



## **Airborne FTIR remote sensing of methane from the FAAM aircraft**

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This paper presents the first campaign results for retrievals of methane (and other gases and thermodynamic parameters) from the Airborne Research Interferometer Evaluation System (ARIES) FTIR instrument on the UK Facility for Airborne Atmospheric Measurement (FAAM) BAE-146 aircraft.

The ARIES is a thermal infrared BOMEM FTS tailored for airborne use and has an unapodised spectral resolution of 1 cm<sup>-1</sup>. It was developed as an IASI analogue for radiometric calibration of its satellite counterpart.

We will discuss the technical and theoretical assessment of the ARIES retrieval processor and present retrievals and interpretation of remote sampling over several years of campaign data in the tropics, around the UK, and in the high Arctic, during the Jaivex, GAUGE and MAMM campaigns respectively. Validation studies against airborne in situ data have shown that ARIES can achieve accuracies of ~2% in partial column retrievals of methane, while providing simultaneous information on a wide range of other trace gases typical of FTIR measurement.

The ARIES has now been in operation on the FAAM aircraft for a range of campaigns around the world and represents a useful validation bridge between high precision in situ point measurements (on the ground and by aircraft) and satellite remote sensing.