COURSE DETAIL

PAST CLIMATE
Country Denmark
Host Institution University of Copenhagen
Program(s) University of Copenhagen
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Earth & Space Sciences
UCEAP Course Number 123
UCEAP Course Suffix
UCEAP Official Title PAST CLIMATE
UCEAP Transcript Title PAST CLIMATE
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course provides an overview of past climate and sea-level changes focused on how these changes are observed in the sedimentary records, and what processes, interactions and feedbacks between the components of the climate system may have led to the signal in the sedimentary archives. The course is composed of theory and case-studies. The theory part comprises an introduction to climate archives and marine and terrestrial system processes. Important sedimentary and geochemical proxies, including isotopes, are explained and students are trained in the evaluation of such data. Examples may deal with past climate changes, long-term carbon cycle perturbations and/or modifications of seawater geochemistry on time scales ranging from thousands to multi-millions of years. In the last weeks of the course, students read key papers and produce a review report or write a report about field/laboratory work/data. The course develops the necessary background for understanding the importance of observations and hypothesis testing. It also develops skills in analysing multiple datasets and in interpretation of which process feedbacks lead to the observations, as well as the ability to evaluate the validity of geological data archives and to model results through comparative studies. A series of lectures and practicals consist in signal analysis (data preparation, Fast fourier transforms or FFT, evolutive FFT, Filter design) of sedimentary climatic signals with the aim of extracting orbital components to better understand the influence of insolation on climate through time.

Language(s) of Instruction
English

Host Institution Course Number
NIGK21035U

Host Institution Course Title
PAST CLIMATE

Host Institution Course Details
https://kurser.ku.dk/course/nigk21035u/2025-2026

Host Institution Campus
Host Institution Faculty Science
Host Institution Degree Master
Host Institution Department Geoscience and Natural Resource Management
Course Last Reviewed 2025-2026

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