



GEODYNAMICS @ GRAZ

(Working Group Stüwe)

Annual Report 2015



Department for Earth Sciences
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2015 was a “relatively quiet” year. The research group was reduced to a small core, remaining research projects trailed out All a mixture of frustration about the university system in Austria, burn-out prevention and conscious reconvalescence for a new spurt of science energy...

1. GROUP MEMBERS

Postdoctoral Research Staff:

Elena Sizova (Postdoc)
Interest: Numerical Modelling of Archaean processes
Funded by: Lise-Meitner Grant FWF elena.sizova@uni-graz.at

PhD students:

Syed Ali Turab (PhD student)
Interest: Uplift history of passive margins
Funded by: self supported by PAROWN Austria-Egypt ; mahmoud.hassan@uni-graz.at

Masters Students:

Florian Dertnig (MSc student)
Interest: Augenstein landscape in Niedere Tauern
Graduated in Fall

Felix Rauschenb. (MSc student)
Interest: Caledonian Geology, NE Greenland

Simon Schorn (MSc student)
Interest: Metamorphic Petrology Saualpe / Plankogel Abschiebung
Graduated at the end of year

Sebastian Wiesmayr (MSc student)
Interest: Geological studies of stoneage monuments in Styria

- Thomas Nigl** (MSc student)
Interest: Neotectonics Mur-Mürz valleys
- Angela Brand** (MSc student)
Interest: 3D modelling of pull apart basins in Noric depression
- Christoph Pucher** (MSc student)
Interest: Morphology of Nil catchment Messinian crisis
Started thesis work at end of 2015
- Thorsten Bartosch** (MSc student)
Interest: Neotectonics of Nock gebiet
Started at the end of 2015
- Alexandra Herg** (MSc student)
Interest: Metamorphism in the Plankogel series and Pohorje
Started at the end of 2015

Bachelors Students:

- Thorsten Bartosch** Numerical modelling of Faults in the Alps (finished in 2015)
- Ukowitz Andreas** Mapping pegmatites at Steinberg (finished in 2015)
- Baumann Christian** Petrography of pegmatites for He dating
- Maria Kirchmayr** GMT mapping



Figure 2: Clockwise from top left: * Student field trip “Petrology 2” on the Koralpe in June * Neotectonics field trip in the Kapellenhöhle near Peggau * With Students at Mansoura University in November * Students Glaciding on the Präbichl in “Geology 2” field trip. * In Frankensteins chamber: Melting experiments in Dr. Kurbos basement. * With Students on “Kristallingeologie” at Stein von Grein.

3. SCIENTIFIC PUBLICATIONS

Book(s):

- Stüwe K., Raab G., Rauschenbusch F., Piller E.W., Claus P., (2015). Eine Geo-Reise durch Grönland. Auf Alfred Wegeners Spuren; Weishaupt Verlag; Gnas; 216 S.; ISBN 978-3-7059-0375-3
- Geldner J. & Stüwe K. (Hrsg.) (2015) Alfred Wegener: Die Grazer Vorlesungsskripten Geologische Bundesanstalt Berichte Band 108, 88 p.

Articles of group in refereed journals:

- Hassan, M. Stüwe K., Abu-Alam T.S., Klötzli U., Tiepolo M. (2015). Time constraints on deformation of the Ajjaj branch of one of the largest Proterozoic shear zones on Earth: The Najd Fault System. Gondwana Research doi: 10.1016/j.gr.2015.04.005
- Hergarten, S., Robl, J. and Stüwe, K., (2015). Tectonic geomorphology at small catchment sizes - extensions of the stream-power approach and the χ method. Earth Surf. Dynam. Discuss., 3(3), 689-714
- Sizova E., Gerya T., Stüwe K., Brown M., (2015) Generation of felsic crust in the Archean A geodynamic modelling perspective. Precambrian Research, v. 271, p. 198-224.
- Robl J., Prasicek G., Hergarten S., Stüwe K., (2015) Alpine topography in the light of tectonic uplift and glaciation. Global and Planetary Change, v. 127, p. 34-49.
- Legrain N., Dixon J., Stüwe K., von Blanckenburg F., Kubik P., (2015) Post-Miocene landscape rejuvenation at the eastern end of the Alps. Lithosphere. V.7(1), p. 3-13. Doi: 10.1130/L391.1

Abstracts and conference presentations with publication year 2015:

- Stüwe K. (2015). In Memoriam Peter Paulitsch (1922-2014). Mitteilungen des Naturwissenschaftlichen Vereins für Steiermark v. 144, p. 11-14.

