



The FutureArctic/ForHot 2022 Annual Workshop

“Joint Ecosystem Assessment on the Effects of Natural Soil Warming and N-input Manipulation on Subarctic Grasslands and Forests”

Reykjavik, Iceland

In situ 10-14 Oct 2022 // On-line hybrid 12-14 Oct 2022

The first joint ForHot workshop took place in Leiden, the Netherlands, in 2014 and similar workshops took place in 2016 at University of Antwerp, Belgium, and in 2017 at University of Vienna, Austria and in 2018 and 2019 in Sitges, Cataluña, Spain. Since 2019 the FutureArctic ITN has had a central role in the workshop, which due to COVID was given on-line in 2020 and again in 2021. In 2022 the FutureArctic/ForHot annual workshop will take place in Reykjavik, Iceland.

The main aims of the on-line workshop are to:

- Create a platform for ESRs and PIs to get an in depth overview on the past and ongoing research activities at the ForHot sites and within the FutureArctic ITN.
- Build bridges between different research groups within the FutureArctic/ForHot consortium to further stimulate research cooperation.
- Identify knowledge gaps in the current FutureArctic/ForHot research activities to assess the integrative effects of warming and N-input manipulation on ecosystem composition and functioning.
- Discuss and compare the results on various aspects of ecosystem functioning impacts of soil warming and to derive a conceptual framework on how different processes impact different compartments of ForHot and other high-latitude ecosystems.
- Create a venue where co-authors of different manuscripts can get together to forward their writing AND possibilities for such activities to be initiated.
- Last, but not least, to help and encourage young scientists involved in this research area to publish their results.

Workshop main organizers:

Bjarni D. Sigurdsson (bjarni@lbhi.is) and Joke Van den Berge (joke.vandenberge@uantwerpen.be)

Basic meeting structure 10-14 Oct 2022

The meeting is arranged so we have two excursion days (Mon-Tue, 10 and 11 Oct), where one day is devoted for visiting the ForHot site and another will be devoted to introducing participants to Iceland's sub-Arctic nature and volcanism.

We have the meeting facilities in Downtown Reykjavik booked for 3 days (Wed-Fri) and here below is the general outline of the program. Please comment if I forgot any activity that were planned to take place in Iceland.

Table 1. Outline of the program during 10-14 Oct. Clock is local time in Iceland (CET +2 hours).

Mon – 10th	Tue – 11th	Wed – 12th	Thu – 13th	Fri – 14th
		11:00-19:00 Central Eur Time	11:00-19:00 Central Eur Time	11:00-17:30 Central Eur Time
		Teams link	Teams link	Teams link
9:00-17:00 Icel. time Excursion I to the ForHot field sites.	9:00-17:00 Icel. time Excursion II Iceland's nature and volcanos	9:00-12:00 Icel. time Session I Opening and FutArc ERS short talks	9:00-16:00 Icel. time Session V FutArc ERS short talks contined	9:00-15:30 Icel. time Session X New gadgets! Session XI Ending FutArc
		Session II FutArc ERS short talks continued	Session VI Mini-workshop with Ulrike Felt	Session XII TNT-session 11:00-12:00
		Lunch	Lunch	Lunch
ESRs will discuss their research in the field		13:00-15:00 Session III Other scientific short talks	13:00-14:30 Session VII Other scientific short talks	13:00-15:30 Session XII Business meeting on 2023/2024 plans
		15:00-16:00 Session IV Transplant experiment	14:30-16:00 Session VIII Root traits & microbiome dynamics Session IX Synthesis ideas and collab. w Berkley, USA	
Own dinner	17:00-20:00 <i><u>only for those doing the transp. study</u></i> drive to the ForHot site to look at possible transplant sites Own dinner	16:00-17:00 <i><u>Supervisory board meeting: Only for board members</u></i> Own dinner	19:30-21:00 Conference dinner	

