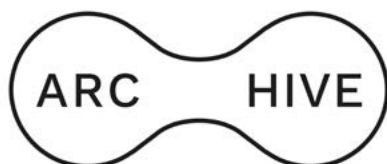




Field_Notes - Traces
A (paleo)-ethology of tracing

Workshop report



Co-funded by the
Creative Europe Programme
of the European Union



INTRODUCTION

Every second year the Bioart Society organizes Field_Notes, an art&science field laboratory at the Kilpisjärvi Biological Station of the University of Helsinki. The aim is to form a transdisciplinary group of artists, scientists, and other practitioners to develop fieldwork on specific questions and where each participant contributes with their own practice. For Field_Notes - Traces a group of 9 artists and scientists worked for two weeks from September 10th to 25th in the sub-Arctic Lapland to develop, test, and evaluate specific transdisciplinary approaches on questions related to traces.

In 2013 pristine trace fossils were discovered on the slopes of Mount Saana, Kilpisjärvi, Lapland. Saana was long known to potentially contain fossiliferous rocks, but previous expeditions and geologic mapping campaigns produced only a few poorly preserved samples. It needed the persistence of two artists from the Bioart Society to find the right spot. The fossils were found during Bioart Society's Field_Notes - Deep Time art&science field laboratory.

The fossils are scientifically important because they belong to the world's oldest traces of animal life and are unique in Finland. They come from geological strata of the Dividalen Group (DG), and are of earliest Cambrian age (c. 541 Million years ago). The fossiliferous strata are sandwiched between billion-years old crystalline bedrock and a massive younger quartzite layer and are exposed only in small spots just at the boundary between the two ancient continents of Laurentia and Baltica.

The fossil traces record a snapshot of animal activities that shape the seascapes and landscapes of what is today Saana since hundreds of millions of years. Deep time connects the sedimented Cambrian traces with other imprints recorded by the landscape; be they geological like the Caledonian mountain orogenesis, or from animals like reindeer and humans, the latter leaving tracks not only by foot but also with machines and waste.

During a two-week field trip in September 2021, artists and scientists invited by the Bioart Society formed a group of critical enquirers to find out more about this ever-ongoing activity of tracing. Starting from the Kilpisjärvi Biological Station, the group shouldered its backpacks and followed the geological outcrops in search of the fossils. They practiced trace and landscape reading, orientation, trace-making, documentation, and decision-making on sites of bifurcation. They called this a (paleo)ethology of tracing.

While the fossils acted as a starting point, they worked through the layers of time and landscape from the DG until the present. They traced human activity and the dichotomy in the experience between pristine nature and cultural landscape and explored anthropogenic traces, be they intentional or unintentional. By turning their gaze to technological ways of tracing, sensing, and inscribing they also bridged the sites of research with the digital and the planetary.

BIOART SOCIETY

The Bioart Society is a leading organization in art & science and experimental arts. Since twelve years it has been amongst the principal organizations in Europe setting the tone on an international level for activities related to art engaging with biology, ecology, and life sciences. The Bioart Society has about 130 members and worked over the last decade actively with several hundreds of Finnish and international artists and practitioners as well as with many organizations and institutions in a diverse program of exhibitions, seminars, workshops and laboratories. Notable projects are 80+1 Kilpisjärvi (2009, about climate change), Field_Notes (2011,13,15,18 about artistic fieldwork on environmental topics), Making Life (2014-16 about synthetic biology), HYBRID MATTERS (2015,16 about the convergence of environment and technology) and the Ars Bioarctica art&science research residency at the Kilpisjärvi Biological Station of the University of Helsinki in Lapland. The Bioartsociety currently runs SOLU – a platform and laboratory for art, science, and society with its own space functioning as a gallery, forum, studio, library, and office with a wide range of continuous activities.

