

# Christelle Wauthier

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The Pennsylvania State University

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University Park, PA 16802

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## Current Appointment

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2020 – present      **Associate Professor**  
Department of Geosciences  
& Institute for Computational and Data Sciences (ICDS)  
Pennsylvania State University, University Park, PA 16802, USA

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## Education

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2007 – 2011      **PhD in engineering sciences** (advisor: Prof. Eric Pirard)  
Faculty of applied sciences, University of Liege, Liege, Belgium

2006 – 2007      **Master's degree in volcanology** (advisor: Dr. Valerie Cayol)  
Laboratory "Magmas et Volcans", University Blaise-Pascal, Clermont-Ferrand,  
France

2003 – 2006      **Master's degree in geological engineering** (advisor: Prof. Eric Pirard)  
University of Liege, Liege, Belgium

2000 – 2003      **Bachelor's degree in engineering**  
University of Liege, Liege, Belgium

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## Peer-Reviewed Publications

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\* denotes author is a student supervised by C. Wauthier

\*\* denotes author is an undergraduate student supervised by C. Wauthier

J. Sun\*, F. Xu, G. Cervone, M. Gervais, **C. Wauthier**, M. Salvador (2021), Automatic atmospheric correction for shortwave hyperspectral remote sensing data using a time-dependent deep neural network, *ISPRS Journal of Photogrammetry and Remote Sensing*. DOI: <https://doi.org/10.1016/j.isprsjprs.2021.02.007>.

J. Gonzalez-Santana\* and **C. Wauthier** (2021), Unraveling persistent volcano flank instability at Pacaya Volcano, Guatemala, using satellite geodesy, *Journal of Volcanology and Geothermal Research*. DOI: <https://doi.org/10.1016/j.jvolgeores.2020.107147>.

- J. Sun\*, **C. Wauthier**, K. Stephens\*, M. Gervais, G. Cervone, P. LaFemina, M. Higgins (2020), Automatic detection of surface deformation by volcanic sources using deep learning, *Journal of Geophysical Research: Solid Earth*, DOI: <https://doi.org/10.1029/2020JB019840>.
- K. J. Stephens\*, **C. Wauthier**, R. Bussard\*\*, M. Higgins, P. LaFemina (2020), Assessment of mitigation strategies for tropospheric phase contributions to InSAR time-series datasets over two Nicaraguan volcanoes, *Remote Sensing*, DOI: <https://doi.org/10.3390/rs12050782>.
- D. C. Roman, P. C. LaFemina, R. Bussard\*\*, K. J. Stephens\*, **C. Wauthier**, M. Higgins, M. Feineman, S. Arellano, J. M. de Moor, G. Avar, M. Martinez Cruz, M. Burton, M. Varnam, A. Saballos, M. Ibarra, W. Strauch, V. Tenorio (2019), Mechanisms of Unrest and Eruption at Persistently Restless Volcanoes: Insights from the 2015 eruption of Telica Volcano, Nicaragua, *Geochemistry Geophysics Geosystems*, DOI: <https://doi.org/10.1029/2019GC008450>.
- S. Tung, K. Katzenstein, T. Masterlark, J. Lei, **C. Wauthier**, D. Petley (2019), Sensitivities of Geodetic Source Analyses to Elastic Crust Heterogeneity Constrained by Seismic Tomography for the 2017  $M_w$  6.5 Jiuzhaigou, China, Earthquake, *Seismological Research Letters*, DOI: <https://doi.org/10.1785/0220180272>.
- C. Wauthier**, D. C. Roman, M. P. Poland (2019), Modulation of seismic activity in Kīlauea's upper East Rift Zone by summit inflation and deflation, *Geology*, DOI: <https://doi.org/10.1130/G46000.1>.
- Jones R. J., D. S. Stamps, **C. Wauthier**, E. Saria (2019), Evidence for slip on a border fault triggered by magmatic processes in an immature continental rift, *Geochemistry Geophysics Geosystems*, DOI: [10.1029/2018GC008165](https://doi.org/10.1029/2018GC008165).
- H. N. Lechner, **C. Wauthier**, G. P. Waite, R. Escobar-Wolf (2019), Magma storage and diking revealed by GPS geodesy at Pacaya volcano, Guatemala, *Bulletin of Volcanology*, DOI: [10.1007/s00445-019-1277-x](https://doi.org/10.1007/s00445-019-1277-x).
- S. J. Oliva, C. J. Ebinger, **C. Wauthier**, J. Muirhead, S. Roecker, E. Rivalta (2019), Insights into fault-magma interactions in an early-stage continental rift from source mechanisms and correlated volcanotectonic earthquakes, *Geophysical Research Letters*, DOI: [10.1029/2018GL080866](https://doi.org/10.1029/2018GL080866).
- J. A. Kintner, **C. Wauthier**, C. J. Ammon (2019), InSAR and Seismic Analyses of the 2014-15 Earthquake Sequence near Bushkan, Iran: Growth of an Anticline, *Geophysical Journal International*, [ggz065](https://doi.org/10.1093/gji/ggz065), DOI: <https://doi.org/10.1093/gji/ggz065>.
- K. Reath, M. Pritchard, M. Poland, F. Delgado, S. Carn, D. Coppola, S. Ebmeier, E. Rumpf, S. Henderson, S. Baker, P. Lundgren, R. Wright, J. Biggs, T. Lopez, **C. Wauthier**, S. Moruzzi, A. Alcott, R. Wessels, B. Andrews, J. Griswold, S. Ogburn, S. Loughlin, F. Meyer, M. Pavolonis, D. Schneider, G. Vaughan, M. Bagnardi (2019), Thermal, deformation, and degassing remote sensing time series (A.D. 2000-2017) at the 47 most active volcanoes in Latin America: Implications for Volcanic Systems, *Journal of Geophysical Research*, DOI: [10.1029/2018JB016199](https://doi.org/10.1029/2018JB016199).
- C. Wauthier**, B. Smets, A. Hooper, N. d'Oreye, F. Kervyn (2018), Identification of subsiding areas, affected by significant carbon dioxide degassing, along the northern shore of Lake Kivu, *Journal of Volcanology and Geothermal Research*, DOI: <https://doi.org/10.1016/j.jvolgeores.2018.08.018>.
- M. E. Pritchard, J. Biggs, **C. Wauthier**, E. Sansosti, D. W. D. Arnold, F. Delgado, S. K. Ebmeier, S. T. Henderson, K. Stephens\*, K. Wnuk\*, F. Amelung, V. Aguilar, P. Mothes, O. Macedo, L. Lara, M. P.

Poland and S. Zoffoli (2018), Towards coordinated regional multi-satellite InSAR volcano observations: Results from the Latin America pilot project, *Journal of Applied Volcanology*, DOI: 10.1186/s13617-018-0074-0.

S. Conway (prev. Moore)\*, **C. Wauthier**, M. P. Poland, Y. Fukushima (2018), A Retrospective Look at the February 1993 East Rift Zone Intrusion at Kīlauea Volcano, Hawaii, *Journal of Volcanology and Geothermal Research*, DOI: 10.1016/j.jvolgeores.2018.05.01.

K. Stephens\*, **C. Wauthier** (2018), Satellite geodesy captures offset magma supply associated with lava lake appearance at Masaya volcano, Nicaragua, *Geophysical Research Letters*, DOI: 10.1002/2017GL076769.

K. Wnuk\* and **C. Wauthier** (2017), Surface deformation induced by magmatic processes at Pacaya Volcano, Guatemala revealed by InSAR, *Journal of Volcanology and Geothermal Research*, DOI: 10.1016/j.jvolgeores.2017.06.024.