Agenda 12-14 October 2022

Day 1 – Wednesday 12th Oct, 2022	
Teams link to connect to the meeting	
All presentations are expected to be short (MAX 10 min + 5 min for discussion) and should focus on presenting the MAIN ongoing and planned activities or some new data – so everybody gets a quick overview over the status of the FutureArctic ITN/ForHot	
09:00-10:20 GMT (Icelandic time)	Session 1: FutureArctic ESR mini-conference – part I Chair: Josep Peñuelas Talk 01: Ivan Janssens Future Arctic ITN project plan and its status now Talk 02: ESR01 Coline Le Noir de Carlan . Soil microbiome of warmed grasslands Talk 03: ESR04 Dennis Metze . Warming changes who's active in bulk and root-associated microbial communities Talk 04: ESR08 Argus Pesqueda . Core sample metabolomics Talk 05: ESR03 Biplabi Bhattarai . Soil warming duration and magnitude affects dynamics of fine-roots and rhizomes and related C and N pools, production, turnover and fine-root traits in belowground of subarctic grasslands
10:20-10:40	Break
10:40 – 12:00	Session 2: FutureArctic ESR mini-conference – part II Chair: Joke Van den Berge Talk 06: ESR05 Fabrizio Protti . Soil CO2 efflux response to middle-term warming Talk 07: ESR06 Linsey Avila . Carbon exchange in the plant-soil-atmosphere continuum Talk 08: ESR7 Ruth Phoebe Tchana . How does soil warming affect the growth processes of subarctic grasslands? Talk 09: ESR10 Amir Hamedpour . Subarctic grassland analysis from multispectral images Talk 10: ESR02 Joanna Pranga . Visual and multispectral assessment of grasslands
12:00 – 13:00	Lunch
13:00 – 14:45	Session 3: General FutureArctic-ForHot mini-conference – part I Chair: Lucia Fuchslueger Talk 11: Tim Urich . Transcriptional dynamics of soil microbiomes and gas fluxes from two grasslands in Germany Talk 12: Mathilde Borg Dahl . Status of the ForHot project: “Quantitative molecular assessment of the soil biota in high-latitude grasslands impacted by long-term warming” Talk 13: Andrea Söllinger . Down-regulation of the bacterial protein biosynthesis machinery in response to weeks, years, and decades of soil warming On-line talk 14: Christina Kaiser . Do soil microbial ecosystems cross 'tipping points' under warming?" Talk 15: Arun Kumar Devarajan . The effect of short-term and long-term warming on the bulk soil and rhizosphere microbial communities and their potential to perform nitrogen cycling processes General discussion about links to other work, wrap-up and further plans
14:45 – 15:05	Break
15:05 – 16:15	Session 4. The transplantation experiment: SOCRATES makes us think Chair: Erik Verbruggen Talk 16. Sara Marañón . Proposal of a joint and "minimal" design for a transplantation experiment in ForHot

Day 2 - Thursday 13th Oct, 2022

[Teams link](#) to connect to the meeting

09:00-10:20 GMT (Icelandic time)	<p>Session 5: FutureArctic ESR mini-conference – part II Chair: Maarten Weyn Talk 17: ESR11 Samer Nasser. Development of an automated sampler for monitoring nutrient flows in the unsaturated soil Talk 18: ESR12 Pavel Baykalov. Semantic segmentation of plant roots from RGB images and hyperspectral data analysis Talk 19: ESR09 Priyesh Puluckul. Powering Internet of Things with the Energy from the Soil Talk 20: ESR14 Bart Bussmann. Investigating mechanisms behind NDVI curves with machine learning Talk 21: ESR13 Vaidehi Narsingh. European maps and key drivers of forest foliar elemental composition</p>
10:30-10:50	Break
10:50 – 12:00	<p>Session 6: Let’s study those who study... Chair: Ulrike Felt Talk 22: Ulrike Felt. Challenges of sens(or)ing the environment Talk 23: ESR15 Virginia Vargolska. Challenges of sensing A mini-workshop on Virginia’s and Ulrike’s research within the FutureArctic project.</p>
12:00 – 13:00	Lunch and a possibility for one sub-group lunch discussion
13:00 – 14:30	<p>Session 7: General FutureArctic-ForHot mini-conference – Part II. Chair: Tim Urich On-line talk 24: Katri Ylä-Soininmäki. Emissions of CO₂ and CH₄ and source identification along warming gradients in geothermal areas of Iceland, first results Talk 25: Bjarni D. Sigurdsson. Update on the ForHot activities and a few critical points regarding site environmental parameters Talk 26: Klaus Steenberg Larsen. Changes in GHG exchange in a rewetted wetland in Trysil, Norway Talk 27: Ivika Ostonen: Plants belowground biomass functional distribution in warming soil General discussion about links to other work, wrap -up and further plans</p>
14:30 – 14:45	Break
14:45 – 15:30	<p>Session 8: Integration root traits soil microbiome dynamics: possible synthesis? Chair: Ivika Ostonen.</p>
15:30 – 16:15	<p>Session 9. Data sharing and synthesis among whole-soil warming experiments Chair: Margaret Torn Talk 28: Margaret Torn & Colette Brown. A brief update on the California soil warming experiments</p>

