

Fire and human activities on the Pyrenees mountain (Western Pyrenees and Eastern Pyrenees), inferred from pedoanthracological, palynological, micro-charcoal and archaeological data. An interdisciplinarity approach

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Abstract

In this communication we present new results about relation between fire, human activities and vegetation dynamics provided by interdisciplinary investigations carried out in the "Palaeoenvironment and human activities on the Basque mountain" program led by Galop since 2001 and in the Cerdagne's program led by Rendu since 2002. This research field is located precisely in massif of Iraty (Western Pyrenees) and in the Enveig's slope (Eastern Pyrenees).

On the Basque mountain, macro-charcoal, micro-charcoal and pollen analysis show important phases of fire in relation to agro-sylvo-pastoral activities and confirm the use of slash and burns cultivation since Neolithic (Vannière et al. 2001). These results fit well with palaeoenvironmental and archaeological data obtained in the same area. Strong human impact on the forest cover occurred during Bronze Age as it has been demonstrated by numerous contemporaneous burial mounds found and dated on the slopes (Marembert, 2000; Rendu, 2002; Carozza et al., 2005). Current landscape essentially consists of pastures with small stands of *Fagus* forest. Some isolated old oaks are principally situated near pastoral farms. Pedoanthracological analysis carried out in this area give informations about agro-pastoral activities and their consequences on *Quercus* – beech forest since Bronze Age period. Radiocarbon dated charcoals found in the slopes soils indicate fire. This induces clearance of the oak forest due to human activities. This progressive deforestation seems to have favoured *Fagus* expansion in the forest cover after 4000 BP.

On the Enveig's slope, the same interdisciplinarity approach shows a link between palaeoenvironment (Galop, 1998) and archaeological data (Rendu, 2003) and summer farming settlements. This revealed that occupation and grazing activities have started during Neolithic and have increased during Bronze Age period. Human impact appears to be the main factor for local extinction of *Abies alba*.

It is interesting to compare micro-charcoal data and cumul dates of macro-charcoals to show that anthropic phases coincide with fire history both in Western and Eastern Pyrenees. This interdisciplinary approach helps in understanding the intensity of fires and their consequences on the dynamics of vegetation. Methodologically, pedoanthracological analysis provide informations that confirm palynological and micro-charcoal results, with more precise spatial reconstructions.

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