**C. Wauthier**, D. C. Roman and M. P. Poland (2016), Joint analysis of InSAR and earthquake fault-plane solution data to constrain magmatic sources: A case study from Kīlauea Volcano, *Earth and Planetary Science Letters*, DOI: 10.1016/j.epsl.2016.09.011.

**C. Wauthier**, B. Smets and D. Keir (2015b), Diking-induced moderate-magnitude earthquakes on a youthful rift border fault: The 2002 Nyiragongo-Kalehe sequence, D.R. Congo, *Geochemistry Geophysics Geosystems*, DOI: 10.1002/2015GC006110.

**C. Wauthier**, B. Smets, V. Cayol, N. d'Oreye, F. Kervyn (2015a), Magma pathways and rift zone interactions inferred from InSAR and stress modeling at Nyamulagira, D.R. Congo, *Remote Sensing*, 7(11), DOI: 10.3390/rs71115179.

B. Smets, N. d'Oreye, F. Kervyn, M. Kervyn, F. Albino, S. R. Arellano, M. Bagalwa, C. Balagizi, S. A. Carn, T. H. Darrah, J. Fernandez, B. Galle, P. J. Gonzales, E. Head, K. Karume, D. Kavotha, F. Lukaya, N. Mashagiro, G. Mavonga, P. Normans, E. Osodundu, J. L.G. Pallero, J. F. Prieto, S. Samsonov, M. Syaushwa, D. Tedesco, K. Tiampo, **C. Wauthier**, M. M. Yalire (2014), Detailed multidisciplinary monitoring reveals pre- and co-eruptive signals at Nyamulagira volcano (North Kivu, D.R.C.), *Bulletin of Volcanology*, 76:787, DOI: 10.1007/s00445-013-0787-1.

**C. Wauthier**, D. C. Roman, M. P. Poland (2013b), Moderate-magnitude earthquakes induced by magma reservoir inflation at Kīlauea Volcano, Hawai'i, *Geophysical Research Letters*, Volume 40, Issue 20, pages 5366–5370, DOI: 10.1002/2013GL058082.

**C. Wauthier**, V. Cayol, M. Poland, F. Kervyn, N. d'Oreye, A. Hooper, S. Samsonov, K. Tiampo, B. Smets (2013a), Nyamulagira's Magma Plumbing System Inferred from 15 Years of InSAR, *In: Pyle, D. M., Mather, T. A. & Biggs, J. (eds) Remote Sensing of Volcanoes and Volcanic Processes: Integrating Observation and Modelling. Geological Society, London, Special Publications*, 380, DOI: 10.1144/SP380.9.

**C. Wauthier**, V. Cayol, F. Kervyn, and N. d'Oreye (2012), Magma sources involved in the 2002 Nyiragongo eruption, as inferred from an InSAR analysis, *Journal of Geophysical Research*, 117, B05411, DOI: 10.1029/2011JB008257.

N. d'Oreye, P. González, A. Shuler, L. Bagalwa, G. Ekström, D. Kavotha, F. Kervyn, C. Lucas, F. Lukaya, A. Oth, **C. Wauthier**, J. Fernández (2011), Source parameters of the 2008 Bukavu-Cyangugu

earthquake estimated from InSAR and teleseismic data, *Geophysical Journal International*, vol. 184, 2, 934-948, DOI: 10.1111/j.1365-246X.2010.04899.x

B. Smets, **C. Wauthier**, N. d'Oreye (2010), A new map of the lava flow field of Nyamulagira (D.R. Congo) from satellite imagery, *Journal of African Earth Sciences*, DOI: 10.1016/j.jafrearsci.2010.07.005

E. Calais, N. d'Oreye, J. Albaric, A. Deschamps, D. Delvaux, J. Deverchere, C. Ebinger, R. W. Ferdinand, F. Kervyn, A. S. Macheyeke, A. Oyen, J. Perrot, E. Saria, B. Smets, S. Stamps, **C. Wauthier** (2008), Strain accommodation by slow slip and dyking in a youthful continental rift, East Africa, *Nature*, Macmillian Publishers Limited, Vol. 456, pages 783-787, DOI: 10.1038/nature07478.

### Peer-reviewed book chapters

**C. Wauthier**, V. Cayol, F. Kervyn, N. d'Oreye (2010), Modeling of InSAR displacements related with the January 2002 eruption of Nyiragongo volcano, European Center for Geodynamics and Seismology Blue Books, vol.29, 131 pp.

A.M. Oyen, **C. Wauthier**, N. d'Oreye, R.F. Hanssen (2010), The 2007 rifting event in Northern Tanzania studied by C and L-band interferometry, *European Center for Geodynamics and Seismology Blue Books*, vol.29, 131 pp.

A-C. van Overbeke, M. Bagalwa, J. Durieux, D. Kavotha, F. Kervyn, A. Kies, F. Lukaya, P. Mitangala, N. d'Oreye E. Osodundu, B. Smets, D. Tedesco, **C. Wauthier**, M. Yalire (2010), Monitoring of volcanic activity in the Goma region (N-Kivu, Democratic Republic of Congo) and mitigation of related risks by both spaceborne and ground-based techniques: experience of the GORISK project, *European Center for Geodynamics and Seismology Blue Books*, vol.29, 131 pp.

### Manuscripts in progress

J. Leeburn\*, **C. Wauthier**, Emily Montgomery-Brown, Magma-faulting interactions during the June, 2007, East Rift Zone eruption of Kilauea Volcano, Hawai'i, *Submitted to Journal of Volcanology and Geothermal Research on 28 December 2020*.

Higgins M., LaFemina P., Weber, Ryan, Geirsson H., **C. Wauthier**, Strain Partitioning and Interseismic Fault Behavior Along the Caribbean-South American Transform Plate Boundary, *Submitted to Tectonics on 26 January 2021*.

S. J. Oliva, C. J. Ebinger, E. Rivalta, C. A. Williams, **C. Wauthier**, C. Currie, State-of-stress and stress rotations: Quantifying the role of surface topography and subsurface density contrasts in magmatic rift zones (Eastern Rift, Africa), *For submission to Earth and Planetary Sciences Letters in 2021*.

K. Stephens\*, **C. Wauthier**, Spatio-temporal Evolution of the Magma Plumbing System at Masaya Caldera, Nicaragua, *For submission to Bulletin of Volcanology Special Issue: Open-vent volcanoes in May 2021*.

J. Sun\*, M. Gervais, G. Cervone, **C. Wauthier**, Deep Learning application for Sea Ice Prediction in Sea of Okhotsk, *For submission to Geophysical and Research Letters in 2021*.

**C. Wauthier**, S. J. Oliva, C. J. Ebinger, Magma-faulting interactions in an immature continental rift,

*For submission to Geophysical and Research Letters in 2021.*

S. Poppe\* and C. **Wauthier**, Laboratory volcano geodesy: Inversion of analogue magma-induced surface displacements, *For submission to Journal of Geophysical Research – Solid Earth in 2021.*

