

Alice-Agnes Gabriel

I am an earthquake physicist combining simulations, routinely using the largest supercomputers worldwide, with data-driven techniques and theoretical analysis to tackle one of the grand challenges of Geophysics: understanding earthquakes. My group's research bridges space-time scales and disciplines across Geophysics, Computer Science and Applied Mathematics. We integrate the full breadth of Earth observations with novel modeling approaches to study a range of geophysical problems with multi-physics character such as earthquake-tsunami interaction. I serve as President of the EGU Seismology Division and am a Fellow of the AGU.

Education

- 2022 **Habilitation**, LMU Munich, Germany.
- 2013 **Dr. Sci.** (PhD), Swiss Seismological Service, ETH Zurich, Switzerland.
 Advisors: J.-P. Ampuero (CALTECH), P.M. Mai (KAUST), L.-A. Dalguer & D. Giardini (ETH)
- 2008 **Diplom** (MSc), *Physics*, Technical University Dresden, Germany.
- 2006 **Certificate of Proficiency**, *Geophysics, Geology*, University of Auckland, New Zealand.
- 2004 **Vordiplom** (BSc), *Physics*, Technical University Dresden, Germany.

Professional Appointments

- 2022 – **Associate Professor**, *Geophysics*, Scripps Institution of Oceanography, UC San Diego, La Jolla, CA.
- 2022 – **Guest Professor**, LMU Munich, Germany.
- 2021-2022 **Professor** (W2), *Earthquake Physics*, LMU Munich, Germany.
- 2014 – 2021 **Assistant Professor** (akadem. Rat a.Z.), *Seismology/Geophysics*, LMU Munich, Germany.
 (26 months maternity leave: 10/2014–02/2016 and 05/2016–02/2017)
- 2012 – 2014 **Postdoctoral Researcher**, *Seismology/Geophysics*, LMU Munich, Germany.

Selected Awards and Honors

- 2024 **Page Fellowship**, *Scripps Institution of Oceanography*.
- 2023 **James B. Macelwane Medal & AGU Fellow**, *American Geophysical Union (AGU)*.
- 2022 **C.F. Gauss Lecturer**, *German Geophysical Society (DGG)*.
- 2020 **Charles F. Richter Early Career Award**, *Seismological Society of America (SSA)*.
- 2020 **Ada Lovelace Award for HPC**, *Partnership for Advanced Computing in Europe (PRACE)*.
- 2019 **ERC Starting Grant Awardee**, *European Research Commission (ERC)*.
- 2018 **Appointment to the Center of Advanced Studies, Young Center**, LMU Munich.
- 2017 **Best Paper Award**, *SC Conference*, prestigious prize for application driven HPC, for Uphoff et al., 2017.
- 2014 **PRACE Award**, *International Supercomputing Conference (ISC)*, for Breuer et al., 2014.
- 2014 **Best Poster Award & Best Visualisation Awards**, PASC Meeting, Zurich; Volkswagen Foundation Extreme Events Meeting, Hannover.
- 2012 **Outstanding Student Paper Award**, *AGU Fall Meeting*, San Francisco, CA.
- 2012, 2013 **Travel Grants**, ECGS Workshop, Luxembourg; EMFCSC Workshop, Erice, Italy.
- 2008 **Wilhelm and Else Heraeus Foundation Travel Grant**, German Physical Society.
- 2007 **ELISA Mentoring Scholarship**, TU Dresden Excellency of Women in Science Promotion Program.
- 2006 **DAAD Study Abroad Scholarship**, German Academic Exchange Service, University of Auckland, NZ.

Selected Scientific Community Services

- EGU **European Geosciences Union**, 2022–27 Elected President, Seismology Division.
- SCEC **Statewide California Earthquake Center**, 2024– PC Co-Chair & ExCom; 2022– Co-Lead Community Engagement MA3; 2021– Research Computing and CyberInfrastructure Committee.
- SZ4D **Subduction Zones in 4 Dimensions**, 2022– Operations Planning Committee & Modeling Collaboratory Working group; 2020–22 Faulting and Earthquake Cycle Working group member.
- MCS-RCN **Modeling Collaboratory for Subduction**, 2020–22, Steering Committee.
- CIG **Computational Infrastructure for Geodynamics**, 2020–, Executive Committee, 2021–23 Chair of EC.
- AGU **American Geophysical Union**, 2024, AGU Bowie Medal Committee; 2021, Fall Meeting Program Committee, Seismology Division.
- PRACE **European Supercomputer Resources** 2020–2024, Scientific Steering Committee.

