



VACANCY

BIRA-IASB is looking for a: **Post-doctoral researcher (M/F)**

Statute: Contractual (full-time) • Start date: May 1, 2018
Deadline for applications: March 11, 2018

Job title

Postdoc satellite methane retrieval

Scientist to work on the retrieval of methane (CH₄) from infrared satellite measurements.

Division, context

The division **Sources and sinks of atmospheric constituents** studies the Earth's atmosphere using a series of different instruments (space-borne, airborne or ground-based), possibly combined with model simulations. The division also comprises a team running laboratory experiments and in situ measurements to characterise biogenic volatile organic gases emissions.

The teams in that division take part in national and international projects, funded notably by the Belgian Science Policy, the European Commission (EC), the European Space Agency (ESA), the European Centre for Medium-Range Weather Forecasts (ECMWF) and EUMETSAT (European Meteorological Satellites). For some of these projects, the BIRA-IASB research teams have a coordinating role.

In the team **Infrared observations and laboratory experiments** (<http://infrared.aeronomie.be>), the emphasis is placed on gas and aerosols remote sensing in the Earth's atmosphere, using ground-based and space-borne high-resolution Fourier Transform Infrared Spectroscopy. The work will consist in supporting the activities of the team related to the retrieval of CH₄ profiles from satellite measurements.

Responsibilities

The post-doc researcher will work on the improvement of an algorithm that

More about BIRA-IASB

The Royal Belgian Institute for Space Aeronomy (BIRA-IASB) is a Belgian federal scientific research institute.

Created in 1964, its main tasks are research and public service in space aeronomy, which is the physics and chemistry of the atmosphere of the Earth and other planets, and of outer space. Its scientists rely on ground-based, balloon-, air- or space-borne instruments and computer models.

www.aeronomie.be

retrieves a 3-dimensional CH₄ product from radiance measurements by the Japanese infrared sounder GOSAT/TANSO-FTS ([http:// www.gosat.nies.go.jp](http://www.gosat.nies.go.jp)).

TANSO-FTS, the Thermal and Near-infrared Sensor for Carbon Observation - Fourier Transform Spectrometer, has 3 narrow bands in the **shortwave infrared** (SWIR) region and a wide **thermal infrared** (TIR) band. By combining the SWIR and TIR bands in a synergetic way, we can improve the boundary layer sensitivity of the CH₄ retrievals compared to TIR-only retrievals. Preliminary results of this synergetic retrieval look promising.

The post-doc researcher will be in charge of the further scientific and technical improvement of the retrievals of CH₄ from TANSO-FTS SWIR and TIR spectra (individually and used in synergy). Further, he/she will work on the validation of the retrieved product with ground-based and airborne data. He/she will build on the knowledge and expertise available in the team, based on the development of the algorithm for the retrieval of CH₄ concentrations from the METOP/IASI satellite sounder (<http://iasi.aeronomie.be>) in the TIR region and on the preliminary work done on GOSAT/TANSO-FTS retrievals.

Required competences:

- Doctoral degree in physics, mathematics, or related sciences.
- Previous experience with radiative transfer and/or inversion theory.
- Good knowledge of a UNIX environment.
- Good knowledge of scientific programming languages (Python, Fortran, C/C++).
- Knowledge of English (written and spoken).
- High level of autonomy, as well as active participation in a small team.
- Good communication skills (presenting results to the team and to the scientific community);
- Ability to write reports, documentation and technical papers.
- Interest for the scientific activities of the team and of the institute.

Offer and benefits

- One year full-time contract.
- Salary according to the federal regulations for the scientific career in the SW11 barema. All relevant work experience (public + private sector) will be considered when determining seniority.
- Dynamic working environment.
- Refund of commuting expenses when using public transportation or bicycle.
- Flexible schedule and possibility of teleworking.
- Access to special advantages arranged for the employees of the federal scientific institutions (e.g., collective hospital insurance and possibility to follow trainings).



Interested?

Applicants should send a complete CV and letter of motivation by email to:

evelyn.dewachter@aeronomie.be and in cc to: hr-ae@aeronomie.be

with reference: "D21-CH4-IR"