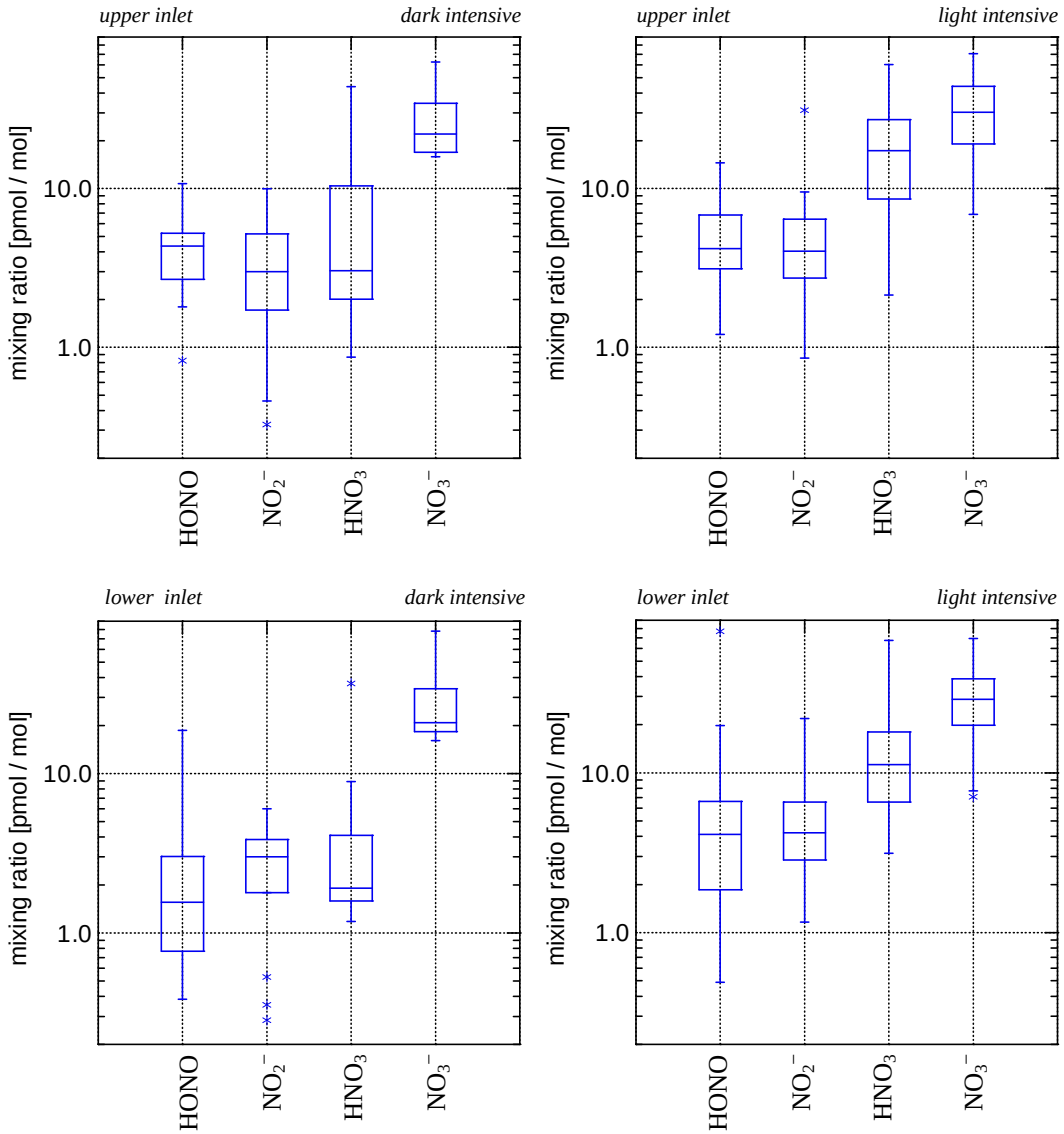

Figure 1. Box-and-whisker plots of the nitrogen measurements at the lower and upper inlet (lower and upper row, respectively) during the dark and light intensive (left and right column, respectively). In the box the middle line shows the median, the box includes 50% of the distribution, and the whiskers extend to 95% of the distribution [*Systat 9*, 1999].

