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Chemical characterisation and source apportionment of ambient PM10 at different Swiss locations: variations between 1998-1999 and 2008-2009.

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Ten years ago, PM10 samples from various sites in Switzerland have been collected and chemically characterised. PM10 samples from different locations (urban kerbside, urban background, suburban and rural) were collected at every fourth day from January 1998 to March 1999 and analysed for inorganic ions, trace elements and the carbonaceous fraction. This data provided a detailed picture about the variation of the PM10 chemical composition between different site types (Hueglin et al. 2005) and allowed the identification and characterisation of main emission sources.
Recently, the above described study has been repeated. PM10 samples have been collected during a one year period (August 2008 to July 2009) and comprehensively characterised similar to procedure of the earlier study. We present the PM10 composition in Switzerland as obtained in this follow-up study and contrast the results with the findings from the earlier study. As a fundamental part of this work, the data from both studies have been analysed (and re-analysed) by means of factor analytical receptor models (Positive Matrix Factorization, PMF). The obtained differences in source characteristics and source contributions will be discussed in the light of slightly but steady decreasing PM10 concentrations in Switzerland during the past years.

References:
Hueglin, C., R. Gehrig, M. Gysel, U. Baltensperger, C. Monn and H. Vonmont (2005). Chemical characterisation of PM10 and PM2.5 at urban, near-city and rural sites in Switzerland. Atmos. Environ. 39: 637-651.