The GEISA spectroscopic database 2015 edition in the frame of IASI remote sensing applications and IASI-NG phase B studies

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With the advent of instruments highly resolved spectrally since the beginning of the 2000's, minimization of the error due to the spectroscopy is more and more essential.

GEISA a computer-accessible Spectroscopic Database with associated management software, designed for the interpretation of various atmospheric remote sensing observations and especially efficient for high spectral resolved Radiative Transfer simulations.


This new release of GEISA and associated management software facilities will be implemented on AERIS and distributed by the French atmospheric observatory for high spectral remote sensing observations.

**GEISA 2015 UPDATED CONTENT**

**VALIDATION of GEISA**

The main difficulty in interpreting differences between radiative transfer simulations and observations lies in the wide range of parameters involved in the differences of the radiative transfer simulations. For example, errors coming from the incorrect knowledge of the atmospheric data and those due to the modeling itself. Based on the calibration/validation procedure developed for thermal infrared observations at Laboratoire de Météorologie Dynamique (LMD), our analysis chain — SPARTE (Spectroscopic Parameter and Radiative Transfer Evaluation) — aims at eliminating the atmospheric effects. SPARTE consists of a detailed statistical analysis of the differences (bias and standard deviation) between the simulated observations and the experimental observations (the so-called • residuals •) for a large number of situations.

The SPARTE chain at LMD

**AERIALS SUB-DATABASE**

**REFERENCES**

The IASI instrument

New update of GEISA-2015

**CURRENT GEISA SYSTEM**

([http://ara.abc1.lmd.polytechnique.fr](http://ara.abc1.lmd.polytechnique.fr))

The IASI instrument developed by CNR with CNES in collaboration with ATMOSPHERE, CNES, and the 2015 edition of GEISA as input.


In situ measurements of atmospheric gases have a major impact on the retrieval accuracy of IASI/TCCON.


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