

# Christelle Wauthier

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Department of Geosciences and

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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  
Associate Director, 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

S. Poppe\*, C. Wauthier, K. Fontijn, Laboratory volcano geodesy: Inversion of analogue magma-induced surface displacements (2024), *Geophysical Research Letters*, 51, e2023GL106805, <https://doi.org/10.1029/2023GL106805>

J. Gonzalez Santana\*, C. Wauthier, G. Waite (2024), The 2021 eruption of Pacaya Volcano, Guatemala – geophysical analysis through satellite geodesy and seismic noise correlations, *Journal of Volcanology and Geothermal Research*, <https://doi.org/10.1016/j.jvolgeores.2024.108027>

Y. C. Lin, E. Lev, R. Mukerji, T. Fischer, C. Connor, W. Stovall, M. Poland, A. Lezzi, **C. Wauthier**, J. Gonzalez Santana\*, S. Wolf, T. Kasali (2023), Lessons Learned from the 2022 CONVERSE Monogenetic Volcanism Response Scenario Exercise, *Volcanica*, <https://doi.org/10.30909/vol.06.02.345366>

P-Y. Tournigand, B. Smets, K. Laxton, A. Dille, L. France, G. Chazot, C. Ho\*, **C. Wauthier**, E. J. Nicholson, C. Happe Kasanzu, M. Msechu, M. Kervyn (2023), Remote volcano monitoring using crowd-sourced imagery and Structure-from-Motion photogrammetry: a case study of Oldoinyo Lengai's active pit crater since the 2007-08 paroxysm, *Journal of Geothermal and Volcanological Research*, <https://doi.org/10.1016/j.jvolgeores.2023.107918>

K. Cooper, K. Anderson, K. Cashman, M. Coombs, H. Dietterich, T. Fischer, B. Houghton, I. Johanson K. J. Lynn, M. Manga, **C. Wauthier** (2023), Coordinating Science During an Eruption: Lessons from the 2020-2021 Kīlauea Volcanic Eruption, *Bulletin of Volcanology*, <https://doi.org/10.1007/s00445-023-01644-1>

D. Walwer\*, **C. Wauthier**, J. Barriere, D. Smittarello, B. Smets, N. d'Oreye (2023), Modeling the intermittent lava lake drops occurring between 2015 and 2021 at Nyiragongo volcano, *Geophysical Research Letters*, <https://doi.org/10.1029/2022GL102365>

M. E. Pritchard, M. Poland, K. Reath, B. Andrews, M. Bagnardi, J. Biggs, S. Carn, D. Coppola, S.K. Ebmeier, M.A. Furtney, T. Girona, J. Griswold, T. Lopez, P. Lundgren, S. Ogburn, M. Pavolonis, E. Rumpf, G. Vaughan, **C. Wauthier**, R. Wessels, R. Wright, K.R. Anderson, M.G. Bato, and A. Roman (2023), Optimizing satellite resources for the global assessment and mitigation of volcanic hazards—Suggestions from the USGS Powell Center Volcano Remote Sensing Working Group, *U.S. Geological Survey Scientific Investigations Report 2022–5116*, 69 p., <https://doi.org/10.3133/sir20225116>

D. Smittarello, B. Smets, J. Barrière, C. Michellier, A. Oth, T. Shreve, R. Grandin, N. Theys, H. Brenot, V. Cayol, P. Allard, C. Caudron, O. Chevrel, F. Darchambeau, P. de Buyl, L. Delhaye, D. Derauw, G. Ganci, H. Geirsson, E. Kamate Kaleghetso, J. Kambale Makundi, I. Kambale Nguomoja, C. Kasereka Mahinda, M. Kervyn, C. Kimanuka Ruriho, H. Le Mével, S. Molendijk, O. Namur, S. Poppe, M. Schmid, J. Subira, **C. Wauthier**, M. Yalire, N. d'Oreye, F. Kervyn & A. Syavulisembo Muhindo (2022), Precursor-free eruption triggered by edifice rupture at Nyiragongo volcano, *Nature*, 609, 83-88, <https://doi.org/10.1038/s41586-022-05047-8>

J. Gonzalez Santana\*, **C. Wauthier**, and M. Burns\*\* (2022), Links between volcanic activity and flank creep behavior at Pacaya Volcano, Guatemala, *Bulletin of Volcanology*, <https://doi.org/10.1007/s00445-022-01592-2>

S. J. Oliva, C. J. Ebinger, E. Rivalta, C. A. Williams, **C. Wauthier**, C. Currie (2022), State-of-stress and stress rotations: Quantifying the role of surface topography and subsurface density contrasts in magmatic rift zones (Eastern Rift, Africa), *Earth and Planetary Sciences Letters*, <https://doi.org/10.1016/j.epsl.2022.117478>

K. Stephens\*, **C. Wauthier** (2022), Spatio-temporal Evolution of the Magma Plumbing System at Masaya Caldera, Nicaragua, *Bulletin of Volcanology Special Issue: Open-vent volcanoes*, <https://doi.org/10.1007/s00445-022-01533-z>

J. Leeburn\*, **C. Wauthier**, E. Montgomery-Brown (2022), New insights on faulting and intrusion processes during the June, 2007, East Rift Zone eruption of Kīlauea Volcano, Hawai'i, *Journal of Volcanology and Geothermal Research*, <https://doi.org/10.1016/j.jvolgeores.2021.107425>

