

Applying “Climate” system to teaching basic climatology and raising public awareness of climate change issues

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While there is a strong demand for innovation in digital learning, available training programs in the environmental sciences have no time to adapt to rapid changes in the domain content.

A joint group of scientists and university teachers develops and implements an educational environment for new learning experiences in basics of climatic science and its applications. This so-called virtual learning laboratory “Climate” contains educational materials and interactive training courses developed to provide undergraduate and graduate students with profound understanding of changes in regional climate and environment. The main feature of this Laboratory is that students perform their computational tasks on climate modeling and evaluation and assessment of climate change using the typical tools of the “Climate” information-computational system, which are usually used by real-life practitioners performing such kind of research. Students have an opportunity to perform computational laboratory works using information-computational tools of the system and improve skills of their usage simultaneously with mastering the subject. We did not create an artificial learning environment to pass the trainings. On the contrary, the main purpose of association of the educational block and computational information system was to familiarize students with the real existing technologies for monitoring and analysis of data on the state of the climate. Trainings are based on technologies and procedures which are typical for Earth system sciences. Educational courses are designed to permit students to conduct their own investigations of ongoing and future climate changes in a manner that is essentially identical to the techniques used by national and international climate research organizations. All trainings are supported by lectures, devoted to the basic aspects of modern climatology, including analysis of current climate change and its possible impacts ensuring effective links between theory and practice.

Along with its usage in graduate and postgraduate education, “Climate” is used as a framework for a developed basic information course on climate change for common public. In this course basic concepts and problems of modern climate change and its possible consequences are described for non-specialists. The course will also include links to relevant information resources on topical issues of Earth Sciences and a number of case studies, which are carried out for a selected region to consolidate the received knowledge.