

COURSE FEES

Registration deposit	50 €
Students*	20 €
External	40 €

*Including PhD students. Employees and students of the University of Potsdam are exempted from the fee

REGISTRATION (max. 20 participants)

Write an e-mail to:
wichura@geo.uni-potsdam.de

and submit the 50 € deposit on the following SBank account:

Henry Wichura
IBAN. DE44100500002154217748
BIC. BELADEVB33XXX
Purpose. Topographic Analysis *your name*

ORGANIZER

"StRATEGy" Coordination Office
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LECTURERS

Ramón Arrowsmith is Professor of Geology in the School of Earth and Space Exploration at Arizona State University and is guest Professor for "StRATEGy" in 2016-2017 in the Institut für Erd- und Umweltwissenschaften at Potsdam University. He is co-founder of the OpenTopography project and has lead many workshops on high resolution topography.

Wolfgang Schwanghart is a Postdoctoral Scholar in the Institut für Erd- und Umweltwissenschaften at Potsdam University. He is interested in Quaternary research, geomorphology and natural hazards. He is the coauthor and developer of TopoToolbox MATLAB-based software for topographic analysis)

Christopher Crosby is a Project Manager for Geodetic Imaging at UNAVCO. He manages terrestrial laser scanning, structure from motion, InSAR, and high resolution topography programs. He is co-founder of the OpenTopography project and has lead many workshops on high resolution topography.

Bodo Bookhagen is Professor of Geological Remote Sensing in the Institut für Erd- und Umweltwissenschaften at Potsdam University. He applies a combination of remote sensing, field, laboratory, and numerical methods to understand and quantify climatic and geomorphic processes.

Advancing understanding of geomorphology with topographic analysis emphasizing high resolution topography

June 12-15, 2017
9-5 pm



COURSE OBJECTIVES

- Achieve a general understanding of sources and characteristics of digital elevation model data
- Appreciate major applications of topographic analysis in geosciences, emphasizing geomorphology
- Increase fluency with topographic analysis tools (esp. TopoToolbox; <https://topotoolbox.wordpress.com/>)
- Apply understanding to student's own projects

RELEVANT WEBSITES

MATLAB-based software for topographic analysis (<https://topotoolbox.wordpress.com>)

High-Resolution Topography Data and Tools (<http://www.opentopography.org/>)

Additional support from



UNAVCO

Geo.X



COURSE PROGRAM

Each block will have lectures, computer demonstrations, and moderated discussion. All sessions will be at Potsdam University, Golm

MONDAY JUNE 12th

Introduction to the course

- Course logistics and administration; including introduction of student or group projects for the course
- Students introduce themselves with one slide (3 minutes) that is provided in advance
- Science motivations lectures

Data overview

- ArcMap or Matlab review of basic products: DEM (DTM/DSM)s, hillshades, slope maps
- OpenTopography demonstration
- Exercise/discussion: what do you need for your project? What are the considerations?

TUESDAY JUNE 13th

TopoToolbox overview and DEM processing considerations

- Exercise/discussion: Compute topographic roughness, relief, etc. as simple metrics

Drainage networks, DEM preprocessing, hydrologic correction

- Exercise/discussion: DEM selection and preprocessing

WEDNESDAY JUNE 14th

Tectonic geomorphology

- Overview and topographic metrics
- Knickpoint detection
- Field methods for calibration (CRN and Low Temperature Thermochron)
- Exercise/discussion: Discuss strategies for integrated analysis of tectonic geomorphology

Topotoolbox-guided calculation of Chi and Ksn distributions

- Exercise/discussion: set up and start own project analysis

THURSDAY JUNE 15th

Student individual or group presentations

- 5-10 minutes each with basic text and graphics on problem of interest, analyses completed, and results. Brief discussion and feedback

Course ends at noon.