



Quantifying moraine cliff coast erosion on Wolin Island (Baltic Sea, Northwest Poland) using multitemporal TLS-data

Henning Baewert, Robert Kolander, and David Morche

Institute of Geosciences and Geography, Martin-Luther-University Halle-Wittenberg, Halle, Germany
(henning.baewert@geo.uni-halle.de)

Moraine cliff coast erosion studies on Wolin Island have a long tradition in German and Polish geomorphological research. The research approaches used so far are mainly based on traditional field observation and analyses of historical maps or archives.

There are several key factors controlling erosional processes (rotational landslides, slumps, deflation, slope wash, rill erosion). At a regional scale the cliff sediments and the seasonal climate conditions are significant factors controlling cliff erosion. Previous studies used geodetic measurements and geomorphological mapping to quantify cliff erosion. The application of those methods is more or less accurate and is usually carried out at irregular intervals. However, there are other, more precise contemporary methods that can be used in studies of cliff erosion. The technical improvement in surveying methods over the last decades allows three-dimensional survey of coastal areas. In the present study our main aim is to present the application of high resolution terrestrial laser scanning (TLS) to quantify coastal erosion of a moraine cliff on Wolin Island. Cliff retreat and cliff erosion volumes at two representative test sites based on multitemporal TLS-surveys over three years will be presented.