## Academic Awards and Grants

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2020-2025	National Science Foundation (NSF) CAREER (EAR 1945417):” Career: Numerical Modeling of Volcanic Flank Instability Processes” (role: single PI)
2020-2023	NASA Earth Surface & Interior (80NSSC20K0490): “Geophysical Imaging of Flank Instability and Magma Processes at Pacaya Volcano, Guatemala” (role: Lead PI)
2020-2023	National Science Foundation (NSF) Major Research Instrumentation (MRI 2018280): “MRI: Acquisition of a Purpose-Built Deep Learning Compute System to Advance Fundamental Research and Education at Penn State” (role: Co-PI)
2019-2022	National Science Foundation (NSF) Geophysics (EAR 1923943): Modeling of Crater Floor Deformation in Relationship with Lava Lake Activity (role: single PI).
2019-2020	EMS Distinguished Postdoc, 2018 Postdoc-Facilitated Innovation through Collaboration, College of Earth and Mineral Sciences, for the proposal: The Power of Many: Bridging the Earth Sciences Using Spatio-Temporal Deep Learning (role: PI).
2019-2020	Institute for Computational and Data Sciences (ICDS) seed grant: Numerical modeling of volcanic flank instability and failure forecasting using machine learning (role: Lead PI).
2018	National Science Foundation (NSF) Workshop proposal for organizing and participating in the COVE workshop in Albuquerque, NM (role: convener).
2018	National Science Foundation (NSF) Research Coordination Network (RCN) Travel grant for participation in the CONVERSE workshop in Albuquerque, NM (role: member of the CONVERSE steering committee).
2017-2018	Institute for Computational and Data Sciences (ICDS) seed grant: Toward a better understanding of magma-fault interactions during early stage rifting: Joint analysis and modeling of geodetic and seismic datasets (role: single PI).
2017	National Science Foundation (NSF) Travel grant for participation in the GeoPRISMS TEI Workshop for the East African Rift System in Albuquerque.
2017-2021	NASA Earth Surface & Interior (NNX17AD70G): “Building integrated seismic and volcanic hazard models in active arcs: an example from the Managua Graben, Nicaragua” (role: Co-PI)
2017-2019	USGS Powell Center: “Optimizing satellite resources for the global assessment and

- mitigation of volcanic hazards” (role: Participant)
- 2016-2020 NASA Earth Surface & Interior (NNX16AK87G): “Developing and demonstrating a multi-platform satellite observing system at hundreds of volcanoes for science and applications: The Latin America pilot project” (role: Co-PI /Institutional PI)
- 2016-2018 National Science Foundation (NSF) RAPID (EAR 1620977) “Geochemical and Geophysical Observations of the 2015 Eruption of Volcan Momotombo”, Nicaragua (role: Co-PI)
- 2015-2016 National Science Foundation (NSF) Travel grant for participation to the Workshop on Volcanoes 2016 in Quetzaltenango, Guatemala
- 2012 National Science Foundation (NSF) GeoPRISMS grant for participation in the GeoPRISMS Planning Workshop for the East African Rift System in Morristown, NJ, USA
- 2012 AGU grant for participation in the AGU Chapman Conference on Hawaiian Volcanoes: from source to surface, Kona, HI, USA
- 2011 Carnegie Postdoctoral Fellowship  
Carnegie Institution of Washington, Department of Terrestrial Magnetism, USA
- 2009 Travel grant for the 2009 IEEE Geoscience and Remote Sensing Symposium in Cape Town, South Africa  
Awards were made to applicants with highly ranked papers that were selected by the IGARSS Technical Program Committee for oral presentation
- 2009 Outstanding scientific publication award for a Nature publication (Calais *et al.*, 2008) given by the National Research Fund (FNR) in Luxembourg
- 2008 Grant for participation in the 2008 IAVCEI General Assembly and the pre-conference "Field-based methodologies for quantifying volcanic activity", Reykjavik, Iceland, 16-17 August 2008, Reykjavik, Iceland
- 2006 Scholarship for engineers, given by the French government to support Master’s research degree “Magmas et Volcans” in Clermont-Ferrand, France
- 2005 Award for the best engineering Master research project  
University of Liege, Liege, Belgium
- 2005 Award given by Belgian Evrard Foundation for the best internship undertaken during geological engineering studies  
University of Liege, Liege, Belgium

## Teaching Experience

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- Fall 2021 Volcanoes in the solar system (GEOSC 297H, Honor course), The Pennsylvania University, USA

Fall 2021	Satellite remote sensing for Earth observation (GEOSC 482), The Pennsylvania University, USA
Spring 2021	Plate tectonics and interactions with magmatism from deep to surface (GEOSC 597), The Pennsylvania University, USA
Fall 2020	Satellite remote sensing for Earth observation (GEOSC 482), The Pennsylvania University, USA
Spring 2020	Modeling of a volcano in the lab and numerically (GEOSC 597), The Pennsylvania University, USA
Spring 2019	Modeling of Geodetic Data: Methods, Assumptions, and Limitations (GEOSC 597), The Pennsylvania University, USA
Spring 2019	Satellite remote sensing for Earth observation (GEOSC 482), The Pennsylvania University, USA
Spring 2018	Satellite remote sensing for Earth observation (GEOSC 482), The Pennsylvania University, USA
Fall 2017	Flank instability processes (GEOSC 597), The Pennsylvania University, USA
Fall 2017	Natural Disasters: Hollywood versus Reality (EARTH 101), The Pennsylvania University, USA
Spring 2017	Satellite remote sensing for Earth observation (GEOSC 497/482), The Pennsylvania University, USA
Spring 2017	What can electro-optical and radar remote sensing do for you? (GEOSC 597/GEOG 560), The Pennsylvania University, USA
Fall 2016	Natural Disasters: Hollywood versus Reality (EARTH 101), The Pennsylvania University, USA
Spring 2016	Satellite Remote-Sensing for Earth Observation (GEOSC 497B), The Pennsylvania University, USA
Fall 2015	Advanced Volcanology (GEOSC 598A), The Pennsylvania University, USA
Spring 2015	Introduction to Remote-Sensing (GEOSC 497B), The Pennsylvania University, USA
Fall 2014	Advanced Volcanology (GEOSC 597G), The Pennsylvania University, USA
2010 – 2012	Junior lecturer for final-year master students in geology and geological engineering Remote-Sensing Theory and Practice University of Liege, Liege, Belgium
2010 – 2012	Junior lecturer for final-year master students in geology and geological engineering

- Remote-Sensing Theory and Practice  
University of Liege, Liege, Belgium
- 2009 Seminar (Guest Lecturer) for final-year of geology master students  
Introduction to Radar Interferometry (InSAR)  
Université Libre de Bruxelles, ULB, Brussels, Belgium
- 2007 – 2008 Taught numerical modeling methods (3D numerical modeling boundary elements method) to a master thesis student (Anneleen Oyen – Master student 2007-2008 in Delft University of Technology)  
Delft University of Technology, Netherlands
- 2007 – 2008 Lecturer for African students  
Royal Museum for Central Africa, Tervuren, Belgium
- 2005 Teaching assistant for first-year students in engineering  
Introduction to POV-RAY software  
University of Liege, Liege, Belgium

## **Synergistic Activities – Professional Service**

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- Associate director of GeoVISTA: Center for Spatial Computing, Informatics, and Remote sensing for Earth science, Pennsylvania State University, since 2021
- K-SAC: Member of the Kilauea 2020-ongoing eruption Science Advisory Committee
- NSF RCN: Member of the Community Network for Volcanic Eruption Response (CONVERSE) steering committee: <https://volcanoresponse.org/>
- Contributor to the Committee on Earth Observation Satellites pilot and demonstrator projects to monitor volcanoes (2015-present): <http://ceos.org/ourwork/workinggroups/disasters/volcanoes/>
- Served on National Science Foundation (NSF) Geophysics and NASA ESI proposal review panels
- Lead Convener for AGU 2018: Session V23C/V24A/V31H. Magmatic Systems and Their Interactions with Tectonic Processes in Rifts, Arcs, Ridges and Volcanic Fields, 10-14 December 2018, Washington D.C., USA
- NSF-funded workshop: Convener for Community Volcano Experiment (COVE) Workshop, Albuquerque, New Mexico, November 28 – 30, 2018
- Participant for USGS Powell Center: “Optimizing satellite resources for the global assessment and mitigation of volcanic hazards” (2017-2019): [https://www.usgs.gov/centers/powell-ctr/science/optimizing-satellite-resources-global-assessment-and-mitigation-volcanic?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/centers/powell-ctr/science/optimizing-satellite-resources-global-assessment-and-mitigation-volcanic?qt-science_center_objects=0#qt-science_center_objects)
- Convener for IAVCEI 2017: Session II.7 Architecture of magmatic plumbing systems, 14-18 August 2017, Portland, Oregon, USA
- Convener for IAVCEI 2017 pre-workshop: Promoting the Use of Satellite Observations at Volcano

