



# GEODYNAMICS @ GRAZ

(Working Group Stüwe)

## Annual Report 2021



Sinai/Egypt Field trip with MSc students to Sinai/Egypt in September

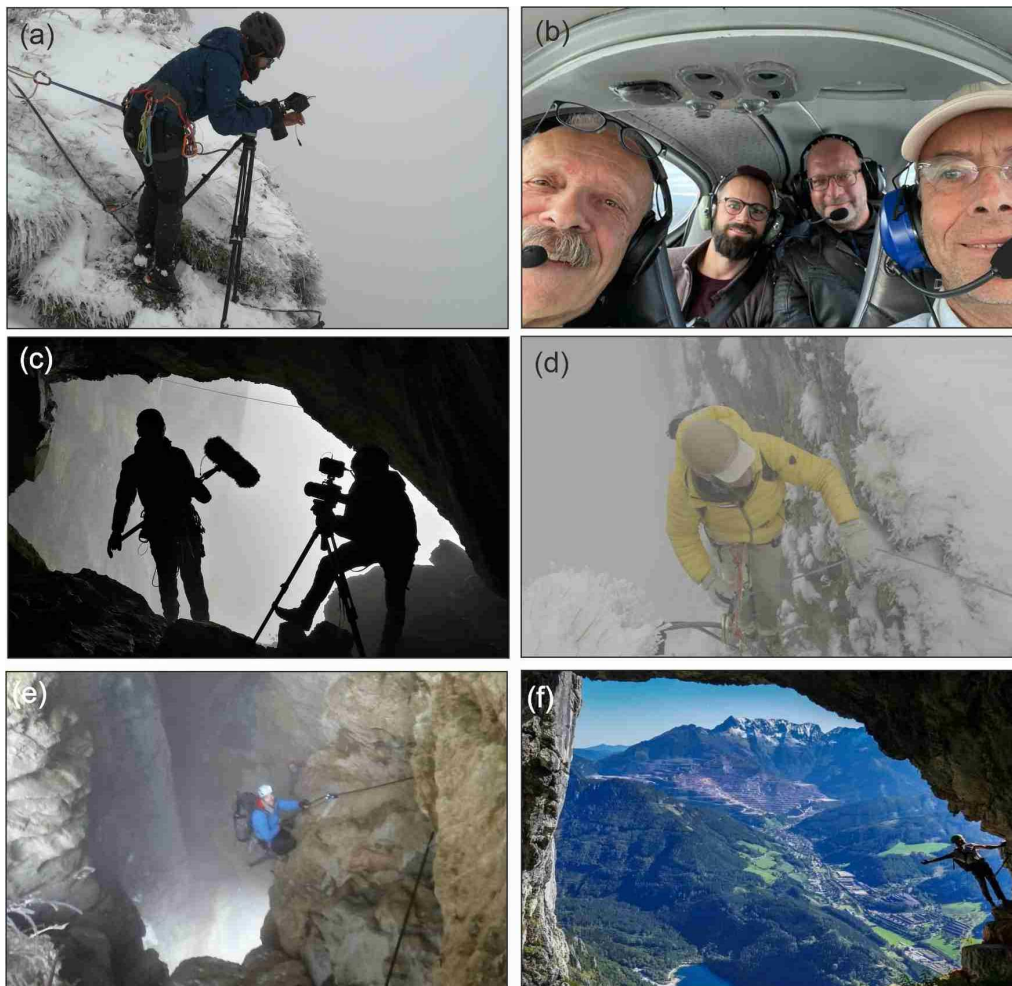
Department for Earth Sciences  
University of Graz  
Universitätsplatz 2  
A-8010 Graz, Austria

[email: kurt.stuewe@uni-graz.at](mailto:kurt.stuewe@uni-graz.at) <http://wegener.uni-graz.at>  
<http://www.alpengeologie.org>; <http://luftbildsteiermark.at>  
<https://twitter.com/GeodynamicsG>

**Overview:**

Re-reading the "overview" on this page for the previous, I see that 2020 was scientifically pretty miserable and unmotivated for much of the (small) group. Although the government restrictions still tried to make our work-life hard this past year, 2021 seemed better and was a lot more productive. The following pages are our group report for what happened in 2021 (but watch out for the 2022 report - if all our energy keeps up and our plans in the group work out it will be longggg report next year .... ;-)

27.12.2021 Kurt Stüwe



**Figure 1:** Film project with the ARTE team in October and November. (a) Not a good day in the Hochschwab region. (b) With Herbert Weishaupt, Matthias Aberer and Hans Kalkreuth filming the Dachstein from above. (c) In the Rossloch cave with no view... (d) Rappelling down to the Rossloch cave in miserable conditions. (e) Coming back up through the cave. (f) This is the view we wanted and never got (here during a reconnaissance trip in August)

## GROUP MEMBERS

---

### Postdoc

**Simon Schorn**                    **(Postdoc - self funded)**  
*Interest:*                            Hydration processes of metamorphic rocks  
 All of 2021 (Selbst Antragsteller FWF)

**Thorsten Bartosch**            **(part time self funded Postdoc)**  
*Interest:*                            Messinian crisis in the Po basin  
 (unfunded, part time)

### PhD students

**Gerit Gradwohl**                **(PhD student)**  
*Interest:*                            Landscape evolution of the Eastern Alps  
 All of 2021 (FWF project ELEVATE)

### Masters Students:

**Sarah Schaffer**                 **(MSc student)**  
*Interest:*                            Hydrogeology & Neotectonics  
 Started in 2020 (self supported, with G. Winkler as co-supervisor)

**Sebastian Stumpf**            **(MSc student)**  
*Interest:*                            Metamorphic field gradients of the Eoalpine Eastern Alps  
 Ongoing (self supported, effective supervisor: Skrzypek)

**Konstantin Hohmann (MSc student)**  
*Interest:*                            Neotectonics of the Fischbacher Alpen  
 Ongoing in 2020 (self supported)

### Bachelor Students:

**Michi Hemetsberger (BSc student)**  
*Interest:*                            Glacial landforms around the Schoberpass  
 Finished: September 2021

**Martin Masten**                 **(BSc student)**  
*Interest:*                            Paleosurfaces in the Hohe Tauern mountains  
 Finished: September 2021

**Florian Kohler (BSc student)**  
*Interest:*                            Mapping the Plankogel series, Radlpass  
 Finished: Fall 2021

**Margit Taibon**                 Ongoing

**Lorenz Buchegger**            Ongoing

## FUNDED RESEARCH PROJECTS

- Elevated Low Relief Landscapes in Mountain Belts: Active Tectonics or Glacial Reshaping? A Case Study in the Eastern Alps <http://elevate.sbg.ac.at/> **Funded by:** FWF together with Robl/Salzburg (half of the funding in Graz)
- Co-PI on: Kirgizstan project (small project funded to Etienne Skrzypek)
- Co-PI on: Tectonic overpressure project Jan Pleuger (no funds to Graz) "Mountain Building Processes in Four Dimensions" (MB-4D)" SPP 2017



**Figure 2:** Field impressions of the ELEVATE project in 2021. (a) Derek Fabel and Gerit Gradwohl in Glasgow in October. (b) Derek in his Yellow Submarine. (c) Getting more samples in the Lurgrotte with Tarim. (d) Sorting out samples in the Lab. (e) Kurt getting wet in the Bohemian Massif. (f) At least our project PI got wet too ;-)

