GeoUtrecht 2020

24–26 August 2020 | Utrecht | The Netherlands www.geoutrecht2020.org Deadline 5 May 2020



EARTH! Treasures Threats *Transitions*

Section 1 - Earth and Humankind

Theme 1.1 – Geo-hazards (natural and induced seismicity, flooding, landslides and volcanic risk, subsidence, active tectonics)

1.1.1 Understanding natural, induced and laboratory seismicity

1.1.2 Natural Hazards in the 21st century

Theme 1.2 – Geo-Resources and Sustainability (fossil fuels in the transition period, unconventional and sustainable geo-resources)

1.2.1 Subsurface storage for future energy systems

1.2.2 Ores extracted from unconventional deposits: a new frontier to overcome the rising demand of raw materials?

1.2.3 Characterizing the Subsurface in support of Drilling for Sustainable Energy 1.2.4 Raw Materials and their societal relevance for Europe

1.2.5 Integrated Petroleum and Coal Studies: From microscopic to seismic scales Theme 1.3 – Geothermal energy, from surface to deep (structure and quantification, exploitation and societal risks)

1.3.1 Geothermal energy: use the past for looking to the future (Sponsored by EAGE)

Theme 1.4 – Focus on structure and quantification (geological mapping and modelling, engineering geology, soil and stability, applied sciences in general)

1.4.1 Applications in 3D Geological Modelling

1.4.2 Recent developments in Engineering Geology

1.4.3 Radon & Geology

1.4.4 Open topics in geological mapping, soil, stability and general regional studies

Section 2 – Earth Evolution

Theme 2.1 – Understanding the multi-scale past climate and environmental evolution (climate change in the deep time, paleo-oceanography, paleo-environments)

2.1.1 Latest Achievements in Scientific Ocean and Continental Drilling

 $\ensuremath{\textbf{2.1.2}}$ The imprint of astronomical climate forcing: geochronometer and paleoclimate archive

2.1.3 Proxy applications in restricted basins

 $2.1.4~\mbox{Mediterranean-Atlantic exchange}$ – The conjunction between the low and high latitude climate systems

Theme 2.2 – Understanding the past biostratigraphy (paleontology, palynology, paleobotany, geobiology and event stratigraphy)

- 2.2.1 Mammalian adaptation and evolution throughout the Cenozoic
- 2.2.2 Biostratigraphy of South Caspian Quaternary deposits
- 2.2.3 Micropalaeontology

2.2.4 New absolute age for Ediacaran fauna of Ukraine: update of biostratigraphic niche for ancient soft-bodied organisms

- 2.2.5 Palaeobotany and Palynology
- 2.2.6 Quantitative palaeobiology

2.2.7 Interdisciplinary perspectives on modern foraminiferal research

2.2.8 Transitions in Earth history and biotic changes

Section 3 – Earth Materials and Dynamics

Theme 3.1 – Multi-scale material properties and interactions (nanoscale properties and interactions, petrology, geochemistry and Early Earth evolution)

3.1.1 Advances in Geochronology: From present techniques to future applications 3.1.2 Fluid-rock interaction: a multi-scale process relevant for sedimentary and metamorphic processes, as well as geo-engineering applications





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3.1.3 Early Earth processes and the dawn of life

Theme 3.2 – Rheology and rock mechanics and properties (experimental properties of rocks and societal implications, multi-scale rheology, fluid-rock interactions, geophysical characterization and petrophysics)

3.2.1 Microfabrics, deformation mechanisms and rheology

3.2.2 Deformation of fluid-filled rocks

Section 4 – Earth Surface Processes and Sediment Dynamics

Theme 4.1 – Multi-temporal landscape observations and modelling (forcing in landscape dynamics, sea-level evolution)

4.1.1 Sea-level fluctuations over time – Sea level index points and dating approaches

Theme 4.2 – Multi-scale sedimentary basins evolution (sedimentary basins architecture and evolution at all scales, sedimentology, sediment dynamics, observations and modelling)

4.2.1 Numerical modelling of sedimentary basins and systems

4.2.2 Advances in understanding processes driving the formation and evolution of sedimentary basins

4.2.3 Resedimentation of clastics and carbonates – From processes to seismics 4.2.4 The tectonostratigraphic evolution of the East African passive margin

4.2.5 Fluvio-aeolian environments and sediment dynamics from present to past

Section 5 – Coupling the Deep Earth

Theme 5.1 - Plate tectonics, evolution of the crust - mantle system (multi-scale tectonic processes from observations to modelling, mantle-lithosphere interactions and evolution of dynamic topography, coupling between orogenic and sedimentary basin processes)

5.1.1 Tectonics, geodynamics, and paleogeography of the Alpine-Himalayan orogen from the Earths mantle to its surface

5.1.2 Modelling of feed-back mechanisms in orogenic systems

5.1.3 Tectonic systems (TSK Open Session)

5.1.4 Forward and inverse modelling of tectonic processes

Theme 5.2 – Alps Array – learning from the structure of a well-known orogen (geophysical quantification, structure and geodynamics)

5.2.1 The Alpine Orogen: Reconciling Recent Images of its Deep Structure and Crustal Tectonics

Section 6 - Earth data, education, society and open topics in Earth System

Theme 6.1 – Databases and infrastructure (data management, shared infrastructure programmes, open data, data sharing platforms, software)

6.1.1 Research data and software management in times of FAIR and Open Data 6.1.2 Working on the roads: improving the infrastructure for research into geo-societal challenges

Theme 6.2 – Early Career Researchers, education, training and society (advanced teaching systems, training networks, efficiency in societal relevance, transferrable skills)

6.2.1 Early Career Researcher session

6.2.2 Concepts, practice and future of research data and software literacy

6.2.3 Higher education teaching and outreach in Geosciences

Theme 6.3 – Open topics in Earth Systems

6.3.1 Open topics in the Earth System





