Opportunities and challenges in Teaching Structural Geology and Tectonics

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In most university geosciences curricula, structural geology and tectonics (SGT) form a core part of teaching. While only a small percentage of Earth science graduates will become structural geologists, many will someday use structural concepts and techniques to solve problems in fields such as nuclear waste storage, the geology of growing urban environments, geohazards, unconventional reservoirs, geothermal energy, CO2 sequestration, energy storage and more. A basic understanding of structural geology is thus part of a critical knowledge foundation in Earth sciences and many related disciplines. In addition, new tools and data are becoming available at a rapid pace, and enable more integrated, multi-dimensional assessments of the geosphere and our societal interfaces with it. All of this provides new opportunities and challenges for STG courses.

In April 2019, a pre-EGU two-day workshop (TeachSGT21) was organized during which strengths and weaknesses of, and threats to current SGT curricula were analyzed. Participants of the workshop covered 11 European and 2 overseas countries, and came from academia as well as industry. On the basis of the workshop, we now outline educational demands from industry and research and discuss the role and significance of field training. Further, we review initiatives that use innovative tools and techniques in teaching. While not claiming to represent all aspects of modern SGT teaching, we expect that our observations can stimulate reflection on degrees and approach and may help making choices in curriculum renewal.