

PC4.10 Poster

Age-dependent xylogenesis of *Pinus pinaster* in a drought limited environment

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In the last century, temperatures have rose ca. 1°C and a significant decline in precipitations has been observed in the Mediterranean Basin. Moreover, predictions expect climate to become warmer and drier in the next decades. Thus it is extremely relevant to understand how forests will cope with such changes. One of the most recently-used and intriguing approach is to analyze the formation of xylem cells at short-timescale and comparing xylogenesis with the environmental parameters such as precipitation, temperature or photoperiod. This information is being used to improve the growth models under Mediterranean climate. We will investigate wood growth in *Pinus pinaster* Ait. belonging to two age classes, young (30 years-old) and mature (50 years-old), growing in the West Mediterranean coast of Portugal. We will collect microcores to follow the development and formation of tree rings 'cell-by-cell', and the results will be compared with those obtained from dendrometer bands. Within a frame of climate variables, we will construct tree growth curves, will estimate the dynamics of cambial activity and will determine the time spent by the xylem cells in each developing stage. We hypothesize that the onset and duration of the cambial activity is different between young and mature trees, and this will have implications in the reaction to climate changes of the forest stands of different age.

PC4.11 Poster

Phenology of cambial activity and wood formation of cork oak (*Quercus suber* L.) in the south of Spain

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We studied the phenology of cambial activity and wood formation in six cork oak trees situated in an experimental plot in Hinojos (Huelva, southwest of Spain) under a typical mediterranean climate for one vegetative period. Microcores were extracted monthly since February until November and histological samples of the phloem-cambium-xylem tissues were obtained after inclusion in paraffin. The standard protocol of inclusion in paraffin had to be modified and adapted to deal with an species with very hard xylem and contrasting hardness of cambium and xylem tissues. In most of the trees the cambial activation occurred in mid-march, with samples obtained the 23rd of March showing enlarging xylem cells and vessels in formation. Lignification process is very fast and samples of may present already a high proportion of mature cells. In mid-june the cambial activity in all samples was very reduced presenting only mature cells and cells in lignification and no cells in enlarging status. Results are discussed according to the climate of the vegetative period and with data from electronic point dendrometers collected in the same plot.