**Atmospheric
Chemistry
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Interactive comment on "Multiphase modeling of nitrate photochemistry in the quasi-liquid layer (QLL): implications for NO$_x$ release from the Arctic and coastal Antarctic snowpack" *by* C. S. Boxe and A. Saiz-Lopez

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Received and published: 8 April 2008

Author Response to Anonymous Rolf Sander's comment to "Multiphase Modeling of nitrate photochemistry in the quasi-liquid layer (QLL): implications for NOx release from the Arctic and coastal Antarctic snowpack," by C. S. Boxe and A. Saiz-Lopez.

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We thank Rolf Sander for raising this question; however, Saiz-Lopez and Boxe (2008) refer to the brine layer that exist on sea-ice surfaces, which we acknowledged as a

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more appropriate term since it is a layer of saturated salt, while this manuscript refers to multiphase model simulations of NOx release just above the Arctic and coastal Antarctica snowpack. It has been reported (please see introductory section of this manuscript) that pure water ice surfaces do contain a QLL (i.e., of variable thickness, depending on the study), while the addition of solutes amplify the thickness of the QLL, which is more representative of snowpack surfaces – that is, pure water ice surfaces containing dilute concentrations of solutes. Therefore, the use of the term "QLL" is more appropriate for snowpack surfaces.

Reference Saiz-Lopez, A. and Boxe, C. S.: A mechanism for biologically-induced iodine emissions from sea-ice, Atmos. Chem. Phys. Discuss., 8, 6009-6034, 2008.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 6009, 2008.