

Early hominins in north-west Europe: a punctuated long chronology?

Article

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Table 5: Winter and summer temperature estimates for Early and Middle Pleistocene British and German sites (with selected present day equivalents for reference). ¹Sensitivity tests on coleoptera-based MCR procedures suggest that winter temperature estimates are usually too warm (Pettitt and White, 2012: 35). ²The specific source of the palaeo-temperature estimates is not stated, but the fauna includes molluscs and ostracods; ³East Anglian data based on Met Office annual mean seasonal temperatures (1910–2016; http://www.metoffice.gov.uk/pub/data/weather/uk/climate/datasets/Tmean/date/East_Anglia.txt); ⁴Bilzingsleben data based on Deutscher Wetterdienst (German Weather Service) monthly mean January and July temperatures (1951–2017; Erfurt-Weimar station; <https://www.dwd.de/DE/leistungen/klimadatendeutschland/klarchivtagmonat.html>)

Site	T _{min} (°C)	T _{max} (°C)	Evidence ¹	Age (MIS)	Source
Early Pleistocene					
Happisburgh III (Bed E)	-3 – 0	+16 – +18	Coleoptera	Late 25 or late 21	(Ashton and Lewis, 2012; Parfitt et al., 2010)
Early Middle Pleistocene					
Pakefield (Bed Cii–Ciii)	-6 – +4	+17 – +23	Coleoptera	17 or later 19	(Ashton and Lewis, 2012; Coope, 2006b)
Boxgrove (Unit 4c & Freshwater Silt Bed ≈ Units 4b & 4c)	-4 – +4	+15 – +20	Ostracods (MOTR) & Herpetofauna (MCR)	13	(Ashton and Lewis, 2012; Holman, 1999; Holmes

					et al., 2010)
Happisburgh I (Organic Mud)	-11 – -3	+12 – +15	Coleoptera	13?	(Ashton and Lewis, 2012; Coope, 2006b)
High Lodge (Bed C1)	-4 – +1	+15 – +16	Coleoptera	13?	(Coope, 2006b)
Waverley Wood (Channel 2, Organic Mud)	-	+10 – +15	Coleoptera	13 or 15	(Coope, 2006b; Shotton et al., 1993)
Brooksby (Redland's Brooksby Channel)	-10 – +2	+15 – +16	Coleoptera	13 or 15	(Coope, 2006b)
Later Middle Pleistocene					
Barnham (Unit 5c; Holl)	-	+17 – +18	Herpetofauna	11c	(Holman, 1998)
Hoxne (Stratum D; Holla)	-10 – +6	+15 – +19	Coleoptera	11c	(Ashton et al., 2008a; Coope, 1993)
Bilzingsleben II	-0.5 – +3	+20 – +25	Mollusca & ostracods ²	11	(Mania, 1995; Mania and Mania, 2003)
Schöningen 13 II-4	-4 – -1	+16	Mollusca & ostracods	9	(Urban and Bigga, 2015)

Present Day Comparisons

East Anglia (present day) ³	-0.7 – +6.9	+14.2 – + 18.0	-	-	-
Bilzingsleben (present day) ⁴	-3.3 – +2.0	+12.4 – +22.7	-	-	-