- M. Higgins, P. LaFemina, J.C. Weber, G.A. Ryan, H. Geirsson, **C. Wauthier** (2021), Strain Partitioning and Interseismic Fault Behavior Along the Caribbean-South American Transform Plate Boundary, *Tectonics*, <https://doi.org/10.1029/2021TC006740>
- 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*. <https://doi.org/10.1016/j.isprs.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*. <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*, <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*, <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. Avarad, 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*, <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*, <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*, <https://doi.org/10.1130/G46000.1>
- R. J. Jones, 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*, [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*, [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 volcano-tectonic earthquakes, *Geophysical Research Letters*, [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), <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*, 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*, <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*, 10.1186/s13617-018-0074-0

S. Conway\*, **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*, 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*, 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*, 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*, 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), 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, 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, 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, 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, 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, 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*, 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*, Macmillan Publishers Limited, Vol. 456, pages 783-787, 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 review

F. Galetto, E. Dualeh, F. Delgado, M. Pritchard, M. Poland, S. Ebmeier, T. Shreve, J. Biggs, I. Hamling, **C. Wauthier**, J. Gonzalez Santana\*, J-L Froger, M. Bemelmans, The utility of TerraSAR-X, TanDEM-X, and PAZ for studying global volcanic activity: Successes, challenges, and future prospects, *Resubmitted (minor revisions) to Volcanica on 12 March 2024*

Gonzalez-Santana J.\*, **C. Wauthier**, J. Tung, and T. Masterlark, The effect of edifice aspect ratio, detachment fault geometry and intrusion depth on the development of magma-driven volcanic flank instability, *Revising to Resubmit to Journal of Geophysical Research – Solid Earth in 2024*

**C. Wauthier** and C. Ho\*, Satellite geodesy unveils a decade of summit subsidence at Ol Doinyo Lengai Volcano, Tanzania, *Resubmitted (major revisions) to Geophysical Research Letters on 20 April 2024*

D. Walwer\*, J. Gonzalez Santana\*, **C. Wauthier**, M. Ghil, E. Calais, Multichannel singular spectrum analysis of InSAR datasets: data-adaptive interpolation and decomposition of Sentinel-1 time series at Pacaya Volcano, Guatemala, *Revising to Resubmit to Journal of Geophysical Research – Solid Earth in 2024*

R. C. Bussard, J. Dufek, **C. Wauthier**, M. Townsend, Quantifying the Effects of Volcano Snow Cover on InSAR Coherence using a Computationally Inexpensive Neural Network, Submitted to *Geophysical Research Letters on 19 April 2024*

## 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)  |
| 2020-2024 | National Aeronautics and Space Administration (NASA) Earth Surface & Interior (ESI) (80NSSC20K0490): “Geophysical Imaging of Flank Instability and Magma Processes at Pacaya Volcano, Guatemala” (role: Lead PI)                                |
| 2022-2024 | National Science Foundation (NSF) Geophysics (EAR 2151005): “Collaborative Research: Constraining transient magma intrusion processes in the Nyiragongo-Kivu continental rift zone” (role: Co-PI)   |
| 2023-2024 | Penn State College of Earth and Mineral Sciences Resubmit Research Grant: “Automatic Detection of Surface Deformation and Atmospheric Characteristics Using Deep Learning” (role: single PI)  |
| 2022-2023 | National Science Foundation (NSF) Geohazards Track I - Center Catalyst (EAR 2223911): “The CONVERSE Center: CONverging on Volcanic ERuption Science with Equity” (role: Principal Scientist)  |
| 2021-2023 | Penn State College of Earth and Mineral Sciences Associate Professor “Pump-Up” award: “Let it slide: Physics-based models of landslides” (role: single PI)  |
| 2020-2023 | National Aeronautics and Space Administration (NASA) FINESST (80NSSC20K1632): “Modeling sources of flank displacement and their impact on slope stability at Pacaya Volcano, Guatemala” (Role: PI and FI Student: Judit Maria Gonzalez Santana) |
| 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)                    |
| 2019-2023 | 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.

2017-2022 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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- Spring 2024 Volcanoes! (GEOSC 30), The Pennsylvania University, USA
- Fall 2023 Natural Disasters: Hollywood versus Reality (EARTH 101), The Pennsylvania University, USA
- Spring 2022 Yes, volcanoes experience slow-slip events and creep too! Are they analogous to subduction zones processes? (GEOSC 597), The Pennsylvania University, USA
- Fall 2021 Natural Disasters: Hollywood versus Reality (EARTH 101), 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

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## Supervision

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- **Total Number of Undergraduate Students Advised: 7**
  - Huiwen (Lucy) Chen (B.S. in Geosciences, 2016-2018, Penn State)
  - Cassidy Ulmer (B.S. in Geosciences, 2016-2018, Penn State)
  - Rebecca Bussard (B.S. in Physics, 2017-2019, Penn State)
  - Michelle Burns (B.S. in Geosciences, 2020-2021, Penn State)
  - Elizabeth Johnson (B.S. in Geosciences, 2022-Present, Penn State)
  - Grace Roti (B.S. in Geosciences, 2020-Present, Penn State)
  - Heriberto Patino Luna (B.S. in Geology, 2022-Present, University of Wisconsin-Whitewater): Summer Research Opportunities Program (SROP) at Penn State in 2024
  