Observatories, 12-13 August, 2017, Portland, Oregon, USA

- Convener for NSF GeoPRISMS Mini-Workshop at AGU Fall Meeting 2016 - Volcanoes in Extensional and Compressional Settings: <http://geoprisms.org/meetings/mini-workshops/agu2016-volcanoes/>
- Member of the Scientific Committee for European Space Agency (ESA) meetings including: Fringe 2015-2017-2021, Living Planet Symposium 2016-2018.
- Member of the WInSAR Consortium Executive Committee 2015-2016: <https://winsar.unavco.org/>
- Member of the NSF EarthCube Scientific Committee in 2014-2016
- Remote sensing image acquisition projects:
  - PI for DLR (German Space Agency) TanDEM-X proposals to obtain 12-meters DEM covering Tanzania and Central America, #1555 and #1552, respectively.
  - PI for COSMO-SkyMed/RADARSAT-2 proposal: "Characterizing volcanic hazard in Latin America", #2841/5222.
  - PI for Accepted ASI (Italian Space Agency) COSMO-SkyMed proposal: "Toward a better understanding of magmatic and rifting processes in a young rift using synergistically SAR constellations' datasets", COSMOSkyMed Constellation Innovative Exploitation, #253.
  - PI for Accepted ESA (European Space Agency) Restrained Dataset proposal: "Toward a better understanding of magmatic and rifting processes in immature portions of the East African rift System using InSAR", #29042.
  - PI for Accepted ESA (European Space Agency) proposal: "Study of deformation processes and surface changes induced by the April 10, 2014 Lake Managua M6.1 earthquake, Nicaragua", RADARSAT-2 ESA Third Party Mission Category-1 project #28777.
  - PI for Accepted ESA (European Space Agency) proposal: "Toward a better understanding of deformation processes at Central American volcanoes through integration of multi-sensor geodetic and seismic data", RADARSAT-2 ESA Third Party Mission Cat-1 project #16819.
  - Co-PI for Accepted CSA (Canadian Space Agency project) proposal: Monitoring of the Nyiragongo-Nyamulagira volcanic area (North Kivu, Dem. Rep. of Congo) using Radarsat-2 InSAR data ("RS2-Kivu"), RADARSAT-2 SOAR Canadian Space Agency project.
  - Co-PI for ESA (European Space Agency) Announcement of Opportunity project: "The ALOS contribution to the monitoring of volcanic zones and to the volcanic hazard assessment in the African context. An integrated method for optics, and microwave sensors", #3690.
  - Co-PI for ESA (European Space Agency) Category-1 project: "InSAR Analysis and Monitoring of Active African Volcanoes using ERS and ENVISAT data", #3224.
  - Co-PI for ASF (Alaska Satellite Facility) DAAC for the Kivu area, Democratic Republic of Congo.
- Professional Society Membership: AGU, IAVCEI, and WInSAR consortium
- Reviewer for Geology, Journal of Geophysical Research, Journal of Volcanology and Geothermal Research, Geophysical Research Letters, G-Cubed, Encyclopedia of Natural Hazards, Geological Society of London publications, Volcanica; NERC, NASA, and NSF proposals

## Invited Talks

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- March 2021 “Caractérisation des mouvements de failles, processus magmatiques, et leurs interactions, avec la télédétection radar”, CRPG, ENSG, University of Lorraine, Nancy, France
- November 2020 “Fantastic Volcanoes and Where to Find them”  
Guest lecture in the course Earth and Mineral Sciences freshman class seminar, Pennsylvania State University, USA
- May 2019 “Deciphering Magma-Faulting Interactions in Arc and Ocean Island Volcanoes with Satellite Geodesy”, University of Wisconsin-Madison, USA
- April 2019 “Interferometric Synthetic Aperture Radar (InSAR) for deformation studies principles, limitations, and error mitigation strategies”, ADAPT Seminar, Department of Meteorology, Pennsylvania State University, USA
- February 2019 “Deciphering Magma-Faulting Interactions in Arc and Ocean Island Volcanoes with Satellite Geodesy”, University of South Florida, USA
- October 2018 “Deciphering Magma-Faulting Interactions in Rift, Arc and Ocean Island Volcanoes with Satellite Geodesy”, University of California Los Angeles, USA
- October 2017 “Magma pathways and earthquake triggering: insights from satellite radar observations”, Pittsburg University, USA
- May 2017 “Magma pathways and earthquake triggering: insights from satellite radar observations”, Guest lecture in the course “Geoinformatics for Natural Hazards Monitoring”, MIT, USA
- March 2017 “Magma-tectonic interactions in a continental rift”  
Guest lecture in the course GEOSC 434 Volcanology, Department of Geosciences, Pennsylvania State University, USA
- December 2016 “Magma pathways and earthquake triggering: insights from satellite radar observations”, Carnegie Institution for Science, USA
- October 2016 “Investigating magmatic and tectonic processes using satellite geodesy”, Department of Geosciences, Virginia Tech University, USA
- October 2016 “Volcanic and tectonic processes revealed by radar remote sensing”, Department of Geography, Pennsylvania State University, USA
- April 2016 “Investigating magmatic and tectonic processes using satellite geodesy”  
Alumni Advisory Board Reception, Department of Geosciences, Pennsylvania State University, USA
- March 2016 “Volcano geodesy using remote sensing”  
Geosciences Club, Pennsylvania State University, USA

- March 2016 “Magma-tectonic interactions in a continental rift”  
Guest lecture in the course GEOSC 434 Volcanology, Department of Geosciences, Pennsylvania State University, USA
- February 2016 “Investigating young continental rifting processes and volcanoes connection using geodesy and seismicity”, Department of Geosciences, Pennsylvania State University, USA
- January 2016 “Volcano Geodesy”  
Workshops on Volcanoes 2016, Quetzaltenango, Guatemala
- January 2016 “InSAR Processing”  
Workshops on Volcanoes 2016, Quetzaltenango, Guatemala
- November 2015 “Investigating young continental rifting and volcanic processes using satellite geodesy”  
Dept. of Earth and Environmental Sciences, University of Rochester, NY, USA
- October 2015 “Investigating young continental rifting and volcanic processes using InSAR”  
Geodynamics Colloquium, Pennsylvania State University, USA
- September 2015 “Investigating young continental rifting and volcanic processes using satellite geodesy”  
Earth and Atmospheric Sciences Department, Cornell University, NY, USA
- September 2015 “Magma-tectonic interactions at Kīlauea volcano inferred from a joint analysis of geodetic and seismic data”, Earth and Atmospheric Sciences Department, Cornell University, NY, USA
- November 2014 “Deciphering rifting and magmatic processes with satellite geodesy”  
Dept. of Geology, University of Georgia, GA, USA
- March 2014 “Rifting processes at Kīlauea volcano inferred from a joint analysis of geodetic and seismic data”  
Dept. of Earth and Envir. Sci., Columbia University, Lamont Doherty Earth Observatory, NY, USA
- April 2013 “Magma-tectonic interactions revealed by satellite geodesy and modeling”  
National Museum of Natural History, Smithsonian Institution, USA
- April 2013 “Magma-tectonic interactions revealed by satellite geodesy and modeling”  
Department of Geosciences, Pennsylvania State University, USA
- February 2013 “Nyiragongo and Kilauea's magma plumbing systems inferred from radar interferometry (InSAR)”  
Department of Terrestrial Magnetism, Carnegie Institution of Washington, USA
- January 2013 “Toward a better understanding of Kilauea magma plumbing system by means of radar interferometry (InSAR) techniques and modeling”  
Dept. Geoscience and Remote Sensing, TUDelft, the Netherlands

