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Interactive comment on "A niche comparison of *Emiliania huxleyi* and *Gephyrocapsa oceanica* and potential effects of climate change" *by* Natasha A. Gafar and Kai G. Schulz

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You present a very interesting and useful peace of work. You selected the two species you refer as the most common. Emiliania huxleyi (Eh) is unquestionably the currently dominating species in oceanic niches. Gephyrocapsa oceanica (Go) is for sure the most abundant but in neritic domain (at least in my area, not sure about Australia), not exactly the most common in the overall oceans. In addition, from a paleoecological point of view, records of Eh are always compared to another small placolith species (small Gephyrocapsids; sG), not to Go, both in terms of relative and absolute abundances. I understand that Eh and Go are among those coccolithophores that better

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perform in cultures but shouldn't we compare Eh against sG instead? What's your opinion?

It is more that these two species are the most common in terms of their presence in coccolithophore communities rather than their dominance. Both species have a broad distribution across multiple ocean basins, for detail please see our response to reviewer 2 Page 2âĹijline 18. It is this reason, plus the fact that data on responses to changing CO2, temperature and light are available for both species, that we decided to compare the two species.

It would also be of interest to compare E. huxleyi against the small Gephyrocapsids. However, from what we understand the small Gephyrocapsids consist of multiple small Gephyrocapsa spp. which are not always identified to the species level (e.g. Table 3 Flores et al. 1999). As such, a niche comparison with E. huxleyi would be very difficult to accomplish from an experimental point of view.

G. oceanica is often mentioned alongside E. huxleyi in sediment core data (i.e. McIntyre and Be 1967, Chen and Shieh 1982, Roth and Coulburn 1982, Knappertsbusch et al. 1993, Findlay and Flores 2000, Andruleit and Rogalla 2002, Boeckel et al. 2006, Fernando et al. 2007, Saaveda-Pellitero et al. 2010). Further, it seems that in longer geological records that E. huxleyi is usually compared to larger Gephyrocapsa species such as G. mullerae, G. caribbeanica and G. oceanica as well as the small Gephyrocapsids (Flores et al. 1997, Findlay and Florin 2000, Flores et al. 2003, Backman et al. 2009). So, we believe it is equally reasonable to compare E. huxleyi and G. oceanica as it is to compare E. huxleyi to the small Gephyrocapsids.

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