

MINUTES

FORHOT – project meeting at Keldnaholt, Iceland

14-11-2016

Attending:

BDS = Bjarni Didrik Sigurdsson (Agric. Univ. Icel. / AUI)

GEGG = Gunnhildur E. G. Gunnarsdóttir (AUI)

PS = Páll Sigurðsson (AUI)

IAJ = Ivan A. Janssens (Univ. of Antwerp / UA)

SV = Sara Vicca (UA)

NL = Niki Leblans (UA/AUI)

SD = Steven Dauwe (UA/AUI)

ESO = Edda Sigurdís Oddsdóttir (Icel. For. Res. / IFR)

BM = Bryndís Marteinsdóttir (Univ. of Iceland / UI)

NP = Nia Perron (UI)

Agenda

1. General project status overview 2016 (Bjarni)
2. Updates from meeting participants:
 - i) Bjarni = ForHot Iceland
 - ii) Pall = Short report about the new FN project - status and plans
 - iii) Edda = Short report about the Mogilsa activities and plans within ForHot
 - iv) Bryndis + Nia = Short report about the plant phenology project - status and plans
 - v) Ivan = Short report about the Antwerp projects - status and main plans
 - vi) Niki = Short oral report from Niki about her post-doctoral ForHot (writing) plans or needs for further inputs
 - vii) Steven+Niki = Short update about the status of 2015 MSc theses - is there any need for any inputs from Asrun?
 - viii) Bjarni = The ForHot database
3. Other issues
 - Possible time of the next ForHot General Meeting in Vienna.
 - Grazing effects? (Bryndís)
 - The upcoming Nordic ForHot application (Bjarni)

Meeting started at 10:00

1. ForHot project status overview 2016

The list of participants of the ForHot project during 2012-2016. Researchers active in 2016 are in bold. Students who are still active in 2016 are in bold red; students who have finished are in normal blue font:

Agric. Univ. of Iceland

- Prof. Bjarni D. Sigurdsson (coord.)
- Gunnhildur E. G. Gunnarsdottir (job student)
- Páll Sigurðsson (Ph.D. student)
- Elín Guðmundsdóttir (M.Sc. student)
- Damiano Cilio (B.S. student from Italy).
- Dr. Úlfur Óskarsson
- Snorri Þorsteinsson (job student)
- M.Sc. Helena M. Stefansdottir

Icelandic Forest Research – Mogilsa

- Dr. Edda S. Oddsdóttir

Icelandic Inst. Nat. Hist

- M.Sc. Ásrún Elmarsdóttir

Univ. Akureyri

- Dr. Brynhildur Bjarnadóttir

Univ. of Iceland

- Dr. Bryndís Marteinsdóttir
- Nia Perron (M.Sc. student at UI)
- Prof. Kesara Anamthawat-Jónsson.
- Ella Thoen (B.Sc. student)

Univ. of Antwerp - Belgium

- Prof. Ivan Janssens
- Prof. Erik Verbruggen
- Dr. Hans de Boeck (Post-doc)
- Dr. Sara Marañón Jiménez (Post-doc)
- Dr. Sara Vicca (Post-doc)
- Dr. Jennifer Soong (Post-doc)
- Dr. Cindy De Jonge (Post-doc)
- Stephanie Van Look (M.Sc. student)
- Wendelien Meynzer (M.Sc. student)
- Steven Dauwe (Ph.D. student)
- Dr. Niki Leblans (Ph.D. student)
- Dajana Radujkovic (M.Sc. student / now PhD)
- Mattias Janssens (job student)
- Elien de Schutter (job student)
- Katherine Vande Velde (M.Sc. student)
- Lieven Michielsen (M.Sc. student)

Thünen Institute - Germany

- Dr. Christopher Poeplau

Basel University, Switzerland

- Prof. Christian Körner

Dr. Armando Lenz (Ph.D. student)

Cardinal Stefan Wyszyński Univ., Poland

- Dr. Krassimira Ilieva-Makulec

Vrije University, Amsterdam, NL

- Ass. prof. James T. Weedon
- Benjamin Hearn (M.Sc. student)

Leiden Univ., NL

- Prof. Peter van Bodegom,

Univ. Eastern Finland

- Dr. Marja Maljanen
- Heli Yli-Moijala (M.Sc. student)

Lund University

- Prof. Håkan Wallander
- Prof. Erland Bååth
- Dr. Zhanfeng Liu (Postdoc)
- Dr. Magnus Ellström (Ph.D. student)
- Dr. Stephanie Reischke (Ph.D. student)

Swedish Univ. Agric. Sci. (SLU)

- Prof. Thomas Kätterer
- Dr. Christopher Poeplau (Post-doc)
- Dr. Monika Strömgen
- Hanna André (B.S. student from SLU)
- Agnes Bondesson (B.S. student from SLU)

