

FutMon/ICP Forests Combined Expert Meeting, 12 – 16 January 2009

15th Meeting of the Expert Panel on Soil and Soil Solution

Hamburg, Germany, 15 – 16 January 2009

Draft Minutes

Nathalie Cools (FSCC) and Bruno De Vos (Chair FSEP)

Agenda: SEE ANNEX 1

Participants: SEE ANNEX 2

Thursday 15 January 2009

Opening, welcome, adoption of the agenda (Bruno De Vos, chair FSEP)

The programme on Thursday focussed on the soil data requirements for the FutMon action D2 and D3. In the morning the combined meeting N° 12 with the Expert Panel on Meteorology considered the physical soil data requirements for the action D3 on soil water balances. See the minutes of the concerning meeting for more information. In the afternoon the data requirements for D2 were discussed and the availability of the BioSoil data. The second day of the Soil Expert Panel focussed on quality related issues in the laboratories.

Action D2: Nutrient cycling & critical loads

John Derome (Finland) presented action D2, since the action group leader Pasi Rautio (Finland) could not attend the meeting. Action D2 needs nutrient concentrations and stocks in the soil on different depths. According to the manual, following soil information should be available on all D2 plots where the BioSoil inventory was conducted:

- 1) All **exchangeable elements** till 80 cm (Al, Ca, Fe, K, Mg, Mn, Na, free H⁺ and exchangeable acidity).
- 2) The **bulk density** of the 0 – 10 cm layer; lower depths can be based on estimations or predicted by pedotransfer functions.
- 3) The availability of information on the **aqua regia extractable elements** depends on the element and the depth layer:
 - P, Ca, K, Mg, Mn (macro-nutrients): only mandatory on the litter layer (OF+OH layer)
 - Cu, Pb, Cd, Zn: mandatory on the OF+OH layer and on the 0 – 10 cm
 - The remaining elements are optional on all depth layers.
- 4) Total elements: optional on all depth layers

Note that the soil parameters on the 20-40 and 40-80 cm layers were optional in case they were already assessed in a previous inventory in the 90's.

The calculation of the critical loads will be done in cooperation with ICP Modelling and Mapping. The required soil data are listed in Table 1.

Table 1: Soil data requirements for the calculation of critical loads

Parameter	Availability
Thickness of rooting zone	Was a variable in the BioSoil survey but it is not sure whether this was assessed correctly.
Bulk density of soil	Mandatory on 0 – 10 cm layer.
Ca, Mg, K, Na weathering rates	Not available.
Water fluxes through rooting zone	Will become available through action D3 but not before the end of FutMon end 2010.
DOC in soil solution	For the soil solution survey.
CEC, BS, pH, C/N ratio	Exchangeable cations and pH are mandatory till 80 cm. So CEC and BS can be calculated. C and N are mandatory till 20 cm of depth.

Since BioSoil Level II was assessed on less plots than where action D2 and D3 will be carried out, an additional soil survey will be required to obtain the missing information. Table 2 presents the situation for each of the associated beneficiaries.

Table 2: The Number of plots in IM1, D2 and D3 action with an indication of the number of plots assessed in BioSoil

Country	IM1	assessed in BioSoil	D2	assessed in BioSoil	D3	assessed in BioSoil	existing soil moisture data
1 AT	15		6	6	6	6	2
2 BE FL	5	5	5	5	5	5	5
3 BU	3		3				
4 CY	2						
5 CZ	14	14	10	10	10	10	
6 DK	6	3	6	3	6	3	yes
7 EE	7	0	5				
8 FI	18	16	18	16	18	16	yes
9 FR	42	10	10	10	10	10	no
10 DE BB	4		4		4		
BW	5		5		5		
BY	10	0	10	0	6	0	
NWD	9	4	9	4	9	4	5
MV	2		2		1		
NW	4		4		3		
RP	3		3		2		
SH	1		1		1		
SL	1		1				
SN	2		2		2		
TH	3		3		3		