ARS BIOARCTICA AND THE KILPISJÄRVI BIOLOGICAL STATION THE UNIVERSITY OF HELSINKI

Bioart Society is the motor behind Ars Bioarctica which is a long term art&science initiative with a focus on the sub-arctic environment. It was started in autumn 2008 together with the Kilpisjärvi Biological Station of the Faculty of Biological and Environmental Sciences, University of Helsinki. Ars Bioarctica fosters projects between artists and scientists to develop new kinds of scientific and artistic thinking and through this participate and contribute to the discussion on the relation of humankind and nature. It is located in Kilpisjärvi, the most Northern part of Finland, which is also called Sápmi, the living and cultural territory of the indigenous Sami people. The Field_Notes field workshop is part of Ars Bioarctica.

<https://bioartsociety.fi/projects/ars-bioarctica/pages/residency>

<https://www2.helsinki.fi/en/research-stations/kilpisjarvi-biological-station>

PARTICIPANTS

Erich Berger

Biography

Erich Berger is an artist, curator, and cultural worker based in Helsinki. He directs the Bioart Society where he develops opportunities that create interdisciplinary encounters and work situations between professionals from art, natural science, technology, and the humanities. Berger recognizes science and technology as fundamental transformative powers of our life world. His artistic interests lie in processes and feedback structures, which he investigates through installations, situations, performances, and interfaces. Throughout his artistic

practice, he has explored the materiality of information and information and technology as artistic material. His current interest in issues of deep time and hybrid ecology led him to work with geological processes, radiogenic phenomena, and their socio-political implications in the here and now. Berger has exhibited widely in various museums, galleries, and major art events in Europe and worldwide, like Ars Electronica Linz (AT), File Festival Sao Paulo (BR), Sonar Barcelona (ES), or the Venice Biennial (IT). His works received several awards and prizes from Prix Ars Electronica (AT), the Bavarian Broadcasting Station, and ZKM (DE), Vida Telefonica (ES), LABoral (ES), Files Prix (BR) and CERN (CH).

Links and social media

<http://bioartsociety.fi>

<http://randomseed.org>

Roles at Field_Notes

conceptual development, production, host, artist, participant

Jaakko Pesonen

Biography

Jaakko Pesonen is an artist and architect living and working in Suomusjärvi Finland. He works with video, space, photography, and performance. In his work, he examines the connection between humans and machines, the relationship of humans and other living beings, and the human as an animal. In the past years Pesonen has worked on a Kone Foundation-funded project - Homo Homo Sapiens - in collaboration with a philosopher, an art historian, and an actor. The project has been an attempt to look at humanity from a different angle, one where the majority of humans would be homosexual. It has been an inquiry into the limits of human control, the very character and resilience of the human soul, and the questions concerning our understanding of 'the natural'. Adopting the frame of an artistic laboratory, HHS aims to examine our world through dialogue, play, and collectively experiencing art. Homo Homo Sapiens was a part of the Helsinki Fest in the autumn of 2021. A publication of the project is in the making in 2022. Pesonen has had several exhibitions in galleries/museums/festivals showing video installations. He has designed sets for the Finnish National Ballet, exhibitions for museums, and practiced as an architect.

Links and social media

<http://www.jaakkopesonen.com/>

Roles at Field_Notes

artist, participant

Judith van der Elst

Biography

Judith van der Elst is currently a researcher within the Art & Sustainability research group, at Hanze University of applied sciences, Groningen, the Netherlands. Since completing her PhD research at the University of New Mexico in the United States, she has led a

semi-nomadic life as an archaeologist/anthropologist and socially engaged independent researcher, having spent the last few years mainly in Europe. During her stay in the United States, she specialized as an archaeologist/anthropologist in spatial technologies such as Geographic Information Systems and Remote Sensing, mainly from visual-spatial thinking and pedagogical basis in order to investigate how people experience and shape their relationships with the environment. Her collaboration with indigenous communities in particular has led to surprising insights and radically changed her outlook on life and respect for the land. In addition to her research and practice-oriented projects, she also applied these insights in her work for the National Park Service and museums in New Mexico and made her curious if this deep connection and knowledge of the land, (land-based knowledge), is also (still) common in other parts of the world. She is dedicated to creating new ways of teaching and learning in the field.