Univ. of Tartu, Estonia

- Prof. Ivika Ostonen
- Dr. Martin Maddison
- Kaarin Parts (Ph.D. student)

Copenhagen Univ. - Denmark

- Prof. Per Gundersen
- Anna Theresa Edlinger (M.Sc. student)

Aarhus Univ. - Denmark

- Prof. Martin Holmstrup

Univ. of Vienna - Austria

- Prof. Andreas Richter
- Dr. Tom Walker (post-doc)
- Dr. Anne Daebeleer (post-doc)

BOKU - Austria

- Dr. Hans Göransson
- Christoph Rosinger (PhD student)

METLA - Finland

- Prof. Leena Finér

Universitat Autònoma de Barcelona (UAB), Spain

- Prof. Josep Peñuelas
- Dr. Mireia Bartrons (post-doc)
- Albert Gargallo (post-doc)
- Xxxxxxx (M.Sc. student)

In total active in 2016:

31 researchers or postdocs

13 graduate, MS and PhD students

Papers „out“:

1. **JOURNAL PAPER:** Poeplau, Christopher, Kätterer, Thomas, Leblans, Niki I. W., & Sigurdsson, Bjarni D. (2016). Sensitivity of soil carbon fractions and their specific stabilisation mechanisms to extreme soil warming in a subarctic grassland. *Global Change Biology*, (available on-line).
2. **JOURNAL PAPER:** Sigurdsson, Leblans, et al. (2016). Geothermal ecosystems as natural climate change experiments: the ForHot research site in Iceland as a case study. *Icelandic Agricultural Sciences* (accepted; not available yet)
3. **JOURNAL PAPER:** Marja Maljanen, Heli Yli-Moijala, Christina Biasi, Niki I. W. Leblans, Hans J. De Boeck, Brynhildur Bjarnadóttir, Bjarni D. Sigurdsson. The emissions of nitrous oxide and methane from natural soil temperature gradients in a volcanic area in southwest Iceland. *Soil Biology and Biochemistry* (accepted, not available yet)

Almost out:

1. **JOURNAL PAPER:** Leblans, N. I. W. et al.: Persistent warming-induced extension of the growing season in subarctic grasslands (almost ready)
2. **JOURNAL PAPER:** Leblans, N. et al.. Large, fast and permanent SOC-losses in naturally warmed Icelandic grasslands. *Nature Climate Change* (to be resubmitted).
3. **JOURNAL PAPER:** Martin Holmstrup, Bodil Ehlers, Stine Slotsbo, Krassimira Ilieva-Makulec, Bjarni D. Sigurdsson, Niki I. W. Leblans and Matty Berg. Shift in community composition of Collembola in a warmer world is linked to functional traits
4. **JOURNAL PAPER:** Radujkovic. et al. (almost ready)
5. **JOURNAL PAPER:** James Weedon et al. (almost ready)
6. **JOURNAL PAPER:** Andreas Richter/Tom Walker et al. (almost ready)

2. Updates from meeting participants

i. Bjarni = ForHot Iceland

We got funding from the Icel. Res. Council, starting 1st of June to start „a new“ 3-year project *Forhot-Forest* (2016-2019). So finally we have some real budget for the ForHot project in Iceland! The budget includes 50% research assistant (Gunnhildur) and 100% PhD student (Páll; see next).

Páll will be site manager 2017 and Gunnhildur will also be responsible for certain activities.

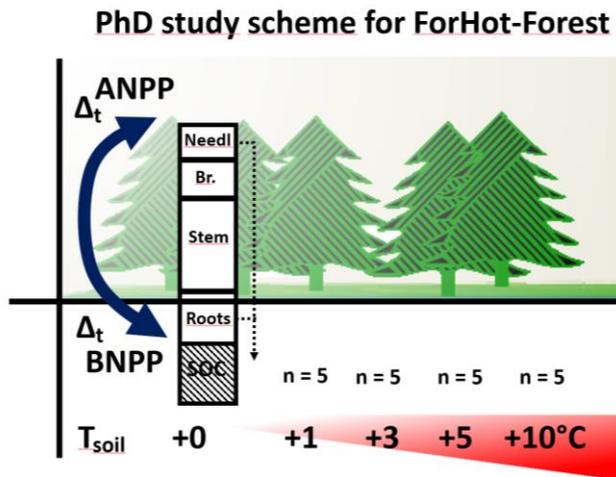
They will also have a German internship student 12 Jun – 20 Aug to take part in our activities.
Julia Bischof

Measurements that will be carried out will include:

1. Fertilization of Steven's plots 3 x
2. NDVI (biweekly)
3. LAI (biweekly)
4. ThetaProbe water content (biweekly)
5. Lysimeters (monthly)?