DE	Total	44	8	44		36		
11 GR		4	4	3	3	3	3	no
12 HU		8	3	2	1			
13 IE		3	3	3	3			no
14 IT		31	7	11	7	5	5	3
15 LT		9						
16 LV		1	0					
17 NL		5						
18 PL		12						
19 RO		4	4	4	4	4	4	no
20 SK		8	7	4	3	4	3	no
21 SI		10	10	2	10	6	6	no
22 ES		30	30	13	13	7	7	no
23 SE		12	4	12	4			2
24 UK		10	4	4	unknown	4	unknown	no
Total		303	132	165	98	124	78	12

The countries marked in grey were not present at the meeting. FSCC will contact them by email to complement the table. Germany will have a meeting with the federal states at the beginning of February where they will complete the information concerning Germany. Note that Italy, Spain and UK want to reduce the number of D2 plots compared to the FutMon project proposal of Sept'08. The table shows that on less than 60% of the D2 plots, soil data from the BioSoil project should be available. Urgent action is needed in FutMon to complete the required soil data on D2 and D3 plots.

Availability of the BioSoil data

Since not all the countries managed to meet the deadline of data submission by the end of December 2008, JRC/INRA extended the data submission deadline. It was the intention that only validated data could be finally submitted, after the confirmation of the warning launched by the system. Many countries, however, did not find the time to check and confirm all the warnings and managed to submit only partially validated data. We do not know whether JRC/INRA will request the countries in the coming months to make a final validation and whether this is feasible since for the MS the project (and the funding) ended already last September.

The next problem is that we do not know when the validated data will be available for evaluation in the FutMon project. The Level II data are needed for actions D2 and D3 and the Level I for action C1(SOIL)-3-FL which is the elaboration and publishing of a second pan-European Forest Soil Condition report. The expert panel fears that the availability will be a severe constraint. Therefore the panel agreed to store a copy of the submitted BioSoil data (including data accompanying reports) at vTI and at FSCC between now and Sept'09. Also all updates, which will be sent to the JRC/INRA, should be sent to vTI and FSCC. The FSEP asks vTI as coordinating beneficiary to send an invitation letter to all associated beneficiaries in the coming weeks. It is not the aim to build a parallel database but rather a backup in case we do not obtain in time the BioSoil data from the JRC. It also allows FSCC and vTi to make an inventory of the existing BioSoil soil data.

The Expert Panel plans a meeting on the evaluation of the BioSoil data in the second Forest Soil Condition report at the end of this year or early 2010 in a back-to-back meeting with the Combined Expert Meeting. It is suggested that FSCC elaborates on the general forest soil data at a European

level, and that forest soil condition is described in detail by multinational editorial groups for specific European soil regions: e.g. Nordic forest soils, European lowlands, Mountainous areas, Mediterranean soils, ...

The Manual IIIa: Sampling and analysis of soil

Feedback from the Google discussion groups

Four Google discussion groups have been established:

- 1) [Forest Floor and Soil Profile Description and Classification](#)
- 2) [Soil Chemistry](#)
- 3) [Soil Physics](#)
- 4) [Soil Biology](#)

John Derome (Finland) will activate the fifth group on [Soil Solution](#) soon. The main discussion items will be the restructuring of the manual IIIb and the introduction of new parameters (see minutes of 14th FSEP in Firenze).

A few discussions have been initiated but overall activity at this moment is low. Expert panel members are invited to join the discussion group of their interest. Contact FSCC or request for access through activating the hyperlinks in this document.

Restructuring the manual

Nathalie Cools (FSCC) presented the problems met in restructuring the manual IIIa according to the specification of the QA Committee. However, several paragraphs in the structure remain unclear. The Expert Panel regrets that no QA Committee was organised during this combined meeting where these problems could be clarified and solved. The manual should be ready for approval by the Task Force in 2010. In the meantime, FSCC will develop the so called 'FutMon' field and lab protocols for the parameters which need to be specifically assessed in FutMon. FSCC will also update the format of the data forms in cooperation with the database manager of vTI (Oliver Granke).

