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NEWSLETTER

Research for Integrative Numerical Geology



WELCOME

to this new edition of the RING annual newsletter, which will give you an overview of the last months' activity & events, as well as our team life.

IN THIS EDITION

- *Activity and Events (p.2-3)*
- *People & team life (p. 4)*
- *Work opportunities (p.5)*

UPCOMING

2023 RING Meeting
12-15 September
Nancy School of Geology

2023ringmeeting.event.univ-lorraine.fr

CONGRATULATIONS



Paul BAVILLE, PhD
ASGA
Graduation: April 2022



Zoé RENAT, PhD
Université de Lorraine
Graduation: January 2023



Capucine LEGENTIL, PhD
ASGA
Graduation: January 2023



Pr. Guillaume Caumon
Université de Lorraine
Director of the RING Consortium & Research team

After the PhD

Paul started a Post-Doc position at the Karlsruhe Institute of Technology. His work consists in quantifying the impact of the sediment source area erodibility in river system on the slab break-off record, using stratigraphic forward modeling.

Zoé is now working as a R&D researcher at Geolinks service in Metz & Nantes. She is developing tools for monitoring underground fluid displacement from seismic noise.

Capucine is pursuing a Post-Doc at TotalEnergies in Pau, with the support of ASGA. She works on mesh optimization around wells.

Guillaume is nominated at the "**Institut Universitaire de France**" as Senior Member under the Innovation Chair, effective from October 2023.

This status is awarded to "teachers-researchers whose research quality is internationally recognized".

Congratulations on these achievements!

ARRIVALS



Julien HERRERO
PhD student
ASGA



Augustin GOUY
PhD student
Université de Lorraine



Giusi RUGGIERO
PhD student
ASGA



Amandine FRATANI
PhD student
ASGA



Paul MARCHAL
PhD student
Université de Lorraine



Juan Sebastian OSORNO BOLIVAR
Geological Engineer
ASGA

Five PhD students joined the team since January 2022, bringing the current total number to eight PhD students at RING. In addition, in January 2023, a Geological Engineer started a contract with the prospect to undertake a PhD thesis in the future. We wish them a great and successful research path!

& FAREWELLS



François BONNEAU
Research Engineer
(ASGA)



Jérémie GIRAUD
Adjunct Research Fellow
(Maria Skłodowska-Curie Fellow)

After 13 years at RING, François is leaving RING mid-July and will be moving back to his native city, Angers. He will be starting a new position at Geode-solutions in August.

Jérémie will finish his 2-year fellowship at RING in late August, after which he will seek out new adventures.

They will be greatly missed but will both continue their collaboration with RING. Our best wishes to both of them for the future!

COMBINING
GEOSCIENCES,
APPLIED
MATHEMATICS, AND
COMPUTER
PROGRAMMING,
WE DO
METHODOLOGICAL
RESEARCH TO
DESCRIBE THE
GEOMETRY AND
HETEROGENEITIES
OF THE SUBSURFACE
CONSISTENTLY WITH
OBSERVATIONS AND
GEOLOGICAL
CONCEPTS.

EVENTS



**RING Meeting
Nancy School of Geology
June 2022**



**IAMG
Centre Prouvé, Nancy
September 2022**

Photo credits: IAMG



**Field trip
ANDRA underground research lab, Bure
April 2023**

THE RING TEAM SUCCESSIVELY ORGANIZED THE RING MEETING IN JUNE, THEN THE IAMG ANNUAL CONFERENCE IN SEPTEMBER 2022. VARIOUS SCIENTIFIC ACTIVITIES AND COLLABORATIONS ALSO TOOK PLACE THROUGHOUT THE YEAR.



**Presentation of the future PEGGHY platform
"Plateforme Expérimentale Géophysique
Géomecanique et Hydrogéologie"
Nancy School of Geology, May 2023**

MORE ABOUT US

Portrait of Paul MARCHAL, PhD student



"I started my PhD at RING in June 2022. Before, I graduated from the School of Geology in 2019, then I worked for two years as an engineer at GeoRessources (University of Lorraine), at the Orano Industrial Chair, working on mining datasets storage issues. I am developing new stochastic methods for modelling mineral deposits and alteration halos, particularly those related to hydrothermal events and fluid flow along fault systems. For example, I am testing my code case studies on unconformity-related uranium deposits in Saskatchewan, Canada.

