depletion of total non-structural carbohydrates during this period (Barbaroux and Bréda, 2002) and by studies on the intra-ring carbon isotopic composition (Helle & Schleser, 2004, Eglin et al., 2010, Michelot et al., 2011). Earlywood growth was less dependent on the climate and SWD of the current year (Bréda et Granier, 1996) than latewood growth, which was significantly correlated with many climatic variables. Concerning latewood growth, our results showed a large influence of precipitation, rather than the temperatures of the current growing season. However, latewood growth was more influenced by the previous autumn-winter conditions than was that of earlywood, contrary to the findings of most dendrochronological studies in Europe (reviewed in Dolezal et al., 2010). Like earlywood, latewood also appeared to be affected by carbon reserve depletion due to unfavourable conditions in the previous autumn.

In contrast to what was seen in oak, the interannual earlywood growth variations of pine were close to those of latewood. The number of pointer years was lower for earlywood compared to latewood growth, but the decrease was much lower than for oak. During a mean climatic year, the earlywood growth of pine lasts approximately one month longer than that of latewood (Michelot et al., in prep.), which could explain the difference in the EW/TR proportion observed between pine and oak (68% vs. 42%, respectively). Earlywood growth was sensitive to temperatures and precipitation during winter but was only slightly influenced by the climate of the current growing season (as in Lebourgeois et al., 2010). Contrary to what was seen for oak, earlywood growth was sensitive to I_s in the growing season (as in Eilmann et al., 2009, Lebourgeois et al., 2010). Latewood growth was very sensitive to the climate of the current growing season and was greatly reduced when the I_s values of SWD in July and August were strong. Latewood formation occurred from June to September, which corresponded to the period when the soil water deficit was the strongest.

These results confirmed that the use of proxies measured in latewood rather than those measured in total rings for the paleoclimatic reconstitutions was highly preconized for both oak and pine. Although in pine, earlywood was thicker than latewood, the climatic information provided by earlywood width was difficult to use in paleoclimatic reconstitutions because of the low number and the high between-stand variability of significant climatic variables.

Conclusions

Comparison of the growth response to climatic variations and SWD for the pointer years of each species allowed highlighting differences in species vulnerability. *Fagus sylvatica* was the species that was most sensitive to the climatic conditions of the current growing season. *Quercus petraea* exhibited long-term consequences of autumnal droughts on growth. Unfavourable climatic conditions in the previous autumn affected current oak growth, probably due to the resulting storage reserve depletion. *Pinus sylvestris* was positively influenced by warm winter conditions, particularly in the