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Intra and interregional variability in the diametric growth of Holm oak (*Quercus ilex* subs. *ballota* (Desf.) Samp.): Influence of climate and soil factors through the combination of continuous and monthly measurements

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The quantification of growth of forest species is of major importance to develop a silviculture based on technical and scientific criteria. Moreover, the analysis of the influence climatic and soil factors on growth allow to transform empirical growth models to models with a greater ecophysiological component and to gain a better knowledge of the soil-climate-plant relationships.

We analysed the influence of soil and climate variables on diametric growth of Holm oak on 3 sites with contrasting climate and soil conditions in central and southwest of Spain. Growth data is obtained at two levels: (a) with electronic point dendrometer at 15 min. interval in 6–9 trees per plot and (b) with band dendrometers in 60–100 trees per plot with monthly measurements. Climatic variables and soil moisture and soil temperature are measured in continuous at each plot.

With band dendrometers data we elaborated a mixed linear growth model that takes into account the influence of site, tree, month and site x month interaction on tree growth. All the effects considered were significant. The model shows a growth pattern with maximum spring growth, summer and winter vegetative stops and an autumn growth or hid-ratation. Data from electronic dendrometers allowed us to add more detail to the analysis and improve the interpretation of the monthly data analysis.