- November 2011 “Radar interferometry (InSAR) applied to the study of active volcanic and seismic areas in Africa”  
Earth Sciences and Engineering Seminars, KAUST, Saudi Arabia
- April 2011 “Nyiragongo volcano 2002 eruption constrained by multibeam InSAR data”  
EGU General Assembly 2011-8670, Session GMPV10/G3.11/NH2.7/TS1.8, room 20, Vienna, Austria
- September 2009 “Study and monitoring of an active African volcanic area by InSAR”  
DEOS Dept., TUDelft, The Netherlands
- July 2009 “L-band and C-band studies of African volcanic areas”  
IEEE International Geoscience & Remote Sensing Symposium, Cape Town, Africa
- February 2009 “Lake Natron July-August 2007 magmato-tectonic Crisis”  
GFZ Potsdam, Germany

## Previous Work Experience

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- 2014 – 2020 **Assistant Professor**  
Department of Geosciences & Institute for Computational and Data Sciences,  
Pennsylvania State University, University Park, PA 16802, USA
- May 2012 – April 2014 **Carnegie Postdoctoral Fellow**  
Department of Terrestrial Magnetism, Carnegie Institution of Washington,  
Washington, DC, USA
- October 2010 – April 2012 **Teaching assistant**  
Remote sensing theory and practice  
GeMMe Unit - Georesources & Geo-Imaging, University of Liege, Belgium
- 2007 – 2011 **PhD candidate**  
Thesis dissertation: Radar interferometry (InSAR) applied to the study of active volcanic and seismic areas in Africa  
Earth Sciences dept., Royal Museum for Central Africa, Tervuren, Belgium & University of Liege, Belgium
- 2007 **Graduate research internship**  
3D boundary elements modeling and inversions  
Lab. Magmas et Volcans, Clermont-Ferrand, France
- 2006 **Graduate research internship**  
InSAR processing  
European Center for Geodynamics and Seismology, Grand-Duchy of Luxembourg & Royal Museum for Central Africa, Belgium
- 2005 – 2006 **Undergraduate ERASMUS internship**  
Dipartimento di Scienze della terra, Pisa University, Italy

## Field Experience

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- December 2015 – **Pacaya and Santiaguito volcanoes, Guatemala**  
January 2016 Fieldwork and InSAR/modeling studies
- August – **Kilauea volcano**  
September 2012 Fieldwork at Kilauea and InSAR/modeling study  
Hawaiian Volcano Observatory, Hawaii National Park, Hawaii, USA
- January 2010 **Nyamulagira and Nyiragongo volcanoes**  
Study and mapping of eruptive and tectonic features in the Goma (DRC) – Gisenyi (Rwanda) urban areas. Assessment in the Goma Volcanological Observatory of the Nyamulagira January 2010 eruption with daily MONUC helicopter survey, study of remote-sensing data and modeling  
Rwanda and Dem. Rep. of Congo
- September 2007 **Gelai volcano**  
Investigation and mapping (differential GPS) of fractures generated during the July-August 2007 seismic crisis  
Lake Natron area, Tanzania
- 2006 – 2007 **Fieldwork** on South Italian volcanism (Napoli, Eolian Islands)  
**Fieldwork** on magmatic and metamorphic petrology (Corsica, France)

## Skills

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Languages: French (mother language), English (fluent), Italian (very good), Dutch (basic).

Informatics: **Image Processing:** ENVI  
**GIS:** ArcGIS, MAPINFO, Idrisi  
**Programming:** MATLAB, Shell scripting, Python, Pascal, EES  
**Numerical modeling methods:** 3D- Mixed Boundary Elements Method (3D-MBEM), ABAQUS (finite elements)  
**InSAR Processing:** ROI-PAC, GAMMA, Doris, SNAPHU (unwrapping), ISCE, StaMPS and MSBAS (InSAR time-series), POLSARPRO (POLInSAR)  
**Others:** Coulomb 3D (stress calculations)

## List of Other Publications

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\* denotes author is a student supervised by C. Wauthier

### Scientific Reports

B. Schmandt, M. Coombs, D. Fee, T. Fisher, E. Gazel, R. Grapenthin, E. Lev, C. Wauthier (2019), COVE: Outcomes Report from the Workshop to Advance Integrative Volcanology with Community Experiments, Nov. 28-30 Albuquerque, NM., 2018.  
[https://volcanoresponse.files.wordpress.com/2019/02/cove\\_workshop\\_report\\_final.pdf](https://volcanoresponse.files.wordpress.com/2019/02/cove_workshop_report_final.pdf)

### Extended conference proceedings

**C. Wauthier**, V. Cayol, F. Kervyn, N. d'Oreye (2009), The January 2002 eruption of Nyiragongo volcano (DRC) captured by InSAR, *Proc. of Geoscience and Remote Sensing Symposium*, 2009 IEEE International, IGARSS 2009, July 13-17 2009, Cape Town, Africa, 978-1-4244-3395-7/09, II 416-419, DOI: 10.1109/IGARSS.2009.5418043

**C. Wauthier**, A.M. Oyen, P.S. Marinkovic, V. Cayol, J. Fernandez, P. Gonzalez, R.F. Hanssen, F. Kervyn, N. d'Oreye (2009), L-band and C-band studies of African volcanic areas, *Proc. of Geoscience and Remote Sensing Symposium*, 2009 IEEE International, IGARSS 2009, July 13-17 2009, Cape Town, Africa, 978-1-4244-3395-7/09, II 210-213, DOI: 10.1109/IGARSS.2009.5418103

A. M. Oyen, P. S. Marinkovic, **C. Wauthier**, N. d'Oreye, and R. F. Hanssen (2008), A continental rifting event in Tanzania revealed by ENVISAT and ALOS InSAR observations, *Proc. of ALOS PI Symposium 2008*, Rhodes, Greece, 3-7 November 2008

N. d'Oreye, F. Kervyn, E. Calais, V. Cayol, J. Fernández, C. Frischknecht, P. Gonzales, S. Heleno, A. Oyen, **C. Wauthier** (2008), Systematic InSAR monitoring of African active volcanic zones: what we have learned in two years, or an harvest beyond our expectations, *Proc. of 2008 Second workshop on USE of Remote Sensing techniques for Monitoring Volcanoes and Seismogenic Areas*, Naples, Italy, 11-24 November 2008, DOI: 10.1109/USEREST.2008.4740361

### Conference abstracts

J. Gonzalez-Santana\* and **C. Wauthier** (2021) Flank motion detected between 2010 and 2014 through InSAR time-series analysis at Pacaya Volcano, Guatemala, EGU 2021 Virtual Meeting, Abstract EGU21-3475.

K.J. Stephens\* and **C. Wauthier** (2021), Spatio-temporal evolution of the Masaya Plumbing System at Masaya Caldera, Nicaragua, *vVMSG Annual Meeting, 6-8 Jan 2021 (Second place for best talk)*.

S. Poppe\* and **C. Wauthier** (2021), Laboratory volcano geodesy: Inversion of analogue magma-induced surface displacements, *vVMSG Annual Meeting, 6-8 Jan 2021*.

S. Poppe\* and **C. Wauthier** (2020), Laboratory volcano geodesy: Inversion of three- dimensional surface displacements induced by analog magma intrusion in sandbox experiments, *AGU 2020 Virtual Fall Meeting, V005-06*.