EGU-ABSTRACTS:

- Stüwe K. (2015) Tracing the origin of Geodynamics: The Alfred Wegener Memorial Expedition 2014. EGU2015-3287. (Keynote to "Orogensis" session by Grasemann & Ring.)
- Hassan M., Abu-Alam T., Stüwe K., (2015). Deformation and metamorphism of Hamadat complex: Shear zones reshaping the lithosphere, EGU2015-15123
- Hergarten S., Robl J., Stüwe K., (2015). A new method to determine channel slopes as a proxy for erosion rates. EGU2015-3414 (Pico)
- Sizova E., Gerya T., Stüwe K., Brown M., (2015). Generation of felsic crust in the Archean: a geodynamic modeling perspective . EGU2015-1469

- Bartosch T., Stüwe K., (2015) Influence of Strike-Slip Fault Activity on the Topographic Evolution of the Eastern Alps: A Modelling Study. EGU2015-2220. (Talk)

OTHER CONFERENCE CONTRIBUTIONS:

- Brown M., Sizova E., Gerya T., Stüwe K., (2015). Archean crust: a modelling perspective. Goldschmidt Abstracts 2015-403 (Talk)
- Schorn S., Stüwe K., (2015). The Plankogel detachment of the Eastern Alps. Petrological Evidence for an orogeny scale extension fault. Geol Soc of America Abstract v. 47(7) p.376.
- Schorn S., Stüwe K., (2015). The Plankogel detachment of the Eastern Alps. Petrological Evidence for an orogeny scale extension fault. (MinPet Abstract vol). Mitteilungen der Österreichischen Mineralogischen Gesellschaft 161, (2015).
- Stüwe K., (2015). Unterwegs in Grönland. Auf den Spuren von Alfred Wegener. Geoberlin Auftaktveranstaltung

Public Relations Articles, Talks and Activities:

- Stüwe K., (4.5. 2015) Geologie der Alpen. (Populärwissenschaftlicher Vortrag vor dem „Geologie—Zirkel“ und Alpenverein in Biberach/Deutschland).
- Stüwe K. (23.1.2015) Geologie der Alpen. (Fachvortrag zum Neujahrstreffen des Fachdidaktikzentrums für Biologie und Umweltkunde, Graz)
- Stüwe K. (16.11.2015) Grönland. Eine Reise von der Entdeckung der Kontinentaldrift bis zur Alfred Wegener Gedenk Expedition. (Populärwissenschaftlicher Vortrag, Kulturbund Leoben)
- Stüwe K. (7.11. – 14.11.2015) Geodynamics. (5 Talks and field trip at Mansoura University Egypt).
- Stüwe K. (2015) Das Alter der Alpen (populärwissenschaftliche Vortragsserie und Exkursionen am Wilden Kaiser für Mercedes).
- Stüwe K. (2015) Cover Image LITHOSPHERE, January issue
- Various editorial activities for LITHOSPHERE and GSA at GSA Baltimore (Nov)
- Hopferwieser G. (2015). Murnockerln in der Drachenhöhle. Neue Forschungsergebnisse zur Geologie der Steiermark. Steirische Berichte 2015/1 p. 36.

