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The Royal Belgian Institute for Space Aeronomy (BIRA-IASB) is a scientific institution of the Belgian Federal Space Pole located in Uccle (Brussels). Its principal mission is the development of scientific and technological expertise in the field of aeronomy. This interdisciplinary science studies the physics and chemistry of planetary atmospheres by addressing issues of societal interest such as atmospheric composition changes and their link with climate. For more information on the institute and its activities, please visit our website at [www.aeronomie.be](http://www.aeronomie.be).

To support the activities of the Stratosphere modeling division,  
we are looking for a

### **scientist (M/F)**

BIRA-IASB is involved for several years in the development of the ALTIUS mission (Atmospheric Limb Tracker for the Investigation of the Upcoming Stratosphere). Its goal is to continue earth limb measurements of the upper troposphere, the stratosphere and the mesosphere. This type of measurement became rare with the failure of the European ENVISAT mission in 2012 and the number will further decrease when several Canadian, Swedish and US limb missions will terminate within the next few years. ALTIUS will be set up as a small mission based on a micro-satellite platform of the PROBA (Project for On-Board Autonomy) class, with a high agility allowing for atmospheric limb observations in different remote sensing geometries from a low earth orbit. Recently, the ALTIUS mission has been declared as an element compliant to the European Space Agency (ESA) Earth Watch programme. At the moment, ALTIUS is expected to be launched at the end of 2020 (Fussen et al., AMTD, 2014, doi:10.5194/amt-2016-213).

The primary goal of ALTIUS is to measure vertical profiles of ozone from the upper troposphere to the mesosphere with five different measurement technics: limb scatter measurements and occultation measurements from the Sun, the Moon, planets and stars. In addition to deliver ozone profile observations, BIRA-IASB will also provide the 3D distribution of ozone thanks to the assimilation of ALTIUS ozone profiles by the Belgian Assimilation System for Chemical Observations (BASCOE).

The selected candidate will contribute to setup the BASCOE system to assimilate ALTIUS ozone profiles. This includes determining the type of information necessary for the assimilation of ALTIUS in addition to the geophysical ozone profiles (e.g. the

averaging kernels and/or the error covariance matrix of the ozone profiles). Another aspect of the work will be to evaluate and to correct for the systematic differences between the profiles provided by the different mode of observations of ALTIUS. Finally, the candidate will also develop BASCOE to assimilate vertical profiles and total column from nadir sounders like the Sentinel missions.

Moreover, there will also be time to develop other research area using the BASCOE system or its products. One possibility is to develop linearized chemistry for stratospheric methane and nitrous oxide that could be used in climate models. This additional research will be established according to the skills and wishes of the candidate. Another possibility is to improve the representation of ozone in the BASCOE model in particular in the upper stratosphere.

Finally, the candidate will have to present his research in scientific meetings, conferences and workshops, and/or in scientific peer-reviewed journals.

For this position, we look for a candidate with a **PhD in Science or in Engineering** which possesses scientific curiosity, precision, initiative and team spirit. Knowledge in atmospheric science, satellite remote sensing technics and data assimilation methods are important assets. The candidate will have an advanced level in oral and written English and strong skills in data handling and analysis, modelling and programming (e.g. python, Linux, Fortran, matlab, netCDF, LaTeX...). The workplace is BIRA-IASB in Brussels.

We offer:

- Full-time contract of one year duration with the possibility to renew it after evaluation
- Possibility to acquire a bonus for bilinguism (Dutch/French)
- Salary according to the federal regulations for the scientific career.
- Dynamic working environment with international contacts
- Refund of commuting expenses when using public transportation or bicycle
- Flexible schedule and possibility to work occasionally from home
- Access to special advantages arranged for the employees of the federal scientific institutions (e.g., collective hospital insurance, possibility to follow trainings, free childcare in July/August)
- Working in a green and pleasant environment

After evaluation of the application letters, the selected candidates will be invited for an interview, or a teleconference if the need arises.

This job will be filled in as full-time contractual position, based at the Royal Belgian Institute for Space Aeronomy. If you are interested in this position, please send your application (CV and cover letter) including the reference "**D33-STRATOMODELLING**" to [quentin.errera@aeronomie.be](mailto:quentin.errera@aeronomie.be) with a copy to the Human Resources Department ([hr-ae@aeronomie.be](mailto:hr-ae@aeronomie.be)) before **30 November 2016**.

More information about this vacancy can be obtained from Quentin Errera, +32 (0) 2 3736767 or by e-mail ([quentin.errera@aeronomie.be](mailto:quentin.errera@aeronomie.be)).