Day 3 - Friday 14 Oct, 2022

[Teams link](#) to connect to the meeting

09:00 – 09:45 GMT (IS time)	Session 10. New devices being developed by the non-academic partners. Chair: Poul Larsen Talk 29 Paul Larsen / DMR: Development of an autonomous eDNA robot Talk 30 Tryggvi Stefánsson / Svarmi ehf: Title? General discussion
09:45 – 10:30	Session 11. Finalization of the Future Arctic project Chair: Ivan Janssens What did we promise? ... and how will we get there? Talk 31: Erik Verbruggen The FutureArctic/ForHot Database: next steps General discussion
10:30-10:45	Break
10:45-12:00 CET	Session 12. 2022 The TNT project: some of its final outcomes Chair: Michael Bahn On-line talk 32. Kathiravan Meeran. Individual and interactive effects of warming and nitrogen supply on CO2 fluxes and carbon allocation in subarctic grassland On-line talk 33. Niel Verbrigghe. Summary from recent articles and a PhD thesis On-line talk 34. Lucia Fuchslueger. TNT root litter decomposition General discussion
12:00 – 13:00	
13:00-15:30	Session 13. ForHot Business Meeting Chair: Bjarni D. Sigurdsson General discussion on future collaborative research within the ForHot-Future Arctic projects (and outside). A roundtable discussion about all ongoing and future project/publication plans and decisions that need to be reached at this meeting. General discussion , wrap-up and further plans

Practical information for those attending *in situ*

Arrival: Most FutureArctic/ForHot participants have indicated that they will arrive on Sunday, 9th of Oct. Participants are encouraged to book their accommodation in downtown Reykjavik within a walking distance to the main meeting venue (see later).

Transport from airport to downtown Reykjavik

The easiest is to take an airport bus which has its final stop at the bus terminal (BSÍ) in downtown Reykjavik (See on Fig. 2). Buses leave from the airport every 1-1,5 hours. For further info and booking: https://www.re.is/tour/flybus/?gclid=EA1aIQobChMlrJvZ08q8-QIV04ODbx2cCQi5EAAYASABEgK_9fD_BwE

Meeting point for excursions on 10 and 11 Oct

The excursion bus will depart from **BSÍ Bus Terminal** at 9:00 each day (see Fig. 2).

Meeting venue for 12-14 Oct

The meeting venue is located in an old house at downtown Reykjavik called **Hannesarholt**. Its address is: Grundarstígur 10, 101 Reykjavík (See Figs. 1 & 2)



Fig. 1. The venue.



Fig. 2. Downtown Reykjavik.

Where should you stay?

NOTE: Participants book their own accommodation!

You are free to book your accommodation where you want. Hotels are very expensive in Iceland and the night at a 3-star hotel is typically around 200 EUR. There are however many possibilities for finding cheaper accommodation through e.g. www.booking.com or www.airbnb.com

However, if you want to stay together with some other participants in a medium priced (quite basic) 3-star hotel close to centrum we could point you towards:

- **Fosshotel Baron**, Barónsstígur 2-4, 101 Reykjavík (15 min walk to venue / 20 min to BSÍ)
<https://www.islandshotel.is/is/hotelin/fosshotel-baron>

Two alternative hotels which are at similar price and distance from the venue are:

- **Fosshotel Rauðará**, Raudarárstígur 37, 105 Reykjavík, Iceland (20 min walk to venue / 10 min to BSÍ bus terminal) <https://www.islandshotel.is/is/hotelin/fosshotel-raudara>
- **Fosshotel Lind**, Raudarárstígur 18, 101 Reykjavík, Iceland (20 min walk to venue / 10 min to BSÍ bus terminal) <https://www.islandshotel.is/is/hotelin/fosshotel-raudara>

Practical information for those staying longer

For those who are staying longer in Iceland and need facilities to continue with meetings, etc. Then you are offered to use the campus building of the Agricultural University of Iceland. Its address is Arleynir 22, 112 Reykjavik. Contact Bjarni about when you need a meeting room.

