



Estimation of past sea-level variations based on ground-penetrating radar mapping of beach-ridges - preliminary results from Feddet, Faxe Bay, eastern Denmark

Hede, Mikkel Ulfeldt; Nielsen, Lars; Clemmensen, Lars B; Noe-Nygaard, Nanna

Publication date:
2011

Citation for published version (APA):
Hede, M. U., Nielsen, L., Clemmensen, L. B., & Noe-Nygaard, N. (2011). *Estimation of past sea-level variations based on ground-penetrating radar mapping of beach-ridges - preliminary results from Feddet, Faxe Bay, eastern Denmark.*

ABSTRACT FINAL ID: NS23A-1557;

TITLE: Estimation of past sea-level variations based on ground-penetrating radar mapping of beach ridges – preliminary results from Feddet, Faxe Bay, eastern Denmark

SESSION TYPE: Poster

SESSION TITLE: NS23A. Near Surface Geophysics General Contributions II Posters

AUTHORS (FIRST NAME, LAST NAME): Mikkel Ulfeldt Hede¹, Lars Nielsen¹, Lars B Clemmensen¹, Nanna Noe-Nygaard¹

INSTITUTIONS (ALL): 1. Geography and Geology, University of Copenhagen, Copenhagen K, Denmark.

Title of Team:

ABSTRACT BODY: Estimates of past sea-level variations based on different methods and techniques have been presented in a range of studies, including interpretation of beach ridge characteristics.

In Denmark, Holocene beach ridge plains have been formed during the last c. 7700 years, a period characterised by both isostatic uplift and changes in eustatic sea-level, and therefore represent an archive of past relative sea-level variations.

Here, we present preliminary results from investigation of beach ridges from Feddet, a small peninsula located in Faxe Bay (Baltic Sea) in the eastern part of Denmark. Feddet has been chosen as a key-locality in this project, as it is located relatively close to the current 0-isobase of isostatic rebound.

GPR reflection data have been acquired with shielded 250 MHz Sensors & Software antennae along a number of profile lines across beach ridge and swale structures of the Feddet peninsula. Furthermore, topography along the profile lines, primary on beach ridge summits and swale bases, was measured to be included in the interpretation of the GPR reflection data using a high-resolution GPS system.

The topography-corrected GPR data allow us to interpret internal sedimentary architecture which may be used as a proxy of past relative sea-level. High-resolution GPR images with a vertical resolution of c. 0.1 m of the near-surface sediments resolve downlapping reflections along the GPR profiles, which are interpreted to mark the transition from the beach to the upper shoreface regime (i.e. sea-level) at the time of deposition.

Combining the variations in height of the downlaps (in meters above present mean sea-level) with optically stimulated luminescence dating techniques provides estimates of relative sea-level at specific times.

KEYWORDS: [1641] GLOBAL CHANGE / Sea level change.

(No Image Selected)

(No Table Selected)

SPONSOR NAME: Mikkel Hede

Additional Details

Previously Presented Material:

Contact Details

CONTACT (NAME ONLY): Mikkel Hede

CONTACT (E-MAIL ONLY): muh@geo.ku.dk
