Geophysical Research Abstracts
Vol. 20, EGU2018-18414, 2018
EGU General Assembly 2018

Timing the onset of the Eemian across shelf and coastal Atlantic Europe

Freek Busschers (1), Kim Cohen (2), Jan Peeters (2), and Marc Sier (3)

(1) TNO - Geological Survey of the Netherlands, Princetonlaan 6, Utrecht, Netherlands (freek.busschers@tno.nl), (2) Utrecht University, Physical Geography, POBOX 80.115, Utrecht, Netherlands (k.m.cohen@uu.nl), (3) Oxford University, Department of Earth Sciences, Oxford, United Kingdom (marksier@gmail.com)

The Eemian is the term for the terrestrial and coastal marine Last Interglacial in Europe. The Eemian has been extensively studied from paleolandscape, sedimentary, archaeological, molluscan and botanical perspectives. Although the duration of the Eemian in north western Europe is well know from lake sediments [1], the absolute age of onset and ending are a matter of correlation and discussion. A critical part is the debate on to what extent the Eemian pollenzone biostratigraphical correlation can be diachronic between subregions of Europe [2,3]. A second matter is the correlation to the MIS 6-5e transition [4,5,6]. A third matter is the timing of the North Sea transgression and its relation to Scandinavian and Greenland deglaciation and GIA [7,8,9]. Detection of the Blake paleomagnetic excursion [2] indicate the Eemian in the North Sea to have begun late at ∼121 ka. Marine records offshore Portugal (d18O, pollen, Blake excursion) indicate interglacial conditions over there to have commenced ∼127 ka. About 6000 years of lag in climatic amelioration appears to exist between S and NW Europe. This is quite different from the YD-Holocene transition, where such lag in entering reference interglacial conditions across Atlantic Europe is almost absent. The diachroneity in the onset of interglacial conditions, implies that regional climatic conditions over Europe and the North Atlantic in the first part of MIS 5e were very much different from those in equivalent parts of MIS 1, a feature that is related to known differences between the melting history of the Greenland ice cap following Termination II and Termination I [8]. It also has implications for reading global fingerprints in the sea-level history of the period [9]. The presentation gives an overview of the current state of insights in the age of the Eemian climatic onset and the timing of the transgression within. We perform a cross-correlation including the above and new records, strengthening our earlier findings of diachronic registration of environmental change equated to European Eemian onset and transgression events.

[1] Müller, H., 1974. Geol. Jahrb. A21, 149-169.
[2] Sier, M.J. et al., 2015. Quat. Geochr. 28, 12-28.
[3] Sier, M.J. et al., 2011. Quat. Res. 75, 213-218.
[4] Sánchez-Goñi et al., 1999. Earth Planet. Sci. Lett. 171, 123-137.
[5] Shackleton, N.J. et al., 2002. Quat. Res. 58, 14-16.
[6] Thouveny et al., 2004. Earth Planet. Sci. Lett. 219, 377-396
[7] Bauch, H. et al., 2000. Paleoceanogr. 15, 76-84.
[8] NEEM com. Memb., 2013. Nature 493, 489-494.
[9] Long, A.J. et al., 2015. Quat. Sci. Rev. 126, 26-40.