The early Palaeozoic evolution of Japan
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Analysis of fossil faunas from the early to mid Palaeozoic terranes of Japan indicates a complex interplay of stratigraphical, palaeoenvironmental and palaeogeographical controls on the palaeobiogeographical signature of the fossil assemblages (Williams et al. 2014). This cautions against presenting Japan as a unified island arc to north of the South China Palaeoplate during the early Palaeozoic, or, indeed, of presenting Japan in relative proximity to the North or South China palaeoplates. Limited palaeobiogeographical similarity at the species-level between the calcareous macro- and micro-faunas (e.g. trilobites, brachiopods, ostracods) of the South Kitakami, Hida-Gaien and Kurosegawa terranes likely reflects the sporadic occurrence of the fossils in the different Japanese terranes, and possibly also relates to an incomplete understanding of the taxonomy of some of these fossil groups. Thus, with the exception of some corals and radiolarians that identify a pan-palaeotropical signature, species-level similarities appear greater with other palaeoplate regions of East Asia and Oceania than amongst the Japanese terranes. The Silurian fossil faunas of the South Kitakami Terrane of northeast Honshu show affinities with North American, European, Central Asian and Australian fossil assemblages, but there is no overriding signature to support geographical proximity either with the South China or Gondwanan (eastern Australian part) palaeocontinents during the Silurian. Importantly, brachiopod and trilobite faunas of the Middle Devonian in the South Kitakami Terrane suggest strong connections with North China. Trilobite, coral and ostracod faunas of the Hida-Gaien Terrane of central Honshu show affinity with Siluro-Devonian faunas from westerly-situated palaeocontinents, especially those of Central Asian and European affinity, suggesting a continuation of the Central Asian Orogenic Belt, or perhaps of its associated lithofacies. The dominant palaeobiogeographical signature of the Kurosegawa Terrane of southwest Japan (Kii Peninsula of southwest Honshu, Shikoku and Kyushu islands) is from corals and trilobites, suggesting links with the Siluro-Devonian of Central Asia, Australia and South China. The variable palaeobiogeographical signals of the early Palaeozoic faunas of Japan may partly reflect the ecologies of organisms with, for example different larval dispersal mechanisms, as well as the sporadic nature of the Japanese fossil record. Detailed and ongoing study of various fossil groups, especially trilobites, ostracods and palynomorphs, and of the lithofacies in which these fossils are contained, can more precisely address questions of the geographical evolution of Japan during the Ordovician to Devonian.

References
Williams et al. (2014), The Island Arc, 23, 76-101.