Course Summary
This course unit explores the present biogeography of fire, as well as
its past temporal evolution over time. Historical aspects of fire
trajectories ("Fire history") are complemented by information about
the ecological impacts of fire on vegetation ("Fire ecology"). This
broader approach will help developing a more critical
understanding of key environmental stressors of ecosystem change,
integrating both natural (climatic) factors, and key cultural aspects
("The Anthropocene").

Finally, topical issues such as biodiversity conservation and fire
management will be examined in more applied case studies, with
relevance for future social, economic and environmental changes.
The course unit includes a series of practicals, focusing on
methodological approaches (Charcoal as a fire proxy),
state-of-the-art quantitative approaches, and some basic
programming skills (R environment), to perform both data mining
(the Global Charcoal Database), and data analysis.

Learning Outcomes
• Understand the temporal evolution of fire, and the mechanisms
maintaining natural vs. anthropogenic systems;
• Critically assess data quality and resolution of charcoal records
• Explain the present distribution of fires, as a function of environmental drivers (climate, vegetation, and
humans) across ecosystems and biomes;
• Understand fire ecology in key biodiversity hotspots, including the impact on both vegetation structure
and composition
• Undertake basic programming in R

Key Content
• Charcoal as a fire proxy: Introduction and laboratory techniques
• Spatial patterns: the Biogeography of fire
• Temporal patterns: drivers of fire dynamics
• Introduction to programing with R: data plotting and analyses
• Fire-vegetation interactions and species responses to
environmental factors
• The Global Charcoal Database and fire reconstructions
• Applied palaeoecology: topical issues for future conservation

Date
18th - 22nd February 2019

Tutor
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