

Report **Ozon im Wald: Schutzwirkung bei hoher Ozonbelastung?**
Praktikumsbericht von Marianne Leuenberger, Dipl. Umwelt-Natw. ETH, im Auftrag von OSTLUFT

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Abstract: Do forests protect against high ozone-levels?

Over the last decades ozone exposure has become an omnipresent topic in media coverage. Especially during periods of high ozone exposure the public interest not only focuses on the amount of current exposure but also on protective advice. Therefore, the official communiqués provide recommendation on protective behaviour. Many communiqués state that the ozone exposure tends to be lower in forests.

The goal of this internship was to collect and analyse data or literature in order to confirm and substantiate these statements. The report is based on data analysis as well as on a literature review. It summarizes the investigative work on the comparison of ozone exposure in open spaces and forests.

Two data sets of parallel measurements were available for specific analysis. Additional data analyses were taken into consideration. The data analysis, which was especially conducted for days with high ozone exposure, showed a significantly lower nighttime ozone exposure in dense forests. On the other hand, during the typical high-exposure periods in the early afternoon, no significant difference between forests and field sites could be found.

As the available data on the horizontal comparison of ozone exposure in forests and open field sites did not allow for significant conclusions, the investigation was extended to research focusing on the vertical ozone gradient above and in forests. The vertical ozone gradients inside and outside forests allow for further comparisons of the exposure situation.

These comparisons showed no significant difference between vertical ozone gradients inside and outside forests during the hours of high exposure (midday to early afternoon). Only from dusk until dawn is the ozone exposure in forests markedly lower than in a nearby open field site. Therefore, the above-mentioned statements on protective behaviour have to be reconsidered.

Ozone-levels within forests seem to be influenced by various local conditions. In order to obtain more accurate knowledge on the exposure differences between forest and field sites, specific research should be carried out. For a holistic understanding of the exposure situation at different sites, the knowledge of the impact of the various transportation, deposition and formation processes should be more accurate.