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International PhD Course
"Civil and Environmental Engineering"



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

by Dr. **Simone Fatichi**

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Tuesday 5th March 2019

11.00-13.00

Sala Caminetto

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.

Ing. Simone Fatichi

He is Research Associate and Lecturer at ETH since 2011. He received his BSc (cum laude) and MSc (cum laude) in Environmental Engineering at the University of Firenze (Italy) and he owns an International PhD title joint between the T.U. Braunschweig (Germany) and University of Firenze (Italy). His areas of expertise are hydrology, soil-water-plant interactions, biogeosciences, and analysis of climate change effects. He was recipient of the Torricelli award in 2014.

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