



Krafla Magma Testbed (KMT) Symposium
10-12 April 2024, Munich, Germany

Wednesday 10 April 2024		
12:00 – 13:00	<i>Registration</i>	
13:00 – 13:15	Welcome words	TBA
13:15 – 13:25	Krafla Magma Testbed: The Initiative	John Ludden - Chair, Board of Directors, KMT
13:25 – 13:35	Inception of KMT: A Vision for Advancing Geoscience	John Eichelberger - Professor Emeritus, University of Alaska Fairbanks
13:35 – 13:45	Transformative Contributions of KMT to Volcanology: Advancing Understanding and Mitigation of Volcanic Hazards	Paolo Papale - Research Director, Italian Institute of Geophysics and Volcanology,
13:45 – 13:55	Current Landscape of Geothermal Energy Worldwide and in Iceland: Embracing the Magma Energy Revolution	Vordís Eiríksdóttir - Director, Geothermal Operations, Landsvirkjun
13:55 – 14:15	KMT Science Plan	Yan Lavallée - Chair of Magmatic Petrology and Volcanology, Ludwig-Maximillan University
14:15 – 14:30	Announcement of the Establishment of the KMT Non-Profit Organisation	Björn Þór Guðmundsson - CEO, KMT
14:30 – 15:00	<i>Break</i>	
15:00 – 15:30	Geophysical constraints on the structure of Krafla and how it compares with other central volcanoes in Iceland	Magnús Tumi Guðmundsson - Professor, University of Iceland
15:30 – 16:00	KMT and EPOS: Horizons of Collaboration in Data Management	Kristín Vogfjörð - Coordinator for Geoscience Research, Iceland Meteorological Office
16:00 – 16:30	Engineering challenges of drilling into magma and extracting its energy	Sveinbjörn Holmgeirsson - Geoenergy Consulting
16:30 – 17:00	KMT Outreach and Education	Ben Kennedy - Professor, University of Canterbury
17:00 – 17:30	Reception at the symposium venue	
19:00 – 22:00	<i>Dinner at the Townhall.</i> https://www.ratskeller.com	



Thursday 11 April 2024		
09:00 – 10:00	Session 1 – Geothermal system exploitation	Chair: Vordís Eiríksdóttir
10:00 – 10:30	Break	
10:30 – 12:00	Session 2 - Reservoir rock properties and fluid flow	Chair: Guðjón H. Eggertsson
12:00 – 13:00	Lunch + Poster session	
13:00 – 14:00	Poster session	
14:00 – 15:30	Session 3 - Magmatic conditions at Krafla	Chair: John Eichelberger
15:30 – 16:30	Break + Poster session	
16:30 – 17:30	Session 4 - Magma response to drilling and engineering practices	Chair: Paolo Papale
17:30 – 18:00	Poster session (+ drinks)	

Friday 12 April 2024		
09:00 – 10:15	Session 5 – Geophysical properties of the volcano-geothermal system	Chair: Freysteinn Sigmundsson
10:15 – 11:45	Break + Poster session	
11:45 – 12:45	Session 6 – Hydrothermal fluids and associated hazards	Chair: Marlene Villeneuve
12:45 – 13:00	Closing statements	
14:30 – 16:30	Lab tour at LMU	(In groups of ~15-20 people)



Detailed Programme

Oral presentations for each session (15-min talks)

Room C123

1. Geothermal system exploitation (Chair: Vordís Eiríksdóttir)

Samuel W. Scott	Power generation potential of superhot geothermal wells
Marlene Villeneuve	Informing deep geothermal reservoir rock mass properties from drilling data - experience from IDDP-1
Tobias B. Weisenberger	IDDP-2 – Drilling into supercritical conditions – What do we know and what remains hidden in the subsurface?
Gunnar S. Kaldal	Increased Structural Integrity of Borehole Casings by using Axial Thermal Expansion- and Annular Pressure Relief-System for use in HT-Thermal Wells

2. Reservoir rock properties and fluid flow (Chair: Guðjón H. Eggertsson)

Steffi Burchardt	Dynamic cap-rock formation above a silicic magma reservoir, Reyðarártindur pluton, Iceland
Roberto Davoli	Subsurface soil and lithology alteration shaping degassing at Krafla caldera, Iceland
Jackie E. Kendrick	Mechanical behaviour of geothermal reservoir rocks at Krafla
Anthony Lamur	The impact of fracture generation on fluid flow in the Krafla geothermal reservoir
Jonas Köpping	The (non-)influence of caldera ring faults on heat transfer from a cooling intrusion
Kyriaki Drymoni	Enhanced magma cooling during geothermal stimulation.

3. Magmatic conditions at Krafla (Chair: John Eichelberger)

John Maclennan	Distinct but linked magma storage zones fed the 1975-1984 Krafla Fires eruptions
Marize Muniz da Silva	Storage conditions of rhyolitic magma at Krafla, Iceland: an experimental Investigations of IDDP-1 glass samples
Oleg Melnik	Numerical simulation of the formation of the IDDP-1 rhyolitic melt (Krafla volcano, Iceland)
Anastassia Borisova	Experimental investigation of kinetics of basaltic melt-felsic crust interaction: Implications for the Icelandic rhyolite genesis and the felsic crust delamination
Ilya Bindeman	Convective Melting and Water Behavior around Magmatic-Hydrothermal Transition: Stable Isotopes and Numerical Modeling with Application to Krafla Volcano, Iceland
Edgar A. Cortes-Calderon	Lithium Behavior in the Krafla Volcanic Zone: A Comparative Analysis between Surface Rhyolites and Felsic Cuttings from the Iceland Deep Drilling Project -1 (IDDP-1)



4. Magma response to drilling and engineering practices (Chair: Paolo Papale)

Mike Cassidy	The ethics of volcano geoen지니어ing
Ben Kennedy	Insights into the Krafla magma body from fossil intrusions and drilling returns
Janine Birnbaum	Magma vesiculation and upwelling in cylindrical boreholes: outgassing and buoyancy
Yan Lavallée	Vesiculation and outgassing from rhyolitic magma at Krafla volcano: implications for drilling and research strategies

5. Geophysical properties of the volcano-geothermal system (Chair: F. Sigmundsson)

Ana Martinez Garcia	3D crustal density distribution of the Krafla Volcanic System.
Elisabeth Glück	Multi-scale seismic imaging and related seismicity patterns of Krafla volcano and its geothermal system
Regina Maass	Reflection imaging at Krafla volcano using local earthquakes: challenges and possible solutions.
Max Moorkamp	Using magnetotelluric data for determining the 4D evolution of active magmatic systems via both campaign and continuous data streams
Jo Gottsmann	Geodetic signature of thermal modulation of magma

6. Hydrothermal fluids and associated hazards (Chair: Marlene Villeneuve)

Finnbogi Óskarsson	The fluid chemistry of the superhot IDDP-wells in Krafla, Reykjanes and Hengill, Iceland
Andri Stefansson	Supercritical fluids around magmatic intrusions
Giulio Bini	Soil CO ₂ emission and stable isotopes ($\delta^{13}\text{C}$, $\delta^{18}\text{O}$) of CO ₂ and calcites reveal the fluid origin and thermal energy in the supercritical geothermal system of Krafla, Iceland
Bettina Scheu	Insights into pre-eruptive conditions priming steam-driven eruptions in geothermal areas: Lessons from Viti crater at Krafla volcano

Note: This programme can be subject to change. Updated versions will be communicated in due time to participants.