

Alberto Roman, PhD

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Positions

- 2021–Present NASA Research Scientist, Jet Propulsion Laboratory, Pasadena, USA
2018–2021 NASA Postdoctoral Program (NPP) Fellow, Jet Propulsion Laboratory, Pasadena, USA
2015–2017 Postdoctoral Fellow, IPGP, Paris, France

PhD Thesis

- Title: **Emplacement and Post-Emplacement Dynamics of Magma Reservoirs**
Advisor: Claude Jaupart (IPGP)
Jury: Antonio Costa (INGV, Italy), Nicholas Arndt (IsTerre, France), Frederic Moynier (IPGP, France), Stephen Sparks (University of Bristol, UK)

Publications

- Roman, A., and Lundgren, P. (2021). Dynamics of large effusive eruptions driven by caldera collapse. *Nature*, 592(7854), 392-396.
- Roman, A., Bagnardi, M., and Lundgren P., Effects of conduit elasticity during effusive eruption. *In prep*
- Roman, A. and Arndt, N., 2019 Differentiated Archean crust: its thermal structure, mechanical stability and a test of the sagduction hypothesis. *Geochimica and Cosmochimica Acta*
- Jaupart, C., Mareschal, J. C., and Roman, A., 2018, The Formation of Continental Crust from a Physics Perspective. *Geochemistry International* 56(13), 1289-132
- Roman, A. and Jaupart, C., 2017, Post-emplacement dynamics of basaltic intrusions in the continental crust. *Journal of Geophysical Research*.
- Roman, A. and Jaupart, C., 2016, The fate of mafic and ultramafic intrusions in the continental crust. *Earth and Planetary Science Letters*, 453, pp.131-140.
- Roman, A. and Jaupart, C., 2014, The impact of a volcanic edifice on intrusive and eruptive activity. *Earth and Planetary Science Letters*, 408, pp.1-8.
- Roman, A., 2015, Emplacement and post-emplacement dynamics of magma reservoirs. *PhD Thesis* 178 pages
- Roman, A., 2011, Les dimensions d'un dyke et de sa source magmatique. *MSc Dissertation*, in French, 30 pages

Oral Communications

- Roman, A., Bato M.G, and Lundgren P., Dynamical models of large volume effusive eruptions and controls on caldera collapse *AGU Fall Meeting*, 2020, Virtual
- Roman, A., Bagnardi M., Lundgren P., Dynamics of caldera collapse during effusive eruptions constrained by geodetic data *AGU Fall Meeting*, 2019, San Francisco
- Byebee, G., Zhang, S., and Roman, A., Secular evolution of mass transfer across the Moho – implications for evolution of the continental crust, *AGU Fall Meeting*, 2018, Washington

Roman, A. M., Bergal-Kuvikas, O., Shapiro, N., Taisne, B., Gordeev, E. and Jaupart, C. P., Controls on the organization of the plumbing system of subduction volcanoes : the roles of volatiles and edifice load, *AGU Fall Meeting*, 2017, New Orleans

Roman, A., Arndt, N., Sagduction and the onset of plate tectonics. *Goldschmidt 2017*, Paris, France

Roman, A., Jaupart, C., Post-emplacement dynamics of basaltic intrusions in the continental crust. *AGU Fall Meeting 2016*, San Francisco, CA

Roman, A., Stress evolution beneath a volcano: shaping the magmatic plumbing system. *VolcanoDynamics Workshop 2016*, Petropavlovsk, Kamchatka, Russia

Arndt, N., Wilson, A., Roman, A., Jaupart, C., Bushveld's Nether Regions have Dropped Off. *EGU General Assembly 2016*, Wien, Austria

Roman, A., Jaupart, C., Post-Emplacement behaviour of magma reservoirs. *AGU Fall Meeting 2015*, San Francisco, CA

Roman, A., Burov E., Jaupart, C., Post-Emplacement stability and instability of magma reservoirs. *AGU Fall Meeting*, 2014, San Francisco, CA

Roman, A. and Jaupart, C., Curved dyke trajectories beneath a mature volcanic edifice. *AGU Fall Meeting*, 2013, San Francisco, CA

Deviron, O., Roman A., Metivier, L., Geodetic signature of an anthropogenic global warming. *EGU Fall Meeting*, 2010, Vienna, Austria

Education

2020-Present **Professional Certificate, Machine Learning**, *Stanford University*, Stanford, USA.

2011–2015 **PhD, Geophysics**, *Institut de Physique du Globe de Paris*, Paris, France.

2008–2011 **MSc, Geophysics**, *Institut de Physique du Globe de Paris*, Paris, France.

honors: Ranked 2nd

2006 **European Studentship Erasmus**, *Université Pierre et Marie Curie, Paris 6*, Paris, France.

2005-2008 **BSc, Earth Sciences, Geophysics**, *Università degli studi di Milano*, Milan, Italy.

honors: Cum Laude

Internships

2010 **Topographical coupling between the core and the mantle at the CMB**, *Royal Observatory of Belgium*, Bruxelles, Belgium.

Advisor: Veronique Dehant (Royal Observatory of Belgium)

2009 **Geodetic signature of anthropogenic global warming**, *Institut de Physique du Globe de Paris*, Paris, France.

Advisor: Olivier de Viron (Institut de Physique du Globe de Paris)

2008 **InSAR study of the deformation in the seismogenic zone of Gemona del Friuli, North Eastern Italy**, *Università degli studi di Milano*, Milan, Italy.

Advisor: Bruno Crippa (Università degli Studi di Milano)

Skills

Machine learning

InSAR

Continuum mechanics

Numerical modeling

Geophysical methods

Programming languages and IT skills

Python, Matlab, Fortran, C, C++, Bash scripting,, Unix

Teaching Experience

Mathematics (first and second year undergrad), Numerical Analysis, Waves and Vibrations

Fieldwork Experience

September 2016 Field trip to Klychevskoy volcano, Kamchatka, Russia

July 2014 International Volcanological Summer School, Karymsky volcano, Kamchatka, Russia. Organized by Pavel Izbekov (UAF) and David Fee (UAF)

2006–2011 Field trips to the Alps and to geophysical observatories, with emphasis on cartography, structural geology and geophysical imagery

Languages

Italian (Mother language), French (Fluent), English (Fluent), Spanish (Basics)