

## ***Interactive comment on* “The effect of desiccation on the emission of volatile bromocarbons from two common temperate macroalgae” by E. C. Leedham Elvidge et al.**

### **Anonymous Referee #2**

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The manuscript, “The effect of desiccation on the emission of volatile bromocarbons from two common temperate macroalgae”, describes the role of halocarbons specially emission of bromocarbons in relation to photosynthetic efficiency during desiccation exposure. Earlier studies have documented the emission of I2 in air during emersion in *Laminaria* sp. as well documenting its role as an antioxidant and also their involvement in chemical defense mechanism in seaweeds (Küpper et al. 2008, 2013). This paper reports for the first time the release of CH<sub>2</sub>Br<sub>2</sub> and CHBr<sub>3</sub> during seaweed exposure and desiccation. The short manuscript is well written; experiments are properly designed, executed and discussed in the context of contemporary findings. As, this and other recent publications describing the tolerance mechanism of dessication are pro-

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viding new insights, create more interests in understanding if these volatile halides are also involve in the protecting the PSII from photoinactivation/damage during early and extended emersion periods of low tides in seaweeds. In recent years, the concept is slowly changing that it is not the direct damage to PSII during emersion or other abiotic stress, rather it is the inhibition of synthesis of some specific proteins such D1 of PSII, their level of phosphorylation and the repair to PSII which lead to photoinactivation of PSII. Thus, this manuscript that demonstrates a positive correlation for the release of bromocarbons and changes in photosynthesis efficiency during desiccation urges to undertake further investigation on exploring their potential in regulating the status of D1 proteins associated with PSII which is most effected during desiccation exposure. In all, I thoroughly enjoyed this short manuscript.

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Interactive comment on Biogeosciences Discuss., 11, 10673, 2014.

**BGD**

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