

## Monday 23rd June – Tromsø museum

08:00 – 09:00: Registration and coffee

09:00 – 12:00: Pre-conference workshop: Bioinformatics

Room: Tromsø museum – Museumsalen

09:00 – 12:00: Pre-conference workshop: Neotoma

Room: Tromsø museum – Rotunden

12:00 – 13:00: Lunch break

13:00 – 16:00: Pre-conference workshop: Nanopore sequencing

Room: Tromsø museum – Museumsalen

13:00 – 16:00: Bioinformatic core group meeting

Location: Tromsø museum – Rotunden

13:00 – 15:00: Neotoma meeting - GEC

Room: Botany building – 5 minute walk from the Tromsø museum

16:00 – 17:00: SedaDNA society board meeting

Room: Tromsø museum – Museumsalen

17:00 – 18:00: SedaDNA society public meeting

Room: Tromsø museum – Museumsalen

18:00 – 21:00: Ice breaker

Location: Tromsø museum

## Tuesday 24th June – Framsenderet

08:00 – 09:00: Registration, coffee and poster setup

09:00 – 09:30: Welcome

Room: Longyearbyen

09:30 – 10:30: Parallel session: Lacustrine sedaDNA 1 (A1)

Room: Longyearbyen Chair: Dilli Rijal

| Time                  | Presenting author    | Title   |
|-----------------------|----------------------|---|
| 09:30 - 09:45<br>Oral | Laura Parducci       | 30,000 years of flora diversity in southern Italy: metabarcoding and pollen analyses at Lago Grande di Monticchio |
| 09:45 - 10:00<br>Oral | Kuldeep D. More      | Unraveling Post-LGM Plant Community Dynamics in Southeast Alaska using SedaDNA approach                           |
| 10:00 - 10:15<br>Oral | Lauren T. Clark      | A Sequence of Southern Sweden: Sedimentary Ancient DNA Analysis of Environmental Change on the Kullen Peninsula   |
| 10:15 - 10:30<br>Oral | Sandra Garcés-Pastor | Wild and domesticate mammals drove late-Holocene alpine plant diversity in the European Alps                      |

09:30 – 10:30: Parallel session: Marine sedaDNA 1 (A2)

Room: Kompasset Chair: Andreas Altenburger

| Time                  | Presenting author   | Title  |
|-----------------------|---------------------|--|
| 09:30 - 09:45<br>Oral | Katarzyna Melaniuk  | Reconstruction of variability in past sea-ice over 150 000 years using ancient DNA- a case study from the Greenland Sea.         |
| 09:45 - 10:00<br>Oral | Heike H. Zimmermann | Revealing Holocene ice-ocean-biota relationships with sedimentary ancient DNA metagenomics in Melville Bay, North-West Greenland |
| 10:00 - 10:15<br>Oral | Nele Manon Vollmar  | Is sea-ice cover reflected in sedimentary DNA? – a case study from the Weddell Sea, Southern Ocean                               |
| 10:15 - 10:30<br>Oral | Prashasti Singh     | Exploring the evolutionary and adaptive mechanisms of <i>Fragilariopsis cylindrus</i> using sedaDNA                              |

10:30 – 11:00: Coffee break

## Tuesday 24th June – Framsenderet

11:00 – 12:30: Parallel session: DNA taphonomy (B1)

Room: Longyearbyen Chair: Lucas Elliott

| Time                  | Presenting author              | Title   |
|-----------------------|--------------------------------|---|
| 11:00 - 11:15<br>Oral | Pablo Nicolas Arellano Caicedo | Environmental salinity and pH determines DNA-mineral interactions   |
| 11:15 - 11:30<br>Oral | Charline Giguet-Covex          | What can we learn by working with different sedaDNA fractions from plants?  |
| 11:30 - 11:45<br>Oral | Ismael G. Espinoza             | Environmental Controls on Recovery of Plant Environmental DNA in Lake Sediments from Wisconsin, USA                                 |
| 11:45 - 12:00<br>Oral | Benjamin Vernot                | Environmental DNA as a tracer for past behavior   |
| 12:00 - 12:15<br>Oral | Witold Szczuciński             | Applications of sedaDNA for sedimentological studies and the role of sedimentary processes in the interpretation of sedaDNA records |

11:00 – 12:30: Parallel session: Terrestrial aDNA (B2)