## SCIENTIFIC PUBLICATIONS 2021

---

### Journal Articles:

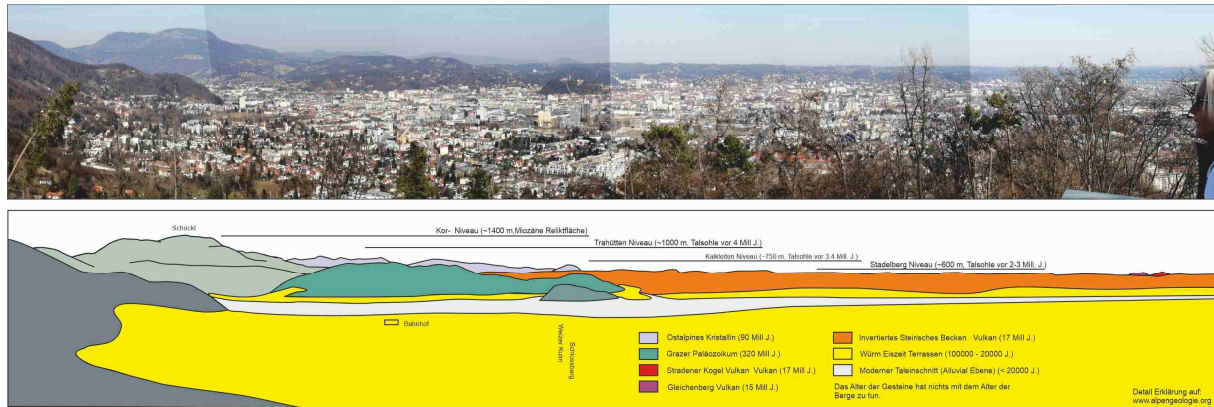
- Masten M., and Stüwe K. (2021). Die Paläooberflächen in den Nockbergen. Mitteilungen des Naturwissenschaftlichen Vereines für Steiermark., v. 151, 81-99.
- Liebl M., Robl J., Egholm D.L., Prasicek G., Stüwe K., Gradwohl G. and Hergarten S. (2021). Topographic signatures of progressive glacial landscape transformation. Earth Surface Processes and Landforms. v. 46:1964–1980 doi: 19.1002/esp.5139
- Stüwe K., and Hohmann K. (2021). The Relic Landscapes of the Grazer Bergland: Revisiting the Piedmonttreppen Debate. Austrian Journal of Earth Science, 114, 46-65.
- Blades M.L., Collins A.S., Foden J., Payne J.L., Stüwe K., Abu-Alam T., Makroum F. and Hassan M., (2021). Age and hafnium isotope evolution of Sudanese Butana and Chad illuminates the Stenian to Ediacaran evolution of the south and east Sahara. Precambrian Research, v. 362, 106323

### Abstracts and conference presentations:

- Gradwohl G., Stüwe K., Liebl M., Robl J. (2021). The origin of elevated low-relief surfaces in the Eastern Alps from geomorphic criteria and cosmogenic nuclide dating GM1.4 -EGU21-7683
- Liebl M., Robl J., Egholm D., Prasicek G., Stüwe K., Gradwohl G., Hergarten S. (2021). Progressive landscape transformation from a fluvial to a glacial topography. EGU Talk
- Stumpf, S. (Graz), Skrzypek, E. (Graz), Stüwe, K. (Graz): Age dating of detrital zircon and petrology of the Ennstal Phyllite Zone (Eastern Alps). MinPet2021 Abstract volume
- Schorn, S. (Graz), Hartnady, M.I.H. (Perth), Diener, J.F.A. (Rondebosch), Clark, C. (Perth), Harris, C. (Rondebosch): H<sub>2</sub>O-fluxed melting of eclogite during exhumation: an example from the eclogite type-locality, Eastern Alps (Austria). MinPet2021 Abstract volume

### Public Relations Articles and Talks:

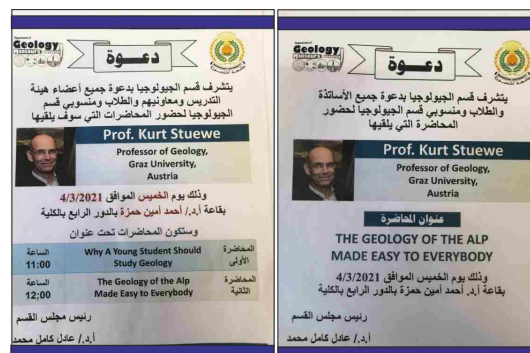
- Stüwe K. (2021). The start of the Anthropocene: How far back? (How climate and humans have influenced the Alps since millions of years). 23.3.2021. Ringvorlesung Uni Wien.
- Stüwe K. (2021). Alfred Wegeners Genie und die Grönland-Gedenkexpedition zum 100-jährigen Jubiläum seiner wichtigsten Entdeckung. Geozirkel Biberach 12.4.2021.
- Stüwe K. (2021). Geologie der Alpen aus der Luft. Geopark Karnische Alpen, 17.9.2021 19:00
- Stüwe K. (2021). Geologie der Alpen aus der Luft. BORG Hermagor, 16.9.2021 10:00
- Stüwe K. (2021). Von Fossilien und Feuerbällen. Ö1 Radiokolleg 19.8.2021. (von: U. Schmitzer)
- Stüwe K. (2021). Talks and short course taught at Mansoura University in March



**Figure 3:** For several viewing platforms around Graz a total of 4 geological images were done. Although all the work was done from our side, the project got stuck in the city council in the 2nd half of the year. Progress is hoped for for 2022.

## FIELD TRIPS

- Gerit Gradwohl was in Glasgow at SUERC for October and November for cosmo-isotope labwork
- Kurt Stüwe did a Hungary field trip with course "Tectonics of sedimentary basins".
- Kurt Stüwe did two field trips to Egypt. One in March to teach a course and one with MSc students in October
- Kurt also taught a geodynamics course in Innsbruck in late November
- Simon Schorn spend a week in Erlangen, some time in the Bohemian Massif, a week in Kirgizstan
- Hans von Kalkreuth visited Steiermark for three days to make a Steiermark Geology movie for ARTE.
- For the ELEVATE project, Kurt Stüwe sent 10 days in the field for mapping the Grazer Bergland and one week in the Salzkammergut in addition to a series of 1-day field trips for student supervision. Several days in the Lurgrotte cave and a 3 day trip to the Bohemian massif for river sampling.



**Figure 4:** Adverts to Kurt's talks at Mansoura University/Egypt in March.



**Figure 5:** (a) Improving my COVID immunity in the Lurgrotte cave. (b) MSc student Sebastian Stumpf working hard. (c) With Mahmoud Hassan in Ismailia in September. (d) Syed Ali Turab finally got his paper done via remote control in Pakistan. (e) With Prof. Farid Makroum in Luxor in March. (f) Former student Ahmed Shalabi in Mansoura University (g) Simon Schorn with Christoph Hauzenberger and Kirgiz colleague in the field in Kirgizstan. (h) First year field trip on the Gleinalpe in October.

## TEACHING AND EDITING ACTIVITIES

---

(All of the below activities suffered from government and university restrictions in 2021)

### EDITORIAL RESPONSIBILITIES:

- **Austrian Journal of Earth Science**  
(Kurt Stuewe Editor)  
In 2021 we managed to create and update the new journal domain: [www.ajes.at](http://www.ajes.at). We are also proud to announce that the journal now represents ALL Austrian Earth Science societies including ÖGG, ÖVG, ÖMG and ÖPG. The success of convincing all societies to join the journal was dampened a bit by an unusual low in submissions. A mere 13 manuscripts were submitted and handled in 2021



### EXTERNAL TEACHING in 2021:

- Geodynamics of the Arabian Nubian Shield (Mansoura University, 3 day course)
- Physikalische Geodynamik (Innsbruck University, November **NEW SCRIPT!!!**)

### TEACHING SUMMER TERM 2021 (most important courses only):

- Geologie von Österreich (Lehramt, Tutors: Sarah Schaffer, Maria Brandmayr)
- Neotectonics and tectonic geomorphology (MSc curriculum)
- Tectonics of Sedimentary Basins (Msc curriculum)
- Einführende Geländemethoden (BSc curriculum)

