Preface

The International Geoscience Programme (IGCP) Project 653 is dedicated to investigating the onset of the 'Great Ordovician Biodiversification Event' (GOBE), by bringing together and sponsoring specialists from all parts of the world to address this perplexing theme. The GOBE, one of the major biodiversification events of the Phanerozoic, was characterized by a magnificent increase in marine biodiversity largely within the phyla established during the 'Cambrian Explosion', and by construction of a complex food web and the eventual establishment of modern marine ecosystems. There have been substantial studies of the diversity changes through the Ordovician; however, one of the remaining questions is when and how the GOBE occurred, i.e. the timing and triggering factors of the event.

The onset of the GOBE seems quite likely to have had its roots in the Furongian (late Cambrian) or even earlier; thus, the question of whether the Cambrian Explosion and the GOBE were two separate events or a single one is a current matter of debate. It has been proposed that at least one significant biotic extinction event occurred immediately prior to or at the beginning of the Furongian, which abruptly terminated a majority of the body plans and many weird organisms that originated during the Ediacaran–Cambrian transition and subsequently dominated the Cambrian ocean. As a result, the Furongian–earliest Ordovician interval was typified by low biodiversity in the ocean, particularly of the most benthic communities; instead, planktonic organisms flourished and predominated. Although most of organisms that diversified in the GOBE, such as trilobites, brachiopods, and echinoderms, appeared in the early Cambrian, other groups of organisms originated in the Furongian–earliest Ordovician interval, e.g. bryozoans, cephalopods, conodonts, chitinozoans, and probably also planktonic graptolites. Was there a 'plankton revolution'? If so, when precisely did this occur? Did the late Cambrian SPICE (Steptoean Positive Carbon Isotope Excursion) event trigger the plankton revolution by means of an oxygenation event? To address these questions, IGCP Project 653 is carrying out an interdisciplinary study of this specific interval, including the palaeontology, stratigraphy, sedimentology, geochemistry, palaeoclimatology, and paleoceanography, with a global scope.

As both the Cambrian Explosion and the GOBE have been the subject of much attention and well documented, now it is time to fill the gap separating these two great events by focusing on research on this poorly understood interval. South China, renowned for the preservation of highly continuous and well-developed successions from the Guzhangian (Cambrian Series 3) to the Upper Ordovician, is among the few classic regions where specialists from all parts of the world can investigate well-exposed sections, discuss critical topics, and figure out possible patterns by participating in the meeting and field trips. In this region, six GSSPs (Global Standard Stratotype-sections and Points) have been established in the past twenty years, for the Guzhangian, Paibian, and Jiangshanian

stages of the Cambrian Period and the Dapingian, Darriwilian, and Hirnantian stages of the Ordovician Period, providing uniquely precise calibration for studies on the onset of the GOBE.

On behalf of the Organizing Committee of the 'IGCP Project 653—Annual Meeting 2017', we would like to thank all the 61 delegates who co-authored 55 abstracts and extended summaries published in this volume and presented 39 talks and 15 posters at the meeting. These proceedings cover a fairly broad range of studies closely related to the onset of the GOBE, especially the palaeobiology, stratigraphy, *Konservat-Lagerstätten*, palaeoecology, ichnology, and geochemistry of this critical transition. We are also indebted to the three keynote speakers, Rudy LEROSEY-AUBRIL, ZHU Maoyan, and Cole EDWARDS, for their extended summaries, and keynote presentations.

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Finally, we would like to thank all the presenters, field trip leaders, manuscript reviewers, and volunteers for their participation and contributions, which are essential to a successful meeting.

On behalf of the Organizing Committee,
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