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P. N. Pearson
School of Earth, Ocean and Planetary Sciences, Cardiff University, Cardiff CF10 3YE, UK
B.S. Wade
Department of Geology and Geophysics, Texas A&M University, College Station, Texas 77843, USA

Dutton and Bralower (2007, Fig. 1) have plotted, for the first time, some of the multispecies planktonic foraminifer stable isotope data that were deposited in the GSA Data Repository to accompany our article (Pearson et al., 2007). Because of space limitations, we had deferred publishing our interpretation of this full data set for a future contribution. The data show several interesting features, but the way they have been selectively depicted and labeled in Dutton and Bralower's figure is misleading.

Planktonic foraminifera are well known to occupy a variety of depth habitats and peak in abundance at different times of year. The shallowest habitats are in the mixed layer, which has a temperature similar to the surface; hence, we can use certain mixed-layer species to estimate sea-surface temperatures (SSTs). However, studies of modern plankton show that within the mixed layer there is pronounced vertical stratification among species, even within genera, and many forms migrate to deeper waters at maturity, where they can add thick layers of calcite at reproduction (Hemleben et al., 1989). Still other species live most of their life cycle at depth, within or even below the thermocline. Hence, in order to reconstruct SSTs, it is necessary to identify the correct species.

We did not classify the species we analyzed into depth categories, although we have done this elsewhere for some of the species (see Pearson et al., 2001). Unfortunately, the classification imposed on our data by Dutton and Bralower strongly conflicts with our previous interpretation and other published literature (reviewed by species in Pearson et al., 2006). Careful examination of Dutton and Bralower's Figure 1, in comparison to our supplementary data, reveals that most of the forms claimed by Dutton and Bralower to indicate "surface" conditions are well known to be either deep dwelling forms (species of *Parasubbotina* and *Dentoglobigerina*), species that added significant extra calcite at depth at the end of the life cycle (probably all *Globigerinatheka*, and many *Acarinina* and *Morozovella*), or species for which no previous data are available.

This means that the data spreads shown for the various age horizons in Dutton and Bralower's Figure 1 represent a range of subsurface temperatures as well as SSTs. Plotting isotopic averages for this heterogeneous ecological mix, as shown in the figure, carries little meaning. Further, we strongly disagree that analyzing monogeneric assemblages should be the preferred approach in these circumstances. The genus *Acarinina*, for example, contains many species that are known to have quite large and consistent isotopic offsets between them (see, for example, Pearson et al., 1993). These species vary in relative abundances and appear and disappear in the record at different levels, so mixing up species inevitably causes the loss of useful information and may produce spurious stratigraphic patterns.

We would fully expect subsurface and thermocline temperatures in the tropics to have cooled during the Eocene in response to bottom water cooling, as is partly shown by the plot of our data from the subset of our subsurface forms. While this is interesting, it is not directly relevant to determining SSTs for the Eocene tropics.

We acknowledged in our paper that tropical SSTs from Tanzania may have warmed in the Paleocene and cooled slightly through the Eocene, but not to the extent that previous interpretations of the deep sea data have suggested. Sites like Integrated Ocean Drilling Program (IODP) 865 and 1209 will continue to provide invaluable insights into past climates, and there is a clear need for many more such records to be obtained as the IODP develops. The challenge will be to correctly interpret the climate signals within them and, at the same time, further our understanding of the ways diagenesis affects the geochemical records. We have already shared comparative samples with Andrea Dutton and Tim Bralower and look forward to working with them on this important problem.

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