J. Sun\*, F. Xu, G. Cervone, M. Gervais, **C. Wauthier**, and M. Salvador (2020), Automatic atmospheric correction for shortwave hyperspectral remote sensing data using a time-dependent deep neural network, *AGU 2020 Virtual Fall Meeting*.

J. Gonzalez-Santana\* and **C. Wauthier** (2020), InSAR Time-series Analysis Unravels Persistent Flank Motion During 2010-2014 at Pacaya Volcano, Guatemala. *AGU 2020 Virtual Fall Meeting*, Poster G004-0018, Abstract #710356.

K.J. Stephens\*, **C. Wauthier**, and P.C. LaFemina (2020), Spatio-temporal evolution of the Magma Plumbing System at Masaya Caldera, *AGU 2020 Virtual Fall Meeting*, poster abstract #V004-0019.

K.J. Stephens\*, **C. Wauthier**, R.C. Bussard\*\*, P.C. LaFemina, and M. Higgins (2020), Applicability of Tropospheric Correction Methods to InSAR Time-Series Datasets over Telica and Masaya volcanoes in Nicaragua, *Penn State ICDS Virtual Symposium 2020, 21-22 Oct 2020*, poster #19 (*Best poster award*).

J. Sun\*, **C. Wauthier**, K. Stephens\*, M. Gervais, G. Cervone, P. C. LaFemina, M. Higgins, (2019), Deep Learning Application on Volcanic Deformation Detection and Blind Source Separation in InSAR Data, Abstract #606341, AGU 2019, San Francisco, CA.

K. J. Stephens\*, R. Bussard\*\*, **C. Wauthier**, P. C. LaFemina, M. Higgins (2019), Mitigation of Tropospheric Effects on X-band InSAR Time-Series Datasets over Nicaraguan Volcanoes, Abstract #607876, AGU 2019, San Francisco, CA.

**C. Wauthier** and J. Leeburn\* (2019), Exploring relationships between intrusions and faulting processes during Kīlauea Volcano's June, 2007, Abstract #589830, AGU 2019, San Francisco, CA.

J. R. Jones, D. S. Stamps, B. Aagaard, **C. Wauthier** (2019), Investigation of Volcano-tectonic Interactions in the Natron Rift of the East African Rift System using Numerical Modeling, Abstract #549465, AGU 2019, San Francisco, CA.

S. J. Oliva, C. J. Ebinger, E. Rivalta, **C. Wauthier**, C. A. Williams, C. Currie (2019), State-of-stress and stress rotations: quantifying the role of surface topography and subsurface density contrasts in magmatic rift zones (Eastern Rift, Africa), Abstract #548047, AGU 2019, San Francisco, CA.

J. Gonzalez-Santana\* and **C. Wauthier** (2019), Flank Motion at Pacaya Volcano, Guatemala, Revealed Through InSAR Time-series Analysis, Abstract #519494, AGU 2019, San Francisco, CA.

D. C. Roman, P. C. LaFemina, **C. Wauthier**, M. Feineman, C. Connor, E. Gallant, J. A. Saballos, W. Strauch, V. Tenorio, M. Navarro (2019), Coordinated Rapid Response to the 2015-16 Eruption of Volcan Momotombo, Nicaragua, Abstract #564934, AGU 2019, San Francisco, CA. -- **INVITED CONTRIBUTION**

M. E. Pritchard, K. Reath, M. P. Poland, J. Biggs, B. J. Andrews, M. Bagnardi, S. A. Carn, D. Coppola, S. K. Ebmeier, M. Furtney, T. Girona, T. M. Lopez, P. Lundgren, M. J. Pavolonis, M. E. Rumpf, R. G. Vaughan, **C. Wauthier**, R. L. Wessels, K. R. Anderson, M. G. Bato, R. Alberto, R. Wright (2019), Using Conceptual Models to relate multi-parameter satellite data to sub-surface volcanic processes in Latin America, Abstract #496413, AGU 2019, San Francisco, CA.

M. Poland, M. Pritchard, S. Ebmeier, J. Biggs, F. Delgado, J. Kubanek, P. Lundgren, F. Albino, **C. Wauthier**, E. Sansosti (2019), Tracking volcanic activity with TerraSAR-X and TanDEM-X, TSX/TDX science meeting, DLR, Germany.

B. Smets, **C. Wauthier**, A. Dille, R. Paris, D. Samyn, N. d'Oreye, F. Kervyn (2019), Ground deformation and lava accumulation measurements in volcanic craters using UAS image acquisitions and 4D photogrammetry, Abstract #EGU2019-13006, EGU 2019, Vienna, Austria.

F. Delgado, M. Poland, J. Biggs, S. Ebmeier, E. Sansosti, P. Lundgren, **C. Wauthier**, S. Henderson, M. Pritchard, F. Amelung, S. Zoffoli (2019), Lessons learned from the CEOS Volcano Pilot in Latin American and the ongoing Volcano Demonstrator project, Abstract #EGU2019-14981, EGU 2019, Vienna, Austria.

**C. Wauthier**, S. Conway (prev. Moore)\*, Y. Fukushima, M. P. Poland (2018), Feedback Between Dike Intrusions, Opening in the Deep Rift Zones, and Flank Motion, Suggested by the Numerical Modeling of Geodetic Data Spanning 1993-1997 at Kilauea Volcano, Abstract #V43J-3869, AGU 2018, Washington D.C.

B. Smets, **C. Wauthier**, A. Dille, R. Paris, D. Samyn, N. d'Oreye, F. Kervyn (2018), Monitoring ground deformation and lava accumulation in volcanic craters using UAS image acquisitions and 4D photogrammetry, Abstract #V23D-3415, AGU 2018, Washington D.C.

R. Bussard\*\*, K. Stephens\*, **C. Wauthier**, Deformation behavior of persistently restless Telica Volcano, Nicaragua, during unrest in 2015 (2018), Abstract #G21B-0591, AGU 2018, Washington D.C.

D.C. Roman, **C. Wauthier**, M. P. Poland (2018), Modulation of seismic activity in Kilauea's East Rift Zone by summit inflation and deflation, Abstract #V43J-3884, AGU 2018, Washington D.C.

J. Gonzalez Santana\* and **C. Wauthier** (2018), InSAR Time Series Analysis and 3D Mixed Boundary Element Modeling of Deformation Behavior at Pacaya Volcano, Guatemala, Abstract #V31H-1999, AGU 2018, Washington D.C.

S. J. Oliva, C. J. Ebinger, E. Rivalta, **C. Wauthier**, C. Williams (2018), Quantifying state-of-stress and surface deformation in magmatic rift zones: Eastern Rift, Africa, Abstract #V31H-2010, AGU 2018, Washington D.C.

K. Stephens\* and **C. Wauthier** (2018), Offset Magma Supply Imaged with InSAR at Masaya Volcano, Nicaragua, Abstract #G14A-07, AGU 2018, Washington D.C.

S. J. Oliva, C. J. Ebinger, **C. Wauthier**, J. D. Muirhead, S. W. Roecker, E. Rivalta, S. Heimann, T. Fischer, J. Dufek (2018), Insights into magma storage and fault- magma interactions in an early-stage continental rift from active deformation and kinematic modelling studies, S01.08 - Multi-method approaches to screen storage, activation, and transport in magmatic systems, Cities on Volcanoes, Naples, Italy.

J. Gonzalez Santana\* and **C. Wauthier** (2018), InSAR time series analysis of deformation behavior and numerical modeling of flank instability at Pacaya Volcano, Guatemala, S01.32 - Analysis, monitoring and modelling of flank dynamics and mass-wasting from source to society and back again, Cities on Volcanoes, Naples, Italy.