Friday 16 January 2009:

I. Feedback from meeting on Action C1-QALab-30(NWD): Working group on QA/QC in labs (N. König)

Agreements between the organisers of the ring tests for soil, water (including soil solution) and foliage have been made to work all according to a similar procedure for the evaluation and follow up of the ring test results. For the soil this has following consequences:

1. Application of **tolerable limits** following the example of the foliar ring test. The tolerable limits have been presented at the 14th Expert Panel on Soil and Soil Solution.

2. Follow up of bad ring test results:

After the ring test, each laboratory will receive a **qualification report**. This report will indicate whether the laboratory analysed and passed the ring test for each parameter individually. In case it failed for one or more parameters a requalification will be necessary.

Requalification procedure:

1a. Reanalysis of the ring test samples, report to the WG QA/QC with the new results together with the original reports of the instruments and information about weight factors, dilution factors etc.; information about the reasons for the bad results during the ring test

alternative:

1b. Helping programme for the lab with bad ring test results; then reanalysis of the ring test samples, report to the WG QA/QC with the new results together with the original reports of the instruments and information about weight factors, dilution factors etc.; information about the reasons for the bad results during the ring test

2. Decision of the WG QA/QC about the report from the lab. If everything is ok, the laboratory will receive its requalification report.

The Google discussion group of the WG on QA/QC in the labs can be an interesting way of communication between the laboratories and for exchange of experience.

3. Opening of the lab code

At the meeting of the heads of the laboratories in June 2008, it was suggested to invite all laboratories to release their lab ID within this group. In case they do so, they can benefit from the information present in a technical info database on laboratory equipment, instruments, etc. In case they do not, they won't have access to the codes of the other laboratories.

It was decided to send a letter to all laboratories to ask them to release their lab ID within this group. We had 13 positive reactions and no reaction against this proposal. That means that the heads of the labs agreed to the releasing of the lab codes. During the registration for the ring tests in the data input modules all participants have to declare their agreement to the opening of the lab code. On the next Task Force Meeting in St. Petersburg in May 2009 NFC's will be informed about this decision.

3. Data quality report

Each laboratory has to produce a yearly quality report for foliar, deposition, soil, soil solution and vegetation analyses. This report is mandatory within the FutMon project.

List of parameters/information, which will be integrated in the FutMon database:

- Number of the lab
- Ring test number
- % of results within the tolerable limits (for each parameter)
- Quantification limit (for each parameter)
- Detection method (coded) (for each parameter)
- Mean and standard deviation from the yearly control chart (for each parameter)

4. Submanual on QAQC in the labs

On the basis of the published quality check paper a new submanual „Quality assurance and control for the analyses of deposition, soil solution, soil, foliar, litterfall and vegetation samples“ will be prepared during the next months by a small WG led by Anna Kowalska. This submanual will substitute the quality parts in the deposition, soil solution, soil, foliar, litterfall and vegetation manuals.

5. Quality indicators

Three quality indicators have been chosen for the analytical work:

- % results of each ring test within the tolerable limits
- % results of each ring test with a within run repeatability (for each lab) below 10 % (not for water ring tests)
- median of parameters for which the labs use control charts

6. Preparation of the meeting of the heads of the labs in Warsaw (October 2009)

The planned topics and the date of the meeting (either 12/13 October or 19/20 October) were discussed. All heads of the labs and the NFC's will be informed in time.

II. Organisation of soil ring tests in FutMon

1. Soil solution ring test (Action C1-SS-10-(FI))

This ring test is organised together with the Expert Panel on Deposition. The ring test will include 2 deposition samples, 2 soil solutions, 2 synthetic solutions for alkalinity and 2 synthetic solutions for DOC and TN. The time table of this ring test is depicted below. A next water ring test will be organised in 2010.