Room: Kompasset Chair: Youri Lammers

| Time                       | Presenting author   | Title   |
|----------------------------|---------------------|---|
| 11:00 - 11:15<br>Oral      | Maria Zicos         | Sedimentary ancient DNA from the Middle Paleolithic Cave site Ararat 1, Armenia   |
| 11:15 - 11:30<br>Oral      | Christoph Schwörer  | Unlocking the untapped potential of ancient DNA preserved in plant macrofossils   |
| 11:30 - 11:45<br>Oral      | Scott Cocker        | Exploring Arctic ground squirrel evolutionary history with ancient (environmental) DNA  |
| 11:45 - 12:00<br>Oral      | Bianca De Sanctis   | Ancient microbial metagenomics of subglacial precipitates from beneath the Laurentide and Antarctic ice sheets                  |
| 12:00 - 12:05<br>Lightning | Susanna Sawyer      | sedaDNA preservation at Satsurblia Cave, Georgia using a microstratigraphic approach  |
| 12:05 - 12:10<br>Lightning | Alba Bossoms Mesa   | Genetic insights into the occupational history of El Castillo Cave over time  |
| 12:10 - 12:15<br>Lightning | Annegret Larsen     | SedaDNA reveals a late Holocene shift from wet to dry floodplain ecosystems   |
| 12:15 - 12:20<br>Lightning | Aloïs Revéret       | From poppies to mammoth: comparing postglacial ecosystems and depositional environments on either side of the Norwegian Channel |
| 12:20 - 12:25<br>Lightning | Annabelle L. Horton | Potential of SedaDNA as a Proxy to Distinguish between Nor'easter and Hurricane Overwash Deposits                               |

12:30 – 13:30: Lunch break

## Tuesday 24th June – Framsenderet

13:30 – 14:30: Plenary: Eske Willerslev

Room: Longyearbyen

14:30 – 15:30: Parallel session: Lacustrine sedaDNA 2 (C1)

Room: Longyearbyen Chair: Dilli Rijal

| Time                       | Presenting author | Title  |
|----------------------------|-------------------|--|
| 14:30 - 14:45<br>Oral      | Ernst Johnson     | A High-Coverage Brown Bear Mitochondrial Genome from Early Holocene Sediment in Northern Sweden  |
| 14:45 - 15:00<br>Oral      | Youri Lammers     | The last mammoth in the Polar Urals and its correlation to vegetation change   |
| 15:00 - 15:15<br>Oral      | Nevé Baker        | Reconstructing beaver-modified Holocene ecosystems with sedimentary ancient DNA  |
| 15:15 - 15:20<br>Lightning | Sisi Liu          | Sedimentary ancient metagenomics infers plant-mammal community dynamics across northern Eurasia and North America during the Late Pleistocene-Holocene |

14:30 – 15:30: Parallel session: Marine sedaDNA 2 (C2)

Room: Kompasset Chair: Sylvain Monteux

| Time                  | Presenting author | Title   |
|-----------------------|-------------------|---|
| 14:30 - 14:45<br>Oral | Linda Armbrrecht  | Distinct marine eukaryote sedaDNA signatures characterise East and West Antarctic ecosystems  |
| 14:45 - 15:00<br>Oral | Hasitha Nethupul  | Marine Eukaryote Community Responses to the Climate Changes in Storfjordrenna Over the Past 13.65 Kyr BP: Insights from Sedimentary Ancient DNA |
| 15:00 - 15:15<br>Oral | Alexandra Schmidt | Genetic Resilience and Long-Term Monitoring of Phytoplankton Dynamics Using Sedimentary Ancient DNA   |
| 15:05 - 15:20<br>Oral | Ana Gomes         | Reconstructing the past functioning of the biological carbon pump: a sedimentary ancient DNA approach   |

15:30 – 16:00: Coffee break

16:00 – 18:00: Poster session

Room: Lysgården

16:00 – 18:00: Polar museum (free access)

20:00: Conference dinner

Location: Maskinverkstedet

## Wednesday 25th June – Framsenderet

08:30 – 09:00: Coffee break

09:00 – 10:30: Parallel session: Computational methods 1 (D1)

Room: Longyearbyen Chair: Lucas Elliott

| Time                  | Presenting author | Title  |
|-----------------------|-------------------|--|
| 09:00 - 09:15<br>Oral | Maya Lemmon-Kishi | Decoding Time: A Phylogenetic Framework for Molecular Dating of Sedimentary Ancient DNA                  |
| 09:15 - 09:30<br>Oral | John Williams     | First steps to integrating aeDNA with the Neotoma Paleoecology Database                                  |
| 09:30 - 09:45<br>Oral | Marieke Beaulieu  | Process-based modelling of Fennoscandic plant communities using sedimentary ancient DNA                  |
| 09:45 - 10:00<br>Oral | Tristan Cordier   | Benchmarking transfer function's calibration approaches for sedimentary ancient DNA                      |
| 10:00 - 10:15<br>Oral | Elisa Davis       | Exploring Southern Ocean diversity: sedaDNA Bioinformatic Pipeline benchmarking for rare eukaryotic taxa |
| 10:15 - 10:30<br>Oral | Zihao Huang       | Hybridization Capture and Efficiency Enhancement for Ancient Environmental DNA                           |