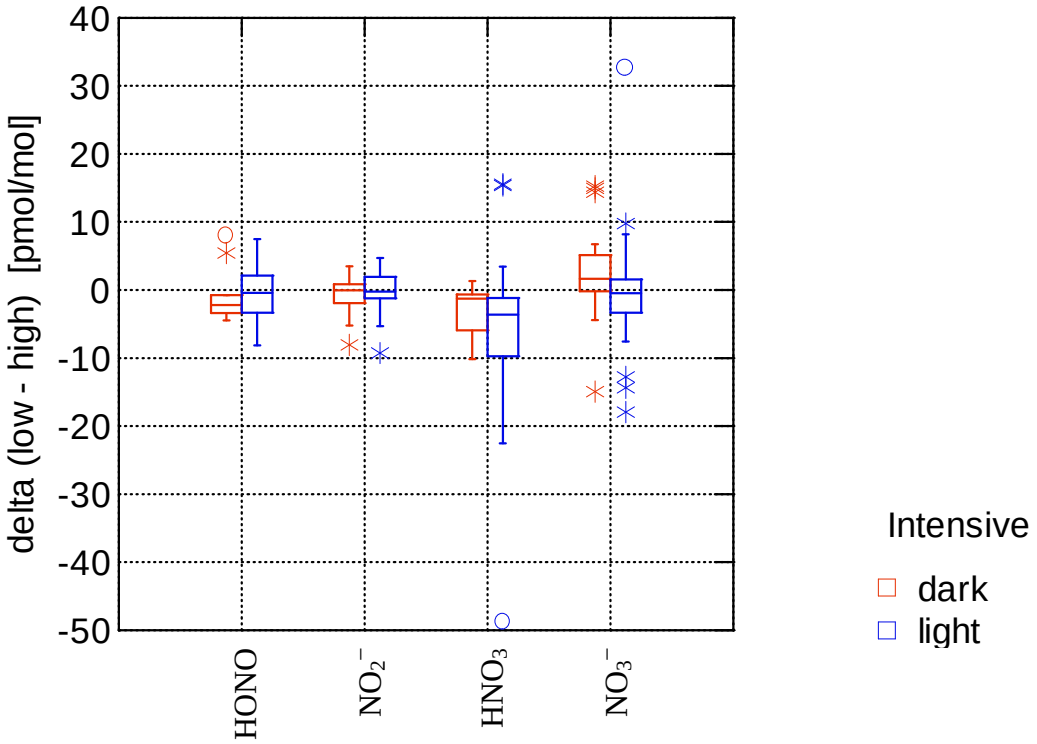

Figure 2. Δ (low – high) of nitrogen species during the two intensives. Only Δ_{HNO_3} was statistically significantly different from zero. During the dark intensive the mean Δ_{HNO_3} was –2.90 pmol mol^{-1} (95% confidence interval from –5.56 to –0.24, p=0.0356), during the light intensive Δ_{HNO_3} was –5.49 pmol mol^{-1} (95% confidence interval from –9.39 to –1.59, p=0.0072).

