Geophysical Research Abstracts
Vol. 15, EGU2013-7660, 2013
EGU General Assembly 2013

Towards an integrated radio-isotopic and astronomical time scale for the Paleocene.

Klaudia Kuiper (1), Frits Hilgen (2), Hemmo Abels (2), Luc Lourens (2), Mariette Wolters (2), and GTSnext team members (3)

(1) Department of Earth Sciences, Vrije Universiteit Amsterdam, The Netherlands (k.f.kuiper@vu.nl), (2) Department of Earth Sciences, Utrecht University, The Netherlands, (3) www.gtsnext.eu

The construction of a reliable astronomical time scale for the Paleocene is hampered by uncertainties in the number of 405-kyr eccentricity related cycles in the stratigraphic record and in the independent radio-isotope age control. To address these ambiguities, we used core images to re-examine the cyclo-stratigraphic interpretation of ODP Leg 198 sites. Our re-interpretation of the cyclostratigraphy solves the previous inconsistency in the correlation of the top C27n carbon isotope event between ODP Site 1209 and the Zumaia section in Spain and is consistent with 25 x 405-kyr cycles in the entire Paleocene. It further results in an increased synchroneity of several important calcareous nanno-fossil events.
This Paleocene astronomical time scale should be confirmed by independent age control (e.g. Ar/Ar or U-Pb ages). However, the accuracy Ar/Ar ages is often debated and the discussion is mainly focused on the absolute age of the commonly used Fish Canyon Tuff sanidine standard (FCs). Based on data obtained within the GTSnext network we will demonstrate that the age of FCs most likely centers around ∼28.2ish Ma, and excludes both younger and older ages for this standard. In combination with new Ar/Ar sanidine dates for ash layers in continental succession of North America implications for Paleocene tuning will be discussed.