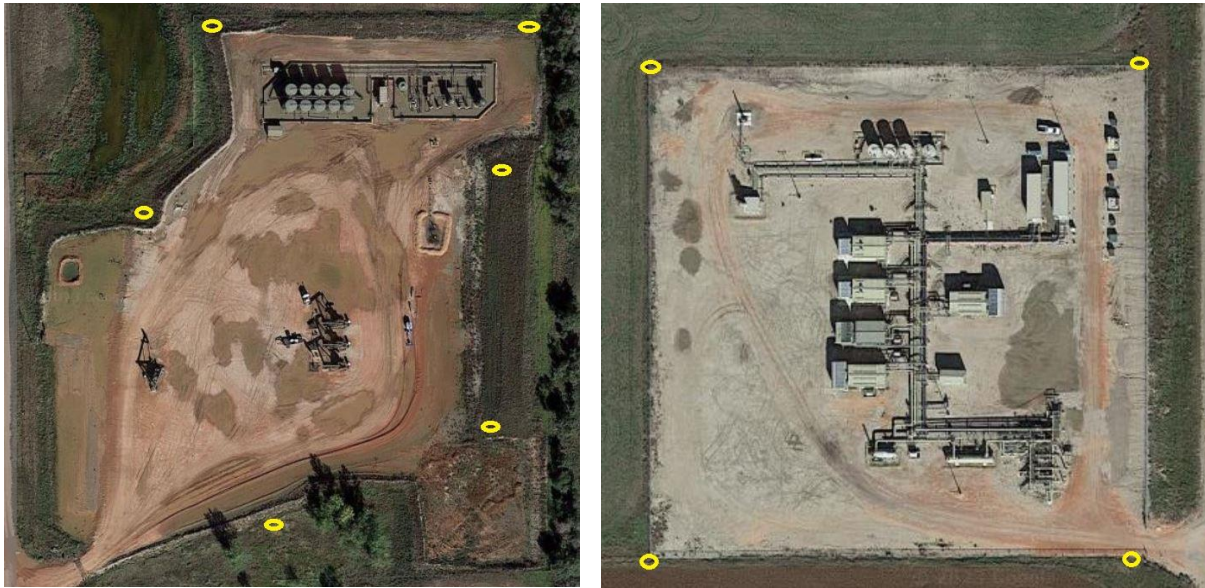


Example one of a series of wind pattern studies to be performed by RAM



Primary RAQS

After determining the wind patterns, RAM will deploy 3-5 sensors onto your location that are equipped with the desired sensors best fit to obtain optimal readings. Once the sensors are in place and powered on, you will *immediately* begin to receive data! RAM will supply you with a personal login to view the progress of the RAQS and allow you to view your data readings in real time. Sensors will be in place for a minimum of 30 days, which we feel is the perfect amount of time to analyze particulate patterns in and around the air at your determined location, as well as generate accurate data readings with varying ambient air temperatures and humidity to quantify data. The quantification of all the varying data retrieved from your location is critical for issuance of a compliance certificate.



RAM solar sensor deployment around location during RAQS

Evaluation

Upon completion of the 30-day study, you will have access to the raw data found throughout the RAQS via your login. RAM will then take that raw data and compile it into a comprehensive report for your records. This report will give insight into particulate spikes and valleys of data readings that occurred throughout the test period. After explaining this data in detail, RAM will then potentially be able to accurately determine the most propagated areas where emissions are most likely to originate from each location.



Summary

So, what will an RAQS performed by RAM do for you? The answer is simple. By allowing RAM to perform a RAQS for you, this will allow you to have peace of mind. Peace of mind knowing that you are actively engaged to improve the air quality for everyone involved in and around your drilling sites is one step closer to improving the quality of life for all. Second, it will allow you to be compliant with governing agencies such as the EPA and BLM by proving to them that you are ahead of the curve and are taking the proper steps to ensure air quality standards are in place for your operations *before* regulations are set forth and mandatory. And lastly, it provides an added layer of safety for all that are involved in active and past drilling operations to ensure that the environment they work in is safe and secure.

RAM is dedicated to improving air quality and reducing carbon emissions on a global scale. It is extremely important to realize that now is the time for us all to reduce our overall footprint on the world we live in. It's time to return the favor and give back to our planet.

