Royal Holloway Geography for Schools Lecture Series

Global fires in a warmer world: from past to the future

Fire is a global ecological process controlling the distribution, structure, and composition of many ecosystems on Earth. For example, wildfires are common in tundra ecosystems at higher latitudes, but also play a fundamental role for the savannah-rainforest transition in tropical ecosystems. Fire is also important for controlling species turnover and vegetation succession in many fire-prone ecosystems, like in the Mediterranean regions. Nowadays, the occurrence of highly devastating, catastrophic fires (including for the UK) is increasingly getting the media's attention and raises debates about best management strategies for risk mitigation and prevention. Although we may often perceive such events as "unprecedented", wildfires have been a major component of ecosystems for millions of years. Research on past ecosystems, including the role of fire in ancient landscapes, can shed new light into the role of multiple environmental factors (for example climate, people and disturbance regimes) in shaping past ecosystems. This information comes from natural archives (lakes, bogs, ice cores) and provides researchers with a snapshot into the past, to understand how landscapes looked like before the written history. Looking at past fire regimes under different climate condition can also help understanding the role of fire in a warmer world, considering climate change scenarios. This understanding is of global relevance to tackle future challenges about fire impacts on ecosystems, and their socio-economic implications.