Conference Sessions 2013–24, **EGU General Assembly**; 2011,2014,2019,2021–23, **AGU Fall Meeting** ; 2019–23, **SIAM-GS Conference**; 2022–24, **SSA Annual Meeting**; 2022, **SCEC Annual Meeting**; 2019,2021, **PASC Meeting**.
 2019, 2024 **Scientific Committee and Co-Chair**, NMEM workshop, Smolenice, Slovakia.
 2020 **International Advisory Committee**, COMPSAFE Conference, Kobe, Japan.
 2019–2021 **Domain Co-Chair Program Committee Solid Earth Dynamics**, PASC Conferences.
 2015–2019 **Gender and Equal Opportunities Representative**, Horizon2020 “ExaHyPE” project.
 Scientific Editing 2018–, **Journal of Geophysical Research–Solid Earth**, Associate & Handling Editor; 2020–, **Seismica**, Task Force & Editorial Board; 2021, Guest Editor, Frontiers special issue “High-Performance Computing in Solid Earth Geohazards: Progresses, Achievements and Challenges for a Safer World”, all women editors.

Funding

2023–2028 NSF OAC#2311208 “An extensible software framework for earthquake simulations (**Quakeworx**)”, *PI, SIO*.
 2023–2028 NSF EAR#2311208 “Cascadia Region Earthquake Science Center (**CRESCENT**)”, *Senior Personnel, SIO*.
 2023–2027 EuroHPC #101093038 “Centre of Excellence for Exascale in Solid Earth (**ChEESE-2P**)”, *PI, LMU*.
 2023–2027 Horizon Europe #101072699 “**TREAD**: Data and processes in seismic hazard” Marie Skłodowska-Curie Innovative Training Network (ITN), *PI, LMU*.
 2022–2027 TACC, NSF OAC#2139536 “Leadership-Class Computing Facility: Characteristic Science Application”, *PI*.
 2022–2025 Konwahr “**GPU Performance and Feature Enhancement of the Earthquake Cycle Simulation Software Tandem**”, *PI, LMU*.
 2024–2025 Horizon Europe #101058518 “**Geo-INQUIRE**: Geosphere INfrastructures for QUESions into Integrated REsearch”, *PI, LMU*.
 2022–2025 Horizon Europe #101058129 “**DT-Geo**: A Digital Twin for GEOphysical extremes”, *PI, LMU*.
 2022–2026 DeepNL “PhysMmax: Maximum induced earthquake magnitude in the Groningen Gas Field”, *Co-PI, LMU*.
 2022–2024 NASA #80NSSC22K0507 “Inferring source processes of earthquakes from acoustic-gravity wave impacts on the atmosphere”, *PI, SIO*.
 2021–2026 NSF #EAR-2121666 FRES “**MTMOD**: Toward an integrated modelling framework for physics-based estimates of megathrust rupture potential”, *PI, SIO*.
 2021–2025 EU Horizon 2020 #955515 “**SPIN**: Seismological Parameters and Instrumentation” Marie Skłodowska-Curie Innovative Training Network (ITN), *Co-PI, LMU*.
 2020–2024 Bavarian State Ministry for Education and Culture “**GAB** -Geothermal Alliance Bavaria”, *Co-PI, LMU*.
 2019–2024 EU Horizon 2020 #852992 “**TEAR** - Truly Extended Earthquake Rupture (ERC Starting Grant)”, (*Sole PI*).
 HPC >150 million CPU hours at supercomputing centers worldwide.
 other grants, as PI and Co-PI EU Horizon 2020 #671698, #823844; DFG #GA-2465/2-1, #GA-2465/3-1; Volkswagen Foundation #88479; SCEC #13061, #14111, #15091, #16056, #17075, #20046, #21112, #21010, #22135, #22043, #22162, #23121, #24103, #24127, #25259, #25313, #25341; KAUST CRG #ORS-2016-CRG5-3027 #ORS-2017-CRG6-3389.02; KONWHIR “NewWave”; BaCaTec #A4.

