POST EXPEDITION FIELD and STATUS REPORT

Heavy metal deposition during fall and winter seasons
on a peat bog from Black Forest, Germany

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General views of the Kohlhütten Moor

PREFACE

This report is submitted to the respective agencies and persons who have supported the project or have substantial interest in the results. It primarily provides a public record of the field work, detailing how and where plants and snow samples were taken for later analysis and dating. Additionally, the present status of the samples is given.
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DISCLAIMER

The ideas and opinions expressed in this report are the authors alone. They do not necessarily reflect the opinions or ideas of the funding agencies, employers, or corporate sponsors.

Respectfully submitted by

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ABSTRACT

This field report describes the field expeditions undertaken first on the 21thOctober 2002 and secondly the 20th February 2003 in Black Forest Germany.

Plants and a snow profile were collected using clean procedures. They will provide information on the source of dust in the peat bog underneath, a short record of atmospheric deposition on a peat bog and help us to understand the mechanisms of metals adsorption by bog plants in Winter and in Spring during snow melting.

Subsamples will be analysed for major elements, trace elements, Pb and Sr isotopes and mineralogy.

I. GENERAL INFORMATION

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Lichen sampling, snow sampling

TRAVEL
We use private car of G. Le Roux.

LOGISTICS
The material was transported with the car.

II. SITE DESCRIPTION

Detailed description of the site could be found in the previous field report on the web page of the author:
http://cf.geocities.com/gwanach/earth.html

SITE LOCATION
The coordinates of the Kohlütten Moor are
N 47°,44´,697/E 008°,02´, 544/ z=1044m.

III. PLANTS SAMPLING in FALL (Gaël Le Roux)

Plants and water samples were taken in the Kohlhütten Moor and near the B31 road during a rainy day.

EXPEDITION PLAN:
The primary goals of the expedition can be summarised as follow:

- To collect *Sphagnum* samples to study the spatial and temporal variability of metals and 7Be- 210Pb deposition in a peat bog,
- To collect surface water samples and to study the hydrography of the bog during the Fall season.

SAMPLES LIST:

Field code	Name	type
IM1 sph GP	WIM1GP	sphagnum, living part
IM1 sph YP	WIM1YP	sphagnum, dead part
IM2w LP	WIM2LP	sphagnum, living part
IM2w NLP	WIM2DP	sphagnum, dead part
IM2w decom	WIM2DCP	sphagnum, decomposed moss
IM3w mossGP	WIM3GP	?, green part
IM3w BP	WIM3BP	?, brown part
IM4GP	WIM4aGP	sphagnum, living part
IM4WP	WIM4aDP	sphagnum, dead part
IM4DCP	WIM4aDCP	
IM4TP	WIM4aTP	
IM4GPb	WIM4bGP	sphagnum, living part
IM4BPb	WIM4bBP	sphagnum, dead part
IM5underwater	WIM5uw	sphagnum, living part

IM5

IM6GP	WIM6aGP	
IM6NL	WIM6aDP	
IM6foligage	WIM6aF	
IM6underwater	WIM6bUW	sphagnum, living part
IM6underwaterPeat	WIM6P	peat
IM7??GP	WIM7aGP	??, green part
IM7BP	WIM7aDP	, brown part
IM7DCP	WIM7aDCP	, decomposed
IM7bisRP	WIM7bRP	sphagnum, red living part
IM7NLP	WIM7bDP	sphagnum, dead part
IM8RP	WIM8LP	sphagnum, living part
IM8NL	WIM8NL	sphagnum, dead part
IMSPaUnderwater	WIM10LP	sphagnum, living part
IMSPaUWnlw	WIM10NL	sphagnum, dead part
IMSPbisGR	WIM10bGR	sphagnum, living part
IMSPbisNP	WIM10bDP	sphagnum, dead part
IMcôtéroute	WIM11	??, green part
Lichen	WIM12L	lichen on spruce

Samples collected near the B31 direction Neustadt.

B311 GP	sphagnum, living part
B311 DCP	decomposed sphagnum
B312GP	sphagnum, living part
B312DP	sphagnum, dead part

N.B.: all rocks and plants samples are also available in little plastic bag for specie determination.

