

Interactive comment on “Surface ozone depletion episodes in the Arctic and Antarctic from historical ozonesonde records” by D. W. Tarasick and J. W. Bottenheim

D. W. Tarasick and J. W. Bottenheim

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We thank the referee for his critique and helpful suggestions. We have amended the abstract to refer only to "average springtime surface temperatures", rather than "surface meteorology"; we agree this is more reflective of our results. We have also amended the discussion and conclusion somewhat to better represent this, too. However, we do conclude that both surface temperatures and lower atmospheric stability play a role, and these are both part of the surface meteorology.

1) We have included the station latitude. We note in the text that all are close to sea ice except for Edmonton and Goose Bay. The resolution of the reported Syowa data is so poor in the lower troposphere that it is severely biased toward not finding depletion events, so we feel that it is not appropriate to compare it with the ECC data.

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The Japanese sonde is of a different type that has not performed quite as well as other types in intercomparisons (Kerr et al., 1994; Smit et al., 1996). Although the Brewer-Mast results are similar to the ECC results, they are also a somewhat different instrument with poorer performance in the Canadian network, so we chose to separate them as a matter of caution. We have, of course, put them together in Figure 4.

2) The lack of events outside the spring period at Alert, Eureka and Resolute was anticipated from long-term surface measurements [Oltmans and Kohmyr, 1986; Anlauf et al., 1999], which show depletion events in the Arctic to be mostly confined to the March- May period. We have added this to the text of the paper.

3) We removed the outliers in 1989-1991 as a test of the robustness of our derived trend. Evidently, if a trend relies on a single, or a small number of extreme (and therefore suspect) data points, one should regard it as doubtful even though it passes the standard tests for statistical significance. These points (1990 in particular) were the largest outliers and derived from only one station's results. The 1994 data point for Resolute is supported by similar, indeed, higher points for Alert and Eureka. In any case, if we remove it the trend is still positive and significant.

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