



BIRA-IASB recruits **Research Scientist (h/f/x)**

(Non-permanent mission - SW00062)

This is a translation about the vacancy available in French and Dutch on our websites <https://www.aeronomie.be/fr/vacancy> and <https://www.aeronomie.be/nl/vacancy> resp.

Hereinafter, the masculine form is used to refer to all persons regardless of gender.

Context

The Royal Belgian Institute for Space Aeronomy (BIRA-IASB) is strongly involved in the preparation of the upcoming satellite "ozone mission" implemented by the European Space Agency (ESA) as part of the Earth Watch programme: ALTIUS (Atmospheric Limb Tracker for the Investigation of the Upcoming Stratosphere). The development of the mission is in an advanced state, with the space and ground segments both in phase D. The launch is currently set by ESA for 2028, pending termination of the payload integration and completion of the on-ground calibration campaign.

ALTIUS is an atmospheric remote sensing instrument which belongs to the "limb sounders" category: its observation modes are designed to maximize the vertical resolution of the stratospheric trace gases concentration profiles it can measure. A large part of its observations will be based on the so-called "limb-scattering technique" where the solar light scattered by the atmosphere is observed by the instrument. Other observation modes are relying on the occultation of stars and planets by the atmosphere. The retrieval of the stratospheric composition exploits the spectroscopic signatures left by the trace gases along the light path.

The "limb sounding" group (D41) of BIRA-IASB has a major involvement in the ALTIUS mission preparation, and will maintain its key role during the operational phase: the team is developing the scientific algorithms which will retrieve the geophysical information from the radiometric measurements. The production of high-quality concentration profiles of species like O₃, NO₂, NO₃, H₂O, OCIO, BrO, or aerosols is the primary objective. Analysing the data, inferring trends, correlating them with other parameters of the changing atmosphere, feeding global atmospheric models, and validating against other sensors will be the main tasks of the team during the operational phase, and beyond.

Objectives of the function – responsibilities of the researcher.

The position demands a deep understanding of all the aspects concerned with satellite observation of stratospheric composition. First, the position implies to develop a deep understanding of the interaction of light and the Earth atmosphere, and the radiative transfer models (RTMs) that simulate these physical processes. The researcher will have to expand the capabilities of the RTMs currently used in D41 (SMART-G for the limb-scatter observations, and a custom-made model for the occultations) in order to increase the realism of these models, their numerical accuracy, and their computational efficiency. As an example, one expected domain of contribution is the simulation of clouds in every observation mode of ALTIUS, but the researcher will have to tackle other aspects based on the needs of the retrieval chains.

More about BIRA-IASB

The Royal Belgian Institute for Space Aeronomy (BIRA-IASB) is a Belgian Federal Scientific Institution. Since its foundation in 1964, BIRA carries out research and provides public services in the field of space aeronomy, i.e. the physics and chemistry of the Earth's atmosphere and of other planets, and of interplanetary space.

Our scientists use instruments on the ground, in the air (e.g., onboard aircraft) or in space, and numerical models.

www.aeronomie.be

Ringlaan 3 – 1180 Ukkel
(Brussel)

Second, since ALTIUS is in its development phase, a model of the platform and the instrument is used to simulate the raw data. The selected researcher will have to not only understand this model, but also use it to test the sensitivity of the L2 products to instrumental imperfections, or insufficient knowledge of key parameters. The researcher is expected to make critical reviews of this important tool, flag problems, and report to the consortium about identified shortcomings.

Third, the processing of the raw data (currently simulated data) in order to retrieve the geophysical information is the key step which enables new scientific developments. The selected scientist will lead the development of a number of retrieval chains (data processors), support their implementation in the payload data ground segment (PDGS) of the ALTIUS mission, monitor their performance and propose improvements. Among the various observational capabilities of ALTIUS, the scientist is expected to contribute to the O₃, NO₂, and temperature retrieval chains in limb scattering geometry, and to the O₃, NO₂, NO₃, polar stratospheric and mesospheric clouds, and aerosol retrieval chains in solar, lunar, stellar and planetary occultation chains, as well as developing the quality control modules for each of these chains.

In order to consolidate the retrieval chains of the above trace gases, the selected candidate will also look into past and current limb sounder datasets, and develop a framework in which their data can serve as test data for ALTIUS. Differences with the other missions will have to be traced down to limitations or problems in the RTMs, the instrument model, or the retrieval algorithms, triggering improvement cycles supervised by the scientist. It is expected that the results of this work will be described in one or more peer-reviewed publications first-authored by the hired scientist.

