

## ***Interactive comment on* “Technical Note: VUV photodesorption rates from water ice in the 120–150 K temperature range – significance for Noctilucent Clouds” by M. Yu. Kulikov et al.**

### **Anonymous Referee #3**

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This paper describes a beautiful set of experiments to address the question of whether the irradiation of noctilucent ice clouds particles by Lyman- $\alpha$  radiation can lead to significant generation of H and OH radicals entering the gas phase. The authors demonstrate that H and OH radicals are indeed generated by the absorption of Lyman- $\alpha$ , BUT the radicals are trapped within the ice cage and so effectively recombine without escaping into the gas phase.

The experimental procedure, including the challenging calibration of the intensity of the Lyman- $\alpha$  lamp, is clearly described. The work was carefully done and so one can have

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high confidence in the results. Previous experiments in Japan, where ice films were irradiated at 157 nm, showed that a variety of photoproducts were ejected into the gas phase. However, the quantum yields in that work were not determined, so putting the results of the two studies together implies that these photoproducts were generated by absorption of a photon right at the ice surface, and represent a minor loss of H<sub>2</sub>O overall.

I recommend that the paper be published without any substantive changes.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 22653, 2010.

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