Date	Action
January '09	Invitation
February '09	Registration
March '09	Distribution of samples
May '09	Submission of results by labs
Sept'09	Draft report
Oct'09	Discussion of results at meeting of the heads of the labs, Warsaw

2. 6th FSCC Interlaboratory Comparison (Action C1-Soil-3(FL))

This ring test includes all mandatory and optional parameter of Table 3 in the manual IIIa (2006). Five samples will be included: one peat sample (Finland), one litter layer sample (Belgium) and three mineral soil samples (France, Spain and Slovakia). The time table is as follows:

Deadline	Action
End of Jan'09	Announcement/invitation by email and start of on-line registration
28/02/'09	Deadline on-line registration
02/03/'09	Distribution of soil samples
30/06/'09	Deadline of reporting of laboratory analytical results on-line

30/09/'09	Report available on-line at FSCC homepage
Oct '09	presentation and discussion of results at meeting of the heads of the labs
31/12/'09	Final report

3. 1st ring test on soil physical parameters (Action C1-Soil-3(FL))

The organisation and timetable of this ringtest is discussed during Meeting No 12. See the minutes of this meeting.

III. Report on the results on the FSCC soil reference material in the BioSoil project (Nathalie Cools)

The major aim of the FSCC soil reference material was to provide laboratories material to make control charts for those variables for which commercial materials are not readily available. Additionally it allowed us to compare the variability in each lab relative to (each other and) the central lab. The laboratory reproducibility over a whole year could be assessed which is an important quality indicator of a laboratory. The reference material gave us also information on the quality improvement by analysis of a BioSoil subset by a central laboratory. The presentation will be on-line available at the FSCC homepage. FSCC will try to publish these results in a peer reviewed journal.

Conclusions

The 15th FSEPM discussed the data needs for action D2 and D3 and expressed its concern on the timely availability of the BioSoil data to fulfil its obligations in action D2, D3 and C1-Soil-3-FL. Therefore the panel suggests to collect a back-up of the submitted BioSoil data at the coordinating beneficiary and at FSCC.

In order to improve the quality of the laboratory analyses agreements on the organisation of the planned ring tests and follow up of bad ring test results have been made.

UN/ECE ICP FORESTS
15th Forest Soil Expert Panel Meeting

Annex I: AGENDA

Thursday 15th January 2009: 14:00 – 18:00

14:00 – 14:10 Adoption of the agenda

14:10 – 16:00 Action D2: Nutrient cycling & critical loads

14:10 – 14:30 Presentation of FutMon Action D2 (*John Derome*)

14:30 – 15:30 Discussion on data requirements for FutMon Action D2

Which parameters are needed coming from:

- Soil
- Soil solution
- Optional/Mandatory depths
- Mandatory/optional parameters
- Already assessed in BioSoil? On how many plots?

15:30 – 16:00 Update of the manual IIIa (*Nathalie Cools*)

- Feedback from the Google discussion groups
- Application of new structure of the manual: status and problems

16:00 – 16:30 *Coffee break*

16:00 – 17:15 Availability of the BioSoil data

Friday 16th January 2009: 8:30 – 12:00 QA/QC related issues

8:30 – 9:30 Feedback from Meeting 7 QA/QC Labs and discussion (*N. König*)

9:30 – 10:00 Organisation of soil related ring test: time table and status

1. Soil solution ring test
2. 6th FSCC Interlaboratory Comparison
3. 1st ring test on soil physical parameters

10:00 – 10:30 Report on the results on the FSCC soil reference material in the BioSoil project (*Nathalie Cools*)

10:30 – 11:00 *coffee break*

11:00 – 11:15 Planning of coming FutMon - Soil EP meetings in view of preparation of the second Forest Soil Condition Report