Mentoring at SIO, UCSD and at LMU Munich

13 PostDocs Baoning **Wu** (Miles Scholar, 2024–), Yohai **Magen** (Schmidt AI Scholar, 2024–), Bar **Oryan** (Green Scholar, 2024–), Mathilde **Marchandon** (2022–), Casper **Pranger** (2020–), Thomas **Ulrich** (2020–), Anthony **Jourdon** (2022–24), James **Biemiller** (Green Scholar, 2021–22), Carsten **Uphoff** (2020–21), Bo **Li** (2019–22), Duo **Li** (2018–23), Kenneth C. **Duru** (2016–19), Elizabeth H. **Madden** (2015–18).
 14 PhD students Piyush Karki (2024–, co-adv. with M. Bader), Fabian **Kutschera** (2023–), Rachel Trepani (2023–), Jonatan **Glehman** (2022–, co-adv. with Y. Bock), John **Rekoske** (2021–, co-adv. with D. May), Jeremy **Wong** (2021–, co-adv. with W. Fan), Jeena **Yun** (2021–, co-adv. with Y. Fialko), Nico **Schliwa** (2021–), Zihua **Niu** (2021–, **AGU 2023 OSPA recipient**, co-adv. with H. Igel), S. Aniko **Wirp** (2019–), Nicolas J. **Hayek** (2019–, co-adv. with P. Bunge), **Taufiqurrahman** (grad. 2023), Thomas **Ulrich** (grad. 2020), Stephanie **Wollherr** (grad. 2018).
 17 MSc. students Selin **Bulut** (2024), Fabian **Kutschera** (2023), Hongyi **Su** (2023), Amrit **Bal** (SIO, 2021), Nico **Schliwa** (2021, **SSA 2021 Student Presentation Award recipient**), Andrea **Perez** (2019), Tomy **Gunawan** (2018), Mitchel **Williams** (2018), Magdalena **Perleth** (2018), Yongki Andita **Aiman** (2018), Kilian **Gessele** (2018), On Ki Angel **Ling** (2018), Ashim **Rijal** (2017), Mirjam **Weingärtner** (2016), Sujania **Talavera Soza** (2016), Amaryllis **Nerger** (2014), Behnam **Tang Eysh**, (2014).
 12 BSc. students Anna **Fröhlich** (2022), Moritz **Urban** (2022), David **Lehr Campos** (2022), Gizem **Yildirim** (2021), Sophia **Gahr** (2021), Janina **Moser** (2021), Fabian **Kutschera** (2020), Thomas **Obermaier** (2020), Nico **Schliwa** (2019), Sandra **Forndran** (2019), Thiemo **Bühler** (2019), Fabian **Risch** (2018).

Peer-reviewed Publications

*undergraduate/graduate student, ⁺post-doctoral scholar (co-)advised in the context of the publication.

≈3500 citations, h-index 32, i10-index 61, Google Scholar profile: [FmMjT24AAAAJ](#), list of current [preprints](#)

