Title	**Carbohydrate concentrations in different plant parts of young beech and spruce along a gradient of ozone pollution**
Author	Sabine Braun , Ulrike Zugmaier , Vera Thomas and Walter Flückiger
Journal	Atmospheric Environment
Abstract	Young beech and spruce were grown in pots along a gradient of ozone pollution in Switzerland. Spruce was harvested after one and beech after two seasons and carbohydrate concentrations were measured in different plant fractions. Ozone uptake was calculated as cumulative flux, cumulative flux with thresholds of 1.6 or 3.2 nmol m−2 s−1, or as AOT40. In beech, the monosaccharide concentration in fine roots showed a decreasing trend with increasing ozone, with similar results for all methods used to quantify ozone. In spruce, the concentration of starch decreased in both the thicker root fractions (1–5 and >5 mm) and stems with increasing ozone, whereas starch concentrations in needles increased with increasing ozone. In the needles, the increase in starch concentration showed the best correlation with cumulative ozone uptake. The defining of the length of the growing season proved to be a crucial parameter in the flux calculations. The results suggest that carbohydrate concentrations may be used as an indicator for ozone impact in spruce.
Year	2004
Pages	2399- 2407
keywords	