

101st Journées Luxembourgeoises de Géodynamique

INTRACONTINENTAL BASALTIC VOLCANIC FIELDS Development and testing of hypotheses



4-7 September 2022

- Scientific Program -



Sunday 4 September

15:00 – onwards Arrival of participants
18:00 – 19:00 Registration
18:30 – 21:00 Icebreaker (“Walking dinner”)

Monday 5 September Research questions on the Eifel and basaltic volcanic fields in general

08:00 – 08:30 Registration

08:30 – 09:00 Workshop Opening

08:30 – 08:35 Adrien Oth
Welcome address & brief JLG introduction

08:35 – 08:50 Torsten Dahm
Introduction and overview to seismological research on intra-continental magmatic systems in the Eifel and the Vogtland regions

08:50 – 09:00 Axel Schmitt
The MAARE scientific initiative

09:00 – 12:00 Morning session

- **State and evolution of transcrustal magmatic reservoirs at different depths**
- **Migration of magmatic fluids and triggering of reservoir unrest**

09:00 – 09:20 Nikolai Shapiro, C. Journeau, J. Soubestre, L. Seydoux, I.Y. Koulakov and C. Sens-Schönfelder
Imaging large trans-crustal volcano-magmatic systems with seismic tremors

09:20 – 09:40 Julien Barrière and A. Oth
Ambient noise tomography of the Eifel and surrounding regions using current available data

09:40 – 10:00 Miriam Reiss, J.D. Muirhead, L. De Siena, G. Rumpker, C. J. Ebinger, A. S. Laizer and E. O. Kazimoto
The complex plumbing system of the developing magmatic Natron Rift

10:00 – 10:20 Samuel Niedermann, H. Kämpf, K. Bräuer and V. Reppke
Noble gas geochemistry of the Eifel volcanic field

10:20 – 10:30 *Discussion*

10:30 – 11:00 Coffee break & poster session

11:00 – 11:20 D. González-Vidal, Christoph Sens-Schönfelder, J.L. Luis Palma, F. Quiero, L. Franco, M. Miller, D. Lange, G. Siefeld and J. Cembrano
Correlated low-frequency tremor bursts and very low frequency surface deformation at Villarrica volcano, Chile

11:20 – 11:40 Simone Cesca
Seismo-volcanic sequences at remote earth locations and what to learn

11:40 – 12:00 Eleonora Rivalta, T. Davis, L. Mantiloni, G. Ferrante, L. Passarelli, F. Maccaferri, F. Corbi, V. Acocella and V. Pinel
Spatial shifts in magma pathways and eruptive vent locations controlled by evolving lithospheric stresses

12:00 – 13:00 Lunch

13:00 – 17:00 Afternoon session

- **Spatio-temporal control of volcanism in low-flux systems**
- **Multi-scale monitoring of volcanic fields and precursory signals**

13:00 – 13:20 Axel Schmitt
Magma ascent and storage in the Eifel volcanic field from the crystal record

13:20 – 13:40 Heiko Woith, A. Riße, B. Schmidt, M. Zimmer, S. Niedermann and T. Dahm
Real-time monitoring of recent CO₂-rich fluids in the Eifel volcanic fields

13:40 – 14:00 Romain Meyer, G. Bollendorf, R. Colbach and K. Da Silva
Mofettes and CO₂-rich hydrogen carbonate waters in Luxembourg – an intrinsic link to the Eifel magmatic activity

14:00 – 14:20 F. Silverii, L. Mantiloni, Eleonora Rivalta and T. Dahm
Sill intrusions in the crust or lithospheric mantle consistent with Earth's surface deformation in the Eifel, Central Europe

14:20 – 14:30 *Discussion*

14:30 – 15:00 Coffee break & poster session

- 15:00 – 15:20 Luca De Siena, B. Kaus, A. Spang, N. Riel, Y. Zhang and E. Walter
Geophysical response to volcanic processes: the Campi Flegrei laboratory
- 15:20 – 15:40 C. Caudron, T. Lecocq, C. Wollin, C. Haberland, P. Jousset, C. Krawczyk, B. Schmidt and Michel van Camp
Seismo-acoustic measurements in the Laacher See, Germany
- 15:40 – 16:00 Martin Hensch and B. Schmidt
Recent developments of the earthquake activity at Laacher See volcano
- 16:00 – 16:20 Sébastien Chevrot, V. Monteiller and L.-Y. Kan
Full waveform inversion of teleseismic body waves: Application to the imaging of the subduction beneath central Oregon
- 16:20 – 17:00 Poster session & informal discussion**

Tuesday 6 September Experimental approach and research visions

08:40 – 12:00 Morning session:

- **Joining forces between disciplines: geophysics, geochemistry, volcanology and more**
- **Eifel Large-N experiment: data & aims**
- **Discussions on proposal ideas**