- 2025 [88] S. Wolf*, **A.-A. Gabriel**, M. Galis, P. Moczo, D. Gregor, M. Bader, “**3D wave propagation and earthquake dynamic rupture simulations in complex poroelastic media**”, *Geophys. J. Int.*, in press, preprint: [doi:10.31223/X55M52](#).
- 2025 [86] K.H. Palgunadi*, **A.-A. Gabriel**, D.I. Garagash, T. Ulrich⁺, N. Schliwa*, P.M. Mai, “**Ground Motion Characteristics of Cascading Earthquakes in a Multiscale Fracture Network**”, *Bull. Seismol. Soc. Am.*, in press, preprint: [doi:10.48550/arXiv.2412.15416](#).
- 2025 [85] Y. Glehman*, **A.-A. Gabriel**, T. Ulrich⁺, M.D. Ramos⁺, Y. Huang, E.O. Lindsey, “**Partial ruptures governed by the complex interplay between geodetic slip deficit, rigidity, and pore fluid pressure in 3D Cascadia dynamic rupture simulations**”, *Seismica*, in press, preprint: [doi:10.31223/X5GH66](#).
- 2025 [84] M. Denolle et al., “**Training the Next Generation of Seismologists: Delivering Research-Grade Software Education for Cloud and HPC Computing through Diverse Training Modalities**”, *Seismol. Res. Lett.*, in press, preprint: [arXiv:2409.19147](#).
- 2025 [83] N. Field et al., “**A Scientific Vision and Roadmap for Earthquake Rupture Forecast Developments, a USGS Perspective**”, *Bull. Seismol. Soc. Am.*, in press.
- 2025 [82] V. Lambert et al., “**Community-Driven Code Comparisons for Simulations of Fluid-Induced Aseismic Slip**”, *J. Geophys. Res.: Solid Earth*, 130, e2024JB030601, [doi:10.1029/2024JB030601](#).
- 2025 [81] F. Mosconi*, E. Tinti, E. Casarotti, **A.-A. Gabriel**, A.P. Rinaldo, L. Dal Zilio, M. Cocco, “**Modeling the 3D dynamic rupture of microearthquakes induced by fluid injection**”, *J. Geophys. Res.: Solid Earth*, 130, e2024JB029621, [doi:10.1029/2024JB029621](#).
- 2025 [80] J. Rekoske*, D.A. May, **A.-A. Gabriel**, “**Reduced-order modeling for complex 3D seismic wave propagation**”, *Geophys. J. Int.*, 241, 526–548, [doi:10.1093/gji/ggaf049](#).
- 2025 [79] M.-H. Yen*, E. Türker*, T. Ulrich⁺, M. Marchandon⁺, **A.-A. Gabriel**, F. Cotton, “**An analysis of directivity pulses using empirical data and dynamic rupture simulations of the 2023 Kahramanmaraş earthquake doublet**”, *Earthquake Spectra*, [doi:10.1177/87552930241305012](#).
- 2024 [78] N. Schliwa*, **A.-A. Gabriel**, J. Premus⁺, F. Gallovič, “**The linked complexity of coseismic and postseismic faulting revealed by seismo-geodetic dynamic inversion of the 2004 Parkfield earthquake**”, *Journal of Geophysical Research: Solid Earth*, [doi:10.1785/0120240064](#).
- 2024 [77] O. Rojas, M. Monterrubio-Velasco, J.E. Rodriguez, S. Callaghan, C. Abril⁺, B. Halldorson, M. Kowsari, F. Bayat, K. Olsen, **A.-A. Gabriel**, J. de la Puente (2024), “**CyberShake Earthquake Fault Rupture Modeling and Ground Motion Simulations for the Southwest Iceland Transform Zone**”, *BSSA*, 129, e2024JB029320, [doi:10.1785/0120240064](#).
- 2024 [76] S.A. Wirp*, **A.-A. Gabriel**, T. Ulrich⁺, S. Lorito, “**Dynamic rupture modeling of large earthquake scenarios at the Hellenic Arc toward physics-based seismic and tsunami hazard assessment**”, *Journal of Geophysical Research: Solid Earth*, 129, e2024JB029320, [doi:10.1029/2024JB029320](#).
- 2024 [75] F. Kutschera*, Z. Jia⁺, B. Oryan⁺, J.W.C. Wong*, W. Fan, **A.-A. Gabriel**, “**The multi-event, multi-segment complexity of the 2024 Mw 7.5 Noto Peninsula Earthquake governs tsunami generation**”, *Geophysical Research Letters*, 51, e2024GL109790, [doi:10.1029/2024GL109790](#).
- 2024 [74] P.A. Inchin, Y. Kaneko, **A.-A. Gabriel**, T. Ulrich⁺, L. Martire, A. Komjathy, J. Aguilar Guerrero, M.D. Zettergren, J.B. Snively, “**Three-Dimensional Numerical Modeling of Coseismic Atmospheric Dynamics and Ionospheric Responses in Slant Total Electron Content Observations**”, *Geophysical Research Letters*, 51, e2023GL108068, [doi:10.1029/2023GL108068](#).
- 2024 [73] K. Svennevig et al., “**A rockslide-generated tsunami in a Greenland fjord rang Earth for 9 days**”, *Science*, 385, 1196–1205, [doi:10.1126/science.adm9247](#).
- 2024 [72] J.W.C. Wong*, W. Fan, **A. A. Gabriel**, J.N. Hayek*, M. Marchandon⁺, D. Li⁺, L. Pousse-Beltrand⁺, J. Hollingsworth, T. Li, **A.-A. Gabriel**, “**A quantitative comparison and validation of finite-fault models: The 2011 Tohoku-Oki earthquake**”, *Journal of Geophysical Research: Solid Earth*, 129, e2024JB029212, [doi:10.1029/2024JB029212](#).
- 2024 [71] J.N. Hayek*, M. Marchandon⁺, D. Li⁺, L. Pousse-Beltrand⁺, J. Hollingsworth, T. Li, **A.-A. Gabriel**, “**Non-typical supershear rupture: fault heterogeneity and segmentation govern unilateral supershear and cascading multi-fault rupture in the 2021 Mw7.4 Maduo Earthquake**”, *Geophysical Research Letters*, 51, e2024GL110128, [doi:10.1029/2024GL110128](#).

