

Lukas Fuchs

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EDUCATION

- Feb. 2012 – Apr. 2016 Uppsala University, Uppsala, Sweden
PhD in Mineralogy, Petrology, and Tectonics
Thesis Title: Strain quantifications in different tectonic scales using numerical modelling
Supervisors: Prof. Dr. Hemin Koyi and Prof. Dr. Harro Schmeling
- Oct. 2009 – Sept. 2011 Johann-Wolfgang Goethe University Frankfurt, Frankfurt am Main, Germany
MSc in Geosciences with specification in Geophysics
Thesis Title: Numerical models of diapiric structures - analysis of the finite strain distribution
Supervisor: Prof. Dr. Harro Schmeling
- Oct. 2006 – Sept. 2009 Johann-Wolfgang Goethe University Frankfurt, Frankfurt am Main, Germany
BSc in Geosciences
Thesis Title: Numerical modelling of salt diapir formation: Influence of sedimentation and rheology on the geometry of salt diapirs and characteristic wavelengths
Supervisor: Prof. Dr. Harro Schmeling

RESEARCH AND TEACHING INTERESTS

RESEARCH EXPERIENCES AND EMPLOYMENTS

- Sept. 2016 – present Postdoctoral fellowship at University of Texas at Austin
- Dec. 2011 – Jan. 2012 Research assistant with Master degree in geodynamics at Goethe University Frankfurt, Frankfurt am Main, Germany
- May 2010 – Sept. 2011 Student research assistant with Bachelor degree in geodynamics at Goethe University Frankfurt, Frankfurt am Main, Germany
- Apr. 2009 – Mar. 2010 Student research assistant in geodynamics at Goethe University Frankfurt, Frankfurt am Main, Germany
- Feb. 2008 – Aug. 2008 Student research assistant in seismology at Goethe University Frankfurt, Frankfurt am Main, Germany

TEACHING EXPERIENCES

May 2010 – Sept. 2010 Teaching Assistant University of Frankfurt

Tutor for exercise group in "Introduction to Geophysics" by Harro Schmeling.

RESEARCH INTERESTS

Salt Tectonics; Diapirism; Down-building; Progressive and Finite Deformation; Lithosphere-Asthenosphere Interaction; Seismic Anisotropy; Global Mantle Convection; Plate Tectonics; Numerical Modelling

FELLOWSHIPS

- Willkomm-Stiftung travel fellowship, 2015
- C.F. Liljewalch travel fellowship, 2014

PUBLICATION AND PRESENTATION

RESEARCH ARTICLES (PEER-REVIEW)

- 5 **Fuchs, L.**, Koyi, H., Schmeling, H. (2015). Numerical modeling of the effect of composite rheology on internal deformation in down-built diapirs, *Tectonophysics* (2015). <http://dx.doi.org/10.1016/j.tecto.2015.01.014>.
- 4 **Fuchs, L.**, Koyi, H., Schmeling, H. (2014). Numerical modeling on progressive internal deformation in down-built diapirs, *Tectonophysics* (632), 111-122. [doi.org/10.1016/j.tecto.2014.06.005](http://dx.doi.org/10.1016/j.tecto.2014.06.005).
- 3 **Fuchs, L.** and Schmeling, H. (2013). A new numerical method to calculate inhomogeneous and time-dependent large deformation of two-dimensional geodynamic flows with application to diapirism. *Geophys. J. Int.* (August, 2013) 194 (2): 623-639 first published online May 8, 2013 [doi:10.1093/gji/ggt142](http://dx.doi.org/10.1093/gji/ggt142).
- 2 Burchardt, S., Koyi, H., Schmeling, H. and **Fuchs, L.** (2012), Sinking of anhydrite blocks within a Newtonian salt diapir: modelling the influence of block aspect ratio and salt stratification. *Geophysical Journal International*. [doi: 10.1111/j.1365-246X.2011.05290](http://dx.doi.org/10.1111/j.1365-246X.2011.05290).
- 1 **Fuchs, L.**, Schmeling, H. and Koyi, H. (2011), Numerical models of salt diapir formation by down-building: the role of sedimentation rate, viscosity contrast, initial amplitude and wavelength. *Geophysical Journal International*, 186: 390–400. [doi: 10.1111/j.1365-246X.2011.05058.x](http://dx.doi.org/10.1111/j.1365-246X.2011.05058.x)

