

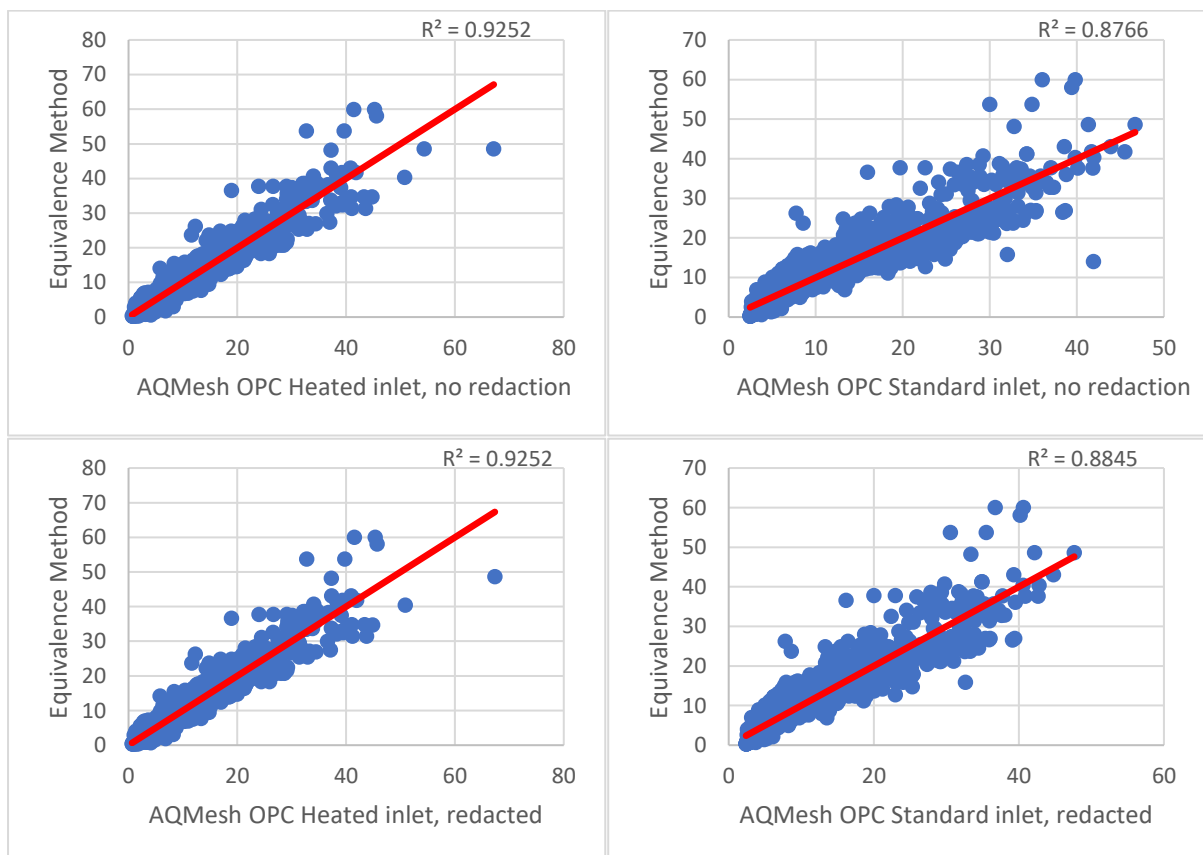
Choosing a heated inlet

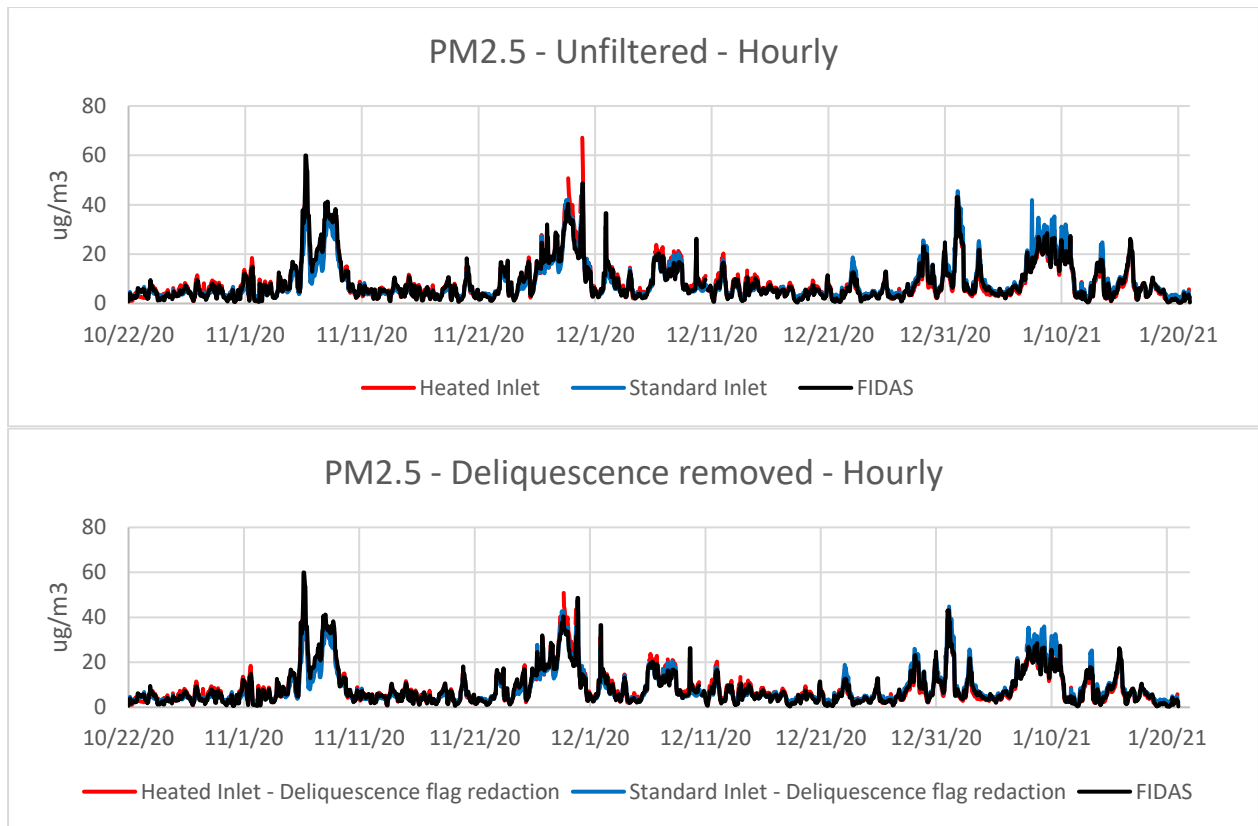
We know that particles can be affected by high relative humidity (known as deliquescence) which can result in erroneous readings. In most cases we can detect when this is happening and flag the data point. Data from that point can then be redacted. For pods in a typical application without a heated inlet, less than 10% of the data points are flagged.

Heated inlet

An optional heated inlet heats the sample and therefore reduces the effect of deliquescence due to high relative humidity, resulting in less than 1% of the data points being flagged. This offers even more consistency when comparing AQMesh to reference/equivalence methods.

Comparative plots (PM2.5)





Performance

| | Typical precision to reference (R ²)* | | Typical accuracy (MAE)** | |
|-------|---|--------------|--------------------------|---------------------|
| | Non-heated inlet | Heated inlet | Non-heated inlet | Heated inlet |
| PM1 | >0.85 | >0.9 | 15 µg/m ³ | 5 µg/m ³ |
| PM2.5 | >0.85 | >0.9 | 20 µg/m ³ | 5 µg/m ³ |
| PM4 | >0.75 | >0.85 | 30 µg/m ³ | 5 µg/m ³ |
| PM10 | >0.75 | >0.85 | 30 µg/m ³ | 5 µg/m ³ |

*Results based on field testing around the world versus certified reference or equivalence methods at hourly intervals, in extreme and varied conditions.

**Mean Absolute Error: Average variance to reference or equivalence methods at hourly intervals, in extreme and varied conditions.

This is an indicative table to illustrate comparative results achieved when using a heated inlet, based on the precision and accuracy stated on the AQMesh technical specification V5.7 dated 25th October 2019. The most up to date version of the technical specification will always be available on the AQMesh website.

Implications of using a heated inlet

The downside of using the optional heated inlet is that it uses up to 4 times as much power as an AQMesh pod with the standard particle inlet. This results in some limitations of using batteries and the smart solar pack. However, please talk to us about this as it could still be suitable in a lot of applications.