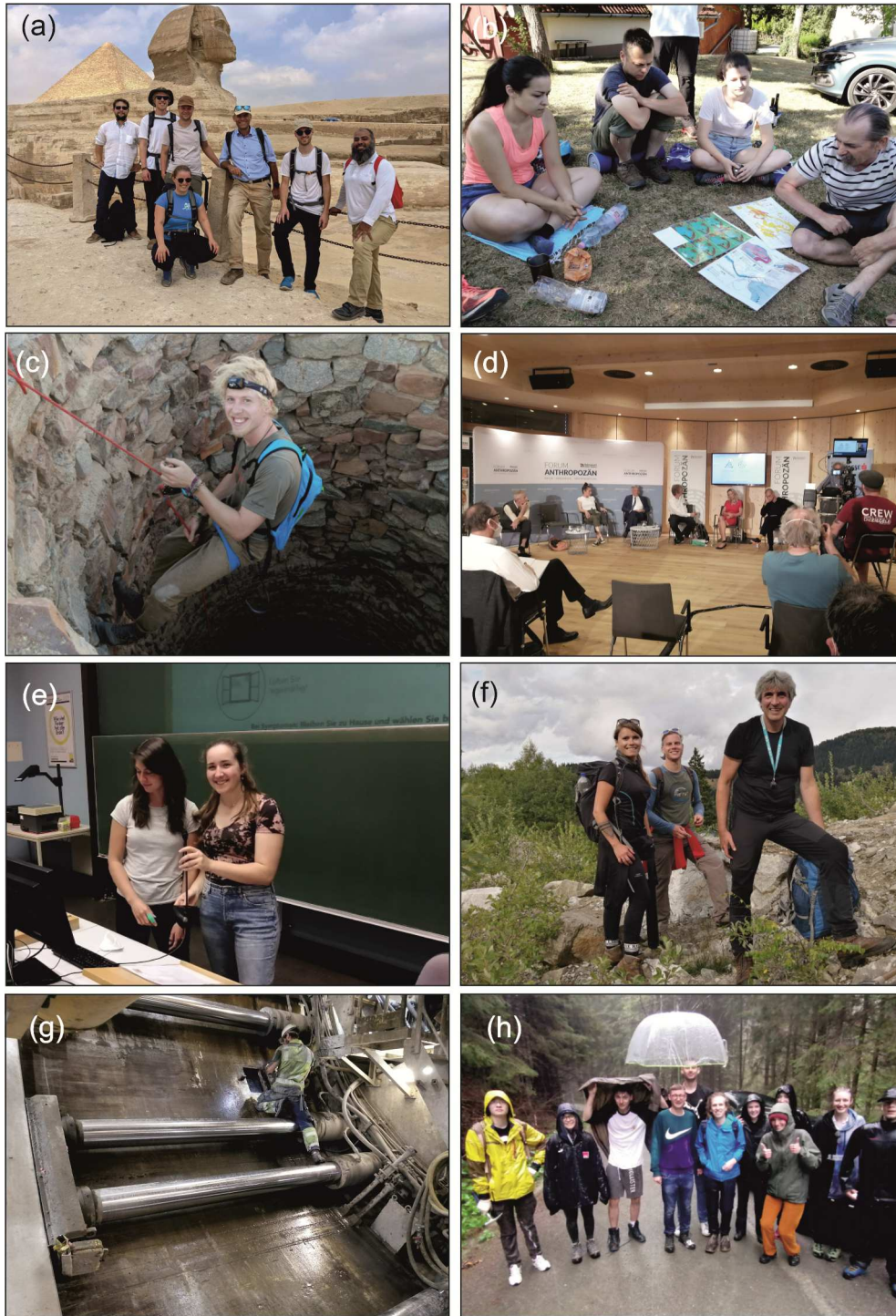
### TEACHING WINTER TERM 2021/22 (most important courses only):

- Geodynamics of the Lithosphere (MSc curriculum)
- Tectonic Modelling (MSc curriculum)
- Erdwissenschaftliches Seminar (BSc curriculum with D. Hippler)
- Geologie der Erde (BSc curriculum with H. Fritz)
- First Year field trip (with Hauzenberger)

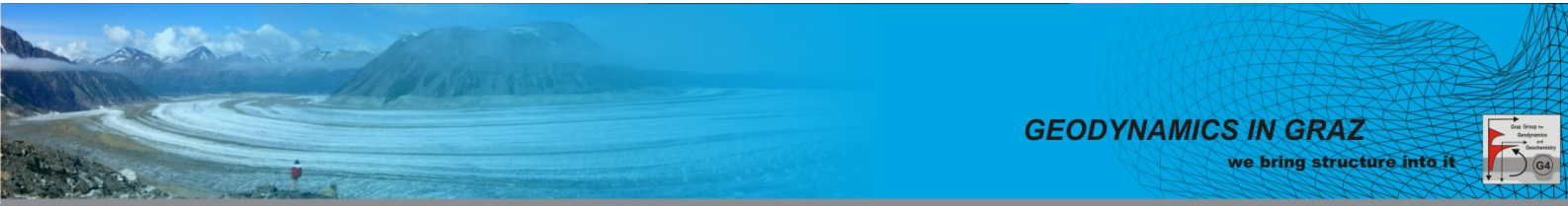
### DOCTORATE SCHOOL OF EARTH SCIENCE:

- Kurt Stüwe is the Head of the Doctorate School of Earth Science at Graz University during all of 2021. See: <https://erdwissenschaften.uni-graz.at/de/doktoratsschule/>





**Figure 6:** Field work in 2021: (a) With Mahmoud Hassan and MSc students Kevin Karner, Sebastian Stumpf, Kati Weisser, Chris Wawra and Raphael Ziegler in Egypt (September). (b) With students and Laszlo Fodor on Sedimentary Basin field trip in Hungary. (c) Sebastian Stumpf getting a burial age sample in southern Egypt. (d) At the Anthropocene workshop in Heiligenblut. (e) Sarah Schaffer and Maria Brandmayr helping out in class as Tutors. (f) With Jan Pleuger, Simon Schorn and student in the Koralpe. (g) With Erich Regelsberger in the Semmering tunnel. (h) With 1st year students on a rainy day in the Gleinalpe (May).



# GEODYNAMICS @ GRAZ

(Working Group Stüwe)

