

***Interactive comment on “Needle age-related and seasonal photosynthetic capacity variation is negligible for modelling yearly gas exchange of a temperate Scots pine forest” by M. Op de Beeck et al.***

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In this paper, Op de Beeck et al. demonstrate that there are predictable effects of needle age and seasonality on photosynthetic capacity, but that the predictive accuracy that is lost by failing to include these factors in process-based models of GEP and  $E_{can}$  is very small for a relatively open-canopied, even-aged Scots pine forest in Belgium. Without belittling the importance of within-canopy effects of needle-age, canopy position and leaf nitrogen on the elucidation of ecophysiological processes and their relation to seasonal variations in climate, they clearly demonstrate that the impact

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of employing relatively simple parameterizations in land surface schemes is negligible for this type of canopy, and that, in certain cases, intensive whole-year field campaigns may yield little benefit in terms of predicting GEP and  $E_{can}$ . This is very useful and practical information that lends support to current practice. The paper also contains the surprising finding that there was a negative correlation between  $V_{m25}$  and area-based leaf nitrogen content when data for both current and second-year were pooled together, and correctly explain that this curiosity was related to the higher ratios of  $V_{m25}:N_{area}$  ratios in current-year needles. Their method of using a multi-layered process-based model to check GEP and  $E_{can}$  with needle age and season both included and excluded was sound and the results both convincing and useful.

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