- **Total Number of Graduate Students Advised: 8**
  - Kendall Wnuk (M.S. 2014-2016, Penn State)
  - Sarah Conway (M.S. 2015-2017, Penn State)
  - Jeffrey Leeburn (M.S. 2018-2020, Penn State)
  - Kirsten Stephens (Ph.D. 2016-2021, Penn State)
  - Judit Gonzalez Santana (Ph.D. 2017-2023, Penn State)
  - Cristy Ho (M.S. 2021-2023, Penn State)
  - Young Cheol Kim (Ph.D. 2021-present, Penn State)
  - Wan Ki (Arthur) Lo (Ph.D. 2024-present, Penn State)
  
- **Total Number of Postdoctoral Students Advised: 3**
  - Jian Sun (2019-2020, Penn State)
  - Sam Poppe (2019-2020, Penn State)
  - Damian Walwer (2021-2023, Penn State)

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## Synergistic Activities – Professional Service

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- President-Elect of the American Geophysical Union, Natural Hazards Focus Group since 2023.
- Mentor for URISE/RESESS EarthScope intern in 2024.
- Associate Director of the Institute for Computational and Data Sciences (ICDS) at Penn State since 1 April 2024
- Mentor for Summer Research Opportunities Program (SROP: eight-week research program designed to interest talented undergraduate students from underrepresented groups in academic careers and to

enhance their preparation for graduate study through intensive research experiences with faculty mentors) in 2024.

- Mentor for Mentoring365 Live since 2023.
- Faculty advisor for the Penn State Geosciences club since 2023.
- Penn State Institutional representative for EarthScope since 2022.
- 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 numerous National Science Foundation (NSF) Geophysics and NASA ESI an CSDA proposal review panels.
- Convener for AGU 2023: Session V22. Ocean Island Volcanoes: From Quiescence through Eruption, 11-15 December 2023, San Francisco, CA, USA.
- Convener for AGU 2023: Session NH33. Applications of AI/ML Using Remote Sensing, 11-15 December 2023, San Francisco, CA, USA.
- Principal scientist member of the NSF Catalyst Geohazards Center (track 1): The CONVERSE Center: CONverging on Volcanic ERuption Science with Equity, 2022-2023.
- NSF RCN: Member of the Community Network for Volcanic Eruption Response (CONVERSE) steering committee in 2018-2022: <https://volcanoreponse.org/>
- Member of Hawaii eruptions response Science Advisory Committee (K-SAC / H-SAC), 2020-2023.
- 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, and 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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| April 2024   | “Imaging deformation processes in areas prone to natural hazards with satellite geodesy”,<br>Saint Louis University , Saint Louis, USA |
| January 2024 | “Nature's Slide Show: Characterizing Volcanic Landslide Behavior”,   |

- ERC TECTONIC / FEAR Seminars on Earthquake Physics: Learning from lab earthquake prediction and underground fault stimulation to improve forecasts of tectonic fault activation, [https://www.youtube.com/@tectonic\\_erc\\_marone](https://www.youtube.com/@tectonic_erc_marone)
- October 2023 “Unveiling Nature's Slide Show: Characterizing Volcanic Landslide Behavior”, Geosciences Department Colloquium, Penn State, USA
- October 2023 “Unveiling Nature's Slide Show: Characterizing Volcanic Landslide Behavior”, Pittsburg University, USA
- August 2023 “Signal extraction and characterization from geodetic datasets using AI approaches”, SZ4D Virtual Workshop on ML/AI, <https://www.sz4d.org/workshop-ml-ai-2023>
- February 2023 “Let It Slide: Characterization of Slip Behavior for Volcanic Landslides”, University of Hawaii, Manoa, USA
- September 2022 “Let It Slide: characterization of slip behavior for volcanic landslides”, Michigan Tech University, USA
- 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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- October 2022 – March 2023      **Kīlauea and Mauna Loa volcanoes**  
 Monitoring of lava flows and lava lake photogrammetry  
 Geodetic modeling of magmatic and seismic processes during that period at HVO  
 Hawaiian Volcano Observatory, Hilo, Hawaii, USA
- March 2022      **Pacaya Volcano, Guatemala**  
 Offered InSAR training at INSIVUMEH  
 Fieldwork: rock sample and topography imaging using TRI.
- December 2015 – January 2016      **Pacaya and Santiaguito volcanoes, Guatemala**  
 Fieldwork and InSAR/modeling studies
- August – September 2012      **Kīlauea volcano**  
 Fieldwork at Kīlauea 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)

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## Skills

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

Informatics:     **Image Processing:** ENVI  
**GIS:** QGIS, ArcGIS, MAPINFO, Idrisi  
**Programming:** MATLAB, Shell/Unix 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 change calculations)

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## List of Other Publications

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

\*\* denotes author is an undergraduate 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\*, **C. Wauthier**, S. Tung, T. Masterlark (2023), Numerical Modeling Investigation of the Influence of Edifice Slope, Receiver Fault Geometry, Dike Depth, and Buttressing on the Development of Magma-driven Volcanic Flank Instability, American Geophysical Union 2023, San Francisco USA.

Y. Cheol Kim\*, **C. Wauthier** (2023), Pre-collapse Long-term Ground Motion Analysis at Anak Krakatau, Indonesia, using Time-series InSAR, American Geophysical Union 2023, San Francisco USA.

