Call for one-year postdoctoral position (2023-24) in Atmospheric Chemistry and Physics

Title: Development of an instrument for collecting atmospheric aerosols, implementation of the downstream analysis chain and exploitation of the obtained data.

Project: This offer is part of the CPER ECRIN project (**E**nvironment **Cl**imate - **R**esearch and **IN**novation) which includes 25 research laboratories in the Hauts-de-France region among 34 partners. The main goal of this project is to consolidate the observation, instrumentation and experimental methodologies for the characterization and monitoring of the atmosphere, and thus support the development of measurement methodologies, instrumentation and innovative analytical approaches.

A campaign of observations performed in 2021 by the LPCA has shown a seasonality of pollution episodes in the Hauts-de-France region and more particularly in the Greater Dunkirk area. The person who will be employed will first be in charge of the valorization of this work whose goal was to study the individual composition and the mixing state of atmospheric particles during pollution events. A statistical analysis of the exceedance days (i.e. pollution episodes) that occurred between 2018 and 2020 allowed to better classify them into different types and to observe that they were more frequent in winter and spring. The results of the analysis of the particles sampled during these events have shown that there is no direct link between the chemical heterogeneity of the pollution aerosol particles and the origin of the local winds.

This observation campaign carried out in 2021 allowed the deployment of a home-made atmospheric particle sampler, the "Time Resolved Atmospheric Particles Sampler" (TRAPS), which allows to perform time-resolved sampling. The second objective of the person who will be recruited will be to improve this system in order to limit losses and make the sampling quantitative. He/she will also have to adapt the downstream physico-chemical characterization chain, relying in particular on analytical microscopy (SEM-EDX) in order to allow an automation of the sampling and analysis on long time series.

Qualification: The candidate should have a PhD in atmospheric chemistry or analytical chemistry.

Knowledge: Theoretical bases in Analytical Chemistry, Physical Chemistry of the Atmosphere, Statistical Analysis, fluent in English (B2 to C1 level)

Skills: Development or adaptation of analytical chemistry techniques, Statistical analyses, Validation of a sampling and analysis methodology, Analysis and interpretation of data from physico-chemical analyses up to the redaction of scientific articles.

Soft skills: Critical thinking skills, Sense of organization, Sense of responsibility, Team spirit.

Application: Candidates are invited to send their application by email, including a statement of research activities, a cover letter, a CV, as well as name and address of two referees who could write a recommendation letter.

Indicative gross salary: 2600 € monthly.

Date: The candidate should be available for starting on April 15st 2023 to the May 15st 2024.

Laboratory location: Laboratory for Physics and Chemistry of the Atmosphere (LPCA) Université du Littoral-Côte d'Opale (ULCO) 189A, avenue Maurice Schumann, 59140 Dunkerque, France.

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