

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
4.865

ISI
indexed



Volumes and Issues Contents of Issue 6 Special Issue

Atmos. Chem. Phys., 9, 2241-2255, 2009

www.atmos-chem-phys.net/9/2241/2009/

© Author(s) 2009. This work is distributed

under the Creative Commons Attribution 3.0 License.

All weather IASI single field-of-view retrievals: case study – validation with JAIVEx data

D. K. Zhou¹, W. L. Smith^{2,3}, A. M. Larar¹, X. Liu¹, J. P. Taylor⁴, P. Schlüssel⁵, L. L. Strow⁶, and S. A. Mango⁷

¹NASA Langley Research Center, Hampton, VA, USA

²Hampton University, Hampton, VA, USA

³University of Wisconsin-Madison, Madison, WI, USA

⁴Met Office, Exeter, Devon, UK

⁵EUMETSAT, Darmstadt, Germany

⁶University of Maryland Baltimore County, Baltimore, MD, USA

⁷NPOESS Integrated Program Office, Silver Spring, MD, USA

Abstract. Atmospheric thermodynamic parameters, such as atmospheric temperature and moisture profiles, cloud optical/microphysical properties, and surface properties are basic meteorological variables for weather forecasting. In addition, they are critical parameters in tropospheric chemistry studies. A physical, geophysical parameter retrieval scheme dealing with cloudy and cloud-free radiances observed with satellite ultraspectral infrared sounders has been developed to determine simultaneously surface, atmospheric thermodynamic, and cloud microphysical parameters. A one-dimensional variational (1-D Var.) multivariable inverse solution of the radiative transfer equation is used to iteratively improve a background state defined by eigenvector regression. This algorithm has been applied to data from the Infrared Atmospheric Sounding Interferometer (IASI) on the EUMETSAT Metop-A satellite. The IASI retrieved parameters presented herein are from radiance data gathered during the Joint Airborne IASI Validation Experiment (JAIVEx). JAIVEx provided intensive aircraft observations obtained from airborne Fourier Transform Spectrometer (FTS) systems, such as the NPOESS Airborne Sounder Testbed – Interferometer (NAST-I), in-situ measurements, and dedicated dropsonde and radiosonde measurements for the validation of the IASI products. Here, IASI atmospheric profile retrievals are compared with those obtained from dedicated dropsondes, radiosondes, and the airborne FTS system. The IASI examples presented here demonstrate the ability to retrieve fine-scale horizontal features with high vertical resolution from satellite ultraspectral sounder radiance spectra.

Final Revised Paper (PDF, 15783 KB) Discussion Paper (ACPD)

Citation: Zhou, D. K., Smith, W. L., Larar, A. M., Liu, X., Taylor, J. P., Schlüssel, P., Strow, L. L., and Mango, S. A.: All weather IASI single field-of-view retrievals: case study – validation with JAIVEx data, Atmos. Chem. Phys., 9, 2241-2255, 2009. Bibtex EndNote Reference Manager

Search ACP

Library Search

Author Search

News

- Sister Journals AMT & GMD
- Financial Support for Authors
- Journal Impact Factor
- Public Relations & Background Information

Recent Papers

01 | ACPD, 31 Mar 2009:
One year of CNR-IMAA multi-wavelength Raman lidar measurements in correspondence of CALIPSO overpass: Level 1 products comparison

02 | ACPD, 31 Mar 2009:
The impact of resolution on ship plume simulations with NO_x chemistry

03 | ACPD, 31 Mar 2009:
Ozone in the Boundary Layer air over the Arctic Ocean – measurements during the TARA expedition

