

**International Field Symposium of the Peribaltic Working Group
07–13 September 2019, Greifswald, Germany**

**FROM WEICHSELIAN ICE-SHEET DYNAMICS TO HOLOCENE LAND USE
DEVELOPMENT IN WESTERN POMERANIA AND MECKLENBURG**

Field trip route and outline, January 2019

The four-day excursion provides an overview of the geological, geomorphological and geoarchaeological highlights of three famous regions in northeastern Germany.



During the first part of the excursion, the focus will be on the Island of Rügen, in particular the well-exposed southern limb of the Jasmund Glaciotectonic Complex, with its spectacular fold and imbricate structures that comprise late Cretaceous chalk and Pleistocene formations. The small-scale fold and thrust belt is traceable for kilometres along the active sea cliff of Jasmund and it includes transitions from detachment folds over fault propagation folds to fault bend folds with hanging-wall anticlines and foot-wall synclines. Those structures have a surface expression in form of sub-parallel ridges and elongated valleys in between. The kinematics of the Jasmund Glaciotectonic Complex will be outlined in front of large-scale outcrops and by inspecting geomorphological features.

The famous Jasmund National Park will be traversed by a long walk and major sediment formations at a number of localities will be visited. The Pleistocene contains mainly glacial tills and a broad range of ice-marginal deposits formed during the Saalian to Weichselian period along the southern margin of Scandinavian Ice Sheet. Based on ongoing investigations, the Weichselian ice-sheet dynamics on Rügen and within the southwestern Baltic Sea area will be discussed. Recent results of optically-stimulated luminescence dating, sediment-facies analysis, micromorphological investigations, and 3D till microfabrics are presented. Finally, exciting seismites triggered by glacio-isostatically induced crustal faulting in front of the advancing Scandinavian Ice Sheet will be examined.



The second part of the excursion traverses the Mecklenburg Lake District. Participants will see some of the impressive scenery of the Tollense River valley, which was initially formed as a subglacial channel at the southern margin of the Scandinavian Ice Sheet. We will reconstruct the Weichselian and Holocene landscape change and land use by early human communities and learn about conflict archaeology by visiting the Bronze Age battle field in the River Tollense valley.

The trip will pass through the Müritz National Park and includes a visit of the Nature Discovery Center Müritzeum. After passing the town of Waren, the tour proceeds to Krakow am See. The field trip provides a unique opportunity for researchers to visit archetypical postglacial lakes that have been studied in detail by means of pedological, geochronological, sedimentological and palaeontological techniques. These are sections used for and referenced in the currently published models of the response of terrestrial ecosystems to the Holocene climate change.



Contributors and potential field leaders: Tobias Beiche, Szymon Belzyt, Andreas Börner, Brian Brademann, Achim Brauer, Johannes Brumme, Anna Gehrmann, Franziska-Charlotte Grabbe, Chris Harding, Heiko Hüneke, Michael Kenzler, Christoph Kettler, A.J. (Tom) van Loon, Mathias Küster, Gundula Lidke, Sebastian Lorenz, Paul Mehlhorn, Martin Meschede, Karsten Obst, Emrys Phillips, Sylvia Pinkerneil, Małgorzata Pisarska-Jamroży, Henrik Rother, Stig Schack Pedersen, Markus Schwab, Laura Winkler



PRELIMINARY ROUTE AND OUTLINE OF THE EXCURSION

Overnight stay 7 – 9 September 2019: Hostel "Maritimes Jugenddorf Wieck, Majuwi" in Greifswald

9 September 2019 (Monday) – Kinematics of the Jasmund Glaciotectonic Complex (Rügen island, landform and structural analysis)

Stop 1: Blieschow on Jasmund:

Geomorphology and glacial landforms: keys to understanding the deformation chronology of Jasmund

Anna Gehrmann, Chris Harding

Stop 2: Sea cliff at Kieler Ufer (Pleistocene stripes 11-16):