Diploma requirements

The selected candidate will hold a PhD in science, with a focus on physics, physical engineering, or numerical science.

Mandatory administrative requirement:

Would you like to apply but your Master diploma is not in French or Dutch?

We invite you to contact the HR department: hr-select@aeronomie.be to find out whether you need to take a language test article 7 - level 1/A. The selection commission is responsible for the verification of the diploma.

If it appears that a language test must be taken, you can register by clicking on the following link

<https://werkenvoor.be/nl/testen-en-certificaten/taal/inschrijven> or
<https://www.travaillerpour.be/fr/tests-et-certificats/linguistique/inscription>.

In such case, passing the language certificate is a prerequisite for selection.

Therefore it is recommended to register for the language test as soon as possible.

Generic Skills

The candidate must be able to demonstrate the following skills:

- **Information management:** understanding, processing, analyzing and integrating information.
- **Task management:** executing tasks, structuring work, solving problems and making decisions.
- **Interpersonal relationships:** communicating, actively listening, working in a team- and service-oriented way, and advising.
- **Personal functioning:** adapting, being reliable, committing, managing stress, self-developing and achieving goals.
- **International collaboration:** ability to work effectively within international research teams and projects, in multicultural environments, demonstrating strong communication skills and effective scientific collaboration.

Technical Skills

Profile and required experience

The candidate has at least four years of relevant research experience in the field of atmospheric sciences, atmospheric remote sensing, or related fields (physics, physical engineering, numerical sciences), acquired during the PhD and/or afterwards.

The candidate must be able to demonstrate the following skills:

- **Algorithm development:** developing scientific algorithms in Matlab and Python to simulate physical processes, and to solve inverse problems.
- **Data evaluation:** dealing with large satellite datasets and their various scientific formats, applying statistical inference techniques to compare datasets.
- **Scientific communication:** writing technical reports (e.g., documenting software and operating procedures), publishing peer-reviewed articles, and delivering oral presentations at international conferences.

Assets

- Experience with radiative transfer models, in particular SMART-G and SASKTRAN.
- Previous work with GOMOS/ENVISAT L1 transmittances, and OMPS-LP/JPSS-2 L1 radiances.
- Experience in developing retrieval algorithms for limb sounders.
- Prior work in atmospheric remote sensing, space research, or instrument development.
- Prior contact/experience working with key partners, such as ESA, or the Belgian space industry.
- Experience with spectral and radiometric numerical models of hyperspectral imaging instruments.
- Proficiency in one of the two national languages (French or Dutch).

We offer

Type of contract and salary scale:

The candidate will be hired on a permanent contract in Activity Group I "Scientific Research and Experimental Development," with the corresponding salary scale SW2.

All relevant professional experience (public and private sector) will be taken into account in determining seniority.

The selected candidate will be remunerated according to salary scale SW2. At the current index, and excluding regulatory allowances, the minimum gross remuneration with 4 years of seniority €67,658.92 per year (€5,638.24 per month).

Additional advantages

- Opportunity to obtain a bilingual bonus (French/Dutch) or training (possibly taken during working hours).
- Pleasant and dynamic working atmosphere in a scientific environment located in green surroundings.
- Opportunity to establish international contacts.
- Free travel to and from work by public transport and/or the possibility of a bicycle allowance.
- Attractive holiday scheme (minimum 26 days per year) and various possibilities to combine private and work life.
- Flexible working hours of 38 hours per week and/or the possibility of teleworking.
- Access to various socio-cultural benefits: museum card, hospital insurance, discounts via the Fed+ card, etc.
- Meal vouchers
- Childcare available during the long school holidays (July - August).
- Dynamic work environment with a strong international focus

Selection Procedure

Notification

You will receive a notification containing the result of your application, after each stage of the selection procedure. If you are unsuccessful at a particular stage, the procedure will be ended and you will not be invited to any subsequent stages of the same selection.

At the end of the selection process, a group of successful candidates, who are not ranked among them, will be formed. This group consists of the candidates who have been found most suitable for the vacant position according to the conditions of participation. The list of successful candidates remains valid during 1 months.

For further information, please read the Annex to the job offer.

