Presenter contributions for TOPO-EUROPE workshop 14-16 October 2024

Sierd Cloetingh: Quo vadis TOPO-EUROPE and announcements



Sierd Cloetingh is Utrecht University Distinguished Professor in Earth Science and principal researcher at the HUN-REN Institute of Earth Physics and Space Science. In his keynote talk he summarized activities in the framework of the TOPO-EUROPE collaborative research program and highlighted future research directions and collaborations within the TOPO-EUROPE research community.

Pietro Sternai: Interaction between surface and deep Earth processes



Pietro Sternai, associate professor at Universitá degli studi di Milano-Bicocca, is working on the understanding of magmatic triggering of Cenozoic climate changes. During his talk, he showed the latest results of his research group on the fluid and melt-inclusion based study that are representatives of climate-influencing volatiles.

Liviu Matenco: Advances in quantifying tectonic-driven deformation and diagenesis in sedimentary basins



Liviu Matenco, professor at Utrecht University, is an expert on sedimentary basin formation and evolution as well asd long-term sediment dynamics coupling with anthropogenic effects. In his talk, he gave an insight into the quantification of tectonic-related deformations strongly affecting the diagenetic processes too.

Alexander Koptev: "Sleeping Beauty" LIP in the North Atlantic: Iceland plume and its magmatic manifestations



Alexander Koptev is a researcher at the GFZ Helmholtz-Zentrum für Geoforschung (Potsdam, Germany) focusing on numerical modelling on geodynamics, tectonics, lithosphere rheology, continental rifting, and subduction. He presented his latest results on large igneous provinces (LIP) in Iceland, crosscut by the North Atlantic, including the modeling of related magmatism.

Márta Berkesi: carbon dioxide and other volatiles degassing of the Deep Earth in the Pannonian Basin



Márta Berkesi, a research fellow at the HUN-REN Institute of Earth Physics and Space Science, gave an introduction on the latest results of the MTA FI FluidsByDepth Research group activity. During her talk, she showed how the nanoscale processes can act as important fluid channelizing entities and presented pieces of evidence on recent non-magmatic mantle degassing in the Pannonian Basin.

Taras Gerya: Frontier Science and networking in the EUROBIG COST Action



Taras Gerya is a professor at ETH Zurich, with research focus on plate tectonics, geodynamics, planetary processes as well as numerical geodynamic modelling. During his talk he presented ongoing research and network activities in the framework of the EUROBIG COST Action (https://www.cost.eu/actions/CA23150/#tabs+Name:Description), that has been initiated during the 2023 TOPO-EUROPE workshop.

Benjamin Mills: Predicting long-term climate and environmental change from tectonic and biotic evolution



Benjamin J. W. Mills, Professor of Earth System Evolution at the University of Leeds, is a biogeochemist and numerical modeller who works on the evolution of the Earth System over geological time. In his talk he presented the work of his research group on the prediction of long-term climate and environmental change based on tectonic and biotic evolution.

Bernhard Novotny: Geothermal energy in the Vienna Basin



Bernhard Novotny is a senior geophysicist, director of geothermal projects at OMV Vienna. In his presentation he outlined the progress and challenges of geothermal energy research and development in the Vienna Basin.

Mark van der Meijde: Seismology and geothermal: Imaging from continental rifting to local geothermal fields



Mark van der Meijde is head of the department of Earth Systems Analysis and professor in Geophysics at the University of Twente, with research focus on the imaging of Earth structure, composition, and dynamics. In his talk he showed case studies for the application of seismological methods for geothermal exploration and monitoring.

Nadia Malaspina: The role of serpentinites in Carbon Capture Storage and Utilisation



Nadia Malaspina, associate professor at University of Milano-Bicocca, is engaged in the experimental study of Carbon Capture solutions via mineral reactions. The presentation showed

new results on the experimental study of serpentinization and its potential for permanently locking carbon in the lithosphere.

Kristóf Porkoláb: Antigorite dehydration and its relation to intermediate depth seismicity



Kristóf Porkoláb, researcher at the HUN-REN Institute of Earth Physics and Space Science, studies geodynamics and fluid-rock interactions in the lithosphere. The presentation showed how new numerical simulations can be used to predict the chance of rock fracturing during mineral dehydration reactions.

Alessio Lavecchia: Fault (re)activation, fluid-induced seismic activity and seismogenic potential in the Val d'Agri (southern Italy)



Alessio Lavecchia, researcher at University of Bari Aldo Moro, investigates the thermo-mechanical behavior of the Solid Earth via numerical models. The presentation showed how fluids may induce earthquakes at geothermal fields through a case study in Italy.

Gábor Tari: Natural hydrogen: a new frontier in harvesting renewable geoenergy



Gábor Tari, Group Chief Geologist at OMV Vienna, is an expert of geo-energy research and exploration. The presentation showed why we need to consider naturally accumulated hydrogen as a potential new, renewable energy source.