09:00 – 10:30: Parallel session: Archaeology (D2)

Room: Kompasset Chair: Claire-Elise Fischer

| Time                       | Presenting author      | Title   |
|----------------------------|------------------------|---|
| 09:00 - 09:15<br>Oral      | Lise Alonso            | Presentation of MAGIC2 project : Mountain AGro-ecosystems past trajectories developed by different soCieties under different bioClimatic conditions |
| 09:15 - 09:30<br>Oral      | Sam Hudson             | SedaDNA & Environmental Archaeology- The Prehistoric Environment of the Stonehenge Landscape  |
| 09:30 - 09:45<br>Oral      | Ruairidh Macleod       | Linking sedaDNA to Middle Holocene Hunter–Gatherer Population Dynamics at Lake Baikal   |
| 09:45 – 10:00<br>Oral      | Mary Lucas             | Sedimentary ancient DNA analysis of cooking pits from the Iron Age site of Rødskjær in Northern Norway  |
| 10:00 - 10:05<br>Lightning | Thomaz Pinotti         | Reconstructing past cultural practices using Picuris Pueblo oral tradition and sedimentary ancient DNA  |
| 10:05 - 10:10<br>Lightning | Aldona Mueller-Bieniek | Well drained archaeological sediments and post deposition processes seen in archaeobotanical studies  |
| 10:10 - 10:15<br>Lightning | Aurora Campo           | Developing a Standardized Protocol for Sediment Sampling in Greek Archaeological Sites for Ancient DNA Analysis                                     |

10:30 – 11:00: Coffee break

## Wednesday 25th June

11:00 – 12:30: Parallel session: Molecular methods (E1)

Room: Longyearbyen Chair: Bastian Fromm

| Time                       | Presenting author      | Title  |
|----------------------------|------------------------|--|
| 11:00 - 11:15<br>Oral      | Lasse Vinner           | Automated sequencing data production from ancient environmental samples  |
| 11:15 - 11:30<br>Oral      | Yucheng Wang           | Advancing ancient environmental DNA target genome capture to facilitate genomic and genetic analysis                                     |
| 11:30 - 11:45<br>Oral      | Flore M.D. Wijnands    | Arctic Ocean ecosystem reconstruction using sedaDNA: a comparison of shotgun metagenomics and metabarcoding                              |
| 11:45 - 12:00<br>Oral      | Nichola Ann Strandberg | Empirical comparisons of metabarcoding, capture probe and shotgun sequencing using surface sediments, vegetation surveys and PhyloNorway |
| 12:00 - 12:15<br>Oral      | Amedea Perfumo         | Reawakening ancient DNA for biotechnology  |
| 12:15 - 12:20<br>Lightning | Ryan Paterson          | Challenges and Opportunities of environmental palaeoproteomics   |
| 12:20 - 12:25<br>Lightning | Jérémy Courtin         | Unlocking Arctic Marine Biodiversity: Enhancing Taxonomic Resolution with Sedimentary Ancient DNA  |
| 12:25 - 12:30<br>Lightning | James McKenna          | eWHALE: Combining environmental DNA sampling, whale watching and citizen science for stakeholder-driven marine biodiversity protection   |

11:00 – 12:30: Parallel session: Human impact 1 (E2)

Room: Kompasset Chair: Scarlett Zetter

| Time                       | Presenting author       | Title  |
|----------------------------|-------------------------|--|
| 11:00 - 11:15<br>Oral      | Xaali O'Reilly-Berkeley | The potential of sedaDNA to increase our understanding of island ecosystem dynamics  |
| 11:15 - 11:30<br>Oral      | Amy Thorpe              | Reconstructing Past Microbial Communities in Lake Ecosystems Using Sedimentary DNA   |
| 11:30 - 11:45<br>Oral      | Robin Crucitti-Thoo     | Investigating 250 Years of Cyanobacterial Community Dynamics in a Currently Eutrophic Lake Using Sedimentary DNA                                 |
| 11:45 - 12:00<br>Oral      | Juliane Romahn          | 7,000 Years of Change: How Environmental Shifts Shaped Phytoplankton Communities in the Baltic Sea   |
| 12:00 - 12:15<br>Oral      | Narumi Tsugeki          | A trial assessment of chemical burden on marine mammal dynamics over the past 100 years by using sedimentary DNA: an example of finless porpoise |
| 12:15 - 12:20<br>Lightning | Yuanyu Cheng            | Protecting the future by learning from the past: Salmon nursery lake ecosystem reconstruction through sedimentary DNA                            |
| 12:20 - 12:25<br>Lightning | Agnes Weiner            | Using sedimentary ancient DNA to trace changes in past marine biodiversity in Norwegian fjords   |
| 12:25 - 12:30<br>Lightning | Elena Baños             | Unraveling Historical Dynamics of Marine Biological Invasions: A sedaDNA study of Intertidal Ecosystems  |