TALKS

- **Fuchs L.**, Schmeling H., and Koyi H. (2014), Numerical models on thermal and rheological sensitivity of deformation pattern at the lithosphere-asthenosphere boundary (2014 German-Swiss Geodynamics Workshop, October 05.-08. 2014, Bad Münster am Stein-Ebernburg, Germany).
- **Fuchs L.**, Koyi H., and Schmeling H. (2014), Numerical modelling of the effect of composite rocksalt rheology on (progressive) internal deformation in down-built diapirs (EGU General Assembly 2014, April 27. – May 02. 2014, Vienna, Austria).
- **Fuchs L.**, Koyi H. and Schmeling H. (2013), Numerical models of finite deformations within down-built diapirs: effects of composite rocksalt rheology on deformation patterns (EGU General Assembly 2013, April 07. – 12. 2013, Vienna, Austria).
- **Fuchs L.** and Schmeling H. (2012), Numerical models of diapiric structures - analysis of the finite strain distribution (72. Annual Meeting of the German Geophysical Society (DGG), March 05.-08. 2012, Hamburg, Germany).
- **Fuchs L.**, Schmeling H., and Koyi H. (2011), Numerical models of salt diapir formation by down-building: the role of sedimentation rate, viscosity contrast, initial amplitude, and wavelength Numerical model of salt diapir formation by down-building (71. Annual Meeting of the German Geophysical Society (DGG), February 21. – 24. 2011, Cologne, Germany).
- **Fuchs L.** and Schmeling H. (2010), Numerical models of salt dome formation by down-building: the role of sedimentation rate, viscosity contrast and other parameters (13th TSK Symposium, April 06. – 11. 2010, Frankfurt a.M., Germany).

POSTERS

- **Fuchs L.**, Schmeling H., and Koyi H. (2015), Thermo-mechanical modelling of progressive deformation and seismic anisotropy at the lithosphere-asthenosphere boundary: the effect of a horizontal pressure gradient (14th International Workshop on Modelling of Mantle and Lithosphere Dynamics, August 31. to 05. September 2015, Oléron, France).
- **Fuchs L.**, Koyi H., and Schmeling H. (2015), Numerical modelling of internal deformation and flow structures in down-built diapirs (PICO presentation, EGU General Assembly 2015, April 12. to 17. 2015, Vienna, Austria).
- **Fuchs L.**, Schmeling H., and Koyi H. (2014), Numerical models on thermal and rheological sensitivity of deformation pattern at the lithosphere-asthenosphere boundary (PICO presentation, EGU General Assembly 2014, April 27. to May 02. 2014, Vienna, Austria).
- **Fuchs L.**, Koyi H., and Schmeling H. (2014), Numerical models of finite deformation within down-built diapirs: effects of composite rocksalt rheology on deformation patterns (31st Nordic Geological Winter Meeting, January 08. to 10. 2014, Lund, Sweden).
- **Fuchs L.**, Schmeling H. and Koyi H. (2013), Numerical Models on Thermal and Rheological Sensitivity of Deformation Pattern at the Lithosphere-Asthenosphere Boundary (13th International Workshop on Modeling of Mantle and Lithosphere Dynamics, August 31. to September 05. 2013, Honefoss, Norway).

- **Fuchs L.**, Schmeling H. and Koyi H. (2013), Numerical models of diapiric structures: comparison of the 2D finite deformation field between Rayleigh-Taylor like and down-built like diapirs (EGU General Assembly 2013, April 07. to 12. 2013, Vienna, Austria).
- **Fuchs L.** and Schmeling H. (2012), Numerical models of diapiric structures - analysis of the finite strain distribution (EGU General Assembly 2012, April 22. to 27. 2012, Vienna, Austria).
- **Fuchs L.** and Schmeling H., (2011) - Numerical models diapiric structures - analysis of the finite strain distribution (12th International Workshop on Modeling of Mantle Convection and Lithospheric Dynamics, August 20. to 25. 2011, Döllnsee, Germany).
- **Fuchs L.**, Schmeling H., and Koyi H. (2010), Numerical models of salt dome formation by downbuilding: the role of sedimentation rate, viscosity contrast and other parameters (German Geodynamics workshop, October 06. to 08. 2010, Münster, Germany).
- Schmeling H., Wallner H., **Fuchs L.** (2010), The role of melt induced lithospheric weakening on the dynamics of continental rifts (EGU General Assembly 2010, May 02. to 07. 2010, Vienna, Austria).

DEPARTMENTAL SERVICES

- DiVA representative for the Mineralogy, Petrology, and Tectonics Institute at Uppsala University, Sweden (October 2013 to present)
Update the yearly institutional publications within the academic archive from Uppsala university (digitala vetenskapliga arkivet; DiVA).

LANGUAGES

- German (native)
- English (fluent)
- Swedish (basic communication skills)
- French (basic communication skills)