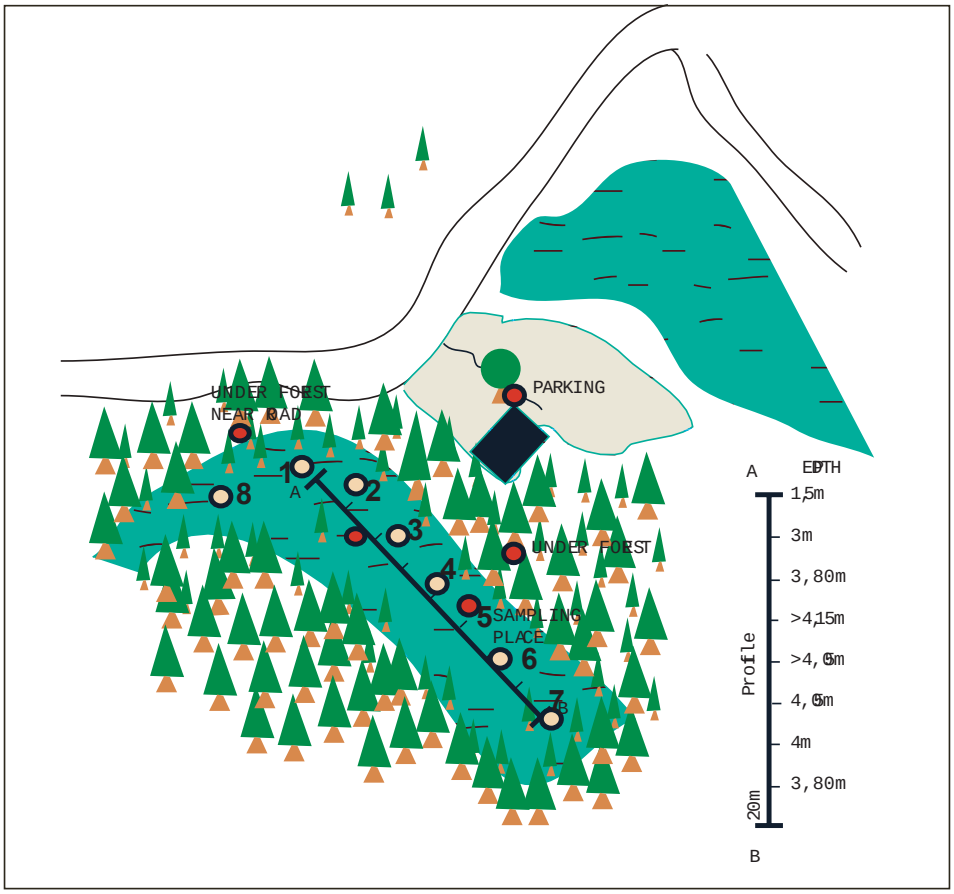

fig 1: map of Kohlhütten Moor showing where the Sphagnum samples were sampled.

IV. SNOW SAMPLING in WINTER (Gaël Le Roux, Dominique Aubert)

A snow profile was collected on Thursday the 21th February on the Kohlhütten Moor.

EQUIPMENT

List of the equipment:

Polyethylene film
Plastic bags
Garbage bags
PET gloves
Emergency kit
Permanent markers
Snow drill
Snowshoes

EXPEDITION PLAN

The primary goals of the expedition can be summarised as follow:

- to collect snow samples on a peat bog in South Black Forest, to understand the atmospheric input of elements in Winter, to study the short temporal variations in atmospheric deposition of metals and REE,
- to collect lichens for REE studies.

GENERAL NOTES

Route Planning and Navigation: Gaël Le Roux guided the expedition team.

Method: A hole was dug in the 70cm snow layer. Each 10 cm layer was collected with gloves in plastic bags previously washed by the sample. They were maintained frozen in insulated picnic box until their filtration in Strasbourg at the EOST Centre de Géochimie de la Surface in a clean laboratory.
Surface snow (6,5l) was also collected to "obtain more material".

GENERAL REMARKS ON THE CORE

a b

fig 2: view of the profile at different times of collection, a: not compacted snow, b: compacted, icy snow

fig 3: bottom of the profile, you can see the different layers, also distinguishable by touch.

Samples were collected carefully in a way to avoid contamination:

- the hole was handdug with gloves,
- bags were previously washed with aliquots of the snow samples.

Different layers were visually observable: Bottom snow, two very hard layers of icy snow in the bottom, and the top 50cm snow easy to collect.

STATUS OF STUDY

The present status of our study as of March, 2003 is briefly as follows:

All snow samples were filtered (0,45µ) in Strasbourg. They are archived at 0°C at the Institute of Environmental Geochemistry, University of Heidelberg in Germany for major elements and metals analysis and in Strasbourg for the REE analysis.
All samples will be subsampled and studied at Heidelberg for major elements chemistry (ICP-OES, ion chromatography), trace elements (XRF, ICPMS, GFAAS, IDMS), isotope chemistry (TIMS), mineral analysis (microprobe XRF, Raster Microscope on the filters) and nuclides detection (Gamma detector).

SUMMARY:

Snow samples and plants samples were collected in fall 2002 and winter 2003. These samples will be analysed for geochemistry and will give us information on the atmospheric input in a peat bog during the fall and winter season.