



# VACANCY

BIRA-IASB is looking for a

## PhD researcher in Limb Sounding (M/F/X)

**Deadline for applications: 15 September 2023**  
**Start date: November 2023**

### Division and context

The Royal Belgian Institute for Space Aeronomy (BIRA-IASB) is looking for a highly motivated student to work as a PhD researcher at BIRA-IASB in collaboration with UCLouvain.

In this context, **we offer a scholarship contract for pursuing a PhD.** The successful candidate will join the Limb Sounding group within the Department of Solar Radiation in Atmospheres to take part in the development of the ALTIUS mission, ESA's upcoming ozone monitoring satellite mission, and one of Belgium's flagship space projects (<https://altius.aeronomie.be/index.php>, [https://www.esa.int/Applications/Observing\\_the\\_Earth/Altius](https://www.esa.int/Applications/Observing_the_Earth/Altius)).

The activities performed in this group are of a varied scientific nature, e.g. developing numerical algorithms for the retrieval of geophysical information from raw satellite data, assessing the future performance of space instruments, and conceiving new instrumental concepts.

A large part of the group is involved in the development of the payload data ground segment of ALTIUS, and the position is meant for reinforcing the team as the launch is approaching (2026).

For technical information about this vacancy, please contact Dr. Emmanuel Dekemper ([emmanuel.dekemper@aeronomie.be](mailto:emmanuel.dekemper@aeronomie.be)).

### Responsibilities

- To develop an in-depth understanding of the measurement principles of ALTIUS (limb-scattering, stellar/solar/lunar occultations) by using and improving radiative transfer models;
- To develop the processing pipeline of ALTIUS data for the retrieval of minor stratospheric constituents (e.g. NO<sub>2</sub>, NO<sub>3</sub>);
- To test algorithms on existing satellite data records;
- To verify the quality of the retrieved geophysical product with end-to-end simulations of the mission;
- To report progress at meetings with the partners of the project (e.g. ESA, Spacebel, OIP, Redwire);
- To publish results in scientific journals, and present them at international scientific conferences;
- To contribute to the writing of new project proposals.

### More about BIRA-IASB

The Royal Belgian Institute for Space Aeronomy (BIRA-IASB) is a Belgian Federal Scientific Institute. Since its founding in 1964, BIRA-IASB has been conducting research and providing public services in space aeronomy, i.e. the physics and chemistry of Earth's atmosphere and other planets, and outer space.

Our scientists use ground-based, balloon-, air- or space-borne instruments and computer models.

[www.aeronomie.be](http://www.aeronomie.be)

## Required competences

A successful candidate:

- Possesses a master's degree in physics, or other scientific disciplines if relevant courses have been followed during the degree program (\*);
- Has concrete experience with applied numerical methods;
- Accepts to enter a doctoral program under the supervision of a PhD supervisor at UCLouvain;
- Is able to produce technical documentation in English.

(\*): In the situation where the Master or PhD degree was awarded by a body outside the Benelux, the candidate will have to apply for an equivalence of the level of studies preceding the PhD in order to prove that this level corresponds to a generic Belgian Master degree. This should only be done after the candidate has been selected for the job and before he/she takes up the job. To obtain the equivalence, you can choose to apply for it at the French or Dutch speaking community of Belgium. You can find more information on this at <https://www.naricvlaanderen.be/nl/erkenningen> or <https://equisup.cfwb.be/>.

## Technical skills

The following elements are not mandatory, but are considered as assets:

- Knowledge of the advanced features of MATLAB;
- Knowledge of Python;
- Experience with radiative transfer models in the atmosphere;
- Experience in inverse problem solving;
- Experience with version control systems, including branching.

## General skills

- Fluent in written and spoken English;
- Knowledge of French and/or Dutch is a plus;
- Team-oriented;
- Capacity to interact with partners in a multi-lingual environment.

## We offer

- This position is a full-time job on a contractual base of 1 year with possibility to continue 3 additional years for a PhD following a positive evaluation. Salary is according to the federal regulations for a doctoral scholarship.
- Dynamic working environment with international contacts (space agencies, industry, air quality community).
- Refund of commuting expenses when using public transportation or a bicycle.
- Attractive annual leave policy (minimum 26 days per year) and options to balance professional and personal life (flexible schedule and possibility to work from home).
- Access to special advantages arranged for the employees of the federal scientific institutions (e.g. collective hospital insurance and possibility to take part in training courses).
- Pleasant working atmosphere located in a green setting in Uccle, Brussels.



## Interested?

Send your CV and motivation letter to:

[altius-mgmt@aeronomie.be](mailto:altius-mgmt@aeronomie.be) with [hr-ae@aeronomie.be](mailto:hr-ae@aeronomie.be) in copy

**with the following reference: "D41\_PhD researcher".**