

Name of research institute or organization:

**Department of Environmental Sciences – Botany, University of Basel**

Title of project:

Stable isotopes in plant wax aerosols

Part of this programme:

Sustainable land use group at the University of Basel

Project leader and team:

Prof. Ansgar Kahmen, project leader

Dr. Daniel Nelson

Project description:

We are collecting particulate material onto glass fiber filters to analyze the distribution and hydrogen isotopic composition of plant waxes at this location. The low abundance of these compounds at Jungfrauoch requires that we sample at 1000 LPM for a month at a time. We are using these samples to help us define the background levels for these compounds in the atmosphere. We are hopeful that these samples will help us to define a background signal against which we can evaluate similar samples that we are also recovering from low elevation sites (grassland and forest) in Switzerland.

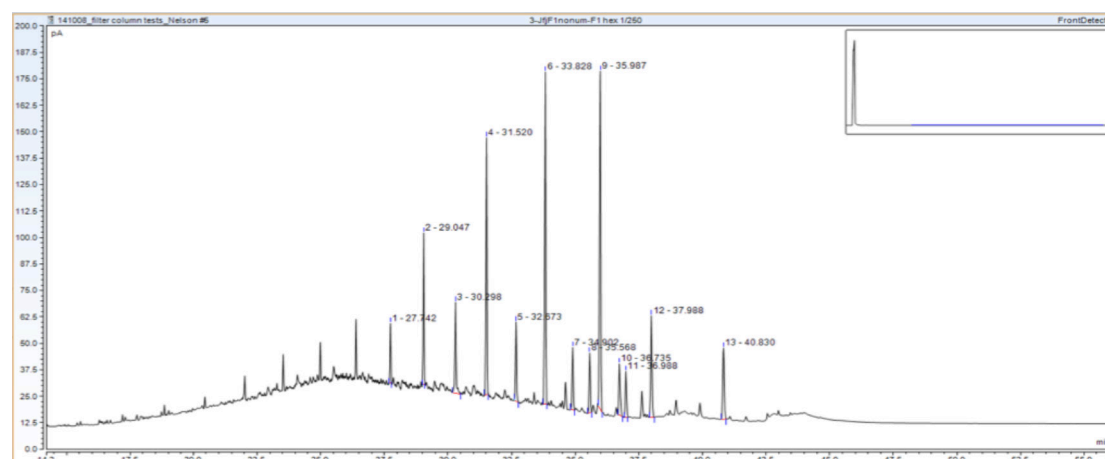


Figure 1. Example chromatogram showing leaf waxes collected over a one-month interval in June of 2014, with retention time (minutes; x-axis) vs. detector response (pA; y-axis). The chromatogram is from a gas chromatography - flame ionization detector (GC-FID). The sample shows the hydrocarbon fraction from a total lipid extract of particulate material after purification using silica column chromatography. A homologous series of long-chain n-alkanes with a prominent odd-over-even chain length preference indicates a contemporary terrestrial higher plant source. The unresolved complex matrix (UCM) centered on ~26 minutes indicates additional input from petroleum combustion.

Key words:

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Leaf wax lipids, aerosols

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