Curriculum Vitae

Aurelie Germa, PhD
Associate Professor
School of Geosciences,
Volcanology group
University of South Florida
4202 E Fowler avenue
33620 Tampa, FL, USA
E-mail: agerma@usf.edu
Phone: 813-974-4974
http://faculty.cas.usf.edu/agerma/index.html
https://works.bepress.com/aurelie-germa/
https://scholar.google.com/citations?user=7xe_GrYAAAAJ&hl=en

EDUCATION

PhD in Earth Sciences, 2008. Université Paris-Sud 11, Orsay, France.
MSc in Volcanology, 2004 - 2005. Université Paris-Sud 11, Orsay, France.
Maîtrise (1st year Master), 2003 – 2004. Université Blaise Pascal, Clermont-Ferrand, France.
BSc in Earth Sciences, 2002 - 2003. Université Blaise Pascal, Clermont-Ferrand, France.
BA in Earth and Planetary Sciences, 2000 - 2002. Université Paul Sabatier, Toulouse, France.

POSITIONS

Associate Professor – August 2022 – present. School of Geosciences, University of South Florida, Tampa, U.S.A.
Assistant Professor – August 2014 – 2022. School of Geosciences, University of South Florida, Tampa, U.S.A.
Visiting Research Assistant Professor – August 2013 – July 2014. School of Geosciences, University of South Florida, Tampa, U.S.A.
Post-doctoral scholar – August 2012 – July 2013. Department of Geology, University of South Florida, Tampa, U.S.A.
Post-doctoral scholar – November 2010 – February 2011. CICESE, Ensenada, Mexico.
Teaching and Research Assistant – September 2008 – September 2010. Département de Géologie, Université Paris-Sud XI, Orsay, France.

RESEARCH INTERESTS

My research projects aim to understand the 4-D evolution of volcanoes at the Earth's surface and at depth. I focus on the spatial and temporal evolution of volcanic edifices by dating erupted products using the K-Ar and $^{40}Ar/^{39}Ar$ dating techniques. I also study the evolution of magmatic products by analyzing whole-rock and crystal major and trace element compositions. Using geochemical data and petrography, I also investigate temperature and depth of magma storage to constrain pre-eruptive conditions and timescales of magma mixing. I also study the aerial geomorphology of volcanic edifices to calculate volumes and eruptive rates when coupled to radiometric dates.

GRANTS AND AWARDS

2021 – 2023 - NSF IF 2040066 *Acquisition of a 4K high accuracy digital microscope* ($126,390).
2020 – 2025 - Cooperative agreement with USGS Andrew Calvert (California Volcano Observatory Scientist-in-Charge). $ 24,487.66. "High precision potassium determination for modernization of K/Ar dating".
2019 - AFN-WISS, FIU Advance Florida Network, $700.
2019 - USF CAS-ORS International Travel Grant. $750.
2017 - USF CAS Internal Travel Award, $1,000.

2016 - USF New Researcher Grant, $9,429. "*Magma sources and differentiation processes inferred from experimental petrology and microprobe analyses".*

2014 – 2018 - NSF EAR 1347899 *Dynamic statistical models to improve long-term volcanic hazard assessments* ($229,352). July 2014 – June 2018.

PUBLICATIONS (underlined names are students I supervised)

Papers submitted

Atlas Z., **Germa A.,** Boss B., Meireles O., Ward A., Ryan J. *Variable element enrichment sources and contributions to volcanic rocks along the Lesser Antilles Island Arc.* Submitted to Frontiers in Earth Sciences on 09/23/2021. Under review.

Peer-reviewed papers

A. Germa, D. Koebli, P. Wetmore, Z. Atlas, A. Arias, I. Savov, M. Diez, V. Greaves, E. Gallant (2020). *Crystallization and segregation of syenite in shallow mafic sills: insights from the San Rafael subvolcanic field, Utah*. Journal of Petrology, Volume 61, Issue 9. https://doi.org/10.1093/petrology/egaa092.