## Annual Report 2021



Sinai/Egypt Field trip with MSc students to Sinai/Egypt in September

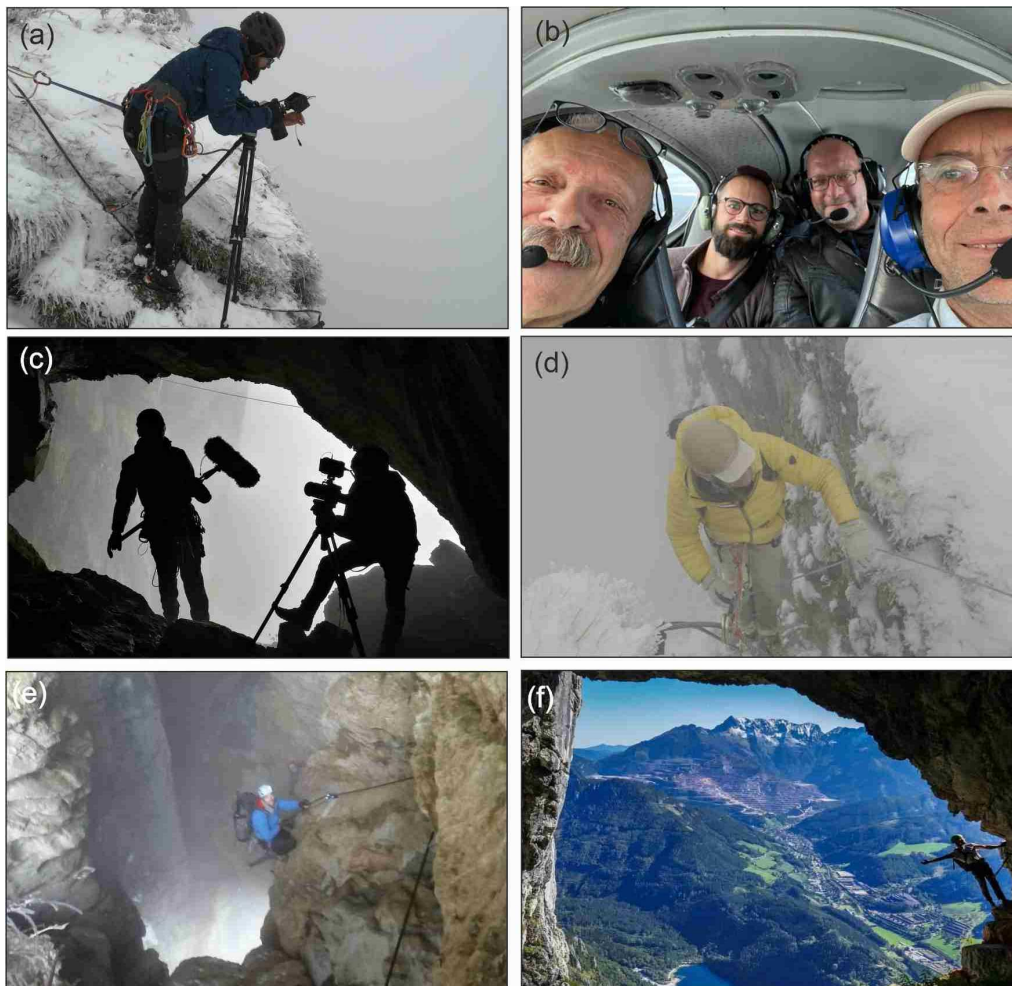
Department for Earth Sciences  
University of Graz  
Universitätsplatz 2  
A-8010 Graz, Austria

[email: kurt.stuewe@uni-graz.at](mailto:kurt.stuewe@uni-graz.at) <http://wegener.uni-graz.at>  
<http://www.alpengeologie.org>; <http://luftbildsteiermark.at>  
<https://twitter.com/GeodynamicsG>

**Overview:**

Re-reading the "overview" on this page for the previous, I see that 2020 was scientifically pretty miserable and unmotivated for much of the (small) group. Although the government restrictions still tried to make our work-life hard this past year, 2021 seemed better and was a lot more productive. The following pages are our group report for what happened in 2021 (but watch out for the 2022 report - if all our energy keeps up and our plans in the group work out it will be longggg report next year .... ;-)

27.12.2021 Kurt Stüwe



**Figure 1:** Film project with the ARTE team in October and November. (a) Not a good day in the Hochschwab region. (b) With Herbert Weishaupt, Matthias Aberer and Hans Kalkreuth filming the Dachstein from above. (c) In the Rossloch cave with no view... (d) Rappelling down to the Rossloch cave in miserable conditions. (e) Coming back up through the cave. (f) This is the view we wanted and never got (here during a reconnaissance trip in August)

## GROUP MEMBERS

---

### Postdoc

**Simon Schorn**                    **(Postdoc - self funded)**  
*Interest:*                            Hydration processes of metamorphic rocks  
 All of 2021 (Selbst Antragsteller FWF)

**Thorsten Bartosch**            **(part time self funded Postdoc)**  
*Interest:*                            Messinian crisis in the Po basin  
 (unfunded, part time)

### PhD students

**Gerit Gradwohl**                **(PhD student)**  
*Interest:*                            Landscape evolution of the Eastern Alps  
 All of 2021 (FWF project ELEVATE)

### Masters Students:

**Sarah Schaffer**                 **(MSc student)**  
*Interest:*                            Hydrogeology & Neotectonics  
 Started in 2020 (self supported, with G. Winkler as co-supervisor)

**Sebastian Stumpf**            **(MSc student)**  
*Interest:*                            Metamorphic field gradients of the Eoalpine Eastern Alps  
 Ongoing (self supported, effective supervisor: Skrzypek)

**Konstantin Hohmann (MSc student)**  
*Interest:*                            Neotectonics of the Fischbacher Alpen  
 Ongoing in 2020 (self supported)

### Bachelor Students:

**Michi Hemetsberger (BSc student)**  
*Interest:*                            Glacial landforms around the Schoberpass  
 Finished: September 2021

**Martin Masten**                 **(BSc student)**  
*Interest:*                            Paleosurfaces in the Hohe Tauern mountains  
 Finished: September 2021

**Florian Kohler (BSc student)**  
*Interest:*                            Mapping the Plankogel series, Radlpass  
 Finished: Fall 2021

**Margit Taibon**                    Ongoing

**Lorenz Buchegger**                Ongoing

## FUNDED RESEARCH PROJECTS

- Elevated Low Relief Landscapes in Mountain Belts: Active Tectonics or Glacial Reshaping? A Case Study in the Eastern Alps <http://elevate.sbg.ac.at/> **Funded by:** FWF together with Robl/Salzburg (half of the funding in Graz)
- Co-PI on: Kirgizstan project (small project funded to Etienne Skrzypek)
- Co-PI on: Tectonic overpressure project Jan Pleuger (no funds to Graz) "Mountain Building Processes in Four Dimensions" (MB-4D)" SPP 2017



**Figure 2:** Field impressions of the ELEVATE project in 2021. (a) Derek Fabel and Gerit Gradwohl in Glasgow in October. (b) Derek in his Yellow Submarine. (c) Getting more samples in the Lurgrotte with Tarim. (d) Sorting out samples in the Lab. (e) Kurt getting wet in the Bohemian Massif. (f) At least our project PI got wet too ;-)

## SCIENTIFIC PUBLICATIONS 2021

---

### Journal Articles:

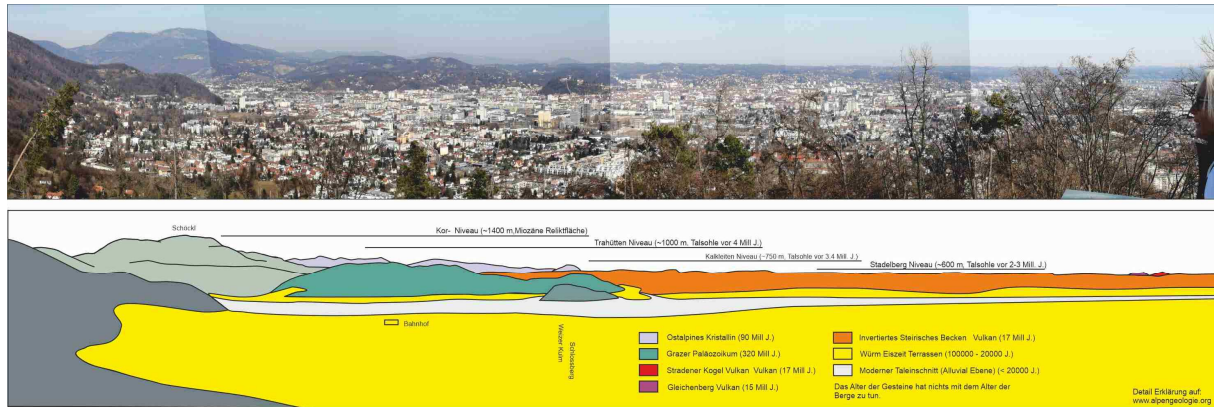
- Masten M., and Stüwe K. (2021). Die Paläooberflächen in den Nockbergen. Mitteilungen des Naturwissenschaftlichen Vereines für Steiermark., v. 151, 81-99.
- Liebl M., Robl J., Egholm D.L., Prasicek G., Stüwe K., Gradwohl G. and Hergarten S. (2021). Topographic signatures of progressive glacial landscape transformation. Earth Surface Processes and Landforms. v. 46:1964–1980 doi: 19.1002/esp.5139
- Stüwe K., and Hohmann K. (2021). The Relic Landscapes of the Grazer Bergland: Revisiting the Piedmonttreppen Debate. Austrian Journal of Earth Science, 114, 46-65.
- Blades M.L., Collins A.S., Foden J., Payne J.L., Stüwe K., Abu-Alam T., Makroum F. and Hassan M., (2021). Age and hafnium isotope evolution of Sudanese Butana and Chad illuminates the Stenian to Ediacaran evolution of the south and east Sahara. Precambrian Research, v. 362, 106323