Links and social media

www.sense-iblebaglady.net
www.judithvanderelst.com

Roles at Field_Notes

science (anthropology, archeology), participant

Lisa Kalkowski

Biography

Lisa Kalkowski is a cultural producer based in Helsinki, Finland. She has been working as a producer for the Bioart Society since February 2021. Her prior experience includes international projects, performing art, club, and festival production. Based on her education in language teaching and theatre pedagogy, she has a special research interest in movement and performative research and teaching. She is currently also working for the anti-racist, feminist art platform UrbanApa and acts as the project manager of the discourse festival #StopHatredNow. Her interests and work values are therefore aligned in a focus on diversity, accessibility, anti-racist practices, and intersectional feminism. As a producer, she has a special interest in group facilitation and experience production.

Roles at Field_Notes

producer, facilitator, participant

Elisa Koski

Biography

Elisa Koski is a natural science student living in Helsinki and studying at the University of Helsinki. She is majoring in biology with a strong interest in geology and paleontology. After the Field_Notes field trip, she has been working with the collected samples as an intern at Luomus.

Roles at Field_Notes

science (geology, biology), participant

Björn Kröger

Biography

Björn Kröger is a curator of the Palaeontological Collections of the Finnish Museum of Natural History and docent at the Helsinki University, Finland. He earned his PhD at the Freie University of Berlin, Germany, and worked in Germany, France, and Sweden. He is an expert on the evolution of the oldest cephalopods. His current research focus is on the early evolution of large-scale ecosystem engineering in the oceans. He has also an active interdisciplinary interest in how our knowledge on earth's deep time is gained, narrated, and used.

Links and social media

<https://researchportal.helsinki.fi/en/persons/bj%C3%B6rn-kr%C3%B6ger/>

Roles at Field_Notes

conceptual development, production, science (paleontology, geology), participant,

Sacha Marcet

Biography

Sacha Marcet is a natural science student living in Hyvinkää and studying. He is studying geology at the University of Helsinki.

Roles at Field_Notes

science (geology), participant

Sirja Moberg

Biography

Sirja Moberg is a visual artist working in Helsinki. She works multidisciplinary with installation, experimental photography, video, and sculpture. In Moberg's practice, she explores her own relationship with nature and the connection between art, natural sciences, and esotericism. In her latest projects, Moberg ponders how humans perceive nature through their culturally learned ways of meeting it. Her art focuses on invisible, hidden, or unexplained phenomena in nature, such as in her ongoing 'The Crater Lake Project' (2017–). Moberg graduated as a Master of Arts from Aalto University's Photography department in 2020. In 2015 she graduated with a BA degree from the Turku Academy of Arts. She completed her exchange studies at Emily Carr University of Arts + Design in Vancouver, Canada, in 2019. Moberg is a member of Bioart Society, MUU ry, and Photo Centre Peri. She's had a few solo exhibitions and her works have been exhibited in numerous joint and group exhibitions, such as the 'Unfold' exhibition at the Finnish Museum of Photography in 2020.