V. Gueugneau; K. Kelfoun; S.J. Charbonnier; **A. Germa**; G. Carazzo (2020). *Dynamic and Impacts of the May 8th, 1902 Pyroclastic Current at Mount Pelée (Martinique): New Insights from Numerical Modelling*. Frontiers in Earth Science. 8:279. doi: 10.3389/feart.2020.00279.

C. Connor, L. Connor, **A. Germa**, J. Richardson, M. Bebbington, E. Gallant, A. Saballos (2019). *How to estimate the probable locations of future volcanic vents using kernel density estimation.* Statistics in Volcanology: Vol. 4: 1-25. DOI: 10.5038/2163-338X.4.3.

A. Germa, C. Perry, X. Quidelleur, A. Calvert, M. Clynne, C. Connor, L. Connor, R. Malservisi, S. Charbonnier (2019). *Temporal relationship between the Lassen Volcanic Center and mafic regional volcanism*. Bulletin of Volcanology 81:38. doi.org/10.1007/s00445-019-1296-7.

F. Deng, C. Connor, R. Malservisi, L. Connor, J. White, **A. Germa** (2017). *A Geophysical Model for the Origin of Volcano Vent Clusters in a Colorado Plateau Volcanic Field*. Journal of Geophysical research: Solid Earth 122, 8910– 8924. https://doi.org/10.1002/2017JB014434.

C. Tanty, J. Carlut, J.-P. Valet and **A. Germa** (2015). *Paleosecular variation recorded by 9 ka to 2.5 Ma old lavas from Martinique Island. New evidence for the La Palma aborted reversal ~ 617 ka ago.* Geophysical Journal International 200 (2): 917-934.

A. Germa, P. Lahitte, and X. Quidelleur (2015). *Construction and destruction of Mont Pelée volcano: volumes and rates constrained from a geomorphological model of evolution.* Journal of Geophysical Research – Earth Surface, 120, 1206– 1226. Doi:10.1002/2014JF003355.

A. Germa, L.J. Connor, E. Cañon-Tapia, N. Le Corvec (2013). *Tectonic and magmatic controls on the location of post-subduction monogenetic volcanoes in Baja California, Mexico, revealed through spatial analysis of eruptive vents.* Bulletin of Volcanology 75:782 (14 p).

S.J. Charbonnier, **A. Germa**, C.B. Connor, R. Gertisser, K. Preece, J.-C. Komorowski, F. Lavigne, T. Dixon, L. Connor (2013). *Evaluation of the impacts of the 2010 pyroclastic density currents at Merapi volcano from high-resolution satellite imagery, field investigations and numerical simulations.* Journal of Volcanology and Geothermal Research 261: 295-315.

S. Labanieh, C. Chauvel, **A. Germa** and X. Quidelleur (2012). *Martinique: a clear case for sediment melting and slab dehydration as a function of distance to the trench.* Journal of Petrology 53 (12): 2441-2464., 2012. Doi:10.1093/petrology/egs055.

K. Kiyosugi, C. Connor, P. Wetmore, B. Ferwerda, **A. Germa**, L. Connor and A. Hintz (2012). *Relationship between dike and volcanic conduit distribution in a highly eroded monogenetic volcanic field: San Rafael, Utah, USA.* Geology v. 40, p. 695-698, doi:10.1130/G33074.1.

A. Germa, X. Quidelleur, S. Labanieh, C. Chauvel and P. Lahitte (2011). *The volcanic evolution of Martinique Island: insights from K-Ar dating into the Lesser Antilles arc migration since the Oligocene*. Journal of Volcanology and Geothermal Research 208 (3-4), Pages 122-135.

A. Germa, X. Quidelleur, P. Lahitte, S. Labanieh and C. Chauvel (2011). *The K-Ar Cassignol-Gillot technique applied to western Martinique lavas: A record of the evolution of the recent Lesser Antilles island arc activity from 2 Ma to Mount Pelée volcanism.* Quaternary Geochronology 6 (3-4), pp 341-355.

A. Germa, X. Quidelleur, S. Labanieh, P. Lahitte and C. Chauvel (2010). *The eruptive history of Morne Jacob volcano (Martinique Island, French West Indies): geochronology, geomorphology and geochemistry of the earliest volcanism in the recent Lesser Antilles arc.* Journal of Volcanology and Geothermal Research 198 (3-4), pp 297-310.