### Abstracts and conference presentations:

- Gradwohl G., Stüwe K., Liebl M., Robl J. (2021). The origin of elevated low-relief surfaces in the Eastern Alps from geomorphic criteria and cosmogenic nuclide dating GM1.4 -EGU21-7683
- Liebl M., Robl J., Egholm D., Prasicek G., Stüwe K., Gradwohl G., Hergarten S. (2021). Progressive landscape transformation from a fluvial to a glacial topography. EGU Talk
- Stumpf, S. (Graz), Skrzypek, E. (Graz), Stüwe, K. (Graz): Age dating of detrital zircon and petrology of the Ennstal Phyllite Zone (Eastern Alps). MinPet2021 Abstract volume
- Schorn, S. (Graz), Hartnady, M.I.H. (Perth), Diener, J.F.A. (Rondebosch), Clark, C. (Perth), Harris, C. (Rondebosch): H<sub>2</sub>O-fluxed melting of eclogite during exhumation: an example from the eclogite type-locality, Eastern Alps (Austria). MinPet2021 Abstract volume

### Public Relations Articles and Talks:

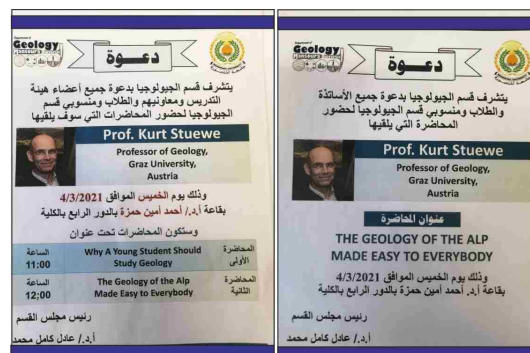
- Stüwe K. (2021). The start of the Anthropocene: How far back? (How climate and humans have influenced the Alps since millions of years). 23.3.2021. Ringvorlesung Uni Wien.
- Stüwe K. (2021). Alfred Wegeners Genie und die Grönland-Gedenkexpedition zum 100-jährigen Jubiläum seiner wichtigsten Entdeckung. Geozirkel Biberach 12.4.2021.
- Stüwe K. (2021). Geologie der Alpen aus der Luft. Geopark Karnische Alpen, 17.9.2021 19:00
- Stüwe K. (2021). Geologie der Alpen aus der Luft. BORG Hermagor, 16.9.2021 10:00
- Stüwe K. (2021). Von Fossilien und Feuerbällen. Ö1 Radiokolleg 19.8.2021. (von: U. Schmitzer)
- Stüwe K. (2021). Talks and short course taught at Mansoura University in March



**Figure 3:** For several viewing platforms around Graz a total of 4 geological images were done. Although all the work was done from our side, the project got stuck in the city council in the 2nd half of the year. Progress is hoped for for 2022.

## FIELD TRIPS

- Gerit Gradwohl was in Glasgow at SUERC for October and November for cosmo-isotope labwork
- Kurt Stüwe did a Hungary field trip with course "Tectonics of sedimentary basins".
- Kurt Stüwe did two field trips to Egypt. One in March to teach a course and one with MSc students in October
- Kurt also taught a geodynamics course in Innsbruck in late November
- Simon Schorn spend a week in Erlangen, some time in the Bohemian Massif, a week in Kirgizstan
- Hans von Kalkreuth visited Steiermark for three days to make a Steiermark Geology movie for ARTE.
- For the ELEVATE project, Kurt Stüwe sent 10 days in the field for mapping the Grazer Bergland and one week in the Salzkammergut in addition to a series of 1-day field trips for student supervision. Several days in the Lurgrotte cave and a 3 day trip to the Bohemian massif for river sampling.



**Figure 4:** Adverts to Kurt's talks at Mansoura University/Egypt in March.



**Figure 5:** (a) Improving my COVID immunity in the Lurgrotte cave. (b) MSc student Sebastian Stumpf working hard. (c) With Mahmoud Hassan in Ismailia in September. (d) Syed Ali Turab finally got his paper done via remote control in Pakistan. (e) With Prof. Farid Makroum in Luxor in March. (f) Former student Ahmed Shalabi in Mansoura University (g) Simon Schorn with Christoph Hauzenberger and Kirgiz colleague in the field in Kirgizstan. (h) First year field trip on the Gleinalpe in October.



## TEACHING AND EDITING ACTIVITIES

(All of the below activities suffered from government and university restrictions in 2021)

### EDITORIAL RESPONSIBILITIES:

- **Austrian Journal of Earth Science**  
(Kurt Stuewe Editor)  
In 2021 we managed to create and update the new journal domain: [www.ajes.at](http://www.ajes.at). We are also proud to announce that the journal now represents ALL Austrian Earth Science societies including ÖGG, ÖVG, ÖMG and ÖPG. The success of convincing all societies to join the journal was dampened a bit by an unusual low in submissions. A mere 13 manuscripts were submitted and handled in 2021



### EXTERNAL TEACHING in 2021:

- Geodynamics of the Arabian Nubian Shield (Mansoura University, 3 day course)
- Physikalische Geodynamik (Innsbruck University, November **NEW SCRIPT!!!**)

### TEACHING SUMMER TERM 2021 (most important courses only):

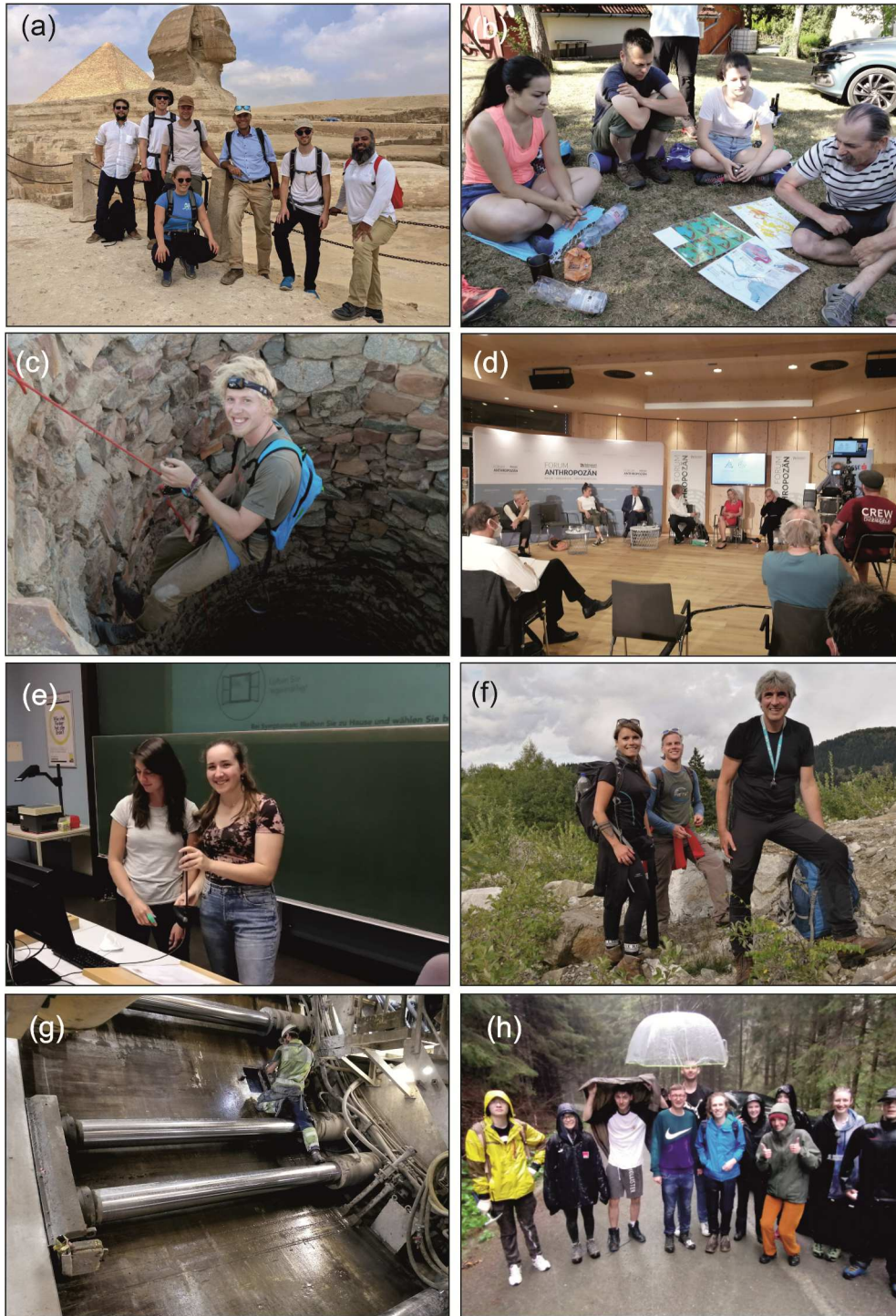
- Geologie von Österreich (Lehramt, Tutors: Sarah Schaffer, Maria Brandmayr)
- Neotectonics and tectonic geomorphology (MSc curriculum)
- Tectonics of Sedimentary Basins (Msc curriculum)
- Einführende Geländemethoden (BSc curriculum)

