63-181 Climate and Environmental Change, Wintersemester 2014/15

Lehrende: Prof. Dr. Jürgen Scheffran; Prof. Dr. Udo Schickhoff

Veranstaltungsart: Vorlesung

Zeit: Di 14:15-15:45, Geomatikum Raum 740

Content: Introduction into basic physical processes causing fluctuations in the Earth's climate; overview of the evolution of the Earth's climate system and the climate history; climate-determined process domains and environments; impact of climate change on environmental resources (soil, water, vegetation); interdependencies of climate and human induced degradation processes and deterioration of ecosystem functions and services; scenario based projections of future climate and environmental change; climate change adaptation and mitigation strategies. The second part of the lecture will be devoted to anthropogenic alteration of vegetation and landscapes in the ecozones of the world including impacts of climate change. Population growth has been accompanied by the development of mechanized agriculture and urban-industrial societies, and increasing use of marginal lands. This has greatly increased the demand for natural resources, resulting in a loss of forest cover, desertification and other forms of land degradation. Due to human impact, entire vegetation types and ecosystems disappear with severe consequences for important processes in the geobiosphere such carbon and nitrogen cycling. Using an ecozonal approach, the state of the world's vegetation will be examined focusing on land use and land cover change.

Aims: Knowledge of the fundamentals of climate system dynamics and factors affecting climate change in present, past and future; in-depth insights in climate and human-induced environmental changes and pressures on environmental resources, ecosystem functions and services

Requirements: Participants should have good knowledge of Physical Geography. The lectures will be illustrated by Power Point presentations. Students will have access to the presentations via web. Literature will be outlined at the beginning of lectures.