S. Labanieh, C. Chauvel, **A. Germa**, X. Quidelleur and E. Lewin (2010). *Isotopic hyperbolas constrain sources and processes under the Lesser Antilles arc.* Earth and Planetary Science Letters 298 Issues 1-2, pp 35-46.

A. Germa, X. Quidelleur, P.-Y. Gillot and P. Tchilinguirian (2010). *Volcanic Evolution of the back-arc Pleistocene Payun Matru Volcanic Field (Argentina).* Journal of South American Earth Sciences 29 : 717-730.

X. Quidelleur, J. Carlut, P. Tchilinguirian, **A. Germa** and P.-Y. Gillot (2009). *Paleomagnetic directions from mid-latitude sites in the southern hemisphere (Argentina): Contributions to Time Average Field models.* Physics of the Earth and Planetary Interiors 172 pp 199-209.

Non-peer reviewed publications:

A. Germa. *Evolution géologique de l'ile de la Martinique.* Association des Professeurs de Biologie et Géologie. Volume 4. December 2018: 125-142. (in french)

N. Seprez, **A. Germa**. *Evolution de l'hydratation du magma a l'origine des Pitons du Carbet (Martinique).* Pedagogical exercise for high-schoolers. Association des Professeurs de Biologie et Géologie. Volume 4. December 2018:77 – 83. (in French).

Papers in preparation

D. Molisee, S. Charbonnier, **A.** Germa, C. Connor, B. Hill. *Higher Rates of Volcanism During Interglacial Periods at Medicine Lake Volcano, California Cascades.* To be submitted to Earth and Planetary Science Letters.

J. Richardson, **A. Germa**, D. Molisee, J. Wilson, C. Perry, R. Horning. *Estimating recurrence rate of volcanic activity with the Volcano Event Age Model (VEAM).* To be submitted to Journal of Applied Volcanology.

A. Germa, X. Quidelleur, M. Bablon, A. Martens, S. Kimball, V. Rouchon. *Preservation of inherited argon in plagioclase crystals: implication for residence time after reservoir remobilization.* To be submitted to Contributions to Mineralogy and Petrology.

A. Martens, **A. Germa**, Z. Atlas, S. Charbonnier, X. Quidelleur. *Pre-eruptive crystallization conditions of the past 7 Ma at Martinique Island: Constraining Lesser Antilles arc magmatic systems*. To be submitted to Journal of Volcanology and Geothermal Research.

A. Martens, **A. Germa**, S. Charbonnier, Z. Atlas. *Stratigraphy, componentry, and inferred eruption dynamics of the only ignimbrite on Martinique Island, Lesser Antilles*. To be submitted to Bulletin of Volcanology.

Recent conference abstracts

Molisee D., **A. Germa**, S. Charbonnier, C. Connor, J. Richardson, J. Wilson. Estimates of Eruption Recurrence-Rates and Volume-Flux Generated Using the Volcanic Event Age Model - Medicine Lake Volcano, Cascade Back-Arc. Poster at Chapman Conference, September 2022, Flagstaff, Arizona.

Germa A., C. Perry, C. Connor, L. Connor, X. Quidelleur. Conceptual model of a mafic to silicic monogenetic volcanic field: case study of the Lassen volcanic region. Poster at Chapman Conference, September 2022, Flagstaff, Arizona.

Germa A., D. Koebli, Z. Atlas, P. Wetmore, M. Diez, I.Savov, C. Connor. Crystallization, segregation, and remobilization of evolved melts in shallow sills: insights from the San Rafael subvolcanic field, Utah. Talk at Chapman Conference, September 2022, Flagstaff, Arizona.

Jaimes-Viera C., A. Nieto Torres, A. Lillian Martin, Z. Atlas, **A. Germa**, C. Connor. Sierra Chichinautzin, Central Mexico: Changes in Vent Distribution, Chemical and Mineral Composition of Monogenetic Volcanism Through Time. Talk at Chapman Conference, September 2022, Flagstaff, Arizona.