Links and social media

www.sirjamoberg.com

www.instagram.com/sirjatuuliam

Roles at Field_Notes

artist, participant

Leena Valkeapää

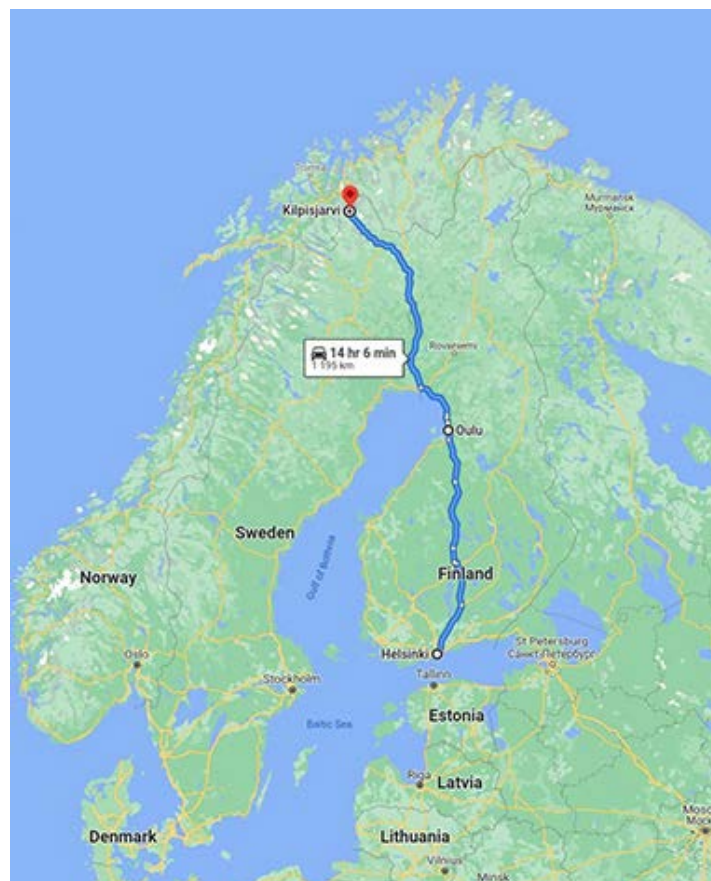
Biography

Leena Valkeapää (Doctor of Arts) is an artist and researcher. Since 2004 she has lived in the wilderness in northwest Lapland, near Kilpisjärvi. Valkeapää is working as a mentor in Ars Bioartica residence. She has exhibited as a visual artist since (1988) and has produced public environmental artworks, including the rock wall piece Ice Veil (1999) in Turku. Her doctoral dissertation *Luonnossa, vuoropuhelua Nils-Aslak Valkeapään tuotannon kanssa*, 2011 (In the Nature, a dialog with Nils-Aslak Valkeapää's art) proposed a dialogue with nature and its poets. Valkeapää is taking part in the daily work of reindeer herding, in Sami culture tradition. She is interested in an engagement with the authenticity of a deeply individual experience with nature.

