

## ***Interactive comment on “Influence of wood density in tree-ring based annual productivity assessments and its errors in Norway spruce” by O. Bouriaud et al.***

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We are grateful to referee 2 for his constructive suggestions and comments. The manuscript has been revised based on the suggestions and questions, and the response to the major and minor comments are listed below. Following the editorial instructions, the response to each comment is structured as: 1- comments from the referee; 2- author's response and 3- changes in the manuscript.

##

Comment: Page 5883 lines 4-6: The rate of  $-0.48 \text{ kg m}^{-3} \text{ mm}^{-1}$  should be  $-48 \text{ kg l}$  guess, since you have  $1/100 \text{ mm}$  on the x-axis in the plot and probably haven't con-

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sidered the transformation to  $1 \text{ mm}$ . Hence it seems wrong to me that WD halves when RW is doubling, the negative exponential shape of the points is not that steep! Just take for example the average WD at  $1 \text{ mm}$ ,  $2 \text{ mm}$ ,  $4$  and  $8 \text{ mm}$ , which are probably something in the region of  $\sim 550$ ,  $450$ ,  $380$  and  $320 \text{ kg m}^{-3}$ . The ratios are much closer to  $1/0.85$ . So I would assume it to be more like a  $15\%$  decrease/increase WD per doubling/halving RW, which in turn would resemble your result for the underestimation of biomass in bad years.

Response: Thank you for your correction. This remark goes perfectly in line with what Referee 1 wrote.

Changes in the manuscript: The decision was to remove the confusing sentence.

##

Comment: In table 1, equation for model 3: shouldn't it be  $a^4$  at the end instead of  $0.5$ ?

Response: That is correct, thank you.

Changes in the manuscript: the exponent was modified in table 1.

##

Comment: Figure 3b: Could you insert vertical lines throughout the graph at the years mentioned (1967, 1976, . . .) ? That would improve in my opinion the comprehensibility.

Response: Thank you for the suggestion. The figure was modified accordingly (enclosed below, nr 1).

##

Comment: Figure 6 should include a legend, or at least a more detailed description. It is not obvious what the dashed lines mean, is it Scenario 3?

Response: As per Rw 1's suggestion, the figure 6 (enclosed below, nr 2) was changed

and we kept in mind the aspects related to the clarity.

Changes in the manuscript: Replacement of figure 6, redrawn with a legend.

Interactive comment on Biogeosciences Discuss., 12, 5871, 2015.

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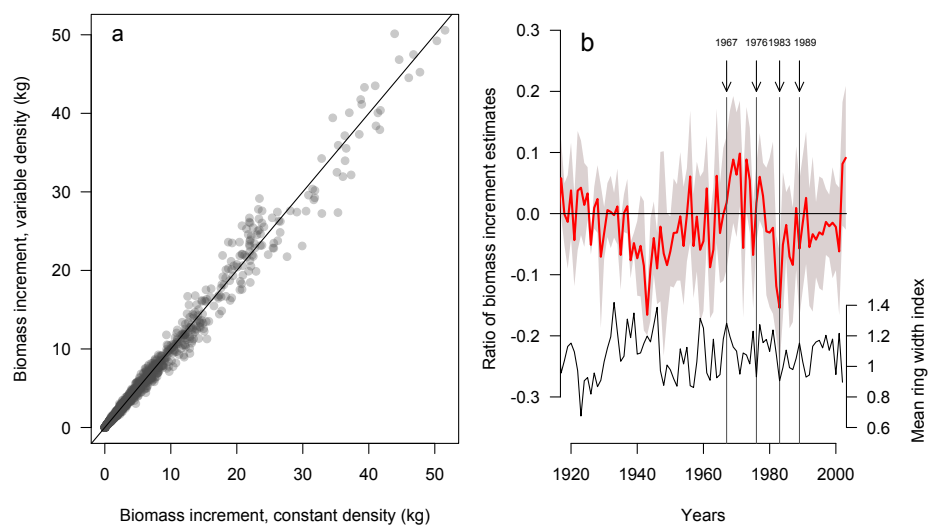


Fig. 1.

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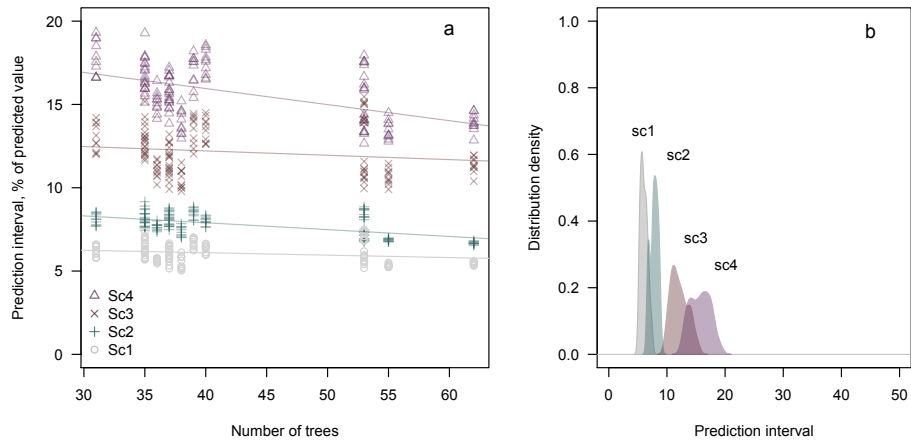


Fig. 2.

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