Martens A., **Germa A.,** Charbonnier S., Atlas Z., Quidelleur X. Insight Into the Only Ignimbrite in Martinique Island, Using Grain Size Distribution, Geochronology, and Digital Imagery. AGU Fall Meeting 2022.

S. Kruse, C. M. Downs, E. Gallant, **A. Germa**, T. Ippolito, T. Juster, J. McIlrath, S. Sheffield, L. Walker. *A collaborative textile record of climate change: the Tempestry Project in Tampa, Florida, USA.* AGU Fall Meeting 2020.

S. J. Charbonnier, L.A. Varner, R. P. Escobar-Wolf, L.A. Rodriguez, G. Chigna, C. Chun, D. Gonzalez, F. Juarez, R. Merida, E. Calder**, A. Germa.** *Unravelling the Dynamics and Hazards of the June 3rd, 2018 Pyroclastic Currents at Fuego volcano (Guatemala): A Multi-Parameter Approach.* AGU Fall Meeting 2019. Poster V13E-0229.

Germa A., C. Perry, C. Connor, L. Connor, X. Quidelleur. 2019. *Conceptual model of a diverse - mafic to silicic - monogenetic volcanic field: case study of the Lassen volcanic region*. Oral at IUGG conference, Montreal, July 2019.

Germa A., D. Koebli, Z. Atlas, P. Wetmore. 2019. *Petrogenesis of the San Rafael subvolcanic field, Utah: implication for the in-situ crystallization of syenite in shallow sills.* Oral at IUGG conference, Montreal, July 2019.

Germa A., X. Quidelleur, P. Lahitte. 2019. *Spatio-Temporal evolution of Martinique island: A record of Lesser Antilles arc activity since the Oligocene*. Oral at VOILA workshop, Trinidad, September 2019. http://www.voila.ac.uk/

Martens A.**, A. Germa.** 2019. *Pre-eruptive crystallization conditions in the past 25 Ma at Martinique Island as revealed by textural and chemical variation in phenocrysts*. Poster at VOILA workshop, Trinidad and Tobago, September 2019.

Germa A., S. Kimball, A. Martens, M. Bablon, X. Quidelleur. 2019. *Preservation of inherited argon in plagioclase crystals and implication for residence time after reservoir remobilization*. Poster at AGU Fall meeting Dec. 2019.

Molisee D., **A. Germa,** S. Charbonnier, C. Connor, L. Connor. 2019. *Using Vent Spatial Density to Explore Changes in the Distribution of Tholeiitic and Calc-Alkaline Magmatism at Medicine Lake Volcano, Cascade Back-Arc*. Oral at AGU Fall Meeting, Dec. 2019.

Martens A. and **A. Germa**. 2018. *Pre-eruptive crystallization conditions in the past 25 Ma at Martinique Island as revealed by textural and chemical variation in phenocrysts*. Poster at AGU Fall meeting. 2018.

Koebli D., **A. Germa**, Z. Atlas, P. Wetmore. 2018. *Testing the theory of immiscibility within the sills of the San Rafael Volcanic Field, Utah, through the use of thermodynamic modeling*. Poster at AGU fall meeting 2018.

Perry, C., **Germa, A**. 2017. *A petrologic and geochemical investigation into the relationship and storage of basaltic magmas in the Lassen region, CA.* Poster at AGU Fall Meeting, New Orleans.

Connor, C., Connor, L., **Germa, A**., Richardson, J., Molisee, D. 2017. *Simulating the development of basaltic volcanic fields for long-term hazard assessment.* Talk at AGU Fall Meeting, New Orleans.

Rizo S., **Germa A.,** Charbonnier S., Connor C. 2017. *How to improve volume calculation of lava flows to enhance eruption rate estimates and hazard assessment.* IAVCEI Scientific Assembly, Portland, USA, August 2017.

Bordieri N., **Germa A.,** Connor C. 2016. *Petrological and geochemical analysis of the Challis formation volcanic suite (Idaho)*. GSA 2016.

