

## Case Study

# Increasing Air Quality Awareness via Real-Time Monitoring in the Amazon's Largest City

The AQM 60 provides a unique learning opportunity for graduate students to experience air quality monitoring.

**Project**

State University of the Amazonas

**Location**

Manaus, Brazil

**Date**

2012 - 2013

**Services**

1 x AQM 60 outdoor air quality station

**Measurements**

CO<sub>2</sub>, CO, O<sub>3</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOC, PM<sub>2.5</sub>, PM<sub>10</sub>

**Sector**

Research



## The customer

The City of Manaus is located in the heart of the Amazon Rainforest and is the capital of the Brazilian State of Amazonas. Once a remote outpost, today Manaus is home to over two million people and plays host to tourists from all over the world.

Alongside tourism the city is a major industrial centre. Wood and rubber are produced in large quantities, but also soap and refined petroleum. In recent years government incentives have attracted significant electronics manufacturers such as Nokia to set up facilities within the Free Economic Zone.

The State University is home to a highly regarded Department of Metrology staffed by leading researchers in

meteorology and climate science. The Department's objective is to complement the efforts of municipal air quality managers but also to develop the air quality professionals of tomorrow.

## The problem

Researchers at the State University of the Amazonas wonder about the effects of urban development on population health, particularly in the industrial zone. The city is also faced with haze from forest fires during the dry season, which can create sharp spikes in pollution levels.

Whilst the city does have federally regulated air quality monitoring stations, they are few in number and cannot be targeted at specific 'hotspots'. Also, the monitoring stations are not real-time so they do not give a minute to minute picture of air quality patterns.



## The solution

The Department of Meteorology chose the AQM 60 air quality station because it is portable, lightweight and relatively low cost. Portability enables the monitoring of particulate matter and gases at different points in the city of Manaus. The parameters measured include: CO<sub>2</sub>, CO, O<sub>3</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOC, and particulate matter (PM<sub>2.5</sub>, PM<sub>10</sub> and total particulate matter). Such a wide range of measurements would have been unaffordable with traditional analyser instrumentation.

The AQM 60 features an integrated automatic calibrator and ability to access data remotely. Together these features reduce the number of technical visits to site for maintenance and data collection, especially important when air temperatures can reach more than 40°C at certain times of the year.

## Evaluation

The University of the Amazonas is satisfied not only with the instrument, but also with the full support of service and support of technical assistance provided by Aeroqual's Brazilian representatives.

Through co-location of the AQM 60 with federally-certified monitoring stations the researchers are building up a rich database of defensible air quality measurements that will form the basis of future atmospheric modelling efforts. The University plans to buy a second station AQM 60 in the coming months, enabling them to increase the number of measurement locations even further.



Finally, the AQM 60 provides a unique learning opportunity for graduate students to experience air quality monitoring hands-on. This learning is helping to build expertise that can then be called upon to meet the air quality and public health challenges of Manaus' future generations.