

Status Report on 2007 VOC Monitoring at CAMS 19

Presentation to the
NETAC Technical Advisory Committee

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Outline

- Overview of the technical approach and deployment
- Initial Results
 - Why we thought the system was working
- Season Calibrations
 - Why the ambient data is not useful

Technical Approach

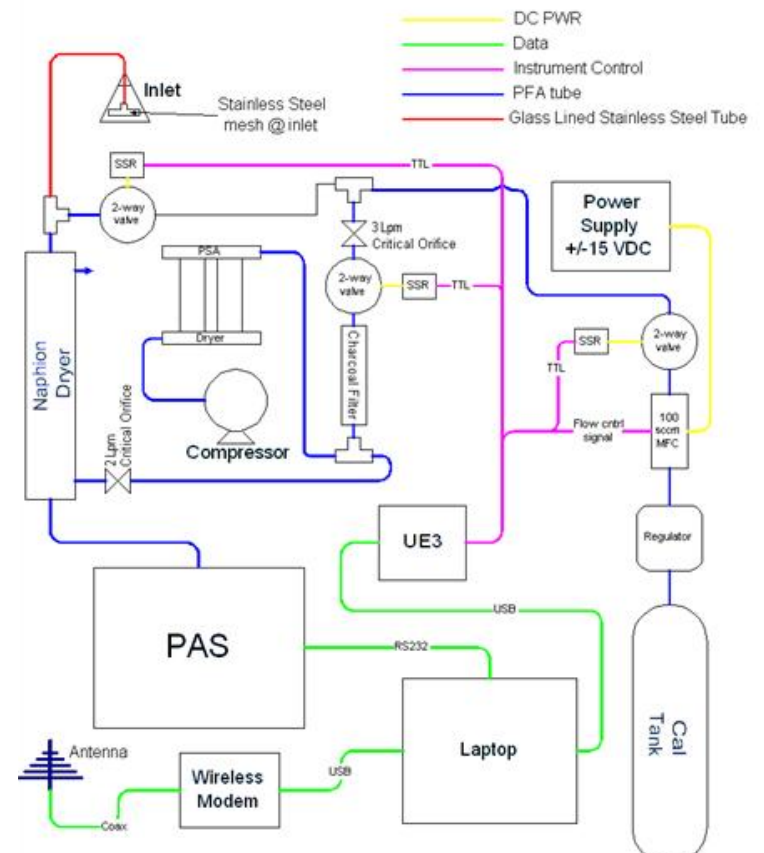
- Use of an IR absorption spectrometer with a photo-acoustic detector (PAS).
 - Application initially developed as part of a miniature, autonomous air quality station and tested in Houston.
- Target species for the CAMS 19 application included:
 - Methane, Propane, Propene, Ethene, and Benzene.

Technical Approach

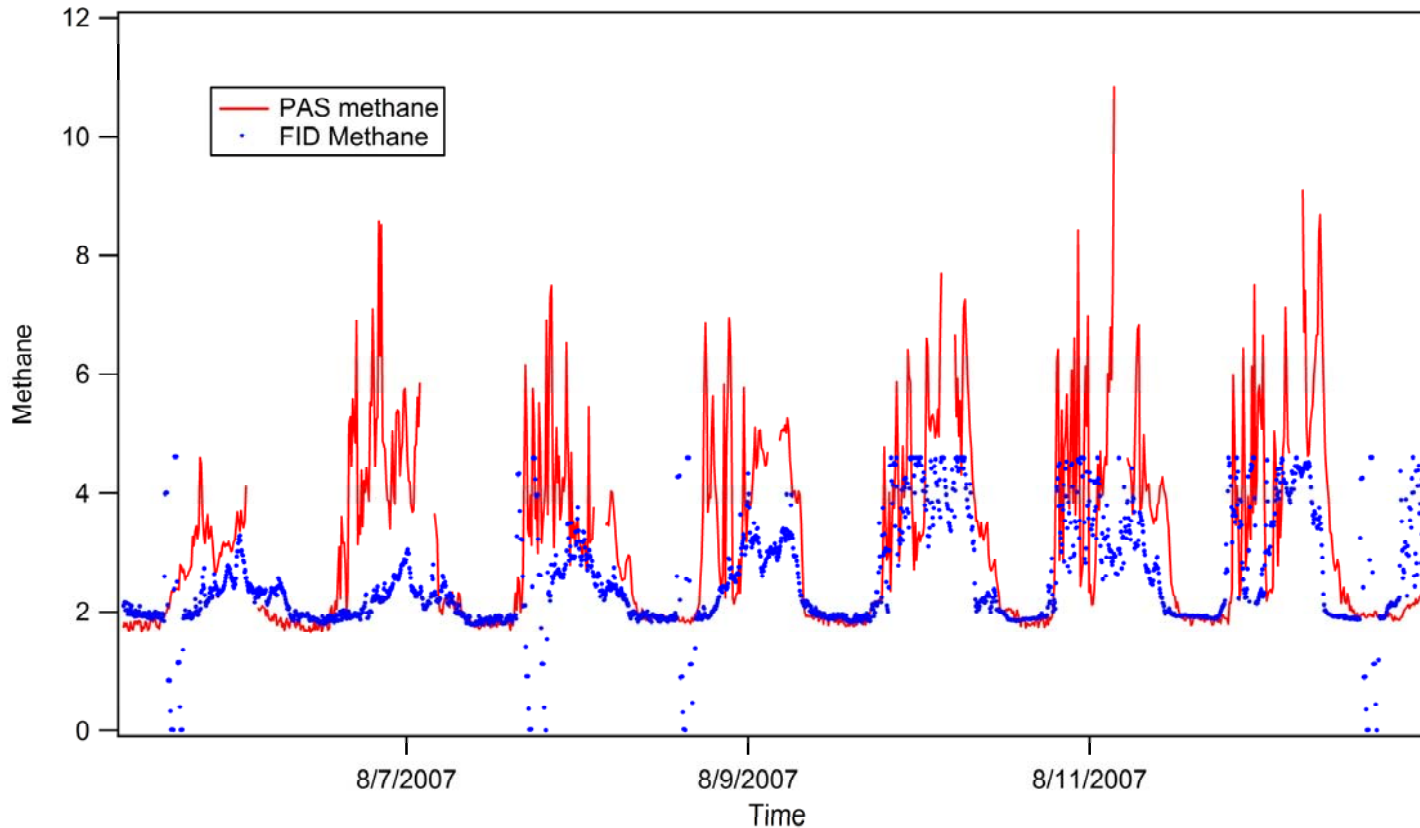
- System set up for autonomous operation with daily 3-point calibrations.
- Comparison with CH4/NMOC instrument