Exhibitions:

- Ausstellung “Landschaft im Wandel” Universalmuseum Joanneum (Juni 2015 – January 2016) Kuratiert von Moser B. with Photos of Stüwe & Homberger R.
- Ausstellung Wien EGU

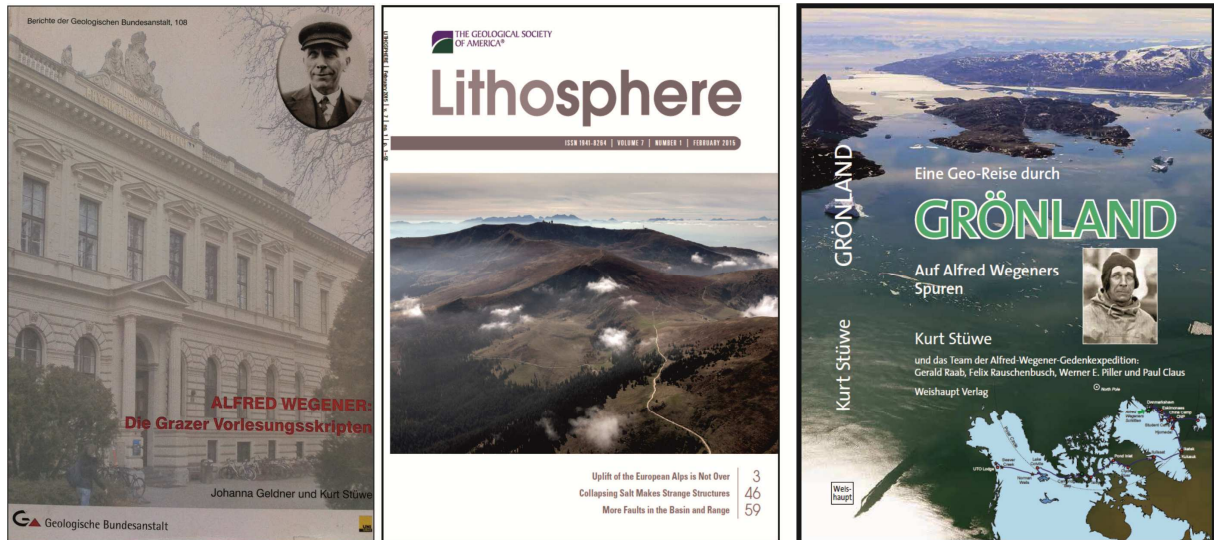


Figure 3: Covers of Books published in 2015: Left: GBA Bericht 108 published with student Johanna Geldner as a facsimile print of Alfred Wegener’s newly discovered Teaching scripts. Center: Cover of the January of LITHOSPHERE featuring the Koralpe. Right: Cover of the Greenland Book published for GeoBerlin in October.



Figure 4: Two exhibitions were opened in 2015: Left: Alfred Wegener Exhibition at EGU. Right: During the opening of the exhibition in the Universalmuseum Joanneum.



Figure 5: Images of activities during 2015. Clockwise from top: * Bernd Moser, Kurt Stüwe and Ruedi Homberger at the opening of the exhibition in the Joanneum. * Florian Dertnig during his MSc defense in fall. * Poster of the Matterhorn advertising the Joanneum exhibition in the city of Graz. * Field trip with Mercedes at the Wilde Kaiser. * Special tour of the exhibition in the Joanneum. * The glas cube at the Wochenbrunner Alm where the Mercedes talks were held.

4. TEACHING AND EDITING ACTIVITIES

EDITORIAL RESPONSIBILITIES

- Lecture Notes in Earth Science (Springer) (Chief Editor)
- Mitteil. des Naturwiss. Vereins für Steiermark (Editor: Earth Sci.)
- Lithosphere (Science editor)

EDITORIAL BOARD MEMBERSHIPS

- Journal of Metamorphic Geology (editorial board member)
- Journal of the Virtual Explorer (editorial board member)
- Journal of Asian Earth Science (editorial board member)
- Austrian Journal of Earth Science (editorial board member)

EDITED JOURNAL VOLUMES

- Drescher A., and Stüwe K., 2014 (eds.) Mitteilungen des Naturwissenschaftlichen Vereins für Steiermark, vol., 145, 150 p.



Figure 6: Cover of volume 145 of the *Mitteilungen of the Naturwissenschaftliche Verein Steiermark* published with Drescher and Stüwe as editors.