Swanson-Hysell and Macdonald (2017) follow Kump et al.’s (1999) proposal that decreasing temperatures through the Ordovician (e.g., Trotter et al., 2008) are largely explained by CO2 sequestration with weathering of silicates exposed by Taconic arc-Laurentia collision. They propose higher weatherability of the west-east–trending Taconic orogen that they shift to a more equatorial, wet-tropical setting. The concerns that may be raised by a reader are whether the following are all responses to this orogeny: (1) the Ordovician temperature record, (2) the strontium and neodymium isotope record interpreted to reflect the Taconic orogeny (Swanson-Hysell and Macdonald, 2017), and (3) the interpreted pCO2.

The amount and rate of CO2 sequestration with weathering of obducted Taconic mafics and ultramafics likely do not have an analog in the late Cretaceous and early Eocene arcs discussed by Jagoutz et al. (2016). The Taconic arc system had an ~4500 km length (i.e., Alabama–west Newfoundland–northern Irish-Scottish Grampian orogen). Continuation of Taconic arcs past Greenland (Swanson-Hysell and Macdonald’s figure 1) is speculative as east Greenland was not part of the Taconic orogen and northern Ellesmere Island (Pearya terrane) and Southwest Svalbard likely form the northern Caledonides (Cocks and Torsvik, 2011). Although the Taconic orogen is comparable in length with the subduction complexes discussed by Jagoutz et al. (2016), it is possible, following the Kump et al. (1999) and Swanson-Hysell and Macdonald’s syntheses, that weathering of Taconic arc successions and sequestration of CO2 would have decreased global temperatures? This question is appropriate, as Taconic mafic and ultramafic rocks are isolated and small (~25 km wide in the Bay of Islands Complex) (Williams and Talkington, 1977) and do not reach the size (up to 200 km wide) that allowed great CO2 consumption with weathering of the Neo-Tethyan arcs (Jagoutz et al., 2016).

Except for terminal Ordovician glaciation, most of the period featured a climate maximum (e.g., Sheehan, 2001). This meant warm, humid conditions across a wider range of latitudes, as shallow epeiric seas with high insolation onlapped reflective continents and led to high levels of greenhouse-gas water vapor. These post-greenhouse, hyperwarming conditions accompanied high Early Ordovician (particularly Tremadocian) and Caradocian sea levels (Landing, 2012). It is peculiar that Swanson-Hysell and Macdonald (also see Boucot et al., 2013) limited the “warm and wet tropics” to a modern equatorial distribution when these conditions and high weatherability of obducted arc rocks would have extended much farther north and south with eustatic rise at high latitudes (Sheehan, 2001, 2007). The Cambrian–Ordovician slope and shelf of the Laurentia paleocontinent: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 367–368, p. 256–272, https://doi.org/10.1016/j.palaeo.2016.06.006.

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