Roles at Field_Notes

host, mentor, artist, participant

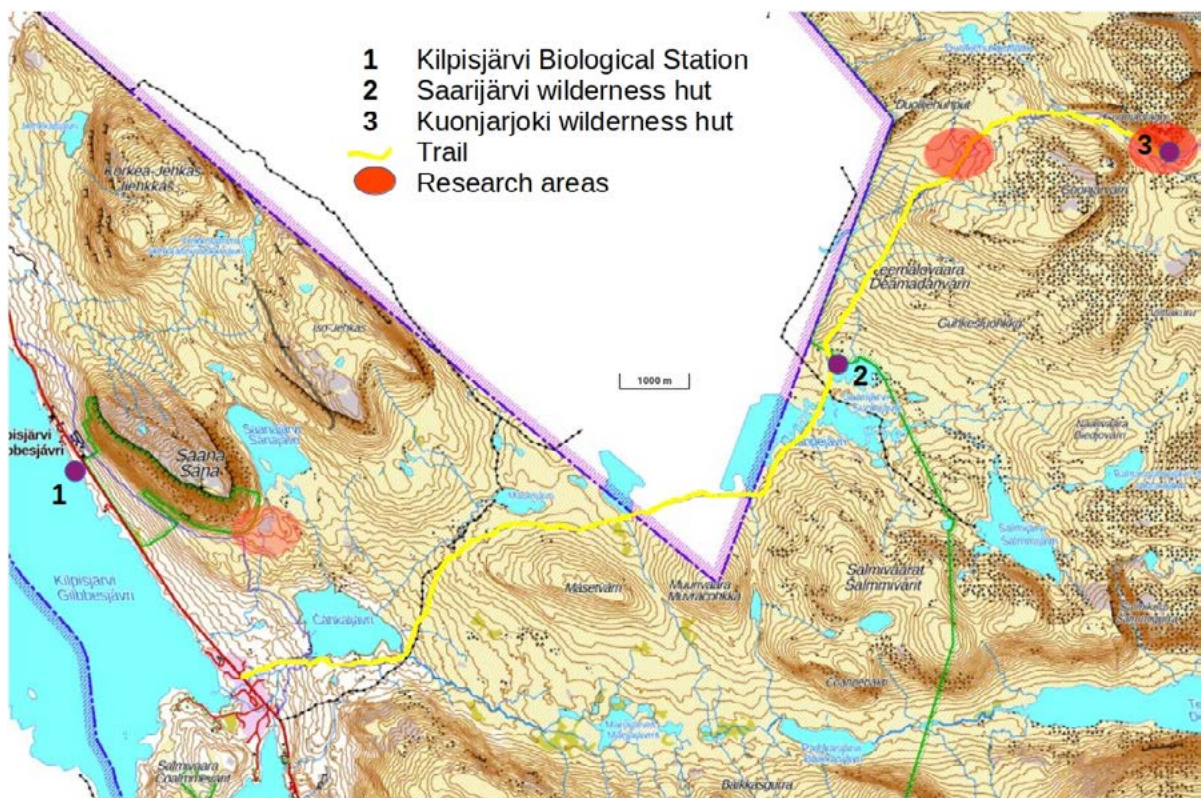
ROUTE



AREA MAP



LOCATION MAP



TIME SCHEDULE OVERVIEW

10/09	Friday	Car drive Helsinki Oulu	Leaving Helsinki in the morning
11/09	Saturday	Car drive Oulu Kilpisjärvi	Arrival in Kilpisjärvi in the late afternoon
12/09	Sunday	Kilpisjärvi Biological Station	Field work
14/09	Monday	Kilpisjärvi Biological Station	10h online dialogue with Anette Högström, 19h online dialogue with Kurt Menke, planning of field protocols
15/09	Tuesday	Kilpisjärvi Biological Station	On site presentations by all participants, 19h online dialogue with Liz McTernan
16/09	Wednesday	Kilpisjärvi Biological Station	10h online dialogue with Gabriela Mangano, 19h online dialogue with Jussi Eronen, field work
17/09	Thursday	Kilpisjärvi Biological Station	Preparation and packing for expedition
18/09	Friday	Saarijärvi	Hike from Kilpisjärvi to Saarijärvi, field work
19/09	Saturday	Kuonjarjoki	Hike from Saarijärvi to Kuonjarjoki, field work, helicopter transport from Kilpisjärvi to Kuonjarjoki
20/09	Sunday	Kuonjarjoki	Kuonjarjoki based field work
21/09	Monday	Kuonjarjoki	Kuonjarjoki based field work
22/09	Tuesday	Saarijärvi	Hike from Kuonjarjoki to Saarijärvi, field work
23/09	Wednesday	Kilpisjärvi Biological Station	Hike from Saarijärvi to Kilpisjärvi, field work
24/09	Thursday	Kilpisjärvi Biological Station	Show and tell at the Station
25/09	Friday	Car drive Kilpisjärvi Oulu	Leaving Kilpisjärvi in the morning
26/09	Saturday	Car drive Oulu Helsinki	Arrival in Helsinki in the evening

FIELD REPORT

The field workshop consisted of several phases:

- a) pre-production phase with content development, selection of participants, planning of schedules and routes, booking of journeys, car, helicopter and accommodation and the acquisition of materials and provisions
- b) two days journey each, from Helsinki – Kilpisjärvi – Helsinki with an overnight stop in Oulu by van
- c) five days for field work on Dividalen Group outcrops in the stations vicinity, remote participation events and expedition preparation at the Kilpisjärvi Biological Station
- d) six days of expedition in search of outcrops of the Dividalen Group, following a trail which was worked out in the month before
- e) one day of pre-processing the collected specimens and data
- f) post production of materials, writing of reports and articles

a) Pre-production

An overview of the pre-production can be found in the accompanying HOW-TO document.

b) two days journey each, from Helsinki – Kilpisjärvi – Helsinki with an overnight stop in Oulu by van

