



## **OVOCs in Switzerland: Background and urban measurements and estimation of anthropogenic sources**

**G. Legreid** (1), S. Reimann (1), M. Steinbacher (1), J. Balzani (2), J. Staehelin (2), P. Simmonds (3), S. O'Doherty (3) and D. Young (3)

(1) Swiss Federal Laboratories for Material Testing and Research (Empa), Duebendorf, Switzerland, (2) Institute for Atmospheric and Climate Science, Swiss Federal Institute of Technology, Switzerland (3) University of Bristol, United Kingdom, (geir.legreid@empa.ch / Fax: +41-44-8216244 / Phone: +41-44-8234945)

Oxygenated volatile organic compounds (OVOCs) were analyzed during four seasonal measurement campaigns at both a background site (High Alpine Station Jungfraujoch) and an urban site (Zurich) in Switzerland. The campaigns lasted for about one month each. For the analysis a newly developed double adsorbent sampling system coupled to a GC-MS was used. The high Alpine station at Jungfraujoch is located at 3580 m a.s.l. in the Swiss Alps and is a unique location for studying the chemistry of the lower free troposphere and transport phenomena. The compounds of main interest were C1-C5 alcohols, C2-C6 carbonyls and selected VOCs. The seasonal differences are discussed as well as the different sources for the OVOCs. The OVOCs are not only emitted from anthropogenic and biogenic sources, but also produced by oxidation processes in the atmosphere [1]. Therefore, source profiles from the urban measurements in Zurich were used to distinguish the influence of primary and secondary OVOCs at the high Alpine background site.

Primary source regions for the OVOCs have been identified from back-trajectory analysis, and their source strength was calculated from average ratio of the OVOCs versus carbon monoxide (CO) concentrations during pollution events [2].

### References:

[1]: Singh, H. B., L. J. Salas, et al. (2004). *Journal of Geophysical Research-Atmospheres* **109**(D15): art. no.-D15S07.

[2]: Reimann, S., D. Schaub, et al. (2004). *Journal of Geophysical Research-*

*Atmospheres* **109**(D5): art. No. –D05307.