EGU22-864
https://doi.org/10.5194/egusphere-egu22-864
EGU General Assembly 2022

INTEGRATE: A higher-education teaching package for climate science

Sebastian G. Mutz[1], Daniel Boateng[1], and Solmaz Mohadjer[2]
[1]University of Tübingen, Department of Geosciences, Tübingen, Germany (sebastian.mutz@uni-tuebingen.de)
[2]Earth and Environmental Sciences, University of Central Asia, Khorog, Tajikistan

Many issues related to contemporary climate change (e.g. reduced crop yield and diminishing water reservoirs) cannot be effectively addressed without improving the understanding of the climate system in future scientists, communicators and policy makers. Many higher education climate courses, however, are overspecialised, inaccessible and didactically inflexible, making it difficult to transfer them to other learning settings or instructors. INTEGRATE (Integrated Teaching of Atmospheric Science, Technical Skills and Empirical Methods) is an EGU-supported, open-access teaching package that is designed to remove barriers for teaching climate science in a higher education setting. The teaching package is self-contained and covers basic concepts of physical climatology, as well as programming and empirical analysis needed to work with climate datasets. The teaching approach includes hands-on activities for collecting and analysing atmospheric data, such as assembling and operating simple weather stations with affordable hardware. The course material, including source code, instructions, and figures, is available as a git repository (https://github.com/sebastian-mutz/integrate) and compiles into a complete course website (e.g. integrate.mutz.science). While the course was originally designed and tested as a series of lectures and computer exercises for BSc and MSc level university students, it has been revised to allow for adaptation to different teaching and learning levels and strategies in higher education. In this presentation, we introduce the course website and give examples of course content that can be used to instill a deeper understanding of theoretical and practical knowledge of climate science in university students.