### TEACHING WINTER TERM 2021/22 (most important courses only):

- Geodynamics of the Lithosphere (MSc curriculum)
- Tectonic Modelling (MSc curriculum)
- Erdwissenschaftliches Seminar (BSc curriculum with D. Hippler)
- Geologie der Erde (BSc curriculum with H. Fritz)
- First Year field trip (with Hauzenberger)

### DOCTORATE SCHOOL OF EARTH SCIENCE:

- Kurt Stüwe is the Head of the Doctorate School of Earth Science at Graz University during all of 2021. See: <https://erdwissenschaften.uni-graz.at/de/doktoratsschule/>



**Figure 6:** Field work in 2021: (a) With Mahmoud Hassan and MSc students Kevin Karner, Sebastian Stumpf, Kati Weisser, Chris Wawra and Raphael Ziegler in Egypt (September). (b) With students and Laszlo Fodor on Sedimentary Basin field trip in Hungary. (c) Sebastian Stumpf getting a burial age sample in southern Egypt. (d) At the Anthropocene workshop in Heiligenblut. (e) Sarah Schaffer and Maria Brandmayr helping out in class as Tutors. (f) With Jan Pleuger, Simon Schorn and student in the Koralpe. (g) With Erich Regelsberger in the Semmering tunnel. (h) With 1st year students on a rainy day in the Gleinalpe (May).



# GEODYNAMICS @ GRAZ

(Working Group Stüwe)

## Annual Report 2021



Sinai/Egypt Field trip with MSc students to Sinai/Egypt in September

Department for Earth Sciences  
University of Graz  
Universitätsplatz 2  
A-8010 Graz, Austria

[email: kurt.stuewe@uni-graz.at](mailto:kurt.stuewe@uni-graz.at) <http://wegener.uni-graz.at>

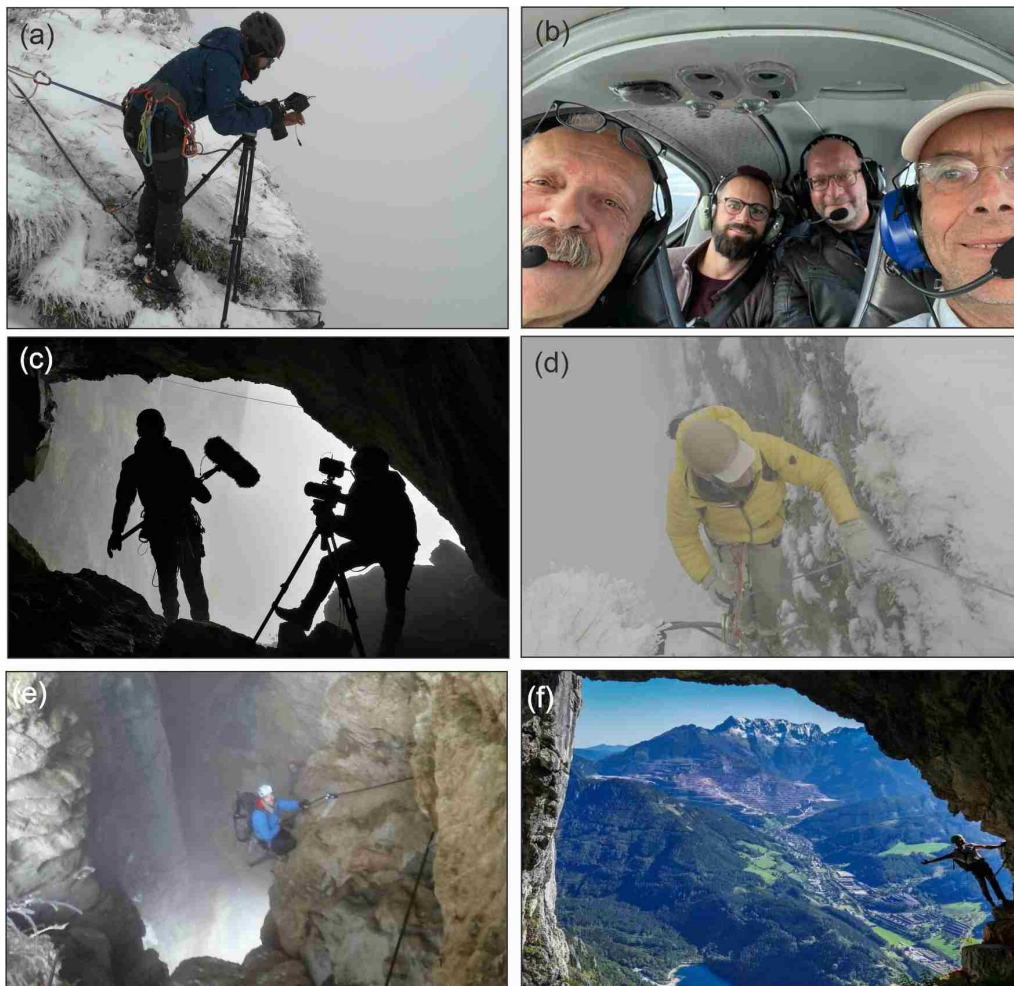
<http://www.alpengeologie.org>; <http://luftbildsteiermark.at>

<https://twitter.com/GeodynamicsG>

**Overview:**

Re-reading the "overview" on this page for the previous, I see that 2020 was scientifically pretty miserable and unmotivated for much of the (small) group. Although the government restrictions still tried to make our work-life hard this past year, 2021 seemed better and was a lot more productive. The following pages are our group report for what happened in 2021 (but watch out for the 2022 report - if all our energy keeps up and our plans in the group work out it will be longggg report next year .... ;-)

27.12.2021 Kurt Stüwe



**Figure 1:** Film project with the ARTE team in October and November. (a) Not a good day in the Hochschwab region. (b) With Herbert Weishaupt, Matthias Aberer and Hans Kalkreuth filming the Dachstein from above. (c) In the Rossloch cave with no view... (d) Rappelling down to the Rossloch cave in miserable conditions. (e) Coming back up through the cave. (f) This is the view we wanted and never got (here during a reconnaissance trip in August)

## GROUP MEMBERS

---

### Postdoc

**Simon Schorn**                    **(Postdoc - self funded)**  
*Interest:*                            Hydration processes of metamorphic rocks  
 All of 2021 (Selbst Antragsteller FWF)