CAMS 19 Setup Diagram

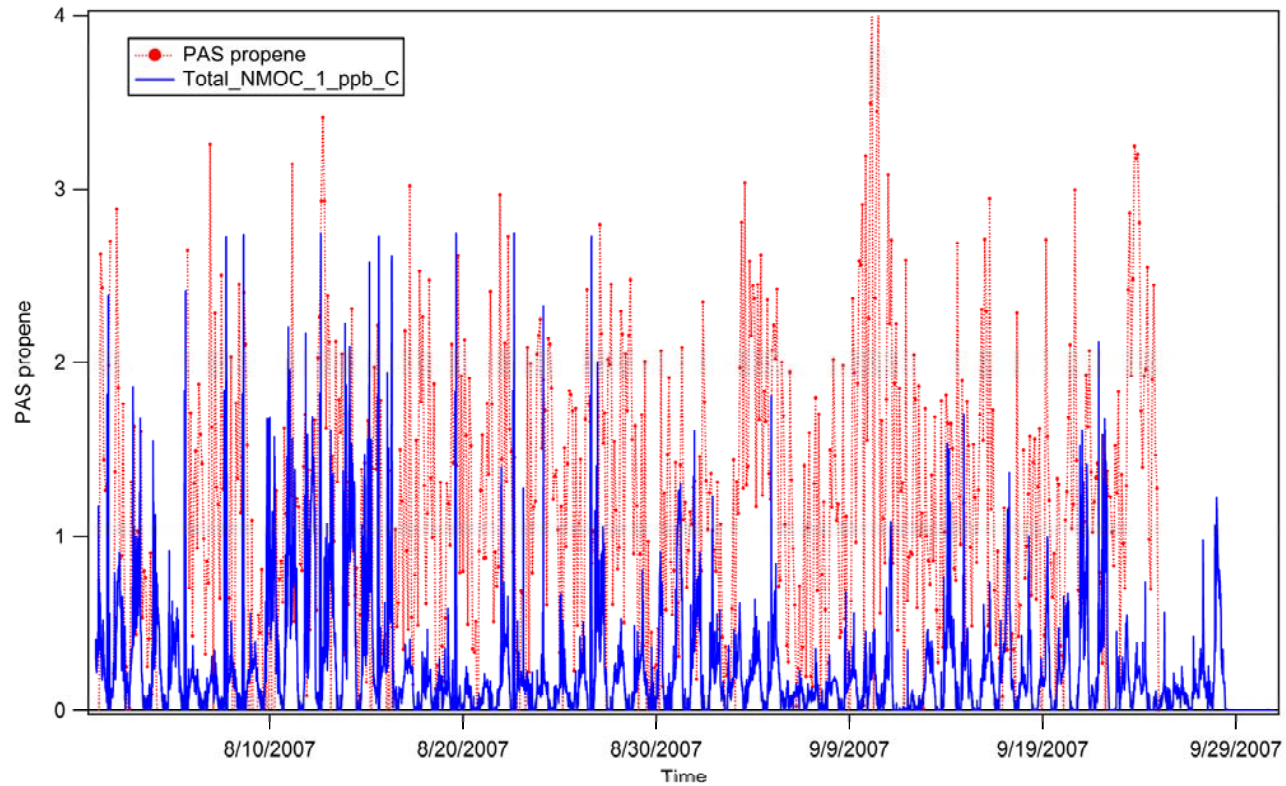


Initial data



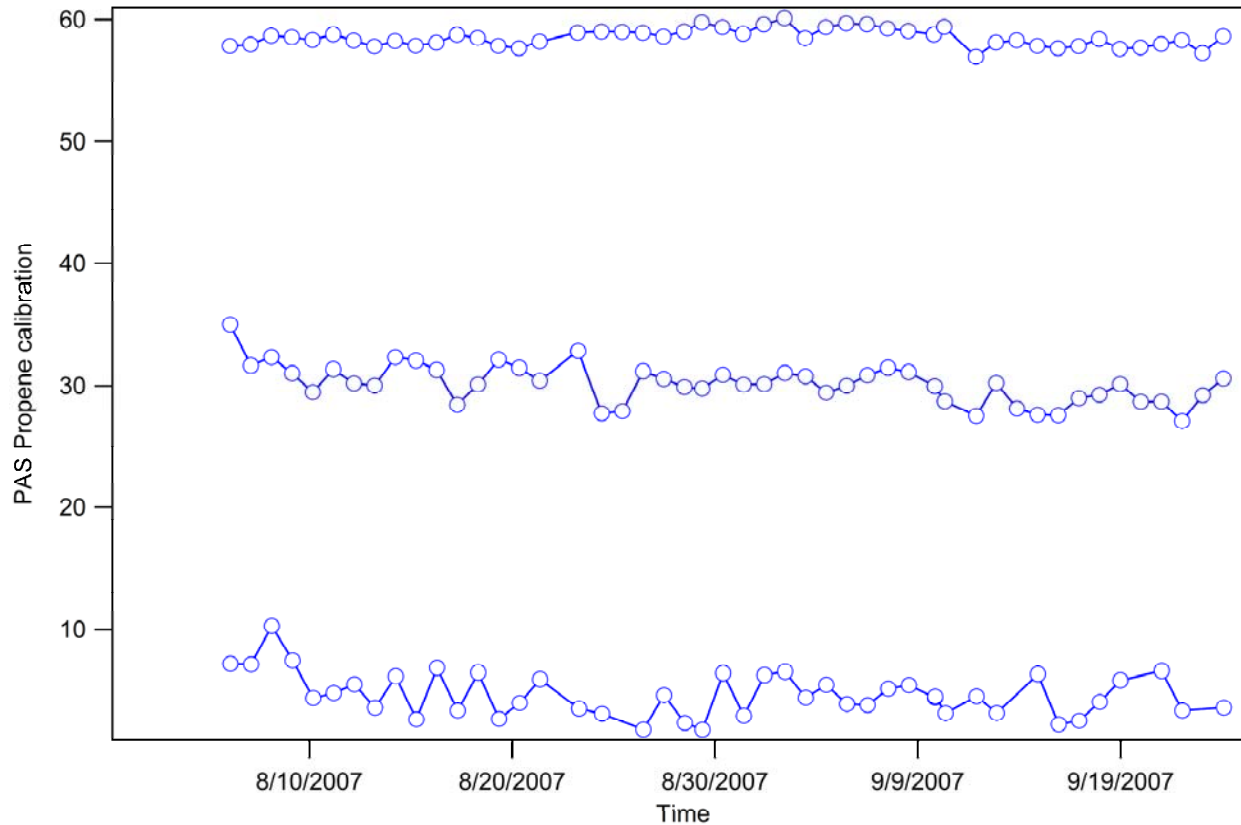
Methane comparison looked reasonable most of the time. The faster time response of the PAS system and no upper limit accounted for the differences observed.

Propene measurements



Our observed propene was at a level 2X greater than the observed total NMOC with little correlation.

Propene calibrations



Calibrations absolute values were good.

Variability in the measured value was progressively larger towards the lower concentration.

Similar results for the other species.

Standard deviation of Calibrations

Species	50 ppm cal	25 ppm cal	5 ppm cal
Methane	0.72	0.44	0.60
Propane	1.13	0.60	0.58
Propene	0.49	0.91	1.10
Ethene	2.93	2.30	1.57
Benzene	0.39	0.75	0.73

Standard deviation of our calibration values was typically much greater than the variability of the observed NMOC.

Summary

- PAS system was deployed at CAMS 19
- Initial results looked promising
- Eventually, the system insensitivity resulted in no useful data for the NMOC species targeted.
- Current work is directed at enhancing the PAS sensitivity through sample pre-concentration.