Theses

A. Germa (Dec. 2008). *Evolution volcano-tectonique de l'île de la Martinique (arc insulaire des Petites Antilles): nouvelles contraintes géochronologiques et géomorphologiques*. PhD dissertation, Université Paris-Sud, Orsay, France. https://tel.archives-ouvertes.fr/tel-00447342. Supervisor: Xavier Quidelleur. Committee: P.-Y. Gillot, G. Boudon, N. Feuillet, N. Arnaud, D. Weis.

A. Germa (June 2005). *Histoire volcanique du champ volcanique du Payun Matru, Argentine.* Master 2 thesis, Université Paris-Sud, Orsay, France. Advisors: X. Quidelleur, P.-Y. Gillot.

A. Germa (June 2004) Master 1 research thesis: *Characterization of basement rocks from an analysis of induced seismic vibration frequency.* Univ. B. Pascal, Clermont-Fd, France. Advisors: P. Labazuy & J.J. Leblond.

TEACHING

Undergraduate courses:

- GLY3311C - Solid Earth: Mineralogy, Petrology, Geochemistry. 4 credits. ~20 students enrolled each semester. Taught 1 semester / year since 2014. Class meets 8 hours a week. Lectures and lab practical activities, 5 days field trip in the Appalachians, semester-long research project with scientific report and student presentations.
- GLY4930 - Petrology. 3 credits. 5-10 students enrolled per semester. Taught 3 times since 2015. Lectures and quantitative exercises, semester-long research project with scientific report and student presentations.
- GLY2010 - Dynamic Earth: Introduction to Physical geology. 3 credits. 15-25 students enrolled. Taught twice since 2015. Lectures and practical exercises. Semester-long inquiry-based projects and student presentations.
- GLY6739 Physical Volcanology. 3 credits. 20 students. Taught in 2021. Lectures, quantitative exercises, lab activities, student presentations.
- GLY4930 - Topics in geochemistry. 1 credit. 5-15 students enrolled. Taught 4 times since 2015. Discussions of scientific papers. Student presentations.
- GLY32030 - Hazards of the Earth's surface. 3 credits. ~20 students. Taught twice since 2015. Lectures and quantitative exercises.
- GLY4915 - Undergraduate research. 1 credit. Supervision of undergraduate students on research-related activities, such as sample preparation, analyses, and data analysis.
- GLY4905. Independent study. 1 credit. Supervision of undergraduate students on research-related activities, such as sample preparation, analyses, and data analysis.

Summer field camp (undergraduate):

- GLY4947 - Introduction to Mapping Field camp – Volcanology. 2 weeks, Idaho. Taught in 2019 and 2022. 15-20 students. Teaching mapping and sampling practices in the field.

Graduate courses:

- GLY6739 – Geochronology. 3 credits. ~10 students. Taught 3 times since 2015. Lectures and quantitative exercises. Semester-long inquiry-based projects and student presentations.
- GLY6739 - Volcanic Petrology. 3 credits. Taught 3 times since 2015. Lectures and quantitative exercises, semester-long research project with scientific report and student presentations.
- GLY6285L - Properties of Earth Materials. 3 credits. Taught along with GLY3311.
- GLY6739 - Topics in geochemistry. 1 credit. Discussions of scientific literature, student presentations.
- GLY6739 - Topics in volcanology. 1 credit. Discussions of scientific literature, student presentations, field trips.
- GLY6395C - Topics in Igneous & Metamorphic petrology. 1 credit. Discussions of scientific literature, student presentations.

Courses taught at University Paris-Saclay (2008 – 2010)

- Introduction to Geology – Geology majors. Undergraduate level. Lectures and labs.
- Geology – Biology majors. Undergraduate level. Lectures and Labs.
- Mapping and Structure field camp, 1 week, St Martin de Londres, France.
- Mapping and volcanology field camps, 1 week each. Bay of Naples, Italy. Mont Dore volcano, France.