Something I really enjoy about research is the fact that I need to be multi-skilled, and use several kind of knowledge to solve problems. I like the variety of scientific fields that are required to do a thesis. I particularly like both coding and geology, and translating geological concepts into programming. It is also nice to have the feeling to always learn new things from other people working in research.

The atmosphere is very nice at RING between the PhD students and the researchers. We do a lot of activities together: hiking, restaurants outings, and lately we even attended a rubber duck race in Luxembourg! It is useful to discuss and interact with other students on scientific topics, it helps to solve problems.

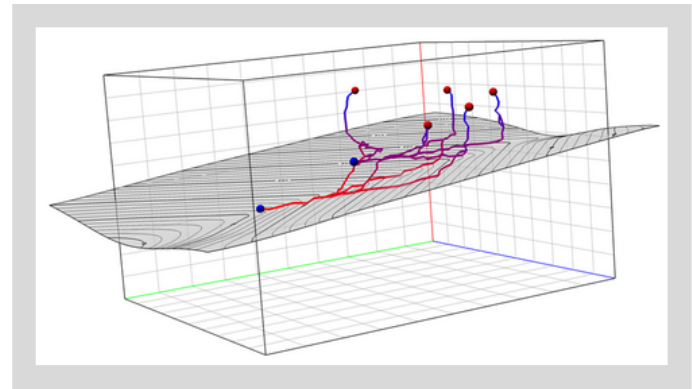
Outside of work, I do a lot of road cycling during the weekends in the Lorraine countryside, as I live nearby. I also like hiking in the Vosges, do electronic DIY, read science-fiction books, or play video games with friends.

Originally from Lunéville (only 30 km from Nancy) I recommend some special sites to visit there, such as the Château de Lunéville, which is also known as the "Versailles Lorrain". It is a Renaissance castle that was the residence of the Dukes of Lorraine. There is also the "Ouvrage Hackenberg", a defensive fort of the Maginot Line. It was built in the 1930s and you can visit all the underground installations nowadays. A last word about food, if you are a newcomer you have to try the pâté lorrain, a culinary specialty, made of marinated pork in local wine and puff pastry!"

RESEARCH HIGHLIGHT

KarstNSim

KarstNSim is a SKUA-GoCADV19 plugin to simulate 3D cave networks in a stochastic workflow, taking into account various input parameters with uncertainties. A particular focus is given on the ability for the user to easily control the morphometry of the networks. KarstNSim is primarily being developed by Augustin Gouy in the frame of his PhD thesis.



Two-phase simulation of a polygenic karst (Gouy, 2023)

ALUMNI TESTIMONIAL

Corentin GOUACHE, PhD

R&D Researcher at CCR

2019-2021 PhD student at RING



"There is a real group dynamic within the RING team, from a scientific point of view with the rigor of the researchers, the organization of internal seminars and the RING meeting, as well as socially speaking, with a fabulous team life (cafeteria, tarot cards, outings, etc.). Although my research theme (probabilistic seismic hazard) was not inherent to the team, the latter, via my thesis supervisors or simply during the corridor discussions and internal seminars, brought different perspectives, both appreciable and essential for my work."

LIFE OUTSIDE RING

TEAM-BUILDING
ACTIVITIES ARE
ALSO PART OF THE
LIFE AT RING. AS
WE WELCOME
PEOPLE FROM ALL
AROUND THE
WORLD, IT IS
IMPORTANT TO
INCLUDE EVERYONE
AND MAKE PEOPLE
FEEL WELCOME IN
AND OUTSIDE THE
WORKING
ENVIRONMENT.



Hiking weekend and blueberry pie tasting
in the Vosges (left & above)
and day trip to Luxembourg (right)

POST DOC OPPORTUNITIES

We welcome Post Doc and Fellow researchers who are interested in working on RING's research topics. We support funding applications to *Marie Skłodowska-Curie Actions*, *Fond National Suisse*, and others.

PHD OPPORTUNITIES

PhD Project #1: Non-periodic homogenization of multi-scale fractured media.

