



Major shifts in age control at ODP S. 982 near the Pliocene onset of Northern Hemisphere Glaciation - Composite depths and d18O stratigraphy revisited

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ODP Site 982 at Rockall Plateau provided a key sediment section for reconstructing northeast Atlantic paleoceanography over the Late Pliocene to Quaternary onset of Northern Hemisphere Glaciation. By now, S. 982 served to monitor benthic d18O stratigraphy and the global d18O ice effect (Venz and Hodell, 2002; Lisiecki and Raymo, 2005), past changes in SST and SST phase relationships (Lawrence, 2009), trends in atmospheric pCO₂ (Pagani et al., 2010) and Atlantic Intermediate Water composition, and the advection of Mediterranean Outflow Water (Khelifi, 2010, in prep.). A detailed revision of composite depths and magnetostratigraphy, and renewed fine-tuning of the benthic d18O record now led to a significant age shift (rejuvenation) of all proxy records by 20 to 150 ky during the onset of Northern Hemisphere Glaciation 3.2–2.7 Ma, an interval of major climate change. The revised new SST records well compares with coeval SST trends previously published from ODP sites elsewhere in the northern North Atlantic (e.g., Bartoli et al., 2005). Our study demonstrates the crucial significance of assembling with care composite-depth scales and a reliable d18O stratigraphy in ODP sediment records as backbone for correlations in paleoceanography.

Refs:

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