The effects of thinning intensity on tree-ring patterns of *Pinus canariensis* (Tenerife, Spain) are modulated by aspect and crown class

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Gonzalo Pérez-de-Lis[1], Ignacio García-González[1], Vicente Rozas[2], José Ramón Arévalo[3]

[1] *Departamento de Botánica, Escola Politécnica Superior, Campus de Lugo, Universidade de Santiago de Compostela, E-27002 Lugo, Spain;* ***gonzalo.peresdelis@rai.usc.es***
[2] *Misión Biológica de Galicia, Consejo Superior de Investigaciones Científicas, Apdo. 28, E-36080 Pontevedra, Spain*
[3] *Departamento de Ecología, Facultad de Biología, Universidad de La Laguna, E-38206 La Laguna, Tenerife, Spain*

The suitability of thinning to prevent forest growth decline from global warming has been broadly studied for the last decades, but scarcely tested in Macaronesian Canary pine (*Pinus canariensis* Sweet ex Spreng.).
We used tree-ring series from dominant, codominant, and overtopped trees to study the effects of thinning intensity on basal area increments (BAI) and climate sensitivity. We performed the study in 40-50 year old afforestations, placed on windward (wet) and leeward (dry) slopes on Tenerife, Canary Islands. Three replicated blocks of control, light thinning, and heavy thinning stands were set on each slope in 1988, and cores were extracted in 2007.
Radial growth patterns showed that heavy thinning induced growth release and increased BAI, mainly on dominant and codominant trees, whereas light thinning effects were negligible. Likewise, thinning impacts were more intense on windward.
Regarding to the climate-growth relationships, temperature sensitivity was hardly affected by thinning on leeward, where climate control was stronger. However, thinning enhanced the influence of summer temperatures on windward. Upper crown classes were overall more sensitive, but overtopped trees responded better in summer, the most critical season. No significant results were noted with rainfall.
Thinning intensity greatly influences growth on Canary pine afforestations, but individual responses are highly dependent on crown classes. In addition, the contrasting effects between slopes point out that thinning may be less effective to modify growth conditions on leeward slopes, especially if it is not intense.