

**Table S1 – Results of 14C accelerator mass spectrometry dating for cores GeoB11033-1 (Galiza), DIVA 09GC(Minho) and POPEI VC2B (Algarve). Ages were reservoir corrected by 400 yr and converted into calendar years (AD/CE).**



**Figure S1 – 210Pb activity downcore for the Galiza box-core (GeoB11033-1) and the Minho (DIVA09GC) and Algarve (POPEI VC2B) cores.**



**Figure S2. Depth *vs*. AD/CE ages (with 2σ error) for cores GeoB11033-1 and GC at the Galiza site (orange), DIVA09GC (Minho, magenta) and POPEI VC2B (Algarve, red), with a linear best fit.**



**Figure S3 – Comparison of alkenone-derived sea surface temperature (SST – black diamonds) and error bars determined in cores PO287-6B (PORTO), PO287-26B (TEJO) and POPEI (ALGARVE) with annual (open circles), four 3-month seasonal averages (JFM, AMJ, JAS, OND, see legend) and composites for the NAO winter (DJFM) and upwelling seasons (MJJAS) computed from NOAA daily Optimum Interpolation Sea Surface Temperature (OISST, V2 AVHRR-only)** **for the three sites location.**



**Figure S4 – Comparison of SST stacks constructed using all the cores (total – black); all but the Tejo cores (effect of existing hiatus - green); except the Algarve record (effect of different coccolithophores generating process - red); considering only the northern sites (Galiza, Minho and Porto - blue). First two panels depict the 30-yr bin stacks. The third panel shows the 5-yr bin stacks constructed from the Porto, Tejo and Algarve cores for >1850 CE.**