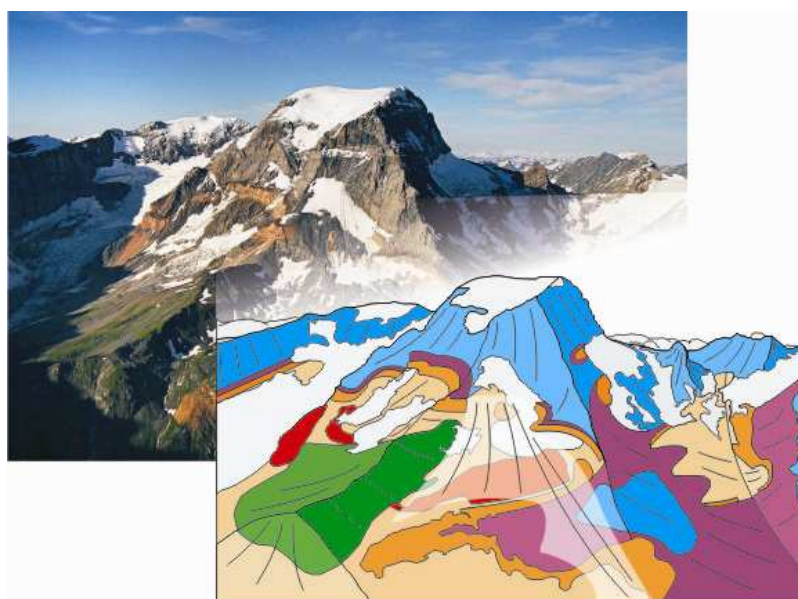




GEODYNAMICS @ GRAZ

(Working Group Stüwe)

Annual Report 2009



Department for Earth Sciences
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A-8010 Graz, Austria
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1. GROUP MEMBERS

Kurt Stüwe

Interests: Tectonics, geodynamics, petrology, geomorphology
Funded by: Department staff
Contact: kurt.stuewe@uni-graz.at

Andreas Wölfler (Postdoc 12.1.09 - 31.12.09)

Interests: Neotectonics, Low-T Geochronology
Funded by: ESF FWF project I-152
Contact: andreas.woelfler@uni-graz.at

Tamer Abu-Alam (PhD student 1.1.09 - 31.12.09)

Interest: Metamorphic Geology of the Wadi Feiran Belt, Sinai
Funded by: ÖAD
Contact: tamer.abu-alam@uni-graz.at

Tom Wagner (PhD student 1.1.09 – 31.12.09)

Interest: Neotectonics of orogen – basin transition in Styria
Funded by: GASS Doktorandenkolleg, supervised by: Stüwe, Fritz, Kurz
Contact: thomas.wagner@uni-graz.at

Emilie Bruand (PhD student 1.1.09 – 31.12.09)

Interest: metamorphism in S-Alaska, eclogite metamorphism
Funded by: FWF project 19366 (tectonic evolution of CMC, Alaska)
Contact: emilie.bruand@uni-graz.at

Deta Gasser (PhD student 1.1.09 – 31.12.09)

Interest: Structure / geochron S-Alaska
Funded by: FWF project 19366 (tectonic evolution of CMC, Alaska)
Contact: deta.gasser@uni-graz.at

Nicolas Legrain (PhD student 1.1.09 – 31.12.08)

Interest: Neotectonics, low-T geochron, Eastern Alps
Funded by: ESF FWF project I-152
Contact: nicolas.legrain@uni-graz.at

2. RESEARCH PROJECTS WITH FUNDING IN 2009

- Metamorphic Evolution of Chugach Metamorphic Complex, Alaska

Funding Institution: FWF Project P19366-GEO (PI Stüwe)

Covered time: 1.1.2009 - 31.12.2009

Total Funding: € 285.000 (~ € 100.000 in 2009)

Activity: PhD funding Bruand / Gasser. 2nd field season field season, write up of prelim work

- Dynamics of Carbonate Systems

Funding Institution: GASS Doktorandenkolleg (directly to Wagner)

Covered time: 1.1.2009 - 31.12.2009

Total Funding: PhD scholarship Wagner plus expenses (~ € 45000)