- 2024 [70] J. Biemiller⁺, **A.-A. Gabriel**, D.A. May, L. Staisch, “**Subduction zone geometry modulates the megathrust earthquake cycle: magnitude, recurrence, and variability**”, *Journal of Geophysical Research: Solid Earth*, 129, e2024JB029191, doi:10.1029/2024JB029191.
- 2024 [69] B. Li⁺, **A.-A. Gabriel**, G. Hillers, “**Source Properties of the Induced ML 0.0–1.8 Earthquakes from Local Beamforming and Backprojection in the Helsinki Area, Southern Finland**”, *Seismological Research Letters*, 1–19, doi:10.1785/0220240122.
- 2024 [68] **A.-A. Gabriel**, D. Garagash, K. Palgunadi*, P. M. Mai, “**Fault-size dependent fracture energy explains multi-scale seismicity and cascading earthquakes**”, *Science*, 385, eadj9587, doi:10.1126/science.adj9587, [News story](#).
- 2024 [67] D. Kammer, G. McLaskey, R. Abercrombie, J.-P. Ampuero, C. Cattania, M. Cocco, L. Dal Zilio, G. Dresen, **A.-A. Gabriel**, C. Ke, C. Marone, P.A. Selvadurai, E. Tinti, “**Earthquake energy dissipation in a fracture mechanics framework**”, *Nat. Comms.*, 15, 4736, doi:10.1038/s41467-024-47970-6.
- 2024 [66] K. Palgunadi*, **A.-A. Gabriel**, D. Garagash, T. Ulrich⁺, P. M. Mai, “**Rupture Dynamics of Cascading Earthquakes in a Multiscale Fracture Network**”, *J. Geophys. Res.*, 129, e2023JB027578, doi:10.1029/2023JB027578, [Eos Editor's Highlight](#).
- 2024 [65] D. Li⁺, **A.-A. Gabriel**, “**Linking 3D long-term slow-slip cycle models with rupture dynamics: the nucleation of the 2014 M_w 7.3 Guerrero, Mexico earthquake**”, *AGU Advances*, 5, e2023AV000979, doi:10.1029/2023AV000979, [Eos Editor's Highlight](#).
- 2024 [64] F. Kutschera*, **A.-A. Gabriel**, Sara Aniko Wirp*, Bo Li⁺, Thomas Ulrich⁺, Claudia Abril, Benedikt Halldórsson, “**Linked and fully-coupled 3D earthquake dynamic rupture and tsunami modeling for the Húsavík-Flatey Fault Zone in North Iceland**”, *Solid Earth*, 15, 251–280, doi:10.5194/se-15-251-2024.
- 2024 [63] Z. Niu*, **A.-A. Gabriel**, L. Seelinger, H. Igel, “**Modeling and Quantifying Parameter Uncertainty of Co-seismic Non-classical Nonlinearity in Rocks**”, *J. Geophys. Res.*, 129, e2023JB027149, doi:10.1029/2023JB027149.
- 2023 [62] N. Schliwa*, **A.-A. Gabriel**, “**Equivalent Near-Field Corner-Frequency Analysis of 3D Dynamic Rupture Simulations Reveals Dynamic Source Effects**”, *Seism. Res. Let.*, doi:10.1785/0220230225.
- 2023 [61] J.N. Hayek*, D.A. May, C. Pranger⁺, **A.-A. Gabriel** “**A diffuse interface method for earthquake rupture dynamics based on a phase-field model**”, *J. Geophys. Res.*, 128, e2023JB027143, doi:10.1029/2023JB027143.
- 2023 [60] **A.-A. Gabriel**, T. Ulrich⁺, M. Marchandon⁺, J. Biemiller⁺, J. Rekoske*, “**3D dynamic rupture modeling of the February 6, 2023, Kahramanmaraş, Turkey, M_w 7.8 and M_w 7.7 earthquake doublet using early observations**”, *The Seismic Record*, 3 (4), 342–356, doi:10.1785/0320230028.
