CLIMANDES climate science e-learning course

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Over the past three years, members of the Oeschger Centre for Climate Change Research (OCCR) and the Climatology group at the Institute of Geography at the University of Bern, have developed a new climate science e-learning course as part of the CLIMANDES project. This project is a collaboration between Peruvian and Swiss government, research, and education institutions. The aim of this e-learning material is to strengthen education in climate sciences at the higher education and professional level. The course was recently published in 2015 by Geographica Bernensia, and is hosted online by the Peruvian Servicio Nacional de Meteorología e Hidrología (SENAMHI): http://surmx.com/chamilo/climandes/e-learning/. The course is furthermore available for offline use through USB sticks, and a number of these are currently being distributed to regional training centers around the world by the WMO (World Meteorological Organization).

There are eight individual modules of the course that each offer approximately 2 hours of individual learning material, featuring several additional learning activities, such as the online game "The Great Climate Poker" (http://www.climatepoker.unibe.ch/). Overall, over 50 hours of learning material are provided by this course. The modules can be integrated into university lectures, used as single units in workshops, or be combined to serve as a full course. This e-learning course presents a broad spectrum of topics in climate science, including an introduction to climatology, atmospheric and ocean circulation, climate forcings, climate observations and data, working with data products, and climate models.

This e-learning course offers a novel approach to teaching climate science to students around the world, particularly through three important features. Firstly, the course is unique in its diverse range of learning strategies, which include individual reading material, video lectures, interactive graphics, responsive quizzes, as well as group activities and discussions that are led by a tutor. This combination of self-learning and group-based learning presents a new and more interactive style of online education. Secondly, the course provides links to many existing e-learning and other online learning resources for specific climate science topics. This makes the course a starting point for students looking to deepen their knowledge in specific areas. Lastly, the existing course template is available upon request, for teachers to add modules that they would like to offer in addition to the CLIMANDES course. This gives instructors an easy way to adapt the course to their needs and learn about the software needed to make more e-learning material.