

Program of the 1st GeoDays, Kumpula Campus, Helsinki



Tuesday 14th March

9:00-12:00 Workshop on Geoanalytical techniques Part 1: Mineralogy & isotope geochemistry (Physicum D105)

13:00-17:00 Short course on scientific writing (Physicum D105)

17:00- Registration (Physicum Lobby)

17:30-19:30 Ice breaker (Physicum Atrium, Valopiha)

Wednesday 15th March

8:30-9:00 Registration (Exactum Lobby)

9:00- 9:15 Opening of the meeting (Exactum A111)

Annakaisa Korja, Head of Department, Geosciences and Geography, University of Helsinki

Wednesday Plenary Session: Living and Sustainable Earth – Past and Present (Exactum A111)

Chair: Riikka Kietäväinen

9:15-9:45 Keynote: On the search for deep ancient life in the Fennoscandian shield

Henrik Drake, Linnaeus University

9:45-10:00 The Finnish deep biosphere – are there common factors?

Malin Bomberg, VTT Technical Research Centre of Finland

10:00-10:30 Coffee break (Exactum Lobby)

10:30-10:45 A paleoclimate perspective on recent European heatwaves and droughts

Frederik Schenk, University of Helsinki, Geosciences and Geography & Stockholm University

10:45-11:00 Origins of sedimentary sea-ice proxies in the Arctic

Tiia Luostarinen, University of Helsinki, Environmental Change Research Unit (ECRU) & Helsinki Institute of Sustainability Science (HELSUS)

11:00-11:30 Invited: Early diagenesis in human-impacted sedimentary systems: a multidecadal perspective

Tom Jilbert, University of Helsinki, Geosciences and Geography

11:30-12:30 Break

Session 2a: The Baltic Sea (Exactum B123)

Chair: Tom Jilbert

12.30-13:00 Invited: Searching for the fingerprints of gypsum - from the soil to the drainage water and out to the Baltic Sea

Mats Willner, Centre for Economic Development, Transport and the Environment, Turku & Åbo Akademi

13:00-13:15 Assessing the coupled iron, phosphorus and sulphur feedbacks in response to changes in bottom water oxygen in the Baltic Sea: a modelling approach

Martijn Hermans, University of Helsinki, Geosciences and Geography & Stockholm University

13:15-13:30 Applicability and constraints of molybdenum and uranium-based paleo redox proxies in coastal marine environments

K. Mareike Paul, University of Helsinki, Geosciences and Geography

13:30-13:45 Submarine Groundwater Discharge and Its Impacts on the Seafloor Biogeochemical Processes and Microbial Community at Hanko Lappohja

Joonas Virtasalo, Geological Survey of Finland

13:45-14:00 Shaking the Earth beneath the sea – a case study from the Baltic Sea

Aarno Kotilainen, Geological Survey of Finland

Session 2b: Shaping and Shaking the Earth (Exactum CK112)

Chair: Ilmo Kukkonen

12:30-12:45 On the lateral resolution of the seismic surface wave focal spot imaging technique

Gregor Hillers, University of Helsinki, Institute of Seismology

12:45-13:00 Array-derived rocking rate vs. vertical ground acceleration: scaling relations from seismicity induced by the Espoo/Helsinki geothermal stimulation

Amir Sadeghi-Bagherabdi, University of Helsinki, Institute of Seismology

13:00-13:15 Fature processes during EGS stimulations in the Helsinki area, southern Finland in 2018 and 2020 from centroid full moment tensor analysis of induced event waveforms

Annukka Rintamäki, University of Helsinki, Institute of Seismology

13:15-13:30 Physics-based machine learning for characterizing induced seismicity in Enhanced Geothermal Systems (EGS)

Kwabena Atobra, University of Helsinki, Institute of Seismology

13:30-13:45 Tentative metamorphic paths for southern Svecofennian rocks

Miisa Häkkinen, University of Helsinki, Geosciences and Geography

13:45-14:00 Earth's evolution in the framework of Precambrian supercontinents and supercycles

Lauri Pesonen, University of Helsinki, Department of Physics

14:00-14:30 Coffee break (Exactum Lobby)

Session 3a: Past and Present Climates (Exactum B123)