R. Bussard, J. Dufek, M. Townsend, **C. Wauthier** (2023), Discerning the Cause of Multi-Decadal Subsidence Across the Edifice at Medicine Lake Volcano using Sentinel-1 InSAR Deformation Time-Series, a Bayesian MCMC Model Framework, and a Stochastic Dike Emplacement Thermal Model, American Geophysical Union 2023, San Francisco USA.

J. Gonzalez Santana\*, **C. Wauthier** (2023), Contrasting Radar Satellite Platform Performance for the Investigation of Surface Changes and Ground Displacements During the 2021 Eruption of Pacaya Volcano, Guatemala, American Geophysical Union 2023, San Francisco USA.

D. Murekezi, A. Vern Newman, K. D Murray, **C. Wauthier**, C. J Ebinger, J. Gonzalez Santana\*, P. Lundgren, T. Niyetegeka, E. Mudakikwa (2023), Time Series Analysis of Transient Deformation and Magmatism in the Kivu Rift, Western Branch of the East African Rift System, American Geophysical Union 2023, San Francisco USA.

K. M. Cooper, K. R. Anderson, K. V. Cashman, M. L. Coombs, H. R. Dieterich, T. P. Fischer, B. F. Houghton, I. A. Johanson, K. J. Lynn, M. Manga, **C. Wauthier** (2023), Coordinating Science During an Eruption With Scientific Advisory Committees: How Can We Improve?, American Geophysical Union 2023, San Francisco USA.

M. E Pritchard, F. Galetto, E. Warsame Dualeh, S. K Ebmeier, M. P. Poland, J. Biggs, F. Delgado, I. J. Hamling, T. Shreve, **C. Wauthier**, J. Gonzalez Santana\*, J-L Froger (2023), The utility of commercial satellite data for studying global volcanic activity: Successes, challenges, and future prospects, American Geophysical Union 2023, San Francisco USA.

J. Gonzalez Santana\*, **C. Wauthier** (2023), Characterization of flank deformation and concurrent volcanic unrest styles at Pacaya Volcano, Guatemala, IAVCEI 2023 Scientific Assembly, Rotorua, New Zealand.

- T. Fischer, S. Moran, K. Cooper, E. Lev, **C. Wauthier**, Y. Lin, C. Connor, B. Andrews, B. Houghton, P. Lundgren, A. Iezzi, W. Stovall, M. Poland (2023), CONVERSE: A Community Network for Volcanic Eruption Response, IAVCEI 2023 Scientific Assembly, Rotorua, New Zealand.
- B. Bussard, J. Dufek, M. Townsend, **C. Wauthier** (2023), Combining InSAR and thermal modeling to constrain the cause of multi decadal subsidence at Medicine Lake Volcano, IAVCEI 2023 Scientific Assembly, Rotorua, New Zealand.
- E. Kraus, G. Sullivan, T. Niyetegeka, A. Uwasempabuka, M. Musila, D. Murekezi, A. Newman, C. J. Ebinger, S. Naif, **C. Wauthier** (2022), Seismic Imaging of a Weakly Extended Magmatic Rift Zone: the Kivu Rift Project, American Geophysical Union, San Francisco USA.
- C. Ho\* and **C. Wauthier** (2022), Magmatic Processes in the Naibor Soito Distributed Volcanic Field, Tanzania Constrained from Satellite Geodesy and Seismicity, American Geophysical Union 2022 San Francisco USA.
- S. J. Oliva, C. J. Ebinger, E. Rivalta, C. A. Williams, **C. Wauthier**, C. A. Currie (2022), American Geophysical Union, San Francisco USA. Local state of stress and implications on subsurface rift magmatism and stress localization, American Geophysical Union 2022, San Francisco USA (**Invited**).
- T. S. Chorsi, M. S. Hastings, J. Gonzalez Santana\*, E. R. Mérida Boogher, M. Rodgers, R. Malservisi, R. Van Alphen, **C. Wauthier**, and T. H Dixon (2022), High-resolution DEM Generation from Ground-based and Satellite Remotely Sensed Datasets – A Case Study from Pacaya Volcano, Guatemala, American Geophysical Union 2022, San Francisco USA.
- D. Murekezi, **C. Wauthier**, J. Gonzalez Santana\*, C. J. Ebinger, P. Lundgren, and A. Newman (2022), Kivu Rift Dike Intrusions: a comparison of the 2002 and 2021 Nyiragongo eruptions and associated ground deformation using InSAR data, American Geophysical Union 2022, San Francisco USA.
- E. Lev, T. Fischer, C. Connor, A. Iezzi, M. Poland, W. Stoval, Y. Lin, **C. Wauthier**, R. Mukerji, S. Wolf, J. Gonzalez Santana\* (2022), The 2022 southwestern US distributed volcanism scenario exercise, Cities On Volcanoes 2022.
- D. Smittarello, J. Barrière, N. d'Oreye, B. Smets, A. Oth, T. Shreve, J. Subira, B. Mafuko Nyandwi, V. Cayol, R. Grandin, **C. Wauthier**, D. Derauw, H. Geirsson, N. Theys, F. Darchambeau, S. Poppe, P. Allard, C. Caudron, P. Lesage, S. V Samsonov, L. Delhaye, O. M. Chevrel, N. Mashagiro, A. Muhindo Syavulisembo, and F. Kervyn (2022), Propagation and arrest of the dike during the May 2021 eruption of Nyiragongo volcano, Cities On Volcanoes 2022.
- J. Gonzalez-Santana\*, **C. Wauthier**, and M. Burns\*\* (2022), A conceptual model for the initiation of flank creep at Pacaya Volcano, Guatemala, Abstract # EGU22-5239, EGU 2022.
- S. Poppe\*, **C. Wauthier**, K. Fontijn (2022), Elastic vs. plastic: Inversion of analogue magma-induced surface displacements in granular materials in laboratory experiments, Abstract #EGU22-4902, EGU 2022.
- P-Y. Tournigand, B. Smets, K. Laxton, A. Dille, M. Dalton-Smith, G. Schachenmann, M. Kervyn, **C. Wauthier** (2022), Morphological evolution of volcanic crater through eruptions and instabilities: The case of Ol Doinyo Lengai since the 2007-08 eruption, Abstract #EGU22-4522, EGU 2022.

