

The IASI/AERIS portal: dissemination of atmospheric data in open access

Anne Boynard ^(1,2), C. Boone ⁽³⁾, J. Hadji-Lazaro ⁽¹⁾, C. Clerbaux ^(1,4), M. George ⁽¹⁾,
L. Clarisse ⁽⁴⁾, M. Van Damme ⁽⁴⁾, S. Whitburn ^(4,5), D. Hurtmans ⁽⁴⁾, P.-F. Coheur ⁽⁴⁾, V. Capelle ⁽⁶⁾,
C. Crevoisier ⁽⁶⁾, J. Cuesta ⁽⁷⁾, C. Stubenrauch ⁽⁶⁾, and S. Labetoulle ⁽³⁾

⁽¹⁾ *LATMOS/IPSL, Sorbonne Université, UVSQ, CNRS, Paris, France*

EMail: Anne.Boynard@latmos.ipsl.fr

⁽²⁾ *SPASCIA, Ramonville-Saint-Agne, France*

⁽³⁾ *Sorbonne Université, UPMC Univ. Paris 06; CNRS/INSU, IPSL, Paris, France*

⁽⁴⁾ *Université libre de Bruxelles (ULB), Spectroscopy, Quantum Chemistry and Atmospheric Remote Sensing (SQUARES), Brussels, Belgium*

⁽⁵⁾ *Royal Meteorological Institute of Belgium (RMIB), Atmospheric Composition, Measurements and Modelling (ACM2), Brussels, Belgium*

⁽⁶⁾ *Laboratoire de Météorologie Dynamique, UMR8539, CNRS/IPSL, Ecole polytechnique, Université Paris-Saclay, Palaiseau, France*

⁽⁷⁾ *Laboratoire Inter-universitaire des Systèmes Atmosphériques (LISA/CNRS), Universités Paris-Est Créteil, Créteil, France*

ABSTRACT

Since October 2007, the IASI remote sensor flying onboard the Metop-A (stopped in October 2021), -B and -C satellites has been providing twice daily observations of the atmospheric composition, including concentrations of greenhouse and trace gases as well as aerosol, cloud properties and sea surface temperature (SST). Global distributions of several species are retrieved at ULB/LATMOS, LMD and LISA from IASI radiance spectra using dedicated radiative transfer models and retrieval schemes. The CO, O₃, HNO₃ and SO₂ retrieval software from ULB/LATMOS are now implemented in the EUMETSAT operational processing facility under the auspices of the Atmospheric Composition Satellite Application Facility (AC SAF). The NH₃ and DUST retrieval software from ULB/LATMOS are not yet implemented in the EUMETSAT operational processing facility. Those data are directly provided to EUMETSAT. The CH₄ retrieval procedure from LMD is now implemented in official EUMETSAT level 2 processing chain as well as the SST at 3.8 microns. The Clouds from InfraRed Sounders (CIRS) retrieval, developed at LMD, is being operated on IASI and AIRS (Atmospheric IR Sounder) observations, using the same ancillary data (ERA-Interim). The synergy between IASI and AIRS then allows to study the diurnal cycle of high-level clouds, and a database of diurnal amplitude and phase is available. Recently, the CIRS retrieval has been adapted to ERA5 ancillary data, so that the cloud products are now available beyond 2019. The multispectral retrieval of O₃ developed by LISA is based on the synergism of co-located IASI and GOME-2 radiance spectra measured respectively in the infrared and ultraviolet domains. It provides particularly enhanced sensitivity to lowermost tropospheric ozone and it is implemented daily at global scale by the AERIS processing facility.

In this presentation, we review the different IASI products made available to the scientific community. We also present the IASI/AERIS portal, which provides scientists with free and open access to global scale distributions of CO, O₃, SO₂, NH₃, HCOOH, δD, CH₄, CO₂ column, profile and/or mixing ratio, and DUST AOD altitude, cloud properties along with SST for further scientific analysis. The IASI/AERIS portal also provides other useful information such as quick looks, scientific highlights, image galleries, data policy, statistics, which are also described.

In the future, the IASI/AERIS portal will also host level 2 products from the IASI-NG mission, which aims to ensure the continuity of IASI.