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Modifications in calcareous nannofossil assemblages during the Early Eocene: a tethyan perspective. ()

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The available oxygen isotope records indicate a long-term warming trend from the late Paleocene through the early Eocene (ca. 59-52 Ma) that peaked at the Early Eocene Climatic Optimum (EECO) (Zachos et al., 2001). This trend was interrupted by at least two or more prominent carbon cycle perturbations, the PETM at ca. 55.5 Ma and the Eocene thermal maximum 2 (ETM2; also referred to as Elmo, H-1) at ca. 53,6 Ma (Kennett and Stott, 1991; Lourens et al., 2005). Here we present calcareous nannofossil data from the hemipelagic Cicogna section located in the Piave River Valley in north eastern Italy (Dallanave et al., 2009). This continuous sedimentary record was studied to reconstruct the main features in the calcareous nannoplankton communities during this critical interval. As is clearly shown by the results, some of the observed prominent modifications are related to short-lived phases of climate perturbation, as for

instance the transient and abrupt appearance of odd species during the PETM or the prominent variations in the relative abundance within the assemblages during these events. These short-term changes are usually transitory and calcareous nannoplankton seem to be able to return back to pre-event state. Nonetheless, the overall shape of calcareous nannofossil assemblages showed long lasting or gradual changes, for example the extinction of genera *Fasciculithus* and *Prinsius*, the explosion of *Zyghrablithus bijugatus* and the gradual decrease of heterococcoliths/nannoliths ratio. Either transient or permanent modifications in calcareous nannofossils are associated to dramatic perturbation of paleoenvironmental conditions or long trend climate evolution, respectively. References: Dallanave et al., 2009. *Earth and Planetary Science Letters*, 285, 39-51. Kennett and Stott, 1991. *Nature*, 353, 225-229. Lourens et al., 2005. *Nature*, 235, 1083-1087. Zachos et al., 2001. *Science*, 292, 686-693.

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