

International Doctorate in Civil and Environmental Engineering

An Introduction to Climate Change: the Past, the Present, and the Future

CORSO DI DOTTORATO

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Calendario delle lezioni

Martedì 5 marzo 2019 – ore 11,00-13,00 Aula Caminetto, Scuola di Ingegneria, Via di S. Marta 3, Firenze	An Introduction to Climate Change: the Past, the Present, and the Future
Durata totale del corso	2 ore
Docente di riferimento per informazioni	Prof.ssa Enrica Caporali enrica.caporali@unifi.it

Programma

This lecture is intended to introduce concepts of greenhouse gas effects and global warming and to portray climate change as an independent science by following the narrative of the Working Group I contribution to the IPCC's Fifth Assessment Report (AR5). The report represents a worldwide synthesis of evidence of climate change based on many independent scientific analyses from observations of the climate system, paleoclimate archives, theoretical studies of climate processes and simulations using climate models. Following the IPCC AR5 report the contribution of natural and anthropogenic activities to climate change are discussed together with the observed impacts on temperature, hydrological cycle, extreme events, cryosphere, and oceans. Comparisons with paleoclimate records to frame current climate change in a long-term perspective are also presented. Subsequently, climate models, the numerical tools used for future projections, are briefly explained. Projections of future climate at global and regional scale and downscaling techniques to transfer these projections at local scales are presented. Considerations on the current situation and debated solutions for the future of Earth's climate are finally discussed.