Recruitment requirements

If you have passed this selection, you can be recruited only if you meet all the following conditions on the appointment date:

- enjoy civil and political rights,
- comply with the conscription laws
- have a conduct consistent with the requirements of the intended job
- be holder of the required diploma(s)
- meet the special skills and requirements set out in the job profile

Contact

For more information on this position, please contact:

Emmanuel Dekemper – Head of the limb sounding unit (D41)

Email : emmanuel.dekemper@aeronomie.be

Tel : 02 373 03 85

Interested ?

Would you like to apply? Please send your application by e-mail to emmanuel.dekemper@aeronomie.be with a copy to: hr-select@aeronomie.be, quoting reference: 'D41_SW2'.

Deadline for submission of applications: **13 March 2026**

Your application file should include the following:

- your CV (You may find a model below if needed)
- a motivation letter
- a copy of the required diploma(s) with all attachments. If one or more of these diplomas are not in French, Dutch, German or English, a translation in French or Dutch of the diploma(s) in question must also be attached.
- any other document proving your relevant experience

Annex to the job offer

Additional information

Selection procedure

Stage 1: Checking the conditions for participation

You will be admitted to the selection procedure if you meet all the conditions for participation. The selection committee will check this on the basis of the application files you have submitted. The committee will decide whether the qualifications, merits and experience you present correspond to the requirements of the function for which you apply. If so, you will be invited to the next stage.

Depending on the number of applications received, the selection committee reserves the right to limit the number of candidates going on to the next stage by determining those it considers most suitable for the function.

Stage 2: Audition

The audition will be held at the Royal Belgian Institute for Space Aeronomy. If the audition cannot be held on site, auditions can be held online (via Teams). For practical details, you will receive an email from one of our staffmembers.

The selection committee will assess to what extent the qualifications, merits and experience you present in your application match the requirements of the job.

Equal opportunities and reasonable accommodation

The federal administration has an active diversity policy.

If you are a person with a disability, a learning disability or an illness? you can inform us when you apply so that we can prepare reasonable accommodation for you when you arrive for the audition.

In case of absence

If you don't show up for the audition, you are automatically excluded from the rest of the selection procedure unless you can demonstrate, within three days, that your absence was justified by one of the following reasons:

- illness
- emergency concerning a member of the household (= any person living with the candidate) or family (= the candidate's spouse or the person with whom the candidate is legally cohabiting, the candidate's first- or second-degree relatives)
- essential presence at work
- interruption or delay of public transport by at least thirty minutes
- force majeure.

If necessary, you may ask to be heard by the committee within ten days of the date of the above-mentioned audition. You will then be offered a new date.

CV – Scientific Functions

Please indicate the position you are applying for:

[Click or tap here to enter text.](#)

This CV must be accompanied by a cover letter.

Personal Information

First Name: [Click or tap here to enter text.](#)

Last Name: [Click or tap here to enter text.](#)

Gender : [Choisissez un élément.](#)

Current Nationality: [Click or tap here to enter text.](#)

Date of Birth: [Click or tap here to enter text.](#)

Address: [Click or tap here to enter text.](#)

Postal Code: [Click or tap here to enter text.](#)

City or Town: [Click or tap here to enter text.](#)

Country: [Click or tap here to enter text.](#)

Phone: [Click or tap here to enter text.](#)

Mobile: [Click or tap here to enter text.](#)

E-mail address: [Click or tap here to enter text.](#)

Degrees

Please list all the degrees you have obtained. For each degree mentioned, you must attach a copy with its annexes to your application.

[Click or tap here to enter text.](#)

Certifications

Please specify the certifications you have obtained. For each certification mentioned, you must attach a copy with its annexes to your application.

[Click or tap here to enter text.](#)

Language Skills

Please specify your level of proficiency.

- French: [Click or tap here to enter text.](#)
- Dutch: [Click or tap here to enter text.](#)
- Engels: [Click or tap here to enter text.](#)
- Other languages (specify): [Click or tap here to enter text.](#)

Professional Experience

Please mention all your professional experiences and describe your main tasks. For each experience, you must mention the start and end dates of your contracts and attach employment certificates to your application.

[Click or tap here to enter text.](#)

Scientific Work

List your scientific work that may have been published.

[Click or tap here to enter text.](#)

Strengths

Mention your strengths.

[Click or tap here to enter text.](#)