- 2023 [59] J. Zia, J. Zin, M. Marchandon⁺, T. Ulrich⁺, **A.-A. Gabriel**, W. Fan, P. Shearer, X. Zou, J. Rekoske*, F. Bulut, A. Garagon, Y. Fialko, “**The complex dynamics of the 2023 Kahramanmaraş, Turkey, M_w 7.8–7.7 earthquake doublet**”, *Science*, 381 (6661), 985–990, doi:10.1126/science.adi0685.
- 2023 [58] T. Taufiqurrahman*, **A.-A. Gabriel**, D. Li*, T. Ulrich⁺, B. Li*, S. Carena, A. Verdecchia, F. Gallovič, “**Dynamics, interactions and delays of the 2019 Ridgecrest rupture sequence**”, *Nature*, 618, 308–315, doi:10.1038/s41586-023-05985-x.
- 2023 [57] J. Biemiller⁺, **A.-A. Gabriel**, T. Ulrich⁺, “**Dueling dynamics of low-angle normal fault rupture with splay faulting and off-fault damage**”, *Nature Communications*, 14(1), 2352, doi.org/10.1038/s41467-023-37063-1.
- 2023 [56] J. M. Rekoske*, **A.-A. Gabriel**, D.A. May, “**Instantaneous physics-based ground motion maps using reduced-order modeling**”, *J. Geophys. Res.*, 128, e2023JB026975, doi:10.1029/2023JB026975.
- 2023 [55] L. Krenz*, S. Wolf*, G. Hillers, **A.-A. Gabriel**, M. Bader, “**Numerical Simulations of Seismoacoustic Nuisance Patterns from an Induced M 1.8 Earthquake in the Helsinki, Southern Finland, Metropolitan Area**”, *BSSA*, 113(4), 1596–1615, doi:10.1785/0120220225.
- 2023 [54] B. Li⁺, **A.-A. Gabriel**, T. Ulrich⁺, C. Abril, B. Halldórsson, “**Dynamic rupture models, fault interaction and ground motion simulations for the segmented Húsavík-Flatey Fault Zone, Northern Iceland**”, *J. Geophys. Res.*, doi:10.1029/2022JB025886.
- 2023 [53] A. Folch et al., “**The EU Center of Excellence for Exascale in Solid Earth (ChEESE): Implementation, results, and roadmap for the second phase**”, *Future Generation Computer Systems*, 146, 47–61, doi:10.1016/j.future.2023.04.006.
- 2023 [52] J. Vyas, **A.-A. Gabriel**, T. Ulrich⁺, P.M. Mai, J.-P. Ampuero, “**How does thermal pressurization of pore fluids affect 3D strike-slip earthquake dynamics and ground motions?**”, *BSSA*, 113, 499–523, doi:10.1785/0120220205.
- 2023 [51] L. S. Abrahams, L. Krenz*, E.M. Dunham, **A.-A. Gabriel**, T. Saito, “**Comparison of methods for coupled earthquake and tsunami modeling**”, *Geophys. J. Int.*, 234 (1), 404–426, doi:10.1093/gji/ggad053.
- 2023 [50] C. Uphoff⁺, D.A. May, **A.-A. Gabriel**, “**A discontinuous Galerkin method for sequences of earthquakes and aseismic slip on multiple faults using unstructured curvilinear grids**”, *Geophys. J. Int.*, 233 (1), 586–626, doi:10.1093/gji/ggac467.
- 2023 [49] B. A. Erickson et al., “**Incorporating Full Elastodynamic Effects and Dipping Fault Geometries in Community Code Verification Exercises for Simulations of Earthquake Sequences and Aseismic Slip (SEAS)**”, *BSSA*, 113 (2), 499–523, doi.org/10.1785/0120220066.