ii. **Pall = Short report about the new FN project - status and plans**

The new PhD project will focus on aboveground and belowground NPP dynamics and changes in ecosystem C-pools across the warming gradient:



Supervisors will be Bjarni, Edda and Ivika Ostonen at Tartu Univ. The three main research questions are:

I. Is the response in aboveground tree phenology, growth and areal production of the Sitka spruce linear along the warming gradient (0...10°C warming)? • We expect a nonlinear response to soil warming in both individual tree growth, litter fall and forest production – and we have data for the past 3-4 years. (Paper I 2017)

II. How is the response in root growth and fine-root turnover, in comparison to the above-ground response along the warming gradient? • To study this we will use mini-rhizotrons, which were installed in all plots in 2014. We expect a similar pattern in below-ground and above-ground growth and turnover processes. (Minirhizotrons + root coring 2017: Papers II and III; 2018)

III. How does the forest Net Ecosystem Production (NEP) change across the warming gradient? • We expect that the forest will increase its C-sequestration in both biomass and soil at lower warming levels, but higher litter and SOC decomposition rates, leading to both higher soil CO₂ efflux and DOC leaching, will reverse the ecosystem C-balance at higher warming, even before the tree dieback reduces the C-uptake. New soil inventory 2017. (Paper IV; 2018).

iii. **Edda = Short report about the Mogilsa activities and plans within ForHot**

Edda has just started a new position as the research director for the Iceland Forest Service (and that includes heading the Icelandic Forest Research (station) at Mogilsa. We congratulate Edda on her promotion! She intends to continue her collaboration within ForHot as her main (only) research activity ;o)

Edda has started a new campaign of root ingrowth bags within the FN and also a new litter-bag campaign with both spruce needles and roots within the FN. This data will be used by Pall in his PhD.

iv. Bryndis + Nia = Short report about the plant phenology project - status and plans

Nia Perron monitored phenology and fitness of selected plant species this summer at GN, GO and at another field site with similar soil temperature gradients as GO, but at higher elevations (Hengill). She will use this data for her M.Sc. thesis from Univ. Iceland in spring 2017.

By including the “Hengill” area they have “started” the 4th gradient study within ForHot; i.e. effects of soil warming at different elevations.

Bryndís has submitted a post-doc application to Icel. Res. Council to continue and extend this project in 2017-2019.

v. Ivan = Short report about the Antwerp projects - status and main plans

Steven will terminate this PhD position in December – but other members of the Antwerp team will continue with the intended research in 2017.

Two applications were submitted in 2016 to start and continue the ForHot activities. One was not successful (start measurements with a new technique to measure both soil water and chemical fluxes in the soil) and the other is still pending (i.e. Sara Vicca, Michael Bahn et al.: extending the 13C pulse labelling work). Otherwise the plan is to continue with the ongoing activities and put more efforts into writing up what we already have.

vi. Niki = ForHot (writing) plans or needs for further inputs

Niki will be hired after New Year to continue some of Steven’s activities but mainly to write up more ForHot papers which we have data for already. The papers she intends to finish are:

1. Finalize and submit the NDVI phenology paper (included in her thesis)
2. Resubmit the SOC paper to Nature with the requested new fractionation data.
3. Changes in vegetation composition at GN and GO (with MSc students et al.)
4. Decomposition of grass litter at GN and GO (data from Steven, Edda et al. = ready).
5. Effects of warming on nutrient stoichiometry in three sp at GN and GO
6. Another paper where biomass stocks/ANPP in GN and GO are linked to NDVI

vii. Steven+Niki = Short update about the status of 2015 MSc theses - is there any need for any inputs from Asrun?

The aim was to have both M.Sc. thesis finished after New Year. No further inputs needed from Asrun.

viii. Bjarni = The ForHot database

The ForHot database has been partly updated with Icel... + Antwerp data. We plan to send out requests to other ForHot participants to send us all missing data now this autumn/winter (before the ForHot meeting in Vienna). Páll will be in charge of this.

ix. Other issues

- The next General ForHot Meeting will take place at Univ. of Vienna. Host will be Andreas Richter. We have been trying to find suitable time for this event and after contacting most of the participants who have been active in 2016 we have found that 13-15 March 2017 (Mon-Wed) or 14-16 March (The-Thu) are the best (least bad) dates for the meeting. Andreas is finding out which suits better for him/the venue.
- Grazing effects? (Bryndís). Bryndís is interested to continue with the monitoring of the vegetation inside and outside the grazing enclosures at GO, that Vendelin started with in her M.Sc. thesis work.
- An upcoming Nordic ForHot application (Bjarni). Bjarni wants to re-work the Nordic SNS application we sent in last year, and submit it to NordForsk which has now announced a call for “Nordic University Hubs” with a deadline of May 3, 2017. He will be in contact with the Nordic ForHot partners shortly about this.

Ended at 11:40