



Weichselian glaciation southeast of the Baltic Sea

This issue of the *Estonian Journal of Earth Sciences* includes selected papers focusing on different aspects of Quaternary geology in the Baltic region. All these contributions stem from the INQUA Peribaltic Working Group (WG) symposium and field trip ‘Extent and timing of the Weichselian glaciation southeast of the Baltic Sea’, held in Tartu, southern Estonia and northern Latvia, on 13–17 September 2009. The symposium, sponsored by the Institute of Ecology and Earth Sciences, University of Tartu, Estonia, and Joint Stock Company ‘Seda’, Latvia, brought together 45 researchers and graduate students from 8 countries. The indoor meeting with 29 scientific presentations (the abstract volume is available online at <http://www.ut.ee/et/431909>) was followed by a 3-day geological excursion to southern Estonia and northern Latvia. The symposium was a continuation of the tradition of annual meetings of Quaternary researchers of the Baltic Sea region which commenced already in 1966 in the eastern Baltics. In the early 1990s participation in these meetings widened. The active core-group of researchers was often called ‘Friends of Baltic Quaternary’, and the Peribaltic WG (<http://www.ut.ee/INQUAPeriBaltic>) of INQUA was set up. Recently Reet Karukäpp (Karukäpp, R. 2008. Nelikümmend aastat Baltimaade kvaternaargeoloogide sõpruskonda [Forty years of seminars on Quaternary geology in the Baltic States]. *Eesti Looduseuurijate Seltsi Aastaraamat*, 85, 229–239 [in Estonian, with English summary]), and Jonas Satkūnas and Miglė Stančikaitė (Satkūnas, J. & Stančikaitė, M. 2009. Pleistocene and Holocene palaeoenvironments and recent processes across NE Europe. *Quaternary International*, 207, 1–3) published short overviews of the history of Peribaltic Quaternary science meetings. In most recent years publication of special issues dedicated to INQUA Peribaltic WG meetings has become a good tradition (e.g. *Geological Survey of Finland Special Paper*, 46, 2007;

Quaternary International, 207, 2009), which acknowledges original research achievements in a wide range of Quaternary sciences.

The papers presented in the current issue provide new data on the timing of the onset and decay of the Late Weichselian glaciation in northern Finland and Estonia, and reconstructions of late glacial to Holocene environments in Estonia, Latvia and Lithuania.

The paper by P. Sarala, J. Pihlaja, N. Putkinen and A. Murray provides new evidence on Middle Weichselian ice-free conditions in northern Finland. Optically stimulated luminescence (OSL) ages of till-covered sands vary between ca 21 and 46 ka. They indicate that for the first time in Finland sediments from the Middle and Late Weichselian contact have been described, and that the onset of the Late Weichselian glaciation in northern Finland took place about 22–25 ka ago.

Results of a complex study (OSL and ^{14}C AMS datings, pollen, diatom and ostracod data) on the Late Saalian to Holocene sediment sequence at Arumetsa, southwestern Estonia, are reported by M. Rattas and coauthors. They publish the first OSL ages (between 151 and 117 ka) for the Late Saalian (MIS6) sediments in the northeastern Baltic region. During the Middle Weichselian between 44 and 37 ka ago ice-free lacustrine conditions occurred at Arumetsa. The new data, combined with chronological evidence from different sections, suggest that terrestrial lacustrine environments were widespread in the eastern Baltic area almost up to the beginning of the Late Weichselian glaciation.

A. Česnulevičius and K. Švedas discuss the development of the Dubičiai glaciolacustrine basin in southern Lithuania. Based on geomorphological evidence, four terraces and respective development phases were distinguished in the post-glacial history of the basin. The highest terrace (155–160 m a.s.l.), which formed in the course of the recession of the Žiogeliai glacier,

is followed by the Dryas–Allerød terrace (144 m a.s.l.), the Preboreal–Atlantic terrace (134–135 m a.s.l.) and the Üla River terrace (132 m a.s.l.).

New pollen, plant macrofossil, diatom and loss on ignition data with ^{14}C AMS datings from the Solova (Remmeski) basin in southeastern Estonia are discussed by L. Amon, A. Heinsalu and S. Veski. The authors conclude that at least parts of the Haanja Heights were ice-free by 14 000 cal yr BP and there was a clear short-lived warming episode centred to 13 800 cal yr BP. They tentatively correlate this episode with the GI-1c warming of the event stratigraphy of the Last Termination in the North Atlantic region and also report the presence of tree birch (*Betula pendula*) in Estonia as early as 13 500 cal yr BP.

The paper by I. Ozola, A. Cerina and L. Kalnina deals with late glacial to Holocene vegetation development in

the region of ancient Lake Burtnieks, northern Latvia. The pollen and macrofossil data indicate that the area has been inhabited since the Preboreal–Boreal chronozones, but weak traces of possible presence of people are found already at the very end of the Younger Dryas. Lake trophy conditions changed from oligotrophic in the early Boreal to mesotrophic by the middle Atlantic and to the start of fen peat formation and fill-in at the end of the Atlantic.

The guest editor wishes to thank all the contributors to this special issue and the reviewers for their useful comments on the manuscripts.

The next INQUA Peribaltic WG meeting will be held together with the Deutsche Quartärvereinigung (DEUQUA) biannual meeting (<http://www.deuqua.org/tagungen/greifswald-2010-engl/>) in Greifswald, Germany, on 13–17 September 2010.

Volli Kalm
Guest Editor



Participants photographed on 17.09.2009 on the Rannametsa dunes at the coast of the Gulf of Riga, southwestern Estonia. Photo by Maris Rattas.