Activity: 3rd full year of PhD Wagner, field work, cosmogenic isotope labwork, numerics

- Metamorphic Evolution of Wadi Feiran, Sinai

Funding Institution: ÖAD

Covered time: 1.1.2009 - 31.12.2009

Total Funding: PhD scholarship Abu-Alam + Field support

Activity: 3rd full year of PhD, write up thesis, Scholarship extension at end of 09

- TOPOALPS: 4D kinematics of the Neogene Eastern Alps

Funding Institution: ESF / FWF Project I-152 (PI Stüwe)

Covered time: 1.1.2009 - 31.12.2009

Total Funding: € 333.500 (~ € 100.000 in 2009)

Activity: PhD Legrain, Postdoc Wölfler; First field season, analytical work, mapping, learning numerics

3. SCIENTIFIC PUBLICATIONS

Articles in refereed journals:

- Stüwe, K., Robl J., Matthai S. (2009). Erosional decay of the Yucca Mountain crest, Nevada. *Geomorphology*, 108, 200-208, doi: 10.1016/j.geomorph.200901.008
- Bruand, E., Stüwe, K., Proyer, A. (2009). Pseudosection modelling for a selected eclogite body from the Koralpe (Hohl), Eastern Alps. *Mineralogy and Petrology*. DOI 10.1007/s00710-009-0097-7
- Gasser, D., Stüwe, K., Fritz, H. (2009). Internal structural geometry of the Paleozoic of Graz. *International Journal of Earth Science*, DOI: 10.1007/s00531-009-0446-0
- Abu-Alam T.S., Stüwe K.. (2009). Exhumation during oblique transpression: The Feiran-Solaf region, Egypt. *Journal of Metamorphic Geology*., 27, 439-459.
- Gasser D., Gusterhuber J., Krische O., Pühr B., Scheucher L., Wagner T., Stüwe K.. (2009). The Geology of Styria: An overview. *Naturwissenschaftlicher Verein Steiermark*, 139, 5-36.

Abstracts and Conference Presentations with publication year 2007:

EGU:

- Stüwe K., Robl J., Hergarten S. (2009). Extension during convergence: The influence of orogen scale faults in the Eastern Alps. *Geophysical Research Abstracts*, Vol. 11, EGU2009-7639, 2009 EGU General Assembly 2009 Talk
- Gasser D., Mancktelow N. (2009). Fault zone architecture of a major oblique-slip fault in the Rawil depression, Western Helvetic nappes, Switzerland. *Geophysical Research Abstracts*, Vol. 11, EGU2009-0, 2009, EGU General Assembly 2009, Vienna Poster
- Stüwe K., Wagner T., Wölfler A., Legrain N. (2009). Active tectonics at the eastern end of the Alps: The Alps are certainly not dead at all. *Geophysical Research Abstracts*, Vol. 11, EGU2009-0, 2009 Poster

MINPET:

- Bruand E., Stüwe K., Proyer A., Powell R. (2009). Pseudosection modelling of a Low-Mg eclogite from the type locality (Koralpe, Eastern Alps). *Minpet Conference 2009, Budapest*. Vol. 155, pp. 38. Oral presentation
- Abu-Alam T., Stüwe K. (2009). Fluid infiltration and metasomatism processes in Wadi Solaf Calc-Silicate, Egypt. *Mitteilungen der Österreichischen Mineralogischen Gesellschaft*, Vol. 155, pp. 18.
- Abu-Alam T., Stüwe K. (2009). The Feiran Metamorphic complex of Sinai: Its relationship to the core complexes of the Arabian Nubian shield. *Mitteilungen der Österreichischen Mineralogischen Gesellschaft*, Vol. 155. p. 19.
- Abu-Alam T., Stüwe K. (2009). A visual basin code to calculate bulk composition of rocks from chemistry and volume proportions of the phases. *Mitteilungen der Österreichischen Mineralogischen Gesellschaft*, Vol. 155. p. 17.