Because of the amount of equipment to be transported and the group size of 8 participants we decided to travel via a rented van.

c) five days for field work on Dividalen Group outcrops in the stations vicinity, remote participation events and expedition preparation at the Kilpisjärvi Biological Station

During the first 5 days the group familiarized itself with different aspects of the mission, the site and their various expertise. The exchange of knowledge in regards to landscape, geology, history, culture, technologies, methods and possible methodology was prominent. The group also visited the outcrops which have been discovered during a field workshop organized by the Bioart Society in 2013 and started to work on the trace fossil site with paleontological expertise. In parallel, the group began to discuss and test different ideas based on the diverse approaches of the participants including contact tracing, areal imaging, recording of other traces and the gathering of different samples.



Field trip to the Dividalen Group outcrop on the east slope of Saana



On the right side the Dividalen Group outcrop 540 million years old



540 million year old traces of worms



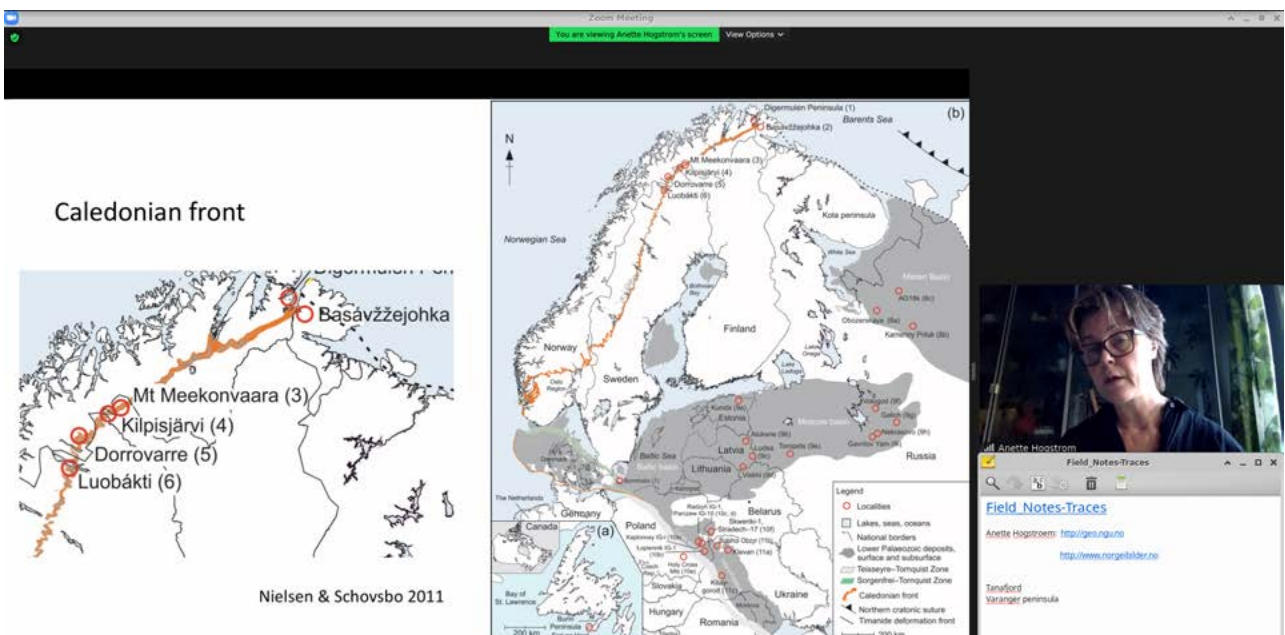
Contact tracing of trace fossil



High resolution drone orthophoto composed of more than 300 single images

The knowledge exchange between the participants also included remote participation sessions with five experts from different fields with useful input for the fieldwork:

Anette Högström, paleontologist from The Arctic University in of Norway discussed with us the trachel fossil finds of the Digermulen peninsula in Norway. Cartographer and developer **Kurt Menke** introduced us to GIS systems useful in the field. Independent visual artist **Liz McTernan** introduced her work which is based on land survey. **Gabriela Mangano**, paleontologist from the University of Saskatchewan discussed with us the deeper implications of animal traces. **Jussi Eronen**, paleo-climatologist at the University of Helsinki shared his thoughts on the near future climate breakdown impact on the subarctic region where we are working.