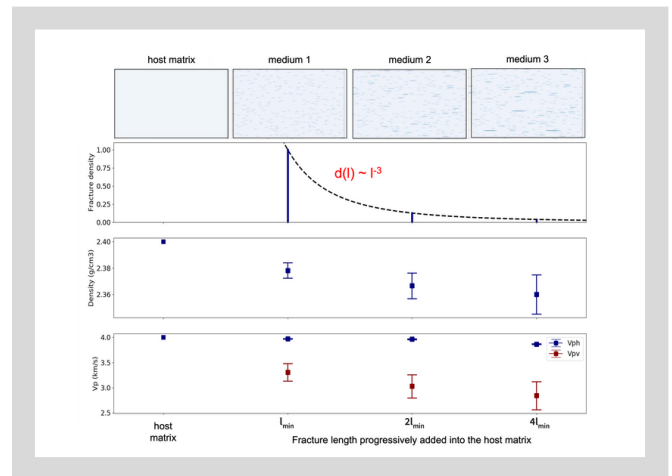
Advisors: Paul Cupillard (Université de Lorraine), Dragan Grgic (Université de Lorraine), Céline Mallet (Université d'Orléans).

Starting date: October 2023 or later

Deadline for applications: **June 30, 2023**

Details and application information

<https://www.ring-team.org/jobs/work-with-us>



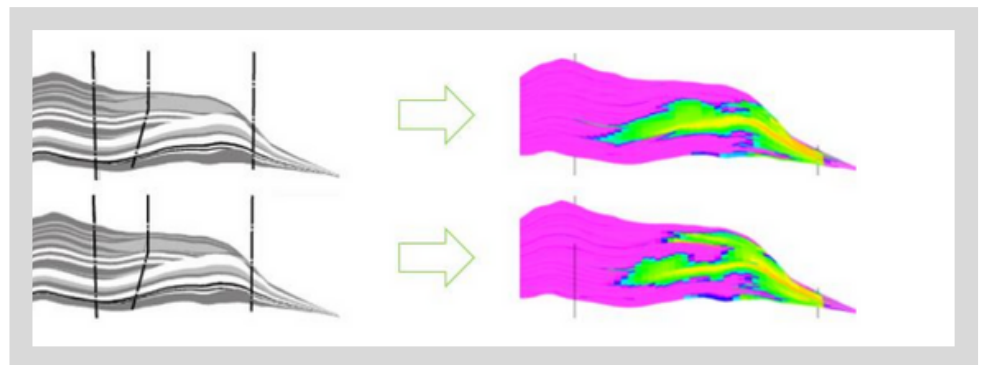
The effective density (third row) and P-wave velocities (bottom row) obtained when homogenizing the fractured media shown in the top row. These media are built by progressively adding fracture sets in a host matrix. Each fracture set is characterized by a length (from $l_{min} = \lambda_{min}/16$ to $4l_{min}$) and its associated density (second row). Modified from Ibouichène et al. (2021).

PhD Project #2: Assisted borehole interpretation and multi-well stratigraphic correlation for geothermal modeling.

Advisors: Guillaume Caumon (Université de Lorraine), Cécile Robin (Université de Rennes).

Starting date: October 2023 or later

Deadline for applications: **June 30, 2023**



Two stratigraphic geometries and the associated reservoir behavior (Lallier et al., 2012)

WE SEEK CANDIDATES WITH A SOLID BACKGROUND IN APPLIED MATHEMATICS, STATISTICS AND PHYSICS, AND STRONG SCIENTIFIC WRITING SKILLS. AN EXPERIENCE IN COMPUTER PROGRAMMING IS REQUIRED. A BACKGROUND OR A PROVEN INTEREST IN GEOSCIENCE IS APPRECIATED.

MASTER OPPORTUNITIES

We offer Master internships for students who undertake the ENSG Numerical Geology option. To apply, students must enter the ENSG's "Diplôme d'ingénieur" either in first year after an entry exam or a Bachelor, or in 2nd year after a M1.

Students with a M1 (or a M2 in Sciences of the Earth) can also apply directly for a Master 2 STPE / GEIR.

Applications via the [e-candidat.univ-lorraine](https://e-candidat.univ-lorraine.fr) platform only.