Large-scale architecture and kinematics of the Jasmund Glaciotectonic Complex

Anna Gehrmann, Martin Meschede, Heiko Hüneke, Stig Schack Pedersen

Stop 3: Sea cliff at Wissower Bach (Pleistocene stripe 5):

Microstructural evidence of large-scale glacitectonism and glacier kinematics

Anna Gehrmann, Heiko Hüneke, Martin Meschede, Emrys Phillips

Stop 4: Sea cliff at Lenzer Bach (Pleistocene stripe 4):

3D-microstructural architecture of deformed glacial sediments in relation to macro-scale folding of the Jasmund Glaciotectonic Complex

Paul Mehlhorn, Laura Winkler, Franziska-Charlotte Grabbe, Michael Kenzler, Heiko Hüneke

Overnight stay 9 – 10 September 2019: Pension and hostel "Windrose" at Ummanz, Rügen

10 September 2019 (Tuesday) – Weichselian glaciation on Rügen (luminescence dating, sediment-facies analysis, till microfabrics, seismites)

Stop 1: Sea cliff at Glowe

Stratigraphy and optically stimulated luminescence dating of the Pleistocene sedimentary record on Jasmund

Michael Kenzler, Heiko Hüneke

Stop 2: Sea cliff at Glowe

Terminoglacial glacial sedimentation related to the advance of Scandinavian Ice Sheet during the Last Glacial Maximum

Christoph Kettler, Michael Kenzler, Heiko Hüneke

Stop 4: Sea cliff at Dwasieden

Micromorphology and 3D clast microfabrics of subglacial traction tills compared to the established ice-flow kinematics of the Scandinavian Ice Sheet

Heiko Hüneke, Johannes Brumme, Emrys Phillips

Stop 5: Sea cliff at Dwasieden

Seismites triggered by glacio-isostatically induced crustal faulting in front of the advancing Scandinavian Ice Sheet

Małgorzata Pisarska-Jamroży, Szymon Belzyt, Andreas Börner, Gösta Hoffmann, Heiko Hüneke, Michael Kenzler, Karsten Obst, Henrik Rother, A.J. (Tom) van Loon

Stop 6: Sea cliff at Dwasieden

Micromorphology of silt-clay rhythmites and depositional environment of a late Weichselian terminoglacial lake

Tobias Beiche, Nils Plonka, Michael Kenzler, Heiko Hüneke

Overnight stay 10 – 11 September 2019: Pension and hostel "Windrose" at Ummanz, Rügen



11 September 2019 (Wednesday) – The River Tollense valley - From subglacial channel to Bronze Age battle field (Quaternary and Holocene valley and river development, archaeology)

Stop 1: River Tollense valley near Weltzin

The Bronze Age battle field in the River Tollense valley – Conflict Archaeology and Holocene landscape reconstruction

Gundula Lidke & Sebastian Lorenz

Stop 2: Exhibition and State Collection Müritzeum, Waren

The Nature Discovery Center Müritzeum

Mathias Küster

Stop 3: Jörnberg look out at Lake Krakower See

Late Holocene land-use history of lakes and islands in the vicinity of Krakow am See

Sebastian Lorenz

Overnight stay 11 – 12 September 2019: Castle Neu Sammit near Krakow am See

12 September 2019 (Thursday) – From Krakow am See to Lake Tiefer See (postglacial lake and river development, lacustrine deposition, lake monitoring)

Stop 1: Lake Krakower Obersee near Glave

Weichselian Pleni- to Late glacial lake terrace and soil formation

Sebastian Lorenz, Michael Kenzler, Henrik Rother

Stop 2: Lake Tiefer See, south-eastern shore

Lake basin, Holocene sediment record, lake monitoring

Achim Brauer, Markus Schwab, Brian Brademann, Sylvia Pinkerneil

Overnight stay 12 – 13 September 2019: Castle Neu Sammit near Krakow am See

