

Biogeosciences Discuss., referee comment RC1
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Comment on bg-2021-239

Charles T. Driscoll (Referee)

Referee comment on "Physiological and climate controls on foliar mercury uptake by European tree species" by Lena Wohlgemuth et al., Biogeosciences Discuss.,
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The article "Physiological and climate controls on foliar mercury uptake by European tree species" by Wohlgemuth et al. [bg-2021-239] summarizes an important study which examines controls on foliar mercury concentrations across several European tree species. This article is important because the authors synthesize mercury patterns across a relatively large spatial area involving many observations of different tree species and interpret these patterns in the context of tree physiological traits and climate conditions which control stomatal conductance. While the study presents few new findings, the authors do a great job presenting, synthesizing and interpreting their findings in context of a rather broad literature. Also based on their observations, the authors make recommendations for global mercury models to improve simulation of the role of "global vegetation as a mercury pump" and allows for depiction of the effects of changing climate on this important process.

The manuscript is well written and well organized. I only have a few minor suggestions below. I recommend the publication of this paper pending minor revisions.

Specific comments

Line 80. ...deposition to the **land surface** may ...

Lines 96, 176, 243, 304, 329 and 335. The wording should probably be "among" rather than "between".

Lines 152, 203, 215 and 414. "*in-situ*" should be in italics.

Line 179. ... needles and **largest** average ...

Line 199. ... at various **dates over the annual cycle**, making ...

Figure 3. The authors might point out that the range of observations for species with a large number of observations is large compared to species with few observations and the reason for this variation.

Line 345. Average LMA values was ...