AUSTRALIAN GEOTHERMAL

- Gibson H., Stüwe K., Seikel R., Fitzgerald D. (2009). Practical aspects of 3D temperature and heat flow modeling for exploration of EGS energy plays. Australian Geothermal energy conference Abstract volume.
- Seikel R., Stüwe K., Gibson H., Reid P., Bendall B., Budd A. (2009). Forward prediction of spatial temperature variation from 3D geology models 20st International Geophysical Conference and Exhibition, Adelaide SA 22.-25.2.2008

SWISS GEOSCIENCE & COGNE ALPS WORKSHOP

- Gasser D., Bruand E., Stüwe K. (2009). Exhumation of a metamorphic complex in a strike-slip setting: observations from the Chugach Metamorphic Complex (CMC), southern Alaska. 7th Swiss Geoscience Meeting, Neuchatel. Poster
- Gasser D., Mancktelow N. (2009). The Rezli fault zone: Field observations from a major oblique-slip fault in the Rawil depression, Western Switzerland. 7th Swiss Geoscience Meeting, Neuchatel. abst. vol. p.80. Talk
- Wölfler A., Legrain N., Stüwe K., Fritz H. (2009). 4D kinematics of the Neogene Eastern Alps: An ArcGis based analysis of horizontal and vertical kinematics. 9th Workshop on Alpine Geological Studies. 16-18 September 2009, Cogne, Italy
- Kurz W., Wölfler A. (2009). Reconstruction of distinct faulting events in the Eastern Alps by low-temperature geochronology. 9th Workshop on Alpine Geological Studies. 16-18 September 2009, Cogne, Italy

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- Hatley E., Carlson W.D., Stüwe, K., and Helper, M., (2009). Assessing the kinematic significance of the Plattengneis, a major intracrustal transport horizon in the Koralpe region, eastern Alps. Geological Society of America Abstracts with Programs, Vol. 41, No 7., p. xx
- Abu-Alam T., Stüwe K. (2009). Feiran Metamorphic complex of Sinai: Its relationship to the core complexes of the Arabian Nubian shield. Geological Society of America Abstracts with Programs, Vol. 41, No 7., p. 478
- Abu-Alam T., Stüwe K. (2009). A visual basin code to calculate bulk composition of rocks from chemistry and volume proportions of the phases. Geological Society of America Abstracts with Programs, Vol. 41, No 7., p. 500.

OTHER

- Plan L., Döppes D., Wagner T. (2009). The significance of cave bears for passage morphology. - 15th International Congress of Speleology, Kerville, Proceedings Part 1: 116.
- Sahy D., Häuselmann P., Grasemann B., Kubik P., Stüwe K., Wagner T., Fiebig M. (2009). Cave Sediments as Records of Landscape Evolution in the Eastern Alps- 15th International Congress of Speleology, Kerville, Texas, Abst. vol., p. 979.
- Fiebig M., Häuselmann P., Stüwe K., Sahy D., Wagner T., Schenk B., Grasemann B. (2009). Burial Age dating in caves applied in current Austrian research projects. GEOKARST 2009. International Symposium on Geology, Natural Resources and Hazards in karst regions Hanoi, Vietnam, Nov. 12-15.

Book Chapters:

- Gasser, D., Bruand E. (2009). Tectonic and metamorphic evolution of the Chugach Metamorphic Complex, Alaska: A progress report. Erstausgabe, Veröffentlichungen junger WissenschaftlerInnen der Universität Graz. 149-158.

Talks:

- Stüwe K. (12.5.2009). Aspects of the stress state of the Alpine lithosphere. Pepe Seminar Leoben University.
- Stüwe K., Fritz H., Wölfler A., Legrain N. (30.1.2009). Topo alps workshop. ETH Zürich
- Stüwe K. (10.12.2009). Weird and Wonderful News on the Evolution of the Alps with examples from the eclogite type locality. Department Seminar Mainz University Earth Science.
- Stüwe K. (25.11.2009). Landschaftsentwicklung in Gebirgen. Beispiele aus den Himalaya und den Alpen. Department Seminar Earth Science Freiberg University.
- Stüwe K. (26.3.2009). Die Koralpe im Licht der Permischen und Alpinen Entwicklung. Institutsseminar, Salzburg University.
- Stüwe K. (26.11.2009). The birth of a landscape: Evidence for young uplift of the Alps. Invited Talk for Annual Workshop "Source to Sink" ESF Project.
- Stüwe K. (19.10.2009). Wrangel St Elias - Das wildeste Gebirge der Welt. Leoben Kulturbund
- Gasser D., Bruand E. (2009). Tectonic and metamorphic evolution of the CMC, Alaska: A progress report. Erstausgabe v. 2. Book presentation
- Wagner T. (26.9.2009). Slope-elevation relation of an orogen, a chance to decipher its stage of evolution? Vortrag NAWI Tag Sssion A2 Scaling issues in Earth Science. Seifenfabrik
- Gasser D. (2009). Why are they here? Formation and growth of the Chugach-St.Elias mountains. Summer Art and Lecture Series, Wrangell Mountain Center, McCarthy, Alaska. Talk
- Gasser D. (2009). The Chugach Metamorphic Complex of southern Alaska: An introduction and field impressions. Invited seminar talk, Geoscience Australia, Canberra. Talk

Public Relations Articles and activities:

- Frauen in der Technik FIT Tag
- Tag der offenen Tür (Spring and Fall)
- Artikel in der Presse (3.5.2009). Unerforschte Welten in Österreichs Bergen; Höhlenforscher suchen die letzten weißen Flecken auf den Landkarten
- Artikel in der Presses (13.5.2009). Geplantes US-Atommüll-Endlager erodiert. Kurt Stüwe weist auf ein völlig übersehenes Problem des Projektes hin
- Wearing Yucca down. Nature vol. 2 March 2009. "Highlight of the Month" section p. 161.

- How to write a manuscript for a journal. PhD course manuscript <http://wegener.uni-graz.at>
- Message from an OeAD scholar: the desert is Egypt's future. OeAD Alumni Newsletter 2 /2009 p. 25

4. TEACHING AND EDITING ACTIVITIES

EDITORIAL RESPONSIBILITIES

- Lecture Notes in Earth Science (Springer) (Chief Editor)
- Mitteil. des Naturwiss. Vereins für Steiermark (Editor: Earth Sci.)
- Mineralogy & Petrology (Associate Handling 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 VOLUME

- Drescher A., and Stüwe K., 2009 (eds.) Mitteilungen des Naturwissenschaftlichen Vereins für Steiermark, vol., 137, 208 p.

UNDERGRADUATE TEACHING

(only regular weekly course lecturing listed)

Einführende Exkursionen (2 days)
Kartierkurs (3 days)
Kristallingeologie (3 hours a week)
Lithosphärenprozesse (2 hours a week)
Geodynamics (1 hour a week)
Neotektonik (2 hours a week)

5. OTHER EVENTS

FIELD WORK

- Alaska Project field work by Gasser & Bruand with Jean Daniel Champagnac as field assistant from Late July to Mid August
- Deta Gasser: August: Florida, 2 weeks Ar-Ar work September: Canberra, 4 weeks SHRIMP work
- Visit AMS facility & University of Glasgow / Derek Fabel (T Wagner)
- 28.6.-1.7. Alps Photography Western Alps (2nd round)
- 5.9.-10.9. Alps Photography Eastern Alps (3rd round)
- Innsbruck Besuch Wölfler
- Paris graphite thermometry Bruand

REVIEW / EDITORIAL / TEACHING

- DFG panel meeting Frankfurt 19.3.
- Topoalps Field workshop 20.9.-25.9.2009
- Topoalps Start up workshop (28.1.-30.1.2009)
- Dr. Jan Pleuger (ETH Zürich) 14-17 December 2009
- Jean Daniel Champagnac visits
- Field workshop (Stüwe, Gasser)

CONFERENCES:

- 9th Workshop on Alpine Geological Studies. Cogne/Italy 16-18 September 2009 (Wölfler)
- EGU (Wien 19.4.-24.4.09) (Stüwe, Gasser)
- MIN PET (Budapest 7.-9.9.09) (Bruand, Abu-Alam)
- 7th Swiss Geoscience Meeting Neuchatel (Gasser)
- GSA (21.10.2009) (Abu-Alam)