

AIREFUNITS

air quality reference units



RAL Space

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Air Quality challenge:

Lack of reliable AQ measurements in low-resource regions

Low-resource regions

Afflicted with air quality (AQ) issues, both outdoors and indoors.

The measurement and evaluation of AQ in these regions are being undertaken by various parties, using mostly “**low-cost**” sensors.

Unlike in resource-rich regions, **there are hardly any robust public or private [e.g. AURN stations] AQ reference units.**

Therefore, the current and, potentially, future AQ data being collected by different players in these regions using the “low-cost” sensors might not be completely suitable for policy decisions.

Air Quality challenge:

Lack of reliable AQ measurements in low-resource regions

Addressed by:

The development of a highly sensitive, reliable, portable, AQ reference unit for low-resource regions

STFC involvement:

STFC RAL Space Spectroscopy Group's capability for developing cost-effective, highly sensitive, reliable, laser-based gas sensors.

The study builds on an existing (funded) UKRI project to develop an open-path methane sensor.

Achievements:

- Modelling was performed to assess the **application of an existing STFC sensor to field deployments**
- The open-path distance was modelled to **test the sensing range**
- Spectroscopic modelling investigated the **range of species that could be detected by a future sensor**
- Follow-on proof-of concept **funding secured** (see the PRIAM project)
- **Engagement with stakeholders** in low-resource regions; LASEPA in Lagos

The future:

Carry out **field trials in low-resource regions** with LASEPA and a **wider range of stakeholders**.

Engage with collaborators in the UK; field trials, further species sensing capabilities.

Seek further funding to develop the unit.

Broaden the collaboration, feed back measurement requirements to RAL Space to inform future sensor development

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