**Thorsten Bartosch**           **(part time self funded Postdoc)**  
*Interest:*                            Messinian crisis in the Po basin  
 (unfunded, part time)

### PhD students

**Gerit Gradwohl**                **(PhD student)**  
*Interest:*                            Landscape evolution of the Eastern Alps  
 All of 2021 (FWF project ELEVATE)

### Masters Students:

**Sarah Schaffer**                 **(MSc student)**  
*Interest:*                            Hydrogeology & Neotectonics  
 Started in 2020 (self supported, with G. Winkler as co-supervisor)

**Sebastian Stumpf**             **(MSc student)**  
*Interest:*                            Metamorphic field gradients of the Eoalpine Eastern Alps  
 Ongoing (self supported, effective supervisor: Skrzypek)

**Konstantin Hohmann (MSc student)**  
*Interest:*                            Neotectonics of the Fischbacher Alpen  
 Ongoing in 2020 (self supported)

### Bachelor Students:

**Michi Hemetsberger (BSc student)**  
*Interest:*                            Glacial landforms around the Schoberpass  
 Finished: September 2021

**Martin Masten**                 **(BSc student)**  
*Interest:*                            Paleosurfaces in the Hohe Tauern mountains  
 Finished: September 2021

**Florian Kohler (BSc student)**  
*Interest:*                            Mapping the Plankogel series, Radlpass  
 Finished: Fall 2021

**Margit Taibon**                    Ongoing

**Lorenz Buchegger**                Ongoing

## FUNDED RESEARCH PROJECTS

- Elevated Low Relief Landscapes in Mountain Belts: Active Tectonics or Glacial Reshaping? A Case Study in the Eastern Alps <http://elevate.sbg.ac.at/> **Funded by:** FWF together with Robl/Salzburg (half of the funding in Graz)
- Co-PI on: Kirgizstan project (small project funded to Etienne Skrzypek)
- Co-PI on: Tectonic overpressure project Jan Pleuger (no funds to Graz) "Mountain Building Processes in Four Dimensions" (MB-4D)" SPP 2017



**Figure 2:** Field impressions of the ELEVATE project in 2021. (a) Derek Fabel and Gerit Gradwohl in Glasgow in October. (b) Derek in his Yellow Submarine. (c) Getting more samples in the Lurgrotte with Tarim. (d) Sorting out samples in the Lab. (e) Kurt getting wet in the Bohemian Massif. (f) At least our project PI got wet too ;-)

## SCIENTIFIC PUBLICATIONS 2021

---

### Journal Articles:

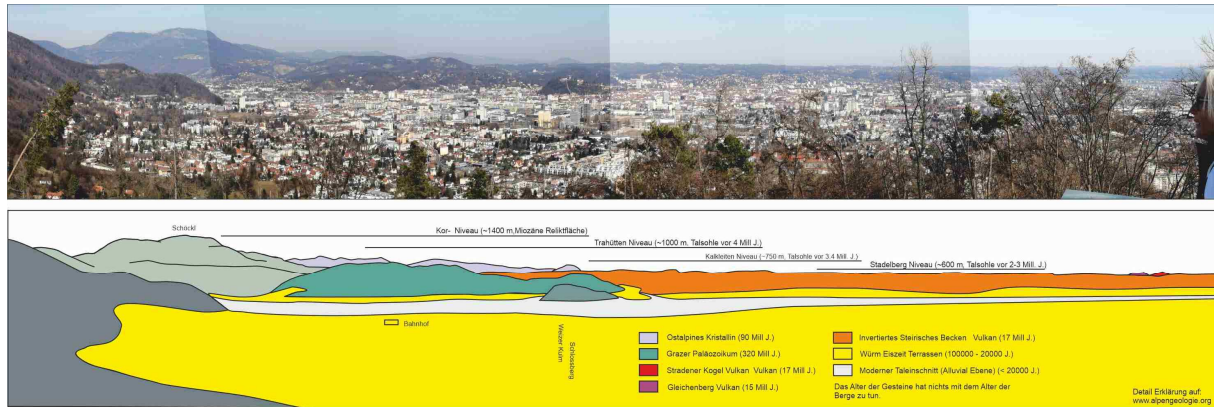
- Masten M., and Stüwe K. (2021). Die Paläooberflächen in den Nockbergen. Mitteilungen des Naturwissenschaftlichen Vereines für Steiermark., v. 151, 81-99.
- Liebl M., Robl J., Egholm D.L., Prasicek G., Stüwe K., Gradwohl G. and Hergarten S. (2021). Topographic signatures of progressive glacial landscape transformation. Earth Surface Processes and Landforms. v. 46:1964–1980 doi: 19.1002/esp.5139
- Stüwe K., and Hohmann K. (2021). The Relic Landscapes of the Grazer Bergland: Revisiting the Piedmonttreppen Debate. Austrian Journal of Earth Science, 114, 46-65.
- Blades M.L., Collins A.S., Foden J., Payne J.L., Stüwe K., Abu-Alam T., Makroum F. and Hassan M., (2021). Age and hafnium isotope evolution of Sudanese Butana and Chad illuminates the Stenian to Ediacaran evolution of the south and east Sahara. Precambrian Research, v. 362, 106323

### Abstracts and conference presentations:

- Gradwohl G., Stüwe K., Liebl M., Robl J. (2021). The origin of elevated low-relief surfaces in the Eastern Alps from geomorphic criteria and cosmogenic nuclide dating GM1.4 -EGU21-7683
- Liebl M., Robl J., Egholm D., Prasicek G., Stüwe K., Gradwohl G., Hergarten S. (2021). Progressive landscape transformation from a fluvial to a glacial topography. EGU Talk
- Stumpf, S. (Graz), Skrzypek, E. (Graz), Stüwe, K. (Graz): Age dating of detrital zircon and petrology of the Ennstal Phyllite Zone (Eastern Alps). MinPet2021 Abstract volume
- Schorn, S. (Graz), Hartnady, M.I.H. (Perth), Diener, J.F.A. (Rondebosch), Clark, C. (Perth), Harris, C. (Rondebosch): H<sub>2</sub>O-fluxed melting of eclogite during exhumation: an example from the eclogite type-locality, Eastern Alps (Austria). MinPet2021 Abstract volume

### Public Relations Articles and Talks:

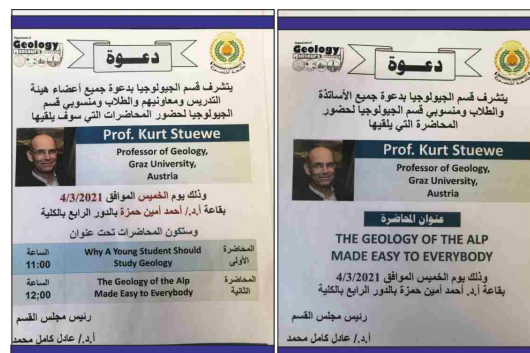
- Stüwe K. (2021). The start of the Anthropocene: How far back? (How climate and humans have influenced the Alps since millions of years). 23.3.2021. Ringvorlesung Uni Wien.
- Stüwe K. (2021). Alfred Wegeners Genie und die Grönland-Gedenkexpedition zum 100-jährigen Jubiläum seiner wichtigsten Entdeckung. Geozirkel Biberach 12.4.2021.
- Stüwe K. (2021). Geologie der Alpen aus der Luft. Geopark Karnische Alpen, 17.9.2021 19:00
- Stüwe K. (2021). Geologie der Alpen aus der Luft. BORG Hermagor, 16.9.2021 10:00
- Stüwe K. (2021). Von Fossilien und Feuerbällen. Ö1 Radiokolleg 19.8.2021. (von: U. Schmitzer)
- Stüwe K. (2021). Talks and short course taught at Mansoura University in March



**Figure 3:** For several viewing platforms around Graz a total of 4 geological images were done. Although all the work was done from our side, the project got stuck in the city council in the 2nd half of the year. Progress is hoped for for 2022.