STUDENT MENTORING

Undergraduate students:

- Austin Arias. Honors Thesis, 2016. *Petrogenesis of Little Black Mountain and Gypsum Spring Volcanic Rocks, San Rafael Swell, Utah. USF Undergraduate Honors Thesis.* Now PhD Candidate Utrecht University.
- Non-thesis students: Erica Fancher, Charlie Smith, Jacob Booe, Ivan Nava Hurtado, Max Botwin, David Elias, Ana Jimenez, Luke Varner, Heath Smith, Tyler Hull, Savana Krager, Natalie Salazar, Selena Kimball, Nicholas Bordieri, Chris Perry, Anthony Pham, Eric Putnall, Stephanie Drumm, Jacob Sillman, Jacob Adam, Gift Chima, Cassandra Black.

Graduate students:

- Abigail Martens (PhD), 2017 – current.
- Danielle Molisee (PhD), 2016 – current. Co-advising with Dr. Sylvain Charbonnier.
- Osvaldo Meireles (PhD), 2017 – current. Co-advising with Dr. Zachary Atlas.
- Ami Ward; MS. Fall 2019. Co-advising with Dr. Zachary Atlas. *"Boron Variation and the Subducted Sediment Component in the Volcanics from the Bifurcated Portion of the Lesser Antilles Island Arc (LAIA)" (2019). Graduate Theses and Dissertations. https://scholarcommons.usf.edu/etd/8091*. Now PhD student, UNC Chapel Hill.
- Stephanie Drumm; MS Spring 2018. Co-advising with Dr. Zachary Atlas. *"Geochemical Modeling of Primary MORB Magmas: Implications for Parental Melting Regimes in Melt Lenses Along-Axis of the Hess Deep Rift" (2018). Graduate Theses and Dissertations. https://scholarcommons.usf.edu/etd/7147*. Now Lab Scientist at LCRA.
- Steven Rizo; MS Spring 2018. *"Quantifying the Effect of Topographic Slope on Lava Flow Thickness: A First Step to Improve Lava Flow Volume Estimation Methods" (2018). Graduate Theses and Dissertations. https://scholarcommons.usf.edu/etd/7222*.
- Danielle Koebli; MS Fall 2017. *"A Geochemical and Petrological Analysis of the San Rafael Volcanic Field, Utah" (2017). Graduate Theses and Dissertations. https://scholarcommons.usf.edu/etd/7417*. Now Instructor at Hillsborough Community College.

Graduate advisory committees:

- Joshua Abbatiello (PhD, 2019 – current)
- Robert Constantinescu (PhD, 2017 – 2022)
- Heater McFarlin (PhD, 2013 – current)
- Antonio Luna (PhD, 2014 - current)
- Raymond Johnson (PhD, 2015 - current)
- Jennifer Lago (PhD 2022)
- Tian Feng (PhD 2021)
- Chris Mehta (PhD 2019)
- Keir Sanatan (MS 2017)
- James Wilson (MS 2016)
- Chair of Brandon Lorentz (Engineering) PhD defense – March 2020
- Oliver Higgins, PhD, University of Geneva, August 2022.

ACADEMIC AND PROFESSIONAL ACTIVITIES

At University of South Florida (2014 – present):

School of Geosciences committees: Faculty Evaluation Committee (2016 – 2019), Vision Committee (2015), Graduate Committee (2015-2022), Technology Committee (2017 – 2019), Undergraduate committee (2020 – present), Award committee (2021-present), President of USF Sigma Xi chapter (June 2022 – present).

Grant Proposal reviews National Science Foundation (NSF)

Peer reviewer for Earth Science Review, Nature Scientific Reports, Lithos, Journal of Volcanology and Geothermal Research, Journal of South American Earth Sciences, Chemical Geology, Earth Planets and Space, Journal of Petrology, G-cubed, Geology, Geomorphology, Geosciences, Acta Geochimica, W.W Norton & Company.

Convener and co-convener of scientific sessions: IAVCEI Scientific Assembly, Portland, USA, August 2017. EGU General Assembly 2012, AGU Fall Meeting 2021.

Member of professional associations: International Association of Volcanology and Chemistry of the Earth Interior, Geological Society of America, American Geophysical Union, Council of Undergraduate Research, Association of Women Geoscientists (Florida chapter), Sigma Xi.