K. Stephens\* and **C. Wauthier** (2018), Satellite Geodesy Captures Offset Magma Supply Associated with Lava Lake Appearance at Masaya Volcano, Nicaragua, S01.13 - Geodesy A critical component of multidisciplinary volcano monitoring and hazards mitigation efforts, Cities on Volcanoes, Naples, Italy.

P. La Femina, C. Connor, A. Saballos, **C. Wauthier**, R. Malservisi, L. Connor, K. Stephens\*, M. Higgins, M. Rodgers, H. Geirsson, M. Hastings (2018), Coupled Seismic-Volcanic Hazard Model for Managua, Nicaragua, S02.07 - Volcanic risk assessment and mitigation for Latino-American cities, Cities on Volcanoes, Naples, Italy.

La Femina, P., Roman, D., Geirsson, H., Rodgers, M., Feineman, M., **Wauthier, C.**, Hanagan, C., Bach, W., de Moor, J. M., Saballos, A. (2018), Multidisciplinary Investigations of Phreatic Explosions at Telica Volcano, Nicaragua, S01.10 - Characterization and analysis of eruptive patterns, Cities on Volcanoes, Naples, Italy.

P. MacQueen, F. Delgado, M. Pritchard, F. Amelung, D. Arnold, J. Biggs, S. Ebmeier, S. Henderson, M. Poland, E. Sansosti, **C. Wauthier** (2018), Satellite-based monitoring of long term and rapidly changing volcano deformation: Updated results from the CEOS Latin America Pilot Project, UNAVCO science meeting, Boulder, CO.

M. Pritchard, M. Poland, J. Biggs, F. Amelung, **C. Wauthier**, D. Arnold, E. Sansosti, F. Delgado, S.K. Ebmeier, S. Henderson, M. Furtney, K. Reath (2018), Imaging volcano deformation on a global scale, UNAVCO science meeting, Boulder, CO.

C. Ebinger, S. J. Oliva, S. J. Roecker, **C. Wauthier** (2018), Seismicity Constraints on Fault-Magma Interactions and Stress Field Rotation in an Early-Stage Continental Rift, Seismological Society of America (SSA) Meeting, Miami, FL.

H. N. Lechner, G. P. Waite, **C. Wauthier**, R. P. Escobar-Wolf, B. Lopez-Hetland (2017), Down and Out at Pacaya Volcano: A Glimpse of Magma Storage and Diking as Interpreted From GPS Geodesy, Abstract #V11C-0350, AGU 2017, New Orleans, LA.

K. Reath, M. E. Pritchard, M. P. Poland, R. L. Wessels, J. Biggs, S. A. Carn, J. P. Griswold, S. E. Ogburn, R. Wright, P. Lundgren, B. J. Andrews, **C. Wauthier**, T. Lopez, R. G. Vaughan, M. E. Rumpf, P. W. Webley, S. Loughlin, F. J. Meyer, M. J. Pavolonis (2017), The Powell Volcano Remote Sensing Working Group Overview, Abstract #PA22A-06, AGU 2017, New Orleans, LA.

J. R. Jones, D. S. Stamps, **C. Wauthier**, M. D. Daniels, E. Saria, K. H. Ji, D. Mencin, D. Ntambila (2017), Implementing real-time GNSS monitoring to investigate continental rift initiation processes, Abstract #T51F-0545, AGU 2017, New Orleans, LA.

K. Stephens\*, J. Biggs, S. Ebmeier, N. Young, **C. Wauthier**, Uncovering the mysteries behind lava lake deformation source mechanisms: a case study of the ephemeral lava lake at Masaya volcano, Nicaragua, Abstract #652, IAVCEI 2017, Portland, OR.

M. E. Pritchard, J. Biggs, **C. Wauthier**, E. Sansosti, D. W. D. Arnold, F. Delgado, S. K. Ebmeier, S. T. Henderson, K. Stephens\*, K. Wnuk\*, F. Amelung, P. Mothes, O. Macedo, L. Lara, M. P. Poland and S. Zoffoli, Lessons learned from coordinated regional multi-satellite volcano observations 2013-2017: The CEOS Latin America pilot project, Abstract #962, IAVCEI 2017, Portland, OR.

J. Jones, S. Stamps, **C. Wauthier**, E. Saria, Investigating volcano-tectonic stress interactions in a youthful continental rift, Abstract #1137, IAVCEI 2017, Portland, OR.

K. Wnuk\*, **C. Wauthier**, Temporal evolution of magma sources and surface deformation at Pacaya Volcano, Guatemala revealed by InSAR, Abstract #642, IAVCEI 2017, Portland, OR.

S. Moore\*, **C. Wauthier**, M. Poland, Y. Fukushima, Deformation sources in Kilauea's East Rift Zone During 1993-1997 revealed through InSAR modeling, Abstract #1243, IAVCEI 2017, Portland, OR.

**C. Wauthier**, B. Smets, A. Hooper, N. d'Oreye, F. Kervyn, Steady-rate and long-term ground deformation associated with dry gas vents in the Lake Kivu area, Dem. Rep. Congo, Abstract #1099, IAVCEI 2017, Portland, OR.

K. Stephens\*, **C. Wauthier**, S. J. Oliva, A. Weinstein, C. Ebinger (2017), Magmatic fluid processes revealed by a joint analysis of seismic and InSAR data in an early continental rift, 2017 GeoPRISMS Theoretical and Experimental Institute on Rift Initiation and Evolution, Albuquerque, NM.

Z. Lu, F. Meyer, G. Funning, I. Johanson, **C. Wauthier**, M. Pritchard, S. Baker, E. Fielding (2017), InSAR Results from The WInSAR Consortium, Abstract #124, Fringe 2017, May 2017, Finland.

F. Delgado, S. Henderson, M. Pritchard, J. Biggs, M. Poland, **C. Wauthier**, F. Amelung, E. Sansosti, D. Arnold, S. Zoffoli, S. Ebmeier (2017), Towards a coordinated multi-satellite volcano observatory for science and hazards: The Latin America Pilot and global synthesis, Abstract #194, Fringe 2017, May 2017, Finland.

**C. Wauthier**, K. Stephens\*, S. J. Oliva, A. Weinstein, C. Ebinger (2016), Magmatic fluid processes revealed by a joint analysis of seismic and InSAR data in an early continental rift, Abstract #T51C-2928, 2016 AGU Annual Meeting, San Francisco, CA.

V. Pankratius, J. Pilewskie, J. Li, C. Rude, N. Bechor, T. Herring, **C. Wauthier** (2016), Computer-Aided Discovery Tools for Volcano Deformation Studies with InSAR and GPS, Abstract #IN23B-1774, 2016 AGU Annual Meeting, San Francisco, CA.

K. Wnuk\*, **C. Wauthier** (2016), Temporal evolution of surface deformation and magma sources at Pacaya Volcano, Guatemala revealed by InSAR, Abstract #V53C-3116, 2016 AGU Annual Meeting, San Francisco, CA.

S. Moore\*, **C. Wauthier** (2016), M. P. Poland, Y. Fukushima, Modelling of February 1993 intrusion seen by JERS-1 satellite, Kīlauea Volcano, Hawaii, Abstract #V53A-3068, 2016 AGU Annual Meeting, San Francisco, CA.

D. Roman, La Femina P., M. Feineman, A. Saballos, C. Connor, L. Connor, T. Dixon, E. Gallant, H. Geirsson, C. Glover, J. Rinehart, A. Ruiz, W. Strauch, V. Tenorio, M. Navarro, **C. Wauthier**, P. Webley, K. Wnuk\*, M. Fend, G. Mattioli, M. Perez (2016), Multidisciplinary Studies of the 2015-2016 Eruption of Momotombo Volcano, Nicaragua, Abstract #V43A-3131, 2016 AGU Annual Meeting, San Francisco, CA.

