

Preface



This second thematic set of papers, published as a Special Issue of the *Estonian Journal of Earth Sciences*, arises from the presentations given at the 4th Annual Meeting of IGCP Project 591 ‘Evolutionary palaeoecology and palaeobiogeography’ held in Tartu, Estonia (June 2014; Bauert et al. 2014).

Details of the activities of IUGS/UNESCO International Geoscience Programme (IGCP) Project 591 *The Early to Middle Palaeozoic Revolution – Bridging the Gap between the Great Ordovician Biodiversification Event and the Devonian Terrestrial Revolution* may be found on the IGCP 591 website (www.igcp591.org). Due to the large number of contributions the Special Issue is published in two parts: part 1 as No. 4 of volume 63 (2014) with 23 papers and part 2 as No. 1 of volume 64 (2015) with 21 papers. The case studies herein cover a wide range of topics in palaeoecology and palaeobiogeography: from ultrastructural features of Early Palaeozoic fauna and flora to combined geochemical, stratigraphical and seismic analyses of palaeoenvironments.

Li et al. discuss Late Ordovician reefs from southeast China in the light of the Cathaysian orogeny, while **Kaminskas et al.** present the seismic survey and three-dimensional reconstruction of the early Pridoli barrier

reef in the southern part of the Baltic Silurian basin. **Nowak et al.** present the discovery of the *messaoudensis-trifidum* acritarch assemblage in the upper Tremadocian–lower Floian, Lower Ordovician of Morocco. **Castagner et al.** describe ultrastructural features of porostromate microproblematica from a Mulde Event (Homerian) bioherm in Podolia, Western Ukraine, and **Vendrasco and Checa** illustrate shell microstructure and its inheritance in the calcitic helcionellid *Mackinnonia*. **Kozłowska** reviews the *Gothograptus* lineage of the retiolids in the Silurian. **Polechová** discusses the youngest representatives of the rostroconch genus *Ribeiria* Sharpe, 1853 from the late Katian of the Prague Basin (Bohemia). **Manda and Turek** discuss colour ornamentation in straight-shelled nautiloids in the Ordovician and Silurian, and **Szaniawski** describes Early Palaeozoic conodont-like fossils of uncertain affinity. **Szrek et al.** present the first findings of plant-root systems in the Lower Devonian of the Holy Cross Mountains (Poland), while **Lam and Stigall** look at faunal migrations in the Late Ordovician. **Wang and Zhan** introduce a new species of middle Rhuddanian *Halysites* tabulate corals from Meitan, northern Guizhou, Southwest China. **Bremer and Blom** provide an updated stratigraphic and environmental framework for the distribution of Silurian vertebrates on Gotland.



Participants in the 4th IGCP 591 Annual Meeting in Tartu, Estonia (June 2014).

Brett et al. examine ecological and lithological controls on depositional gradients in Upper Ordovician strata in southern Ohio and north-central Kentucky (USA) for calibrating water depths of Ordovician communities. **Aucoin et al.** put forward hypotheses for the deposition of the Oldenburg ‘butter shale’ in the Upper Ordovician (Katian; Richmondian) Waynesville Formation, USA. **Fryda et al.** give the first record of the early Sheinwoodian carbon isotope excursion (ESCIE) from the Barrandian area of northwestern peri-Gondwana. **Bergström et al.** put forward a Trans-Atlantic application of the Baltic Middle and Upper Ordovician carbon isotope zonation. **Elbra et al.** provide new results from magnetic and geochemical studies for Palaeozoic volcanic phases in the Prague Basin. **Zhao et al.** introduce geochemical and palaeontological evidence for the definition of the Silurian/Devonian boundary in the Changwantang Section of Guangxi Province in China. Geochemical interpretations of the fossil record are further explored by **Fadel et al.**, revealing palaeoenvironmental signatures from the rare

earth element compositions in vertebrate microremains of the Upper Wenlock Vesiku Bone Bed from Saaremaa Island in Estonia. **Žigaitė et al.** present rare earth element analysis of the Pridolian vertebrate microremains from the Ohesaare beds of Saaremaa Island in Estonia as geochemical clues to palaeoenvironment.

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