

[Home](#)[Online Library ACP](#)

- Recent Final Revised Papers
- [Volumes and Issues](#)
- Special Issues
- Library Search
- Title and Author Search

[Online Library ACPD](#)[Alerts & RSS Feeds](#)[General Information](#)[Submission](#)[Review](#)[Production](#)[Subscription](#)[Comment on a Paper](#)

Impact
Factor
4.927

ISI
indexed



- [Volumes and Issues](#)
- [Contents of Issue 18](#)
- [Special Issue](#)

Atmos. Chem. Phys., 9, 6677-6683, 2009

www.atmos-chem-phys.net/9/6677/2009/

© Author(s) 2009. This work is distributed under the Creative Commons Attribution 3.0 License.

Intercomparison of integrated IASI and AATSR calibrated radiances at 11 and 12 μm

S. M. Illingworth, J. J. Remedios, and R. J. Parker

Earth Observation Science, Department of Physics and Astronomy, University of Leicester, University Road, Leicester LE1 7RH, UK

Abstract. The mission objectives of the Infrared Atmospheric Sounding Interferometer (IASI) are driven by the needs of the Numerical Weather Prediction (NWP) and climate monitoring communities. These objectives rely upon the IASI instrument being able to measure top of atmosphere radiances accurately. This paper presents a technique and first results for the validation of the radiometric calibration of radiances for IASI, using a cross-calibration with the Advanced Along Track Scanning Radiometer (AATSR). The AATSR is able to measure Brightness Temperature (BT) to an accuracy of 30 mK, and by applying the AATSR spectral filter functions to the IASI measured radiances we are able to compare AATSR and IASI Brightness Temperatures. By choosing coincident data points that are over the sea and in clear sky conditions, a threshold of homogeneity is derived. It is found that in these homogenous conditions, the IASI BTs agree with those measured by the AATSR to within 0.3 K, with an uncertainty of order 0.1 K. The agreement is particularly good at 11 μm where the difference is less than 0.1 K. These first results indicate that IASI is meeting its target objective of 0.5 K accuracy. It is believed that a refinement of the AATSR spectral filter functions will hopefully permit a tighter error constraint on the quality of the IASI data and hence further assessment of the climate quality of the radiances.

- [Final Revised Paper](#) (PDF, 2866 KB)
- [Discussion Paper](#) (ACPD)

Citation: Illingworth, S. M., Remedios, J. J., and Parker, R. J.:

Intercomparison of integrated IASI and AATSR calibrated radiances at 11 and 12 μm , Atmos. Chem. Phys., 9, 6677-6683, 2009. [Bibtex](#) [EndNote](#) [Reference Manager](#)

[Search ACP](#)[News](#)

- [New Alert Service available](#)
- [Sister Journals AMT & GMD](#)
- [Financial Support for Authors](#)
- [Public Relations & Background Information](#)

[Recent Papers](#)

01 | ACPD, 23 Sep 2009:
Comparison of aromatic hydrocarbon measurements made by PTR-MS, DOAS and GC-FID in Mexico City during the MCMA 2003 field experiment

02 | ACPD, 23 Sep 2009:
Acetaldehyde in the Alaskan subarctic snow pack

03 | ACPD, 22 Sep 2009:
Estimates of biomass burning emissions in tropical Asia based on satellite-derived data