11:15 – 11:45 Questions from the participants

11:45 – 12:00. Other matters

Annex II: List of participants to Meeting 12 and/or 14:
--

First Name	Name	Country	Email	Survey
Franz	Mutsch	Austria	franz.mutsch@bfw.gv.at	soil
Karl	Gartner	Austria	karl.gartner@bfw.gv.at	meteo
Nathalie	Cools	Belgium	nathalie.cools@inbo.be	soil
Bruno	De Vos	Belgium	bruno.devos@inbo.be	soil
Vit	Šrámek	Czech Republic	sramek@vulhm.cz	meteo
Vera	Fadrhonsová	Czech Republic	fadrhonsova@vulhm.cz	
Lars	Vesterdal	Denmark	lv@life.ku.dk	soil
Endla	Asi	Estonia	endla.asi@metsad.ee	soil
John	Derome	Finland	John.Derome@metla.fi	soil
Egbert	Beuker	Finland	egbert.beuker@metla.fi	
Erwin	Ulrich	France	erwin.ulrich@onf.fr	soil
Nils	König	Germany	Nils.Koenig@nw-fva.de	laboratory
Henning	Meesenburg	Germany	henning.meesenburg@nw-fva.de	soil
Nicole	Wellbrock	Germany	nicole.wellbrock@vti.bund.de	soil
Winfried	Grimmeisen	Germany	gri@lwf-uni.muenchen.de	meteo
Stephan	Raspe	Germany	ras@lwf-uni-muenchen.de	meteo
Oliver	Granke	Germany, vTI	oliver.granke@vti.bund.de	vTI
Richard	Fischer	Germany, vTI	richard.fischer@vti.bund.de	vTI
Suzanne	Iost	Germany, vTI	Susanne.iost@gmx.de	vTi
Panagiotis	Michopoulos	Greece	mipa@fria.gr	soil
Miklós	Manninger	Hungary	manningerm@erti.hu	meteo
Fiona	Harrington	Ireland	Fiona.harrington@coillte.ie	soil
Guia	Cecchini	Italy	guia.cecchini@unifi.it	soil
Stefano	Carnicelli	Italy	stefano.carnicelli@unifi.it	soil
Giuseppe	Parisi	Italy	g.parisi@corpoforestale.it	meteo
Dagnija	Lazdina	Latvia	dagnija.lazdina@siliva.lv	soil
Arta	Komorovska	Latvia	arta.komorovska@silava.lv	soil
Albertas	Kasperavicius	Lithuania	alber_k@lvmi.lt	meteo
Pawel	Lech	Poland	P.Lech@ibles.waw.pl	meteo
Lucian	Dinca	Romania	biometrie@icas.ro	soil
Radu	Cenusa	Romania	biometrie@icas.ro	meteo
Maria	Orlova	Russia	mashunyaorlova@gmail.com	soil
Pavel	Pavlenda	Slovakia	pavlenda@nlcsk.org	soil
Anna	Stancikova	Slovakia	stancikova@nlcsk.org	soil
Zuzana	Sitkova	Slovakia	sitkova@nlcsk.org	meteo
Marko	Kovac	Slovenia	marko.kovac@gozdis.si	soil
Tom	Levanic	Slovenia	tom.levanic@gozdis.si	meteo
Ana	de la Cruz	Spain	calleja@inia.es	soil
Mayte	Minaya	Spain	minaya@inia.es	meteo
Lars	Lundin	Sweden	Lars.Lundin@ma.slu.se	soil
Elisabeth	Graf Pannatier	Switzerland	elisabeth.pannatier@wsl.ch	soil
Marcus	Schaub	Switzerland	marcus.schaub@wsl.ch	meteo
Matthias	Dobbertin	Switzerland	dobbertin@wsl.ch	meteo
Andrew	Moffat	UK	andy.moffat@forestry.gsi.gov.uk	soil
Matt	Wilkinson	UK	matthew.wilkinson@forestry.gsi.gov.uk	meteo