D. Smittarello, J. Barrière, N. d'Oreye, B. Smets, A. Oth, T. Shreve, J. Subira, B. Mafuko Nyandwi, V. Cayol, R. Grandin, **C. Wauthier**, D. Derauw, H. Geirsson, N. Theys, F. Darchambeau, S. Poppe, P. Allard, C. Caudron, P. Lesage, S. V Samsonov, L. Delhayé, O. M. Chevrel, N. Mashagiro, A. Muhindo Syavulisembo, and F. Kervyn (2022), Structural failure and shallow dike intrusion at Nyiragongo volcano (D.R Congo), Abstract #EGU22-2704, EGU 2022.

M. Higgins, P. LaFemina, J. C. Weber, H. Geirsson, G. A. Ryan, **C. Wauthier** (2021), Strain Partitioning and Interseismic Fault Behavior Along the Caribbean-South American Transform Plate Boundary, AGU 2021.

B. Smets, J. Barrière, C. Caudron, V. Cayol, N. d'Oreye, L. Delhayé, R. Grandin, E. Kamathe Kaleghetso, S. Molendijk, C. Kasereka Mahinda, A. Muhindo Syavulisembo, O. Namur, A. Oth, S. Poppe, D. Smittarello, J. Subira, N. Theys, **C. Wauthier**, and F. Kervyn (2021), Magma reservoir failure at open-vent volcanoes: lessons learned from Nyiragongo volcano, Democratic Republic of Congo, Abstract #961592, AGU 2021.

D. Murekezi, A. Vern Newman, **C. Wauthier**, C. J Ebinger, J. Maria Gonzalez Santana\*, and P. Lundgren (2021), Initial Geophysical characterization of crustal deformation following the May 2021 Nyiragongo eruption and GPS network design for continued study, Abstract #915215, AGU 2021.

J. Gonzalez-Santana\*, **C. Wauthier**, and M. Burns\*\* (2021), Contrasting Flank Instability Behaviors and Volcanic Activity Styles at Pacaya Volcano, Guatemala, Abstract #872766, AGU 2021.

D. Smittarello, J. Barrière, N. d'Oreye, B. Smets, A. Oth, T. Shreve, J. Subira, B. Mafuko Nyandwi, V. Cayol, R. Grandin, **C. Wauthier**, D. Derauw, H. Geirsson, N. Theys, F. Darchambeau, S. Poppe, P. Allard, C. Caudron, P. Lesage, S. V Samsonov, L. Delhayé, O. M. Chevrel, N. Mashagiro, A. Muhindo Syavulisembo, and F. Kervyn (2021), Propagation and arrest of the May 2021 lateral dike intrusion at Nyiragongo (D.R. Congo), Abstract #854944, AGU 2021.

D. Walwer\*, **Wauthier C.**, Gonzalez-Santana J., Calais, E., Ghil, M. (2021), A Data-adaptive Toolbox Based on Multichannel Singular Spectrum Analysis (M-SSA) to Fill Gaps in and Extract Geological Signals From InSAR Time Series, Abstract #865549, AGU 2021.

J. Gonzalez-Santana\* and **C. Wauthier** (2021), Flank instability and magma-faulting interactions at Pacaya Volcano, Guatemala, Volcano-tectonic links research symposium, Online talk.

J. Gonzalez-Santana\* and **C. Wauthier** (2021), Detection of Slow Flank Creep at Pacaya Volcano Through InSAR Time-series Analysis, Virtual poster ID 553, FRINGE 2021.

Ebmeier, Susanna; Poland, Mike; Pritchard, Matt; Biggs, Juliet; Hamling, Ian; Aoki, Yosuke; Delgado, Francisco; Albino, Fabien; Dualeh, Edna; Bemelmans, Mark; Espin Bedon, Pedro; Grandin, Raphael; Lundgren, Paul; **Wauthier, Christelle**; Amelung, Falk; Shreve, Tara; Danzeglocke, Jens; Zoffoli, Simona (2021), The CEOS Volcano Demonstrator for Latin America, Southeast Asia, and Africa: Overview and early results, FRINGE 2021.

K.J. Stephens\* and **C. Wauthier** (2021), From Source To Surface: A Case Study Of The Masaya Central Reservoir Using Long-Term Multi-Dataset InSAR Measurements, FRINGE 2021.

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\*, 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, Kilauea 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 Kīlauea'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 Kīlauea'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 Kīlauea'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 Kīlauea 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.

