

# Open Post-Doc Position at CNRS-SPE

## “Characterization and spatial distribution of wildfire fuels”

**Duration:** 18 month - Starting from 2 May 2017 - Net Salary 2029 euros, located in Corte, Corsica, France.

**Funded by:** ANR - FireCaster project (<http://www.firecaster.org>). Project in collaboration with several French academic partners, Here. CNRM/Météo-France, CNRS/Laboratoire d'Aérologie.

**Description:** The objective here is to develop the method in order to obtain high resolution map of fuel variables (with daily and intraday evolution) and fuel type based on a combination of vector data maps (non-combustible, urban and water areas).

Fuel models defines mainly particle heat content or vegetation quantity and humidity, that evolve in time, are not available currently operationally and globally. The Surfex system, used in operational Météo-France models, is able to describe the evolution of soil and vegetation related parameters at 1-km resolution, worldwide.

During this task, the link will be made between fuel model and Surfex vegetation types defined at 1km resolution. New parameterizations or methods will be developed within Surfex platform to estimate variables that are not readily available, such as vegetation humidity from soil humidity, atmospheric conditions and plant modeling. The potential risk comes from the fact that the vegetation evapotranspiration simulated by Surfex corresponds to a live vegetation, since Surfex does not account for dead vegetation, whereas the fuel model distinguishes between dead and live fuels.

In a second step, a downscaling method will be developed to go from 1km-gridded output to a 50m resolution that is more relevant to fire risk and spread simulation. Such downscaling will use the ability of the Surfex surface model to compute simultaneously several humidity levels for different fuel classes within each grid point. Eventually, fuel model will integrate combustion emission factors derived from a field campaign performed jointly by LA and SPE.

**Position summary:** The position is 18 month with position taken between March 1st, 2017 and September 1st 2017 with a main location at CNRS-SPE/Univ. Corsica (<http://spe.univ-corse.fr>) in Corte, France. CNRS is the top research institute in Europe in fundamental research. Mobility within France (Mainly Toulouse) will be required for a close interaction with project partners.

**Qualifications:** By the starting date, the applicant should have a Ph.D. degree in Physics or Computer science. Solid knowledge in the areas of wildland fire and especially a “fuel” view of the vegetation is necessary. Moreover the candidate will work with numerical simulation (CFD) tools, in particular Meso-NH atmospheric model and SURFEX surface fuel model as well as ForeFire wildland fire model so any experience from combustion modeling tools is a huge bonus. You should have good analytical and experimental skills and good ability to work independently towards the goals expressed in the project plans.

**Language:** Fluency in English is mandatory. French will be very important for everyday life and work at the laboratory.

**Contact and application:** Sent Email with CV and application text (in message) and reference before April 20th 2017 to Dr. Jean-Baptiste Filippi, CNRS-SPE, Corsica, France, [filippi@univ-corse.fr](mailto:filippi@univ-corse.fr). Auditions will be performed by phone.