

## ***Interactive comment on “Pseudo steady states of HONO measured in the nocturnal marine boundary layer: a conceptual model for HONO formation on aqueous surfaces” by P. Wojtal et al.***

### **Anonymous Referee #1**

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This MS presents some interesting observations, showing a pseudo-steady state (PSS) in HONO overnight in the lower marine boundary layer over a polluted area. This observation may have broader reach and certainly calls for an examination of existing data.

I do think the discussion could be improved by reference to some of the recent work from the groups of Christian George, Markus Ammann and others, who have demonstrated heterogeneous HONO production being stimulated by sunlight. Their basic mechanism could, in principal, be operating under moonlight as well (assuming there are photoactive chromophores present in the sea-surface microlayer (SSM) which ab-

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sorb the requisite wavelengths.

I do have a problem with the proposed mechanism. It is very vague just what is meant by the "nanolayer" - how is this different from the top of the microlayer? Given the low solubility of NO<sub>2</sub> in water, and its low attraction for water in general (as displayed in quantum chemical calculations, for example) the needed concentrations seem unbelievable. Could not NO<sub>2</sub> be present in the organic fraction of the microlayer for example? (It should be more soluble in this fraction than in the water.)

In summary, while the observations are interesting and certainly worthy of reporting, I believe that the suggested model needs more thought.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 25153, 2010.

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