

## ***Interactive comment on “ Ozone variability and halogen oxidation within the Arctic and sub-Arctic springtime boundary layer” by J. B. Gilman et al.***

**J. B. Gilman et al.**

jessica.gilman@noaa.gov

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We appreciate the suggestions provided by the reviewer and have modified the manuscript according to their recommendations.

General Comments:

The reviewer states "Although I like the analysis in general for the paper there is some limitation or weakness if you will in the FLEXPART analysis that defines the lowest 100 m of the atmosphere as the surface layer. I know that this is probably a situation of what was possible to do and not what is the best thing that the authors may have liked to do to represent exposure to sea ice. I think that a caveat should be added about the

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Arctic boundary layer gradients which can be huge within 100 m – so to point out that there is potentially a huge variability in the 100 m deep boundary layer air mass."

We have modified the text in Sect. 2.4 (FLEXPART model description) to read: "While the generally stratified nature of the Arctic boundary layer can lead to gradients within this 100 m layer, field measurements in the Arctic aboard the R/V Knorr and NOAA WP-3 indicate that the atmospheric boundary layer depth was no less than 150m when air masses with depleted O<sub>3</sub> were observed."

Specific Comments:

1)Methods section 2.1: Leave out any description of the previous instrument as it is not relevant here and spend time describing the present instrument.

The instrument description of the GC-MS has been reworked and further clarified per both reviewers' apt suggestions.

2)P15891 line 14: sentence beginning with "In the analysis. . . is not a sentence.

Correction made.

3)P15891 last sentence – should be "Samples were collected in SS canisters. . ."

Correction made.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 15885, 2010.