## Wednesday 25th June

12:30 – 13:30: Lunch break

13:30 – 14:30: Plenary: Ulrike Herzs Schuh

Room: Longyearbyen

14:30 – 15:30: Parallel session: Computational methods 2 (F1)

Room: Longyearbyen Chair: Youri Lammers

| Time                       | Presenting author      | Title   |
|----------------------------|------------------------|---|
| 14:30 - 14:45<br>Oral      | Aurora Campo           | A Snakemake Pipeline for SNP Calling in Ancient DNA: Identifying Heterozygous Sites for Positive Selection Analysis |
| 14:45 - 15:00<br>Oral      | Nicola Alexandra Vogel | keelime: Hybrid assembly for ancient environmental DNA using pangenome graphs                                       |
| 15:00 - 15:15<br>Oral      | Kevin Nota             | Beyond Genera, the Next Frontiers in Ancient Environmental Genomics   |
| 15:15 - 15:20<br>Lightning | Chenyu Jin             | Population Genomic Insights of Woody Plant species from Ancient Arctic Sediments                                    |
| 15:20 - 15:25<br>Lightning | Yuanyang Cai           | Quality Control of Ancient Environmental Genomic Data and Reference Databases for improved Taxa Profiling           |

14:30 – 15:30: Parallel session: Human impact 2 (F2)

Room: Kompasset Chair: Mary Lucas

| Time                  | Presenting author    | Title   |
|-----------------------|----------------------|---|
| 14:30 - 14:45<br>Oral | Caroline Kisielinski | Integration of Indigenous perspective with sedimentary ancient DNA analysis to address local conservation in Nevada, USA            |
| 14:45 - 15:00<br>Oral | Franka Gaiser        | Spatio-Temporal Dynamics and Drivers of Plant Diversity in the European Alps: Diversification and Homogenisation Over 12,000 Years  |
| 15:00 - 15:15<br>Oral | Laura Saskia Epp     | From the Early Anthropocene to the Great Acceleration: Comparing biodiversity dynamics in water bodies under differing human impact |
| 15:15 - 15:30<br>Oral | Dilli Rijal          | What are the drivers of plant species diversity in the Alps and northern Fennoscandia?  |

15:30 – 16:00: Coffee break

## Wednesday 25th June

16:00 – 17:00: Parallel session: Lacustrine sedaDNA 3 (G1)

Room: Longyearbyen Chair: Aloïs Revéret

| Time                  | Presenting author      | Title  |
|-----------------------|------------------------|--|
| 16:00 - 16:15<br>Oral | Laura Gedminienė       | Environmental Dynamics of the Southern Baltic Region revealed by plant sedaDNA and diatom                                    |
| 16:15 - 16:30<br>Oral | Daniel Diaz de Quijano | Past Winter conditions reconstructed from microeukaryote sedaDNA: A Siberian study case                                      |
| 16:30 - 16:45<br>Oral | Sushmita Singh         | Holocene Paleoclimate and Paleoecology reconstruction using SedaDNA and lipid biomarkers: Toli lake, Garhwal Himalaya, India |
| 16:45 - 17:00<br>Oral | Katharina Dulias       | Long-term genetic diversity patterns of ostracods and diatoms in Nam Co sediments  |

16:00 – 17:00: Parallel session: Marine sedaDNA 3 (G2)

Room: Kompasset Chair: Anders Schomacker

| Time                  | Presenting author           | Title  |
|-----------------------|-----------------------------|--|
| 16:00 - 16:15<br>Oral | Kathleen Stoof-Leichsenring | Long-term community, interaction and functional shifts in (sub)polar regions detected by marine sedimentary ancient DNA shotgun sequencing             |
| 16:15 - 16:30<br>Oral | Christiane Boeckel          | Virus-host interactions throughout the Late Quaternary inferred from lake and marine sedimentary DNA   |
| 16:30 - 16:45<br>Oral | Josefine Friederike Weiß    | Shifts in Marine and Terrestrial Ecosystem Inputs to marine sediments: Insights from sedaDNA, automated habitat classification and Biomass Estimation. |
| 16:45 - 17:00<br>Oral | Mailys Picard               | Reconstructing the impact of rising anoxia with paleoecology - an Arctic case study  |

Room: Longyearbyen

17:00 – 17:30: Closing

## Thursday 26th June

Post-conference excursions