E. Sansosti, G. Zeni, A. Pepe, G. Solaro, N. d'Oreye, **C. Wauthier**, F. Kervyn, S. Samsonov, J. Fernández, and P. Tizzani (2011), Analysis of tectonic and magmatic activity at Virunga volcanic Province (Congo) revealed by SBAS-DInSAR analysis, *Abstract presented at EGU2011-11243, Session TS4.1/G3.4/GMPV27/SM2.10, H, No. XL317*, April 2011, Vienna.

**C. Wauthier**, V. Cayol, F. Kervyn, N. d'Oreye (2011), Nyiragongo Volcano 2002 Eruption Constrained by Multibeam InSAR Data”, *Abstract presented at EGU General Assembly 2011-8670, Session GMPV10/G3.11/NH2.7/TS1.8*, April 2011, Vienna.

F. Kervyn, B. Smets, **C. Wauthier**, L. André, D. Delvaux, P. Trefois, J. Moeyersons (2011), Towards an integrated approach for the hazard assessment in the Kivu. The experience of the RMCA in the East African rift, *Abstract presented at the workshop on "Tropical Rift Lake Systems: Integrated Volcanologic, Tectonic, and Biogeochemical, and Geohazard Assessment of Lake Kivu"*, January 2011, Gisenyi, Rwanda.

**C. Wauthier**, V. Cayol, A. Hooper, F. Kervyn, P. Marinkovic, N. d'Oreye, M. P. Poland, B. Smets (2010), Activity of Nyiragongo and Nyamulagira Volcanoes (Dem. Rep. of Congo) Revealed Using Geological, Geophysical and InSAR data, *Abstract G21D-05 presented at 2010 Fall Meeting*, AGU, San Francisco, Calif., 13-17 Dec, 2010.

V. Cayol, **C. Wauthier**, N. d'Oreye, F. Kervyn, G Team, InSAR Displacements Associated with The November 2006 and January 2010 Nyamulagira Eruptions, *Abstract V32B-04 presented at 2010 Fall Meeting*, AGU, San Francisco, Calif., 13-17 Dec, 2010.

B. Smets, M. Kervyn, F. Kervyn, N. d'Oreye, **C. Wauthier** (2010), New insights into eruptive activity and lava flow hazard at Nyamulagira volcano, D.R.C., from a new GIS-based lava flow map, *Abstract V11C-2288 presented at 2010 Fall Meeting*, AGU, San Francisco, Calif., 13-17 Dec, 2010.

**C. Wauthier**, A. Hooper, E. Sansosti, G. Zeni, A. Pepe, N. d'Oreye, Study of the Nyiragongo – Nyamulagira Area (Dem. Rep. of Congo) by Means of Multi-Temporal InSAR Approaches: Comparison of the Stamps (TU Delft) and SBAS (IREA) methods (2010), *Abstract presented at Cities on Volcanoes 6 – Tenerife 2010*, Session-1.4, CoV6/1.4/P/06.

B. Smets, **C. Wauthier**, N. d'Oreye, The Combined Use of Multispectral and Radar Satellite Images to Map the Lava Flow Field of Nyamulagira (North Kivu, D.R.C.), *Abstract presented at Cities on Volcanoes 6 – Tenerife 2010*, Session-1.4, CoV6/1.4/P/07.

K. Karume, D. Kavotha, F. Kervyn, F. Lukaya, N. d'Oreye, L. Bagalwa, B. Smets, D. Tedesco, **C. Wauthier** and the GVO TEAM (2010), Description of the January 2010 Eruption of Nyamulagira (North Kivu, D.R. Congo), *Abstract V11C-2288 presented at Cities on Volcanoes 6 – Tenerife 2010*, Session-4.1, CoV6/4.1/P/02.

V. Cayol, **C. Wauthier**, N. d'Oreye, F. Kervyn (2010), GVO TEAM, INSAR Displacements Associated with The November 2006 and January 2010 Nyamulagira Eruptions, *Abstract V11C-2288 presented at Cities on Volcanoes 6 – Tenerife 2010*, Session-1.4, CoV6/1.4/P/05.

**C. Wauthier**, V. Cayol, F. Kervyn and N. d'Oreye (2009), The January 2002 eruption of Nyiragongo volcano (DRC) captured by InSAR, *Advances in the Science and Applications of SAR Interferometry*, ESA ESRIN, *Abstract for Fringe2009*, 30<sup>th</sup> November- 4<sup>th</sup> December 2009, Frascati, Italy.

V. Cayol, N. d'Oreye, F. Kervyn, the GVO team and **C. Wauthier** (2009), InSAR displacements associated with the November 2006 eruption of Nyamulagira, *Advances in the Science and Applications of SAR Interferometry*, ESA ESRIN, *Abstract for Fringe2009*, 30<sup>th</sup> November- 4<sup>th</sup> December 2009, Frascati, Italy.

N. d'Oreye, P.J. Gonzalez, A. Shuler, L.M. Bagalwa, G. Ekstöm, D. Kavotha, F. Kervyn, C. Lucas, F. Lukaya, E. Osodundu, A. Oth and **C. Wauthier** (2009), Was the February 2008 Bukavu seismic sequence associated with magma intrusion?, *Advances in the Science and Applications of SAR Interferometry*, ESA ESRIN, *Abstract for Fringe2009*, 30<sup>th</sup> November- 4<sup>th</sup> December 2009, Frascati, Italy.