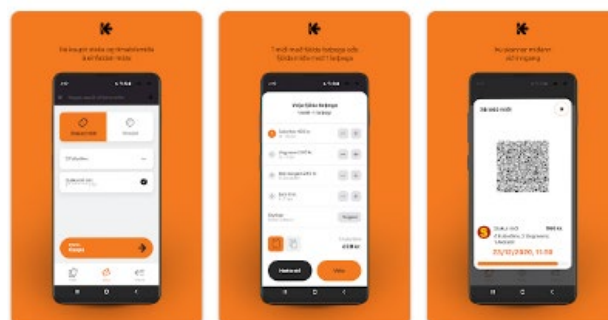
From downtown it takes ca. 45 min by bus to get to the AUI campus. There is an app you can use to buy bus tickets and plan your trips. It is called “Klappid” (Fig. 3) and you can download it on your smartphone. See further info at: <https://straeto.is/en/store/klapp>

Fig. 3. The Klappid app

[Get app in the App Store](#)

[Get app in Google Play](#)

The bus station closest to the AUI campus is called: **Keldnaholt** (see arrow on Fig. 4)



A central bus stop in the center where it would be easy to start the trip is called **Hlemmur** (see arrow on Fig. 4). **Bus 18** goes to the campus from there.

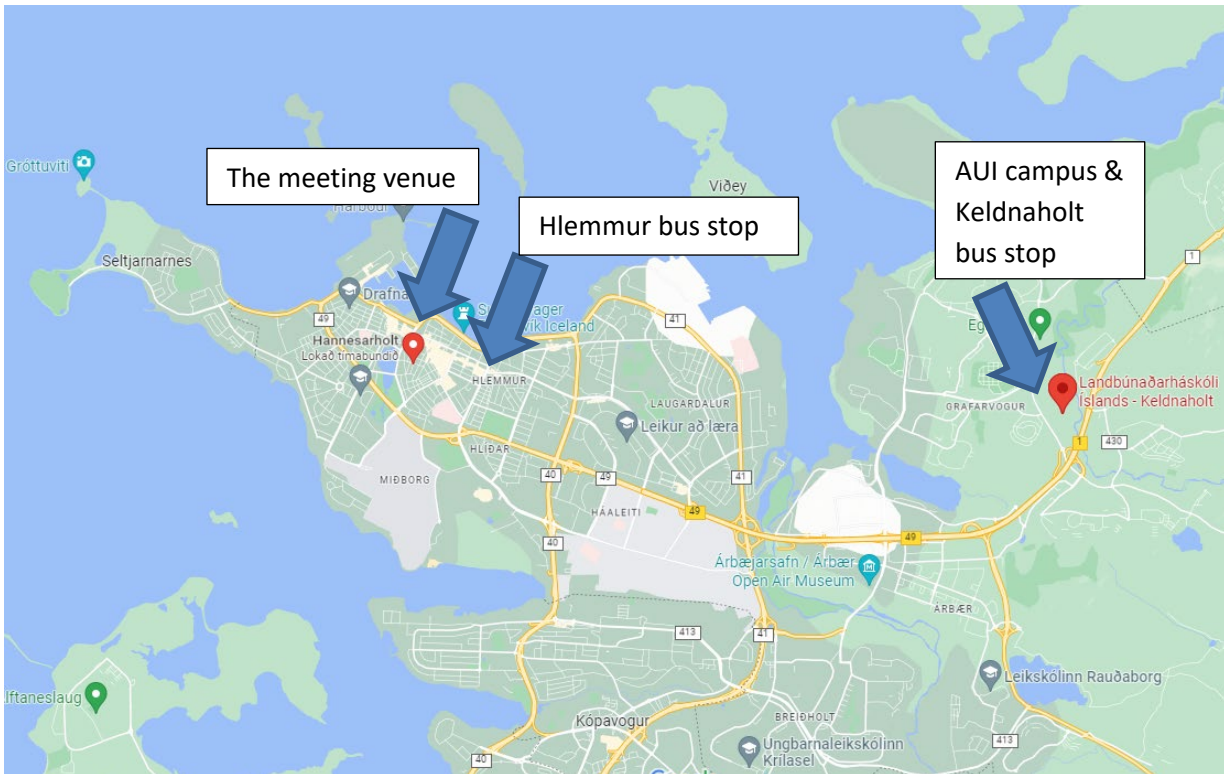


Fig. 4. Where is the AUI campus in Reykjavik in relation to our meeting venue (Hannesarholt) and the central bus stop Hlemmur in downtown Reykjavik.

Are you lost in Iceland? Call a friend!

If you have some problems we can help with in Iceland, then call us and we will try to assist you.

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Do you have FutreArctic related questions?

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