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Cyclic carbonate shelf deposits on an Upper Carboniferous platform (Ny Friesland, NE Svalbard) – a video presentation

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The Late Carboniferous to Permian interval is characterized by the formation of the supercontinent Pangea as well as by pronounced climatic changes, from icehouse to greenhouse conditions. The Late Paleozoic Ice Age (Visean - Sakmarian) caused high-frequency and high amplitudinal sea-level fluctuations of more than 100 meters, which led to a characteristic cyclicity of the deposits. In contrast, the Middle to Upper Permian sediments were deposited during low-frequency and low amplitudinal sea-level fluctuations.
The archipelago of Svalbard at this time was situated at the northern rim of Pangea linking the warm- to cool temperate areas of the Canadian Arctic with the subtropical/tropical Urals and Tethys areas.
Formations of the Billefjorden Group (Famennian-Visean), Gipsdalen Group (Serpukhovian-Artinskian), and Tempelfjorden Group (Kungurian-Lopingian?) are investigated on both sides of the Hinlopenstreet (NE Spitsbergen, SW Nordaustlandet) within a mapping project of the Norwegian Polar Institute. The focus of the scientific interest is the documentation and interpretation of the climatic and oceanographic changes during the Carboniferous to Permian. Their effects on the depositional setting and on the biota will be studied by the Norwegian-German cooperation.

The video presentation provides an insight into logistic requirements and working conditions during a geologic field expedition (summer 2004) in Arctic regions. It also intends to give an introduction to the carbonate shelf deposits of NE Svalbard with their rich fossil faunas and to illustrate the response of sedimentary environments to changes in climate and sea-level.

At the end of the video a spectacular debris flow is shown, which runs off in a close distance from the field camp. Debris flows may occur during warm periods in the summer season, when the snow is rapidly melting leading to mass flow deposits along the fjords.