N. d'Oreye, P.J. Gonzalez, A. Shuler, L.M. Bagalwa, G. Ekstöm, D. Kavotha, F. Kervyn, C. Lucas, F. Lukaya, E. Osodundu, A. Oth and **C. Wauthier** (2009), Was the February 2008 Bukavu seismic sequence associated with magma intrusion?, *Abstract for JLG, "Journées Luxembourgeoises de Géodynamique"*, November 9-10-11, 2009, Echternach, Luxembourg.

A.M. Oyen, **C. Wauthier**, N. d'Oreye (2009), The 2007 rifting event in Northern Tanzania studied by C and L-band interferometry, *Abstract for JLG, "Journées Luxembourgeoises de Géodynamique"*, November 9-10-11, 2009, Echternach, Luxembourg.

A-C van Overbeke, B. Smets, **C. Wauthier**, N. d'Oreye, D. Tedesco, A. Kies, P. Mitangala, M. Bagalwa, M. Yalire, F. Lukaya, D. Kavotha, E. Osodundu, J. Durieux, F. Kervyn (2009), The importance of remote-sensing in the monitoring of volcanic activity (DR of Congo): Experience from the GORISK project, *Abstract for 2009 IEEE International Geoscience & Remote Sensing Symposium*, July 13-17 2009, Cape Town, Africa.

V. Cayol, N. d'Oreye, F. Kervyn, **C. Wauthier** and the GVO Team (2009), InSAR displacements associated to the November 2006 Nyamulagira eruption, *Abstract for 2009 IEEE International Geoscience & Remote Sensing Symposium*, July 13-17 2009, Cape Town, Africa.

N. d'Oreye, E. Calais, V. Cayol, J. Fernández, C. Frischknecht, P. Gonzales, S. Heleno, F. Kervyn, P. Marinkovic, A. Oyen, **C. Wauthier** (2009), Seismic and volcanic activity in Africa monitored by InSAR, *Abstract for 2009 IEEE International Geoscience & Remote Sensing Symposium*, July 13-17 2009, Cape Town, Africa.

N. d'Oreye, F. Kervyn, E. Calais, V. Cayol, J. Fernández, C. Frischknecht, P. Gonzalez, S. Heleno, A. Oyen and **C. Wauthier** (2008), Three years of systematic ground deformation monitoring of active African volcanoes performed at the National Museum of Natural History of Luxembourg, *Abstr. Luxembourg Earth Observation Day - Remote sensing applications in hydrology*, November 19th 2008, Bourglinster, Luxembourg.

**C. Wauthier**, V. Cayol, N. D'Oreye, F. Kervyn (2008), Modelling of InSAR displacements related with the January 2002 eruption of Nyiragongo volcano (DRC), *Ab. In Proc. of IAVCEI 2008 – General Assembly*, Reykjavik, Iceland, 18-22 August 2008.

N. D'Oreye, E. Calais, J. Albaric, A. Deschamps, D. Delvaux, J. Deverchère, C. Ebinger, R. Ferdinand, F. Kervyn, A. Macheyeke, A. Oyen, J. Perrot, E. Saria, B. Smets, S. Stamps, **C. Wauthier** (2008), Dyke intrusion in a youthful continental rift revealed by InSAR: The Lake Natron (Tanzania) 2007 seismomagmatic crisis, *Ab. In Proc. of IAVCEI 2008 – General Assembly*, Reykjavik, Iceland, 18-22 August 2008

**C. Wauthier**, V. Cayol, N. D'Oreye, F. Kervyn (2007), Modelling of InSAR displacements related with the January 2002 eruption of Nyiragongo volcano (DRC), *Ab. In Proc. of 4th ESA Fringe2007 workshop*, ESA-ESRIN, Frascati, Italy, 26-30 November 2007.

N. d'Oreye, A. Oyen, **C. Wauthier**, E. Calais, V. Cayol, F. Kervyn, E. Mbede, E. Sariah (2007), The Lake Natron (Tanzania) July 2007 rifting event revealed by InSAR, *Proc. of 4th ESA Fringe 2007 workshop*, ESA-ESRIN, Frascati, Italy, 26-30 November 200

N. d'Oreye, F. Kervyn, V. Cayol, **C. Wauthier**, SAMAAV team (2007), Ground deformations associated to the Nyiragongo 2002 and the Nyamulagira 2006 eruptions (DR Congo) revealed by InSAR, *Proc. XXIV<sup>th</sup> IUGG General Assembly*, Perugia, Italy, 2-13 July 2007

N. d'Oreye, F. Kervyn, V. Cayol, **C. Wauthier**, GVO team (2007), InSAR monitoring of the Nyiragongo – Nyamuragira volcanoes (DR of Congo). Study of the Nyiragongo Nyiragongo January 2002- and Nyamulagira November 2006 eruptions, *Proc. Envisat Symposium 2007*, Montreux, Switzerland, 23-27 April 2007 (ESA SP-636, July 2007), CD-2, Session 4B4, abstract 462685do, pp1-6

### Other academic publications

**C. Wauthier** (2011), Radar Interferometry (InSAR) Applied to the Study of Active Volcanic and Seismic Areas in Africa, Ph.D. Dissertation, University of Liege, 245 pp

**C. Wauthier** (2007), Modélisation des déplacements InSAR survenus au Nyiragongo en janvier 2002, Master in Volcanology dissertation, Laboratory “Magmas et Volcans”, University Blaise-Pascal, 55 pp

**C. Wauthier** (2006), Surveillance par interférométrie radar du volcanisme actif dans le rift Est-Africain, Master in Geological Engineering thesis, University of Liege, 150 pp