## FIELD TRIPS

- Gerit Gradwohl was in Glasgow at SUERC for October and November for cosmo-isotope labwork
- Kurt Stüwe did a Hungary field trip with course "Tectonics of sedimentary basins".
- Kurt Stüwe did two field trips to Egypt. One in March to teach a course and one with MSc students in October
- Kurt also taught a geodynamics course in Innsbruck in late November
- Simon Schorn spend a week in Erlangen, some time in the Bohemian Massif, a week in Kirgizstan
- Hans von Kalkreuth visited Steiermark for three days to make a Steiermark Geology movie for ARTE.
- For the ELEVATE project, Kurt Stüwe sent 10 days in the field for mapping the Grazer Bergland and one week in the Salzkammergut in addition to a series of 1-day field trips for student supervision. Several days in the Lurgrotte cave and a 3 day trip to the Bohemian massif for river sampling.



**Figure 4:** Adverts to Kurt's talks at Mansoura University/Egypt in March.





**Figure 5:** (a) Improving my COVID immunity in the Lurgrotte cave. (b) MSc student Sebastian Stumpf working hard. (c) With Mahmoud Hassan in Ismailia in September. (d) Syed Ali Turab finally got his paper done via remote control in Pakistan. (e) With Prof. Farid Makroum in Luxor in March. (f) Former student Ahmed Shalabi in Mansoura University (g) Simon Schorn with Christoph Hauzenberger and Kirgiz colleague in the field in Kirgizstan. (h) First year field trip on the Gleinalpe in October.

## TEACHING AND EDITING ACTIVITIES

---

(All of the below activities suffered from government and university restrictions in 2021)

### EDITORIAL RESPONSIBILITIES:

- **Austrian Journal of Earth Science**  
(Kurt Stuewe Editor)  
In 2021 we managed to create and update the new journal domain: [www.ajes.at](http://www.ajes.at). We are also proud to announce that the journal now represents ALL Austrian Earth Science societies including ÖGG, ÖVG, ÖMG and ÖPG. The success of convincing all societies to join the journal was dampened a bit by an unusual low in submissions. A mere 13 manuscripts were submitted and handled in 2021



### EXTERNAL TEACHING in 2021:

- Geodynamics of the Arabian Nubian Shield (Mansoura University, 3 day course)
- Physikalische Geodynamik (Innsbruck University, November **NEW SCRIPT!!!**)

### TEACHING SUMMER TERM 2021 (most important courses only):

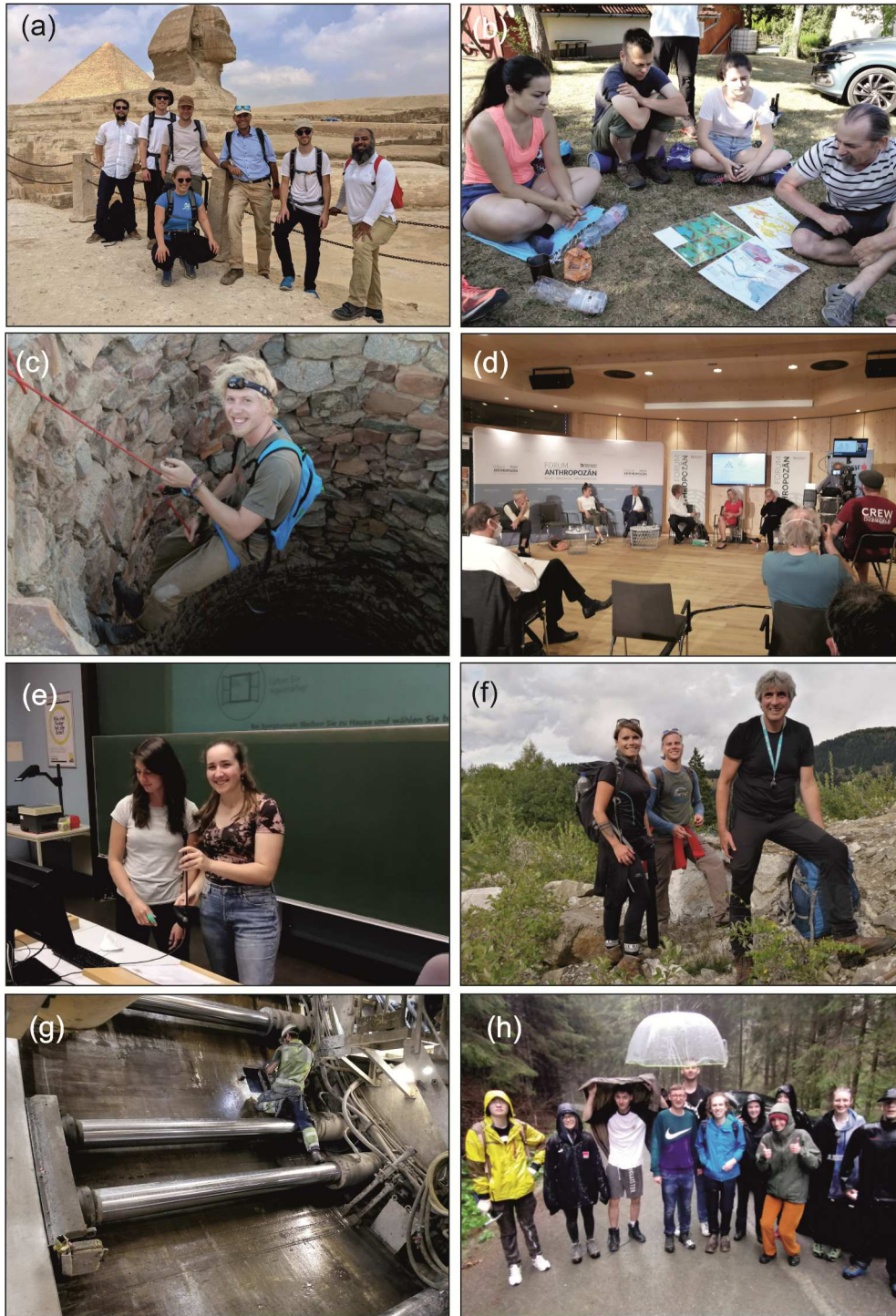
- Geologie von Österreich (Lehramt, Tutors: Sarah Schaffer, Maria Brandmayr)
- Neotectonics and tectonic geomorphology (MSc curriculum)
- Tectonics of Sedimentary Basins (Msc curriculum)
- Einführende Geländemethoden (BSc curriculum)

### TEACHING WINTER TERM 2021/22 (most important courses only):

- Geodynamics of the Lithosphere (MSc curriculum)
- Tectonic Modelling (MSc curriculum)
- Erdwissenschaftliches Seminar (BSc curriculum with D. Hippler)
- Geologie der Erde (BSc curriculum with H. Fritz)
- First Year field trip (with Hauzenberger)

### DOCTORATE SCHOOL OF EARTH SCIENCE:

- Kurt Stüwe is the Head of the Doctorate School of Earth Science at Graz University during all of 2021. See: <https://erdwissenschaften.uni-graz.at/de/doktoratsschule/>



**Figure 6:** Field work in 2021: (a) With Mahmoud Hassan and MSc students Kevin Karner, Sebastian Stumpf, Kati Weisser, Chris Wawra and Raphael Ziegler in Egypt (September). (b) With students and Laszlo Fodor on Sedimentary Basin field trip in Hungary. (c) Sebastian Stumpf getting a burial age sample in southern Egypt. (d) At the Anthropocene workshop in Heiligenblut. (e) Sarah Schaffer and Maria Brandmayr helping out in class as Tutors. (f) With Jan Pleuger, Simon Schorn and student in the Koralpe. (g) With Erich Regelsberger in the Semmering tunnel. (h) With 1st year students on a rainy day in the Gleinalpe (May).