- 2022 [48] T. Taufiqurrahman*, **A.-A. Gabriel**, T. Ulrich⁺, L. Valentová, F. Gallovič, "Broadband dynamic rupture modeling with fractal fault roughness, frictional heterogeneity, viscoelasticity and topography: The 2016 Mw 6.2 Amatrice, Italy earthquake", *Geophys. Res. Lett.*, 127, e2022JB024300, doi:10.1785/0220220266.
- 2022 [47] Y. Ben-Zion, G.C. Beroza, M. Bohnhoff, **A.-A. Gabriel**, P.M. Mai, "A Grand Challenge International Infrastructure for Earthquake Science", *Seis. Res. Lett.*, 93 (6), 2967–2968, doi:10.1029/2022GL098872.
- 2022 [46] I. van Zelst*, L. Rannabauer*, **A.-A. Gabriel**, Y. van Dinther, "Earthquake rupture on multiple splay faults and its effect on tsunamis", *J. Geophys. Res.*, 127, e2022JB024300, doi:10.1029/2022JB024300.
- 2022 [45] J. Biemiller⁺, **A.-A. Gabriel**, T. Ulrich⁺, "The Dynamics of Unlikely Slip: 3D Modeling of Low-angle Normal Fault Rupture at the Mai'iu Fault, Papua New Guinea", *G3*, e2021GC010298, doi:10.1029/2021GC010298.
- 2022 [44] C. Pranger⁺, P. Sanan, D.A. May, L. le Pourhiet, **A.-A. Gabriel**, "Rate and State Friction as a Spatially Regularized Transient Viscous Flow Law", *J. Geophys. Res.*, 127, e2021JB023511, doi:10.1029/2021JB023511.
- 2022 [43] A. Babbyeko et al., "Towards the new Thematic Core Service Tsunami within the EPOS Research Infrastructure", *Annals of Geophys.*, 65(2), DM213, doi:10.4401/ag-8762.
- 2022 [42] E.H. Madden⁺, T. Ulrich⁺, **A.-A. Gabriel**, "The state of pore fluid pressure and 3D megathrust earthquake dynamics", *J. Geophys. Res.*, 127, 4, doi:10.1029/2021JB023382.
- 2022 [41] J. Jiang et al., "Community-Driven Code Comparisons for Three-Dimensional Dynamic Modeling of Sequences of Earthquakes and Aseismic Slip (SEAS)", *J. Geophys. Res.*, e2021JB023519, doi:10.1029/2021JB023519.
- 2022 [40] B. Li⁺, B. Wu, H. Bao, D. Oglesby, A. Ghosh, **A.-A. Gabriel**, L. Meng, R. Chu, "Rupture heterogeneity and directivity effects in back-projection analysis", *J. Geophys. Res.*, 127, 3, doi:10.1029/2021JB022663.
- 2022 [39] T. Ulrich⁺, **A.-A. Gabriel** and E.H. Madden*, "Stress, rigidity and sediment strength control megathrust earthquake and tsunami dynamics", *Nature Geoscience*, 15, 67-73, doi:10.1038/s41561-021-00863-5.
- 2022 [38] S. Wolf*, M. Galis, C. Uphoff⁺, **A.-A. Gabriel**, P. Moczo, D. Gregor, M. Bader, "An Efficient ADER-DG Local Time Stepping Scheme for 3D HPC Simulation of Seismic Waves in Poroelastic Media", *J. Comp. Phys.*, 110886, doi:10.1016/j.jcp.2021.110886.
- 2022 [37] K. Duru⁺, L. Rannabauer*, **A.-A. Gabriel**, O. K. A. Ling*, H. Igel, and M. Bader, "A stable discontinuous Galerkin method for linear elastodynamics in 3D geometrically complex media using physics based numerical fluxes", *Comput. Methods Appl. Mech. Eng.*, doi:10.1016/j.cma.2021.114386.
- 2021 [36] E. Tinti, Casarotti, E., T. Ulrich⁺, D. Li⁺, Taufiqurrahman*, **A.-A. Gabriel**, "Constraining families of dynamic models using geological, geodetic and strong ground motion data: the Mw 6.5, October 30th, 2016, Norcia earthquake, Italy", *Earth Planet. Sci. Lett.*, 576, 117237, doi:10.1016/j.epsl.2021.117237.
- 2021 [35] M. Ramos*, Y. Huang, T. Ulrich⁺, D. Li⁺, **A.-A. Gabriel** and A. Thomas, "Assessing Margin-Wide Rupture Behaviors along the Cascadia Megathrust with 3-D Dynamic Rupture Simulations", *J. Geophys. Res.*, 126, e2021JB022005, doi:10.1029/2021JB022005.
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