Corrigendum: Climatic variability over time scales spanning nine orders of magnitude: Connecting Milankovitch cycles with Hurst-Kolmogorov dynamics

Yannis Markonis* and Demetris Koutsoyiannis

Department of Water Resources and Environmental Engineering, Faculty of Civil Engineering, National Technical University of Athens, Heroon Polytechneiou 5, GR 157 80 Zographou, Greece

*Corresponding author: imarkonis@itia.ntua.gr – tel.: +30 210 7722838

Some minor errata, including in a few references, were found after publication of the paper and should be corrected. The changes do not alter the results and conclusions of the paper.

In page 11 (of the published paper), the phrase "Ice cores give us information for the last 800 000 years (Figure 6) by the use of the isotope δ18O/δ16O ratio" should be replaced by "Ice cores give us information for the last 800 000 years (Figure 6) by the use of the isotope deuterium (δD) or the isotope ratio $\delta^{18}O/\delta^{16}O$". In particular, the EPICA temperature reconstruction is based on δD measurements.

In the reference list the citations Koutsoyiannis and Montanari (2007), Koscielny-Bunde et al. (1998) and Steig et al. (2000) should be corrected. Note that in the published paper the reference of Koscielny-Bunde et al. (1998) is misplaced close to the end of the reference list while the authors' names appear in the correct place.

In Table 1 the web site links for the NSSTC, CRU and Taylor Dome data should be replaced, respectively, with, www.nsstc.uah.edu/data/msu/t2lt/oldversions/tltglhmam_5.4, www.cru.uea.ac.uk/cru/data/temperature/HadCRUT3-gl.dat and ftp://ftp.ncdc.noaa.gov/pub/data/paleo/icecore/antarctica/taylor/hi18o_td.txt.

In Figure 2 (p. 6) the numbering of the vertical lines should be corrected so that (1) should refer to frequency 0.01, (2) to 0.024 and (3) to 0.042. The numbering in the caption should be changed accordingly (the corrected figure and caption are reproduced below).

In Figure 11 (p. 19) an embedded graph should be added to illustrate the time series used for the climacogram of the sun spots (the corrected figure is reproduced below).

References

Koutsoyiannis D, Montanari A (2007) Statistical analysis of hydroclimatic time series: Uncertainty and insights. Water Resour Res 43 (5):W05429, doi:10.1029/2006WR005592

Koscielny-Bunde E, Bunde A, Havlin S, Roman HE, Goldreich Y, Schellnhuber HJ (1998) Indication of a universal persistence law governing atmospheric variability. Phys Rev Lett 81:729–732

Steig EJ, Morse DL, Waddington ED, Stuiver M, Grootes PM., Mayewski PA, Twickler MS, Whitlow SI (2000) Wisconsinan and Holocene climate history from an ice core at Taylor Dome, Western Ross Embayment, Antarctica. Geografiska Annaler: Series A, Phys Geogr 82(2-3):213–235
