2-year PostDoc Position:
Atmospheric modeling of ice nucleation by bacteria and bacteria dispersion

Institute of Chemistry (ICCF)
Université Clermont-Auvergne, FRANCE

Description:

Numerous studies have shown that bacteria are excellent ice nucleating particles (INPs) affecting the formation and evolution of mixed-phase clouds; however, current parameterizations of bacteria INPs are mostly empirical. The 'Biometa' group at ICCF have long-time experience in characterizing the biological fraction of aerosol particles and cloud water at the Puy de Dôme station and at other locations. The first aspect of this position aims at refining current biological INP parameterizations by using this unique biological data and testing them in suitable models. The accurate model description of bacteria emissions and transport is the basis of the prediction of bacteria distribution and the importance of microbial processes on the global scale. The second aspect of this position concerns the improvement of the model representation of bacteria transport and dispersion in a mesoscale model.

Duties:

- Complementing existing data bases of biological INPs; refinement of INP parameterizations by connecting them to microbial properties
- Model sensitivity and case studies on various scales using the new INP parameterizations
- Improvement of representation of bacteria dispersion in a mesoscale model (Meso-NH)

Related topics within the mission of the funding project ('*Modeling Biologically-Driven Processes in Clouds*') can be included, depending on the candidate's interests and expertise.

Qualifications:

- PhD in chemistry, physics, atmospheric science or related scientific discipline
- Interest in model development and application on the process (cloud) scale and mesoscale
- Previous experience in atmospheric modeling will be a plus
- Knowledge of Fortran, C or other common programming languages of advantage
- Ability to effectively perform independent research
- Excellent verbal and written communication skills, demonstrated by scientific publications and presentations
- Good command of both written and spoken English

Salary: 2,530 – 2,919 € /month, depending on experience (including social security)

Earliest start date: September 1st, 2019. Applications will be accepted until position is filled.

Interested candidates should send their application, including a letter of motivation, CV, research statement, and contact information of two references to Barbara Ervens (*barbara.ervens@uca.fr*).

2-year PostDoc Position:

Modeling Bacterial Activity in Clouds

Institute of Chemistry (ICCF)
Université Clermont-Auvergne, FRANCE

Description:

Bacteria are emitted to the atmosphere from many different sources. Experimental studies show evidence that bacteria are metabolically active in cloud water by consuming organic and producing biological aerosol mass. These processes are not included in atmospheric models due to the lack of suitable model descriptions. The 'Biometa' group at ICCF are experts in characterizing microbial processes and constituents in cloud water at the Puy de Dôme station and at other locations. The motivation of the position is to develop numerical modules for atmospheric models on various scales and to implement their data into models and to subsequently estimate the importance of microbial processes for aerosol and cloud properties in the atmospheric multiphase system.

Duties:

- Development and application of modules describing microbial processes in cloud water in process, mesoscale and regional models
- Close collaboration with students/researchers who perform lab and field studies on microbial processes and properties in clouds to discuss model input data and results
- Implementation of the new modules into process and mesoscale models; performance of sensitivity and case model studies

Related topics within the mission of the funding project ('*Modeling Biologically-Driven Processes in Clouds*') can be included, depending on the candidate's interests and expertise.

Qualifications:

- PhD in chemistry, physics, atmospheric science or related scientific discipline
- Interest in the development and application of atmospheric models on the process, meso- and/or regional scales
- Previous experience in atmospheric chemistry, microphysics or biology modeling will be a plus
- Knowledge of Fortran, C or other common programming languages of advantage
- Ability to effectively perform independent research
- Excellent verbal and written communication skills, demonstrated by scientific publications and presentations
- Good command of both written and spoken English

Salary: 2,530 – 2,919 € /month, depending on experience (including social security)

Earliest start date: September 1st, 2019. Applications will be accepted until position is filled.

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