K. Wnuk\*, S. Moore\*, K. Stephens\*, **C. Wauthier** (2016), Satellite Geodesy Unravels Volcanic, Magmatic and Seismic Processes, Penn State Research Days, 6 October 2016.

S. Moore\*, **C. Wauthier**, M. P. Poland, Y. Fukushima (2016), BEM modelling of February 1993 intrusion seen by JERS-1 satellite, Kīlauea Volcano, Hawaii, Abstract #285290, 2016 GSA Annual Meeting, Denver, Colorado.

Z. Lu, F. Meyer, G. Funning, I. Johanson, **C. Wauthier**, M. Pritchard, Scott Baker, WInSAR members (2016), InSAR results from the WInSAR Consortium, Abstract #556, Living Planet Symposium 2016, 9-13 May 2016, Prague, Czech Republic.

**C. Wauthier**, B. Smets and D. Keir (2016), Diking-induced moderate-magnitude earthquakes on a youthful rift border fault: The 2002 Nyiragongo-Kalehe sequence, D.R. Congo, Abstract #1219, Living Planet Symposium 2016, 9-13 May 2016, Prague, Czech Republic.

**C. Wauthier**, D. Roman, M. Poland (2016), Magma-tectonic interactions at Kīlauea volcano inferred from a joint analysis of geodetic and seismic data, Abstract #1179, Living Planet Symposium 2016, 9-13 May 2016, Prague, Czech Republic.

K. Wnuk\*, **C. Wauthier** (2016), InSAR analysis of surface deformation at Pacaya Volcano, Guatemala,

Abstract #1170, Living Planet Symposium 2016, 9-13 May 2016, Prague, Czech Republic.

K. Wnuk\*, **C. Wauthier** (2015), InSAR time series analysis of surface deformation Pacaya, Guatemala, Abstract #270167, 2015 GSA Annual Meeting, 1-4 November 2015, Baltimore, Maryland, USA.

**C. Wauthier**, D. Roman, M. Poland (2015), Magma-tectonic interactions in Kilauea's Southwest Rift Zone in 2006 through coupled geodetic/seismological analysis, Abstract #V43B-3139, *2015 AGU Fall Meeting*, 14-18 December 2015, San Francisco, California.

M. Pritchard, F. Delgado, J. Biggs, D. Arnold, M. Poland, S. Ebmeier, **C. Wauthier**, K. Wnuk, A. Parker, F. Amelung, E. Sansosti, P. Mothes, L. Lara, S. Zoffoli, V. Aguilar (2015), Linking space observations of ground deformation to volcano observatories in Latin America: Results from the CEOS DRM Volcano Pilot, Abstract #PA41B-2169, *2015 AGU Fall Meeting*, 14-18 December 2015, San Francisco, California.

K. Wnuk\*, **C. Wauthier**, P. LaFemina, H. Geirsson, A. Saballos, Remote Sensing and Stress Transfer Analysis Study of Volcano-Tectonic Interactions in Central America, abstract #138, session P2, *Fringe 2015*, March 2015, Rome, Italy.

**C. Wauthier**, D. Roman, M. Poland, A. Miklius, A. Hooper, Y. Fukushima, V. Cayol (2015), Magma-Tectonic Processes in Kilauea's Upper Rift Zones Revealed by the Modeling of Geodetic and Volcano-Tectonic Seismic Datasets, abstract #135, session 4.2.2: Applications: Volcanoes (2), *Fringe 2015*, March 2015, Rome, Italy.

**C. Wauthier**, D. Roman, M. Poland, A. Miklius, Y. Fukushima, A. Hooper and V. Cayol (2014), Deformation Sources in Kilauea's Southwest Rift Zone Inferred from the Modeling of Geodetic and Seismic Data, *2014 AGU Fall Meeting*, 15-19 December 2014, San Francisco, California.

**C. Wauthier**, D. Roman, M. Poland, A. Miklius, A. Hooper, Y. Fukushima and V. Cayol (2013), Magma-tectonic interactions at Kilauea volcano revealed by the modeling of geodetic and seismic data, *2013 AGU Fall Meeting*, 9-13 December 2013, San Francisco, California.

V. Cayol, **C. Wauthier**, F. Kervyn, N. d'Oreye (2013), Magma assisted extension in an immature continental rift, based on InSAR observations of Nyamuragira and Nyiragongo Volcanoes, *AVCOR – Active Volcanism & Continental Rifting with special focus on the Kivu rift zone*, November 12, 2013, Gisenyi, Rwanda.

**C. Wauthier**, D. Roman, M. Poland (2013), Geodetic and seismic models of the 2007 May 24 earthquakes at Kilauea Volcano, Hawai'i, *2013 IAVCEI*, 20-24 July 2013, Kagoshima, Japan.

**C. Wauthier**, D. Roman, M. Poland, A. Miklius, A. Hooper, Y. Fukushima, V. Cayol (2013), Modeling the behavior of Kilauea's southwest rift zone using InSAR, GPS, and seismic data, *2013 IAVCEI*, 20-24 July 2013, Kagoshima, Japan.

**C. Wauthier**, D. Roman, M. Poland, Y. Fukushima, A. Hooper (2012), Dynamics of Kilauea's Magmatic System Imaged Using a Joint Analysis of Geodetic and Seismic Data, #G43A-0917, *2012 AGU Fall Meeting*, 3-7 December 2012, San Francisco, California.

D. Roman and **C. Wauthier** (2012), Intermediate-term seismic precursors to the 2007 Father's Day intrusion and eruption at Kilauea Volcano, Hawai'i, #V53B-2824, *2012 AGU Fall Meeting*, 3-7 December 2012, San Francisco, California.

d'Oreye N, F. Albino, V. Cayol, P. Gonzalez, F. Kervyn, S. Samsonov, B. Smets, **C. Wauthier**, L.M. Bagalwa, N Mashagiro , A. Muhindo, M. Syauswa (2012), Volcano monitoring in the Virunga Volcanic Province, DR Congo, *Abstract presented at GeoPRISMS Planning Workshop for the East African Rift System* in Morristown, NJ, USA, October 24-27 2012.

C. **Wauthier**, V. Cayol, F. Kervyn, and N. d'Oreye (2012), Magma sources involved in the 2002 Nyiragongo eruption, as inferred from an InSAR analysis, *Abstract presented at GeoPRISMS Planning Workshop for the East African Rift System* in Morristown, NJ, USA, October 24-27 2012.

C. **Wauthier**, V. Cayol, F. Kervyn, and N. d'Oreye (2012), Magma sources involved in the 2002 Nyiragongo eruption, as inferred from an InSAR analysis, *Abstract presented at AGU Chapman Conference on Hawaiian Volcanoes: from Source to Surface*, 2012.

D. Roman and C. **Wauthier** (2012), Intermediate-term seismic precursors to the 2007 Father's Day intrusion and eruption at Kilauea volcano, Hawai'i, Magma sources involved in the 2002 Nyiragongo eruption, as inferred from an InSAR analysis, *Abstract presented at AGU Chapman Conference on Hawaiian Volcanoes: from Source to Surface*, 2012.

C. **Wauthier**, V. Cayol, F. Kervyn, N. d'Oreye (2011), InSAR Applied to the Study of the Lake Kivu area (DRC), 14 October 2011, *Abstract presented at the Geosciences meeting*, B11, University of Liege.

C. **Wauthier**, V. Cayol, F. Kervyn, N. d'Oreye (2011), Nyiragongo Volcano 2002 Eruption, as Constrained by Multibeam InSAR Data, *Abstract presented at the William Smith Meeting 2011: Remote sensing of volcanoes & volcanic processes: integrating observation & modelling*, 04 October 2011, London.

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### Outreach

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