
Publications

D. Walwer, J. Gonzalez-Santana, C. Wauthier, E. Calais, and M. Ghil. Multichannel singular spectrum analysis of InSAR datasets: data-adaptive interpolation and decomposition of Sentinel-1 time series at Pacaya volcano, Guatemala. In review for JGR.

Walwer, Damian, Christelle Wauthier, Julien Barrière, Delphine Smittarello, Benoît Smets, and Nicolas d'Oreye. Modeling the intermittent lava lake drops occurring between 2015 and 2021 at Nyiragongo volcano. Geophysical Research Letters, 50(8):e2022GL102365, 2023.

A. Montigny, **D. Walwer**, and C. Michaut. The origin of hierarchical cracks in floor-fractured craters on Mars and the Moon. Earth and Planetary Science Letters, 600:117887, 2022.

D. Walwer, M. Ghil, and E. Calais. A data-based minimal model of episodic inflation events at volcanoes. front. Earth Sci, 10:759475, 2022.

D. Walwer, C. Michaut, V. Pinel, and M. Adda-Bedia. Magma ascent and emplacement below floor fractured craters on the Moon from floor uplift and fracture length. Physics of the Earth and Planetary Interiors, 312:106658, 2021.

P. Prevost, K. Chanard, L. Fleitout, E. Calais, **D. Walwer**, Tonie T. Van Dam, and M. Ghil. Data-adaptive spatio-temporal filtering of GRACE data. Geophysical Journal International, 219(3):2034–2055, 2019.

D. Walwer, M. Ghil, and E. Calais. Oscillatory nature of the Okmok volcano's deformation. Earth and Planetary Science Letters, 506:76–86, 2019.

D. Walwer, E. Calais, and M. Ghil. Data-adaptive detection of transient deformation in geodetic networks. Journal of Geophysical Research: Solid Earth, 2016.

P. Coisson, P. Lognonné, **D. Walwer**, and L. Rolland. First tsunami gravity wave detection in ionospheric radio occultation data. Earth and Space Science, 2015.

E.A. Kherani, P. Lognonné, H. Hébert, L. Rolland, E. Astafyeva, G. Occhipinti, P. Coisson, **D. Walwer**, and E.R. De Paula. Modelling of the total electronic content and magnetic field anomalies generated by the 2011 Tohoku-Oki tsunami and associated acoustic-gravity waves. Geophysical Journal International, 2012.

Research Experience

- June 2024 to present **Postdoctoral researcher**, *JPL, Earth Science Division*, Pasadena, CA, USA
Understanding the dynamics of volcanoes: comparing the decadal evolutions of volcanoes using geodetic time series
Advisor : Paul Lundgren
- March 2021 to August 2023 **Postdoctoral researcher**, *Penn State University, Geosciences Department*, State College, PA, USA
Lava Lake dynamics at Nyiragongo/Data-adaptive analysis of InSAR time series
Advisor : Christelle Wauthier
- April 2018 to December 2020 **Postdoctoral researcher**, *École Normale Supérieure de Lyon, Geology laboratory*, Lyon, France
Magmatism associated with floor fractured craters on Mars and the Moon.
Advisor : Chloé Michaut

October 2014 to February 2018 **Phd, *École Normale Supérieure, Department of Geosciences, Paris, France***
Nonlinear dynamics of volcanic systems from geodetic time series.
Advisors : Éric Calais & Michael Ghil.

Selected Oral Communications

D. Walwer, E. Calais, M. Ghil, C. Wauthier, and J. Gonzalez Santana. M-SSA analysis of geodetic time series and implications for modeling volcano dynamics. In MIT, Geosciences departement (**Invited talk**), 2022.

D. Walwer, C. Wauthier, J. Gonzalez Santana, E. Calais, and M. Ghil. A data-adaptive toolbox based on multichannel singular spectrum analysis (M-SSA) to fill gaps in and extract geological signals from InSAR time series. In AGU Fall Meeting Abstracts, 2021.

D. Walwer, C. Michaut, V. Pinel, and M. Adda-Bedia. Magma ascent and emplacement below impact craters on the moon. In LASI VI conference, 2019.

D. Walwer, M. Ghil, and E. Calais. Oscillatory nature of the Okmok volcano's deformation. In EGU General Assembly, 2019.

D. Walwer, E. Calais, and M. Ghil. Data-adaptive analysis of geodetic time series. In MDIS conference **Invited Talk**, 2017.

Education

2012 – 2014 **M.S. in Earth and Planetary Sciences**, *Institut de physique du globe de Paris, University Paris VII, Paris, France*
Major: Geophysics.

2009 – 2012 **B.S. in Earth and Planetary Sciences**, *University Paris VII, Paris, France*

Student co-supervision

June to July 2021 **Axel Montigny (undergraduate)**, *École Normale Supérieure de Lyon, Geology laboratory, Lyon, France*
The origin of hierarchical cracks in floor-fractured craters on Mars and the Moon. (*with Chloé Michaut*)

February & June 2020 **Valentin Guiller (undergraduate)**, *École Normale Supérieure de Lyon, Geology laboratory, Lyon, France*
Voclanism and martian craters & Fractures associated to experimental analogs of intrusion emplacement. (*with Chloé Michaut*)

February & June 2020 **Magali Verkerk (undergraduate)**, *École Normale Supérieure de Lyon, Geology laboratory, Lyon, France*
Volcanism and impact craters on Venus & Stress field associated to the topography of impact craters (*with Chloé Michaut*)

Teaching

October 2014 to June 2017 **Teaching assistant**, *Department of Geosciences, Ecole Normale Supérieure, Paris, France*
Seismology - Geodesy field work in the french Alps - Heat diffusion - Earth sciences projects for undergraduate students - Rock mechanics

Skills

Numerical numerical modeling, data set management, MATLAB, Fortran, C, bash, GMT
Theoretical Solid and fluid mechanics, statistics, dynamical system theory, applied mathematics for geophysics, inverse problem
Idiom french (mother tongue), english (full professional proficiency)