



HBIGS Lecture

by

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„Climate Change in Earth System - what we know and what we don't “

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Start of Lecture: 16:30 s.t.

Venue: INF 280 (DKFZ Communication Center)

Abstract:

Undoubtedly, with anthropogenic carbon dioxide emissions approaching 36 billion tons per year, the human race is affecting the global carbon cycle and thus the climate system. The well-known effects such as increasing CO₂ concentrations and increasing temperatures in the lower atmosphere may trigger a cascade of subsequent and interacting changes in the Earth system, such as increased vegetation growth, melting of ice and permafrost, changed cloud formation and rainfall patterns or ocean acidification and warming. These - however uncertain - changes directly or indirectly feedback to the carbon cycle and the climate, making precise projections of the future climate dynamic so difficult. Moreover, humans affect the climate also via other mechanisms, e.g. changes in the vegetation cover and hence also the surface energy balance, emissions of non-CO₂ greenhouse gases, pollutants and aerosols. Overall, in this context one key question is whether the ocean and the land will continue to absorb a so far steady 50-60% of the anthropogenic CO₂ emissions. Why this might or might not be the case will be discussed in this talk leading to hints towards possible carbon-cycle-climate futures within the next 100-200 years.