### Outreach

“Scientists identify flank instability at a volcano with history of collapse”, Penn State News, by Matt Carroll (2021): <https://news.psu.edu/story/645201/2021/01/26/research/scientists-identify-flank-instability-volcano-history-collapse>

<https://www.sciencedaily.com/releases/2021/01/210126140039.htm>

“Deep learning artificial intelligence keeps an eye on volcano movements”, Penn State News, by Matt Swayne (2020): <https://news.psu.edu/story/635054/2020/10/12/research/deep-learning-artificial-intelligence-keeps-eye-volcano-movements>

[https://www.eurekalert.org/pub\\_releases/2020-10/ps-dla101520.php](https://www.eurekalert.org/pub_releases/2020-10/ps-dla101520.php)

**“Wauthier awarded NSF CAREER award to investigate volcanic flank instability”**, Penn State News, by Patricia Craig (2020):  
<https://news.psu.edu/story/629295/2020/08/24/research/wauthier-awarded-nsf-career-award-investigate-volcanic-flank>

**“Careful analysis of volcano's plumbing system may give tips on pending eruptions”**, Penn State News, by Matt Swayne (2019):  
[https://news.psu.edu/story/581728/2019/07/25/research/careful-analysis-volcano%E2%80%99s-plumbing-system-may-give-tips-pending?utm\\_source=newswire&utm\\_medium=email&utm\\_term=581762\\_HTML&utm\\_content=07-25-2019-21-07&utm\\_campaign=Penn%20State%20Today](https://news.psu.edu/story/581728/2019/07/25/research/careful-analysis-volcano%E2%80%99s-plumbing-system-may-give-tips-pending?utm_source=newswire&utm_medium=email&utm_term=581762_HTML&utm_content=07-25-2019-21-07&utm_campaign=Penn%20State%20Today)

<https://phys.org/news/2019-07-analysis-volcano-plumbing-pending-eruptions.html>

**“Childhood dream to reality: ICS co-hire and volcanologist researches her passion”**, Penn State News, by Liam Jackson (2018):  
<https://news.psu.edu/story/523975/2018/06/04/research/childhood-dream-reality-ics-co-hire-and-volcanologist-researches>

**“Wider coverage of satellite data better detects magma supply to volcanoes”**, Penn State News, by David Kubarek (2018): <http://news.psu.edu/story/512924/2018/03/28/research/wider-coverage-satellite-data-better-detects-magma-supply-volcanoes>  
<https://www.sciencedaily.com/releases/2018/03/180328130736.htm>

**“Researchers find new cause of strong earthquakes”**, Penn State News, by Liam Jackson (2016):  
<http://news.psu.edu/story/391385/2016/02/08/research/researchers-find-new-cause-strong-earthquakes>  
<http://www.asce.org/magazine/20160301-researchers-cite-magma-intrusion-as-cause-of-large-earthquake/>  
<http://www.scientificamerican.com/podcast/episode/underground-eruptions-could-cause-quakes-months-later/?print=true>  
<http://www.earthmagazine.org/article/double-trouble-volcanic-eruption-leads-strong-earthquake-eight-months-later>

**“NSF RAPID funding awarded to study erupting Momotombo volcano”**, Penn State News, by Liam Jackson (2016): [http://news.psu.edu/story/389598/2016/01/27/research/nsf-rapid-funding-awarded-study-erupting-momotombo-volcano?utm\\_source=newswire&utm\\_medium=email&utm\\_term=389689\\_HTML&utm\\_content=01-27-2016-21-29&utm\\_campaign=Penn%20State%20Today](http://news.psu.edu/story/389598/2016/01/27/research/nsf-rapid-funding-awarded-study-erupting-momotombo-volcano?utm_source=newswire&utm_medium=email&utm_term=389689_HTML&utm_content=01-27-2016-21-29&utm_campaign=Penn%20State%20Today)

**“What's beneath Hawaii's most active volcano?”**, Penn State News, by Katie Jacobs (2015):  
<http://news.psu.edu/story/346689/2015/03/02/research/whats-beneath-hawaiis-most-active-volcano>

**“People Behind the Science”** by Dr. Marie McNeely, my interview podcast (2014):  
<http://www.peoplebehindthescience.com/dr-christelle-wauthier/>

LiveScience, **“Kilauea Eruption Triggered Unusually Strong Earthquakes”** by Charles Q. Choi (2014):  
<http://www.livescience.com/42581-kilauea-eruption-triggered-earthquakes.html>

EOS Research Spotlight, “**Kīlauea magma chamber inflation triggered strong 2007 earthquakes**” by Colin Schultz (2014): <http://onlinelibrary.wiley.com/doi/10.1002/2014EO030010/abstract>

De Spiegel Online, “**Riesiger Lavasee bedroht afrikanische Großstadt**” by Axel Bojanowski (2011), <http://www.spiegel.de/wissenschaft/natur/unheimliche-kraterfotos-riesiger-lavasee-bedroht-afrikanische-grossstadt-a-745303.html>

Le Soir newspapers, “**La terre africaine s’écartèle**” by Audrey Binet (2008): [http://archives.lesoir.be/la-terre-africaine-s-8217-ecartele\\_t-20081217-00KPFU.html](http://archives.lesoir.be/la-terre-africaine-s-8217-ecartele_t-20081217-00KPFU.html)