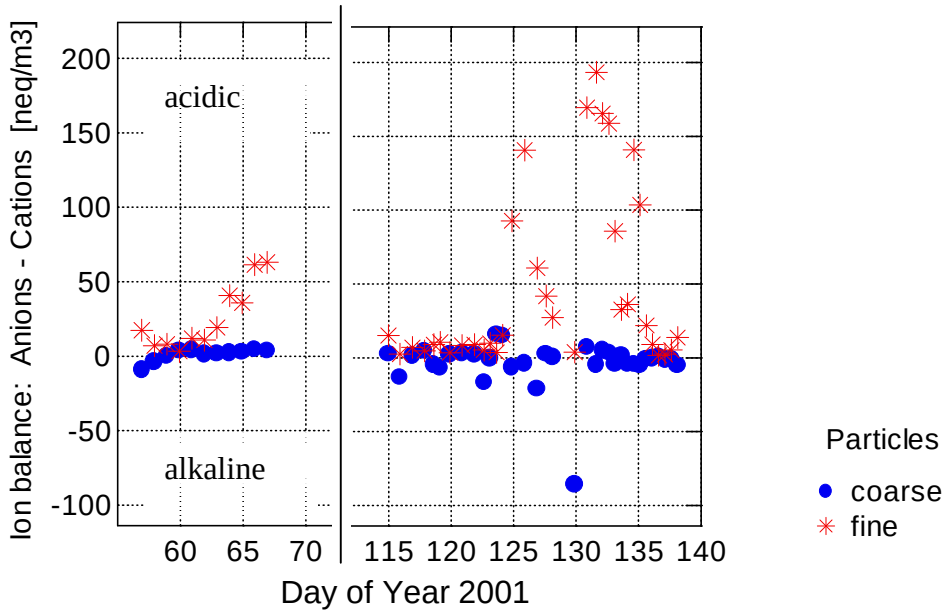

Figure 3. Ion balance for the high line during both intensives at Ny-Ålesund: (Cl^- + NO_2^- + Br^- + NO_3^- + SO_4^{2-}) – (Na^+ + NH_4^+ + K^+ + Mg^{2+} + Ca^{2+}) [neq m^{-3}] for coarse (> 2.5 µm aerodynamic diameter) (blue circles) and fine (< 2.5 µm) particles (red stars).

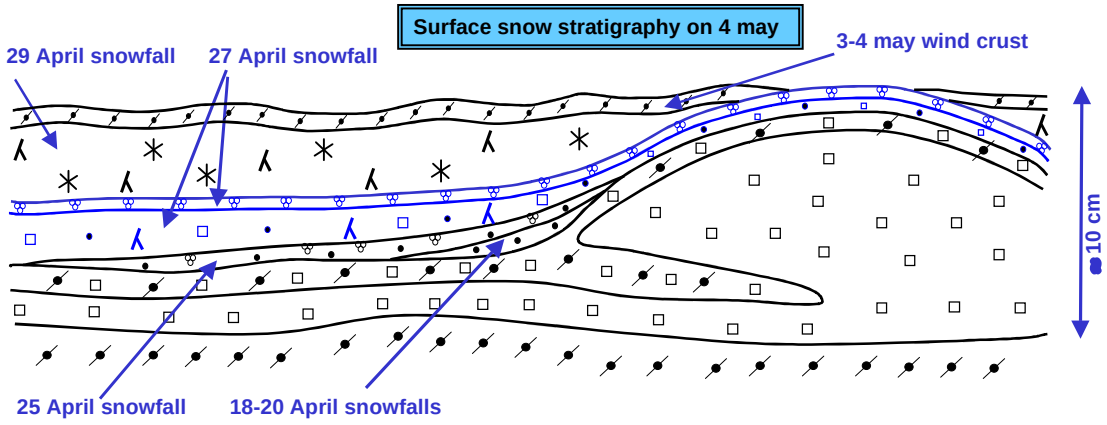

Figure 4. Surface stratigraphy of the snowpack near the Amundsen mast. The total thickness of the snowpack is about 40 cm.

2

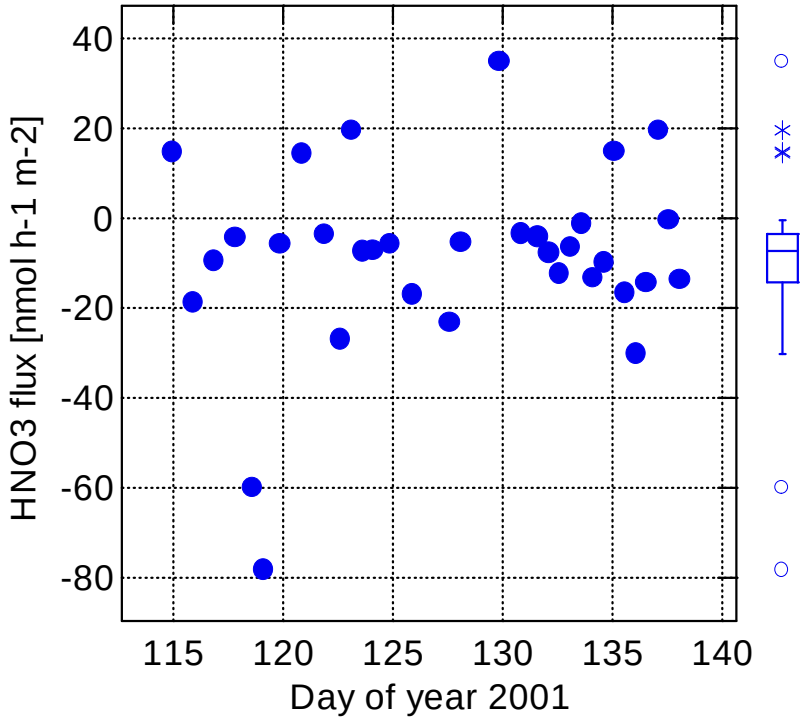

Figure 7. HNO_3 flux above the snow surface derived from denuder measurements at 2 cm and 180 cm above the snow surface.