- 08:40 – 09:00 Yan Lavallée
New experimental capabilities at the LMU-Munich and Krafla Magma Testbed (KMT)
- 09:00 – 09:20 Boris Kaus, N. Riel, D. Kiss, A. Spang, N. Berlie, A. Popov, T. Baumann, F. Magrini, L. De Siena and A. Schmitt
Linking geophysical observations with petrological/geological constraints to obtain insights into the dynamics of magmatic systems
- 09:20 – 09:40 A. Alohalii, D. Bertin, Shanaka de Silva, S. Cronin, R. Duncan, S. Qaysi, M.R. Moufti
Spatiotemporal forecasting of future volcanism in distributed volcanic fields: an example from Harrat Khaybar, Saudi Arabia
- 09:40 – 10:00 Delphine Smittarello, J. Barrière, N. d'Oreye, B. Smets, A. Oth, C. Michellier, V. Cayol, T. Shreve, R. Grandin, C. Wauthier, D. Derauw, H. Geirsson, N. Theys, H. Brenot, O. Namur, S. Molendijk, E. Kamate Kaleghetso, A. Muhindo and F. Kervyn
A multidisciplinary study of the May 2021 Nyiragongo eruption
- 10:00 – 10:20 Thomas Walter and N. Richter
The Eifel region as a field lab for dike intrusion studies
- 10:20 – 10:30 *Discussion on inter-disciplinary approaches, with a particular emphasis on the Eifel study region*

10:30 – 11:00 Coffee break & poster session

11:00 – 11:20 Christoph Sens-Schönfelder et al.

The Eifel Large-N project: overview and opening of discussion

11:20 – 11:40 Aurélien Mordret, A. Paul, C. Aubert, N. Shapiro and the MACIV Working Group

The MACIV Project

11:40 – 12:00 *Discussion*

12:00 – 13:00 Lunch

13:00 – 16:00 Think-tank working groups

13:00 – 13:20 Thomas Wiersberg

The International Continental Scientific Drilling Program: Achievements, goals and how to get involved

Set-up of think-tank working groups

Working group A (Room *Hollenfels* – main meeting room)

SWOT analysis of an ICDP drilling project / workshop proposal – go or not to go?

Working group B (Room *Vianden*)

Large-N seismology: maximal output with minimal funds – how to reach?

Working group C (Room *Wiltz*)

A distributed, integrated Eifel Volcano Observatory – how to construct?

14:30 – 15:00 Coffee break

Continuation of think-tank working groups

Working group A (Room *Hollenfels* – main meeting room)

SWOT analysis of an ICDP drilling project / workshop proposal – go or not to go?

Working group B (Room *Vianden*)

Large-N seismology: maximal output with minimal funds – how to reach?

Working group C (Room *Wiltz*)

A distributed, integrated Eifel Volcano Observatory – how to construct?

18:30 – 19:30 *Jeu de Quilles* & Apéritif

19:30 Meeting diner

09:00 – 10:30 **Report & plenary discussion of working group outcomes**

10:30 – 11:00 **Coffee break & poster session**

Keynote Presentation

11:00 – 11:45 Giuseppe De Natale and C. Troise
The Campi Flegrei Deep Drilling Project: Advancing volcanological research despite fake news of an apocalypse

12:00 – 13:00 **Lunch**

13:00 **Departure of participants**

Posters

1. Torsten Dahm, C. Milkereit, M. Isken, S. Cesca, X. Yuan, C. Sens-Schönfelder, F. Tilmann, M. Pilz, F. Cotton, H. Woith, M. Hensch, B. Schmidt, B. Endrun-Knapmeyer, T. Meier, L. de Siena, M. van Camp and A. Oth
A large-scale seismological experiment to study magmatic processes beneath the Eifel mountains
2. Aurélien Mordret, A. Paul, C. Aubert, N. Shapiro and the MACIV Working Group
The MACIV Project
3. Marius Isken, C. Milkereit, T. Dahm and C. Sens-Schönfelder
Large-N Experiments: Geodata organization and field work
4. Jan Burjanèk and M. Labuta
Seismic response of Maar volcanic structures
5. Céline Hadziioannou and S. Schippkus
Characterizing and using ambient seismic noise
6. Felix Eckel, A. El-Sharkawy, M. Timkò and T. Meier
Surface wave tomography by joint inversion of ambient noise and earthquake data
7. Zhiquo Deng and T. Dahm
Dense GPS derived deformation in Central Europe
8. Stijn Albers, T. Vandrope, C. Caudron, B. Schmidt, J. Ritter, K. Reicherter and M. De Batist
Spatial and temporal variability of underwater gas seepage in the Laacher See volcanic lake, Eifel Volcanic Field, Germany