



## APPLICATION FOR A PhD STUDY

# Modelling the future risk of large fires in Europe

Title of the thesis	<b>Modelling the future risk of large fires in Europe</b>
Beginning of the thesis	October-December, 2019 (3 years)
Doctorale School	ED251 Environmental Sciences, Aix-Marseille University (France)
Scientific topics	Natural hazards, environmental sciences, applied mathematics
Location	IRSTEA RECOVER, 3275 route Cézanne, CS4006, 13182 Aix-en-Provence cedex, France
Host laboratory	IRSTEA RECOVER
Names of supervisors	Thomas Curt (Director), Renaud Barbero (co-director)

### Description of the thesis project

Europe has been confronted for several decades to large and devastating fires of high intensity. These fires are very difficult to control and able to propagate in wildland and urban areas despite the action of the firemen. As a consequence, they generate high impacts to humans and to the ecosystems. ***The major scientific challenge of this thesis is to better understand and anticipate where, when and how large fires will develop in Europe in the next decades, then to assess their possible impacts on humans and on ecosystems.***

The thesis will first collect and harmonize the data on forest fires in Europe along the past decades (e.g. EFFIS fire database), and data on environmental and anthropic factors that control them. It will characterize the types of fire regime and their evolutions, then model the probability of big fires, and estimate their impacts. The thesis is innovative because it will offer for the first time a predictive model of the occurrence of large fires and their impacts at European level, necessary for sustainable risk management. The scientific challenges are to decipher the relative effects of climate, vegetation and man on the occurrence of large fires, then to estimate the impacts and the damages caused by large fires.

**Key words:** wildfire risk, extreme events, fire regime

**Profile and skills of the applicant:** the applicant must have a good knowledge of natural hazards assessment, and high competences and skills for data analysis and modelling (R, Matlab, Python or others), geographical information systems, and forest ecology.

### **Contacts Persons**

*If you are interest in this PhD project, please send curriculum vitae and application letter and/or contact:*

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