Anette Högström


Zoom Meeting


Erin Berger Kurt Menke Gabriela Mang...


You are viewing Kurt Menke's screen View Options

Free (FOSS) QGIS Related Data Collection Apps

QField 
<https://qfield.org/>

Input 
<https://inputapp.io>

OpenGIS.ch 

Lutra Consulting 

SEPTIMA

Kurt Menke

You are viewing Gabriela Mangano's screen View Options

IDEA # 4 We are the bioturbators

Yann Arthus-Bertrand

SoLU
Erin Berger
Gabriela Mangano

Gabriela Mangano

You are viewing Jussi Eronen's screen View Options

Arctic region: Deep history

- The temperatures of surface waters during the Palaeocene/Eocene thermal maximum (55 Ma ago) appear to have been substantially warmer than previously estimated. Even at extreme high latitudes in the Arctic Ocean, peak PETM sea surface temperatures soared to 24 C.
- Fresh surface waters were present at 49 Ma ago
- Evidence for the first occurrence of ice-rafted debris in the middle Eocene epoch 45 Ma ago
- Arctic cooling was synchronous with the East Antarctic ice sheet formation 14 Ma and
- Greenland ice sheet expansion 3.2 Ma
- The revised timing of the earliest Arctic cooling events coincides with those from Antarctica, supporting arguments for bipolar symmetry in climate change.

Erich Berger
leenaivaikapa
leenaivaikapa
Gabriela Mang...
Gabriela Mangano
Jussi Eronen
Jussi Eronen

Mute Start Video Security Participants Chat Share Screen Record Breakout Rooms Reactions End

Jussi Eronen

d) six days of expedition in search of outcrops of the Dividalen Group, following a trail which was worked out in the month before

By using the geological map and areal footage of the Kilpisjärvi area we planned a six-day expedition with the aim to find more outcrops of the Dividalen Group. We settled on a trail which will lead us about 22km into the tundra and which had two wilderness huts to provide us shelter. The first day we walked to the Saarijarvi wilderness hut. No outcrops were expected as the sediment is buried by scree, but the artistically based protocols are carried out. The second day as the land is rising we discovered the first outcrops but after a short survey decide to go forward to reach our base camp at the Kuonjarjoki wilderness hut before dark and plan time on the way back for a more in-depth observation. Meanwhile also the helicopter transport with equipment and provisions arrived at Kuonjarjoki and we are set for two days' work in the surroundings of Kuonjarjoki. The choice of location proved correct as the geological setting provides us with plenty of outcrops and study material. On day five the helicopter returns to pick up the samples and equipment and we make our way to return. The planned stop at the outcrop we discovered on the way to Kuonjarjoki proved to be the most satisfying find of the expedition as large layers of ancient seafloor were discovered. The group returned safe and satisfied to the Kilpisjärvi Biological Station on the evening of day six.

The artistic and scientific protocols applied are described more precisely in the accompanying video and text files.



Hike from Kilpisjärvi to Saarijärvi



First outcrop after Saarijärvi



Hike from Saarijärvi to Kuonjarjoki



Group planning the field work



Helicopter arrival



540 million year old seafloor with worm traces

e) one day of pre-processing the collected specimens and data

On the last day in the station, we reviewed cataloged, and shared all collected material. Pre-processing of field materials at the Kilpisjärvi Biological Station



Pre-processing of field materials at the Kilpisjärvi Biological Station

f) post production of materials, writing of reports and articles

During the write-up of this report, the group is in the post-production phase. Two articles have been already submitted for the ARC-HIVE and a third article is in the making to be submitted to a scientific journal. The group has scheduled a meeting to discuss further output in the form of an exhibition and a publication.