Chair: NN

14:30-14:45 Long-term constancy of Asian atmospheric circulation revealed by Paleogene to Neogene dust provenance

Katja Bohm, University of Helsinki, Geosciences and Geography & Uppsala University

14:45-15:00 Reconstructions of European climate during the Eemian: millennial trends, latitudinal contrasts, and abrupt events

J. Sakari Salonen, University of Helsinki, Geosciences and Geography

15:00-15:15 Younger Dryas summer temperature trends in the Baltic States region based on plant macrofossil data

Liva Trasune, University of Helsinki, Geosciences and Geography

15:15-15:30 Urban environment and climate change in the Arctic; thermal stress release and frost quakes

Kari Moisio, University of Oulu, Oulu Mining School

Session 3b: Mineral exploration – Invited talks (Exactum CK112)

Chair: Kaisa Nikkilä

14:30-15:00 Invited: Mineral Exploration; challenges and opportunities in disruptive markets

Mathias Forss, GeoPool Oy

15:00-15:30 Invited: Surface geochemical and mineralogical methods for the environmentally friendly exploration in the glaciated terrains

Pertti Sarala, University of Oulu, Oulu Mining School

Awards (Exactum B123)

15:35-15:50 MSc Thesis awards of the K.H. Renlund Foundation

15:50-16:00 PhD Thesis awards of the Geological Society of Finland

Poster session (Exactum Lobby)

16:00-18:00

(In alphabetical order)

1. Alibakhshi S.: Exploring the potential of radar data for monitoring tree plantation plans
2. Aragão F.: Phosphorus removal and retention mechanisms of Polonite and Rådasand from hypolimnetic water of lake Hönsan, Sweden
3. Bauert H.: EGT-TWINN International research cooperation for the green transition in Estonia
4. Chung Y.-C.: Stalagmite-inferred hydroclimate in northern Africa during 80-41 ka
5. Erhovaara S., Nuutinen J.: Incorporating gas sampling in studying carbon accumulation from lake sediment and northern peatlands
6. Haapanala P. FLEX-EPOS Seismic instrument pool
7. Heinonen A.: Peraluminous I-type magmatism of the postkinematic Heinävesi suite in southern Savonia: Petrological constraints from the Suvasvesi intrusion
8. Hietala S.: Layman's sample practice - a unique method for mineral exploration
9. Hietala S.: Layman's sample findings for undiscovered about 2440 million years old PGE and chromite deposits
10. Hillers G.: Numerical simulations of seismo-acoustic nuisance patterns from an induced M1.8 earthquake in the Helsinki, southern Finland, metropolitan area
11. Hillers G.: Induced earthquake source parameters, attenuation, and site effects from waveform envelopes in the Fennoscandian Shield
12. Holma M.: Horizon Europe project AGEMERA: Combining novel methodologies for agile exploration and geomodelling of critical raw materials deposits
13. Holma M.: Applications of cosmic-ray muon imaging in Earth Sciences
14. Ikonen J.: Behavior of Li, S and Sr isotopes in the subterranean estuary and seafloor pockmarks of the Hanko submarine groundwater discharge site in Finland, northern Baltic Sea
15. Juvonen M.S.: Access to point spread function enhances seismic surface wave focal spot imaging
16. Koho K.A.: Freshwater blue carbon: carbon accumulation in Finnish lake sediments
17. Korda D.: Neural network for determining silicate composition from reflectance spectra
18. Kotilainen A.T.: EMODnet Geology – seabed geological data for the sustainable use of world ocean
19. Kuosmanen N.: Repeated fires in forested peatlands in sporadic permafrost zone in Western Canada
20. Luoma S.: A modified - DRASTIC vulnerability mapping method for shallow groundwater areas in Finland
21. Luoto T.: A new high-quality 1885 Ma paleomagnetic pole for Fennoscandia from Svecofennian gabbros of central Finland
22. McDonald I.C.: Copper in the Rajapalot Au-Co Deposit
23. Nuppunen-Puputti M.: Rock surface attaching deep biosphere microbes and their functionality
24. Palamakumbure L.: Role of low energy ion particles in space weathering of asteroid spectra: Laboratory simulation of solar wind irradiation using low energy H+
25. Pang Y.: Detecting spatial patterns and phenology of peatland vegetation with remote sensing

26. Purkamo L.: Diverse microbial communities reflect the geochemistry of groundwater in Kurikka aquifer system, Finland
27. Pylkkänen J.: Characterization of suspended particles in estuarine seawater at Pohjanpitäjänlahti using hyperspectral backscatter method
28. Ranta E.: The making of monogenetic lava shields: a case study of the mid-Holocene Trölladyngja eruption, Iceland
29. Riaz R.: Characterization of the lesser Himalayan soils as source or sink of semi volatile persistent organic pollutants (POPs): Inferences for source and environmental processes
30. Salmi R.: Orgaanisen hiilen määärä ja alkuperä pohjoisissa rannikkosedimenteissä
31. Sartell A.M.R.: The High Arctic Large Igneous Province in Svalbard: understanding its magmatic evolution using geochemistry and geochronology
32. Siira J.: Strontium isotopes in identification of food forgeries in Finland
33. Siira O.-P.: Possibilities of peatlands in mitigating climate change— a transformation from emission sources into carbon sinks
34. Silvennoinen S.: International Union of Geodesy and Geophysics (IUGG)
35. Soukka T.: Colloidal gold transport in the Paleoproterozoic orogenic gold deposits: Outlining objectives of the PhD project
36. Stark P.P.: Detecting mode of sediment transportation and fine scale shifts in provenance by Dynamic Image Analysis: a methodological study
37. Taivalkoski A.: Trace element mobilization during pyrite-goethite alteration in supergenic oxidation processes in till: usability in the fingerprinting analysis of the mineral deposit's formation
38. Tiala A.: Geokemisk jämförelse av sidoberg och pegmatiter i Österbottens skifferbälte, Seinäjoki och Kuortane regionen, Finland
39. Toivanen E.: Zircon ages of two felsic volcanic rocks from the Orijärvi area, southern Finland
40. Tsarsitalidou C.: Focal spot imaging sensitivity to asymmetric array configurations and combined anisotropic energy flux
41. Tuomaala E.: High-latitude peatlands under changing climate – from new initiation to regime shifts and degradation
42. Turtiainen H.A.: Groundwater and surface water PFAS in the River Vantaa catchment area
43. Vehkämäki T.: Repeated fluid activity in the cordierite-orthoamphibole rocks in Orijärvi, southern Finland
44. Veikkolainen T.: The Finnish National Lithosphere Committee
45. Vuorinen T.A.T.: Detecting Induced Seismicity of an Enhanced Geothermal System Using an Automatically Picked Catalogue for Template Matching
46. Wikström J.: Understanding nutrient retention in two-stage channels

Thursday 16th March

8:45-9:00 Registration (Exactum Lobby)

9:00- 9:15 Opening of the day (Exactum A111)

Saku Vuori, Director, Science and Innovations, Geological Survey of Finland

Thursday Plenary Session: Minerals for Green Transition: From Ores to Societal Challenges (Exactum A111)

Chair: Aku Heinonen

9:15-9:45 Keynote: Challenges and Bottlenecks for the Green Transition

Simon Michaux, Geological Survey of Finland

9:45-10:00 Mining and mineral exploration disputes in Finland: implications for the social license to operate

Toni Eerola, Geological Survey of Finland

10:00-10:30 Coffee break (Exactum Lobby)

10:30-10:45 Exploration targeting of critical raw materials (CRMs)

Malcolm Aranha, University of Oulu, Oulu Mining School & Indian Institute of Technology Bombay

10:45-11:00 Extractive waste as a source of secondary resources in Finland – current state

Teemu Karlsson, Geological Survey of Finland

11:00-11:30 Invited: Sakatti – A FutureSmart Mine of Anglo American

Pertti Lamberg, AA Sakatti Mining Oy

11:30-12:30 Break

Session 5a: Solid Earth: Processes, Resources, and Composition – Part 1 (Exactum B123)

Chair: Johanna Salminen

12:30-12:45 Rifting-related mafic-ultramafic magmatism and ore potential in NE Fennoscandia

Fangfang Guo, University of Oulu, Oulu Mining School

12:45-13:00 Characterization of magnetite-bearing Cu ores in Viscaria, Northern Sweden

Olcay Ayoglu, University of Oulu, Oulu Mining School

13:00-13:30 Invited: From the crust to the mantle and back: Subduction in progress

Christoph Beier, University of Helsinki, Geosciences and Geography

13:30-13:45 Classification of the phosphorus-rich Lieksa 4 iron meteorite

Laura Kotomaa, University of Turku, Geography and Geology

13:45-14:00 Using portable XRF to analyze geochemistry of basaltic rocks in the field: example from Antarctica

Jussi Heinonen, University of Helsinki, Museum of Natural History & Department of Geosciences and Geography

Session 5b: Following the water (Exactum D122)

Chair: Seija Kultti

12:30-13:00 Invited: TBD

Kirsti Korkka-Niemi, Geological Survey of Finland

13:00-13:15 Fracture mineral investigations beneath the Baltic Sea near Olkiluoto, Finland

Minja Seitsamo-Ryyränen, University of Helsinki, Geosciences and Geography

13:15-13:30 Origin of brackish bedrock groundwater at Finnish mining development site

Kaisa Turunen, Geological Survey of Finland

13:30-14:00 Invited: Insights to hydrogeological studies in Sakatti project

Anne Rautio, AA Sakatti Mining Oy

14:00-14:30 Coffee break (Exactum Lobby)

Session 6a: Solid Earth: Processes, Resources, and Composition – Part 2 (Exactum B123)

Chair: Jussi Heinonen

14:30-14:45 Single-grain zircon LA-ICP-MS U-Pb age and Lu-Hf isotope systematics of the Archean Takanen greenstone belt in Kuusamo, Northern Finland

Ville Järvinen, Geological Survey of Finland

14:45-15:00 Reducing Uncertainty in Source Area Exploration of Mineralized Glacial Erratics Using Terrestrial Cosmogenic Radionuclide Dating

Veikko Peltonen, University of Helsinki, Geosciences and Geography

15:00-15:15 Risk management of the environmental impacts of black shales in Finland

Kirsti Loukola-Ruskeeniemi, Geological Survey of Finland

15:15-15:30 Re-analysing Co-bearing Layman's samples in Finland

Esa Heilimo, University of Turku, Geography and Geology

15:30-16:00 Invited: Sokli, future raw material source

Pasi Heino, Finnish Minerals Group/Sokli Oy

Session 6b: Structures at Different Scales and Dimensions (Exactum D112)

Chair: David Whipp

14:30-15:00 Invited: Konseptuaaliset mallit ja epävarmuudet geologisessa 3D-mallinnuksessa

Pietari Skyttä, University of Turku, Geography and Geology

15:00-15:15 Jormua-Outokumpu suture – fact or fiction?

Jarmo Kohonen, Geological Survey of Finland

15:15-15:30 Records of continent-continent collisions in the Paleoproterozoic: exploring the effects of convergence obliquity and temperature

Leevi Tuikka, University of Helsinki, Institute of Seismology

15:30-15:45 Structural characteristics of the bedrock and their bearing on the morphology of the eroded bedrock surface, Turku, South-Western Finland

Eemi Ruuska, University of Turku, Geography and Geology

15:45-16:00 3D seismic modelling and imaging from two 2D seismic profiles of orthogonal geometry in Neves-Corvo mining site, Portugal

Yinshuai Ding, University of Helsinki, Geosciences and Geography

16:00-16:15 Poster prize and closing remarks (Exactum B123)

Friday 17th March

9:00-14:00 MinExTarget Workshop (Exactum C124)

9:00-11:00 FIN-GEO Working Group Meeting (Exactum C123) – Open invitation to all interested in geoscience education cooperation!

9:00-11:00 Geologia.fi Steering Group Meeting (Physicum, A115/Geography Meeting Room) – By invitation

11:30-13:30 ILP Committee Meeting (Bistro Bryk) – By invitation

13:00-15:00 Workshop on Geoanalytical techniques Part 2: Lab visit (Geological Survey of Finland, Otaniemi, Espoo, Vuorimiehentie 2) – For registered participants