Deadline for applications: **June 16, 2023**

2023 RING CONSORTIUM

LIST UPDATED MAY 2023

11 COMPANIES



102 UNIVERSITIES

Europe

1. (at) Geosphere Austria
2. (at) Montan Universität Leoben
3. (be) Faculte Polytechnique de Mons
4. (ch) Basel University
5. (ch) Neuchatel University (CHYN)
6. (cr) Croatian Geological Survey
7. (cz) Insitute of Geophysics of the Czech Academy of Sciences (CAS)
8. (de) Bayerisches LfU Munchen
9. (de) BGE Bundesgesellschaft für Endlagerung
10. (de) BGR Hannover
11. (de) BUKEA Geological Survey Hamburg
12. (de) Bergakademie Freiberg
13. (de) Bremen University Marum
14. (de) Darmstadt Technische Universität
15. (de) Geologischer Dienst NRW
16. (de) Goettingen University GZG
17. (de) Hessisches Landesamt für Umwelt und Geologie (HLNUG Wiesbaden)
18. (de) IFG Geophysik Kiel University
19. (de) IFG Hannover University
20. (de) Karlsruher Institute für Technologie (KIT)
21. (de) LAGB Sachsen-Anhalt
22. (de) LBEG (NIfB Geological Survey) Hannover
23. (de) LBGR Brandenburg
24. (de) LGB MAINZ - Landesamt für Geologie und Bergbau Rheinland-Pfalz
25. (de) LGRB Freiburg University
26. (de) LIAG Institut Hannover
27. (de) LUNG MV - Landesamt für Umwelt, Naturschutz und Geologie
28. (de) Landesamt für Landwirtschaft, Umwelt und ländliche Räume SH (LLUR SH)
29. (de) LfULG Dresden - Sächsisches Landesamt für Umwelt Landwirtschaft und Geologie
30. (de) Muenchen University
31. (de) TLUBN
32. (de) TU Munchen
33. (de) Senate Department for the Environment, Transport and Climate Protection
34. (es) Barcelona University
35. (es) Institut Cartografic i Geologic De Catalunya (ICGC)
36. (fi) Geological Survey of Finland
37. (fi) Helsinki University - Institute of Seismology
38. (fr) ARMINES - Paris School of Mines
39. (fr) Antilles University
40. (fr) CNRS France - UNISTRA - ENS
41. (fr) Cergy Pontoise University
42. (fr) Geosciences Rennes UMR 6118
43. (fr) Institut des Sciences de la Terre d'Orléans (ISTO)
44. (fr) LBL
45. (fr) LMTG Toulouse
46. (fr) Pau University
47. (fr) Provence University Aix-Marseille
48. (ir) ICIRAG - Irish Center for Research in Applied Geosciences
49. (it) Milano Bicocca University
50. (it) O.G.S. Trieste
51. (nl) TU Delft - DGE
52. (pl) Polish Geological Institute - National Research Institute - Warsaw
53. (pt) LNEG Laboratorio Nacional de Energia e Geologia
54. (pt) University of Evora
55. (se) Geological Survey Of Sweden
56. (se) LULEA University of Technology
57. (se) Uppsala University - Sweden
58. (sl) Geological Survey of Slovenia
59. (uk) British Geological Survey
60. (uk) Heriot Watt University
61. (uk) Imperial College - London

Asia

1. (cn) China University Of Petroleum (UPC)
2. (cn) Institute of Geology CAGS
3. (kr) Kangwon National University Korea
4. (kr) KIGAM Korea
5. (kr) Korea University Seoul
6. (kr) Pukyong National University (PKNU)

North America

1. (ca) Alberta DCEE University
2. (ca) Alberta University
3. (ca) Geological Survey of Canada
4. (ca) INRS ETE
5. (ca) Laurentian University
6. (ca) Manitoba Geological Survey
7. (ca) Northern Alberta Institute of Technology (NAIT)
8. (ca) Saskatchewan University
9. (ca) Saskatchewan Geogical Survey
10. (us) BEG Texas University at Austin
11. (us) Energistic (POSC)
12. (us) Geological Survey of Alaska DGGSS
13. (us) Harvard Cambridge University
14. (us) Houston University - Earth & Atmospheric Sciences
15. (us) LBL
16. (us) Stanford University
17. (us) Texas University at Austin
18. (us) Univ. California Santa Barbara ICS
19. (us) Washington and Lee University

South America

1. (br) UNISINOS Brazil

Oceania

1. (au) CSIRO
2. (au) Curtin University
3. (au) Department of Water Western Australia
4. (au) Geological Survey of South Australia
5. (au) Geological Survey of Western Australia
6. (au) Geosciences Australia
7. (au) Geological Survey of Victoria
8. (au) Melbourne University
9. (au) Mineral Resources Tasmania
10. (au) Monash University
11. (au) NSW DPI GEO Survey Maitland
12. (au) Northern Territory Geological Survey
13. (au) Queensland Geological Survey
14. (au) Queensland University ESSCC
15. (nz) GNS Science - New Zealand