JOB POSITION

Spring 2020 lock down impacts on the atmospheric exchanges from terrestrial ecosystems.

The French National Research Institute for Agriculture, Food, and the Environment (INRAE) is a public research establishment. It is a community of 12,000 people with more than 200 research units and 42 experimental units located throughout France. The institute is among the world leaders in agricultural and food sciences, in plant and animal sciences, and is 11th in the world in ecology and environment. INRAE's main goal is to be a key player in the transitions necessary to address major global challenges. In the face of the increase in population, climate change, scarcity of resources and decline in biodiversity, the institute develops solutions for multiperformance agriculture, high quality food and sustainable management of resources and ecosystems.

WORKING ENVIRONMENT AND ACTIVITIES

■ You will be welcomed in a INRAE research unit and supervised by a small team of ICOS lead scientists from France (INRAE), Italy and Belgium among others. The research project aim at evidencing the putative impacts of the Spring 2020 pollution reduction on the CO_2, H_2O and energy exchanges from terrestrial ecosystems. Collaborating with ICOS scientists, you will undertake a 2-dimensional analysis of half hourly values of atmospheric flux data: (1) between stations exposed to different levels of pollution and (2) a time series analysis along a 5 –year long time series from 2015 to 2020. Ancillary data will be obtained from Copernicus and MODIS projects as well as complementary *in situ* networks (ICP-Forest, Fluxnet) and data sources (WMO, EMEP). The flux data requested are already collected by the ICOS Ecosystem Thematic Centre and the project is mainly dedicated to data analysis per se.

■ You will be in charge of:

- From the ensemble of data already collected, control the quality and relevance of the data sets
- Gather additional data concerning the Ozone and Nitrogen deposition, diffuse / direct light ratio and spectral data from Copernicus and Modis projects.
- Using statistical and IA methods, test different hypothesis regarding the impacts of the COVID lockdown and ecosystem-atmosphere flux through synchronic and diachronic comparisons.
- Assumption to be analysed concerns the effects of a putative modification in the light regime, NOx, NHx and Ox depositions on ecosystem atmosphere exchanges of radiation, sensible and latent heat and carbon dioxide.
- Publishing and communicating your results in international scientific journals and e.g. at Geophysical Unions Assemblies (AGU, EGU).

■ Special conditions of activity: You will be part of the Winter 2020 project team organising the analysis of flux data anomaly observed in 2020 and accompanied by European experts on the effects light quality and pollutants deposition on ecosystem fluxes. The position can be located either in Bordeaux, Avignon or Nancy INRAE units. The INRAE scientists involved are M. Cuntz, C. Fléchard, B. Loubet, D. Loustau and G. Simioni.

TRAINING AND SKILLS REQUIRED

- Recommended training: Background in Ecosystem biogeochemistry and biophysics, statistical, numerical and IA methods applied to environmental data analysis and time series analysis. PH D thesis. Experience in eddy covariance data analysis will be appreciated.
- Knowledge required: Biogeochemistry, Nitrogen, Carbon cycles in terrestrial ecosystems
- Appreciated experience: Ph D thesis in biogeochemistry of terrestrial ecosystems (forests, grasslands)
- Skills sought: Programming, Python language, fluent in English, open mindedness, working as a team.

↘ Reception modalities

- Unit: ISPA
- Postal code + city: 33140, Villenave d'Ornon
- Type of contract: fixed term
- Duration of the contract: 12 months
- Starting date: 1st November 2020
- Remuneration (initial): 2340 to 2510 € per month depending on experience.

↘ How to apply

- Preselection: Send a **motivation letter** end a **CV** to : Denis Loustau By e-mail: denis.loustau@inrae.fr

✖ Deadline for applications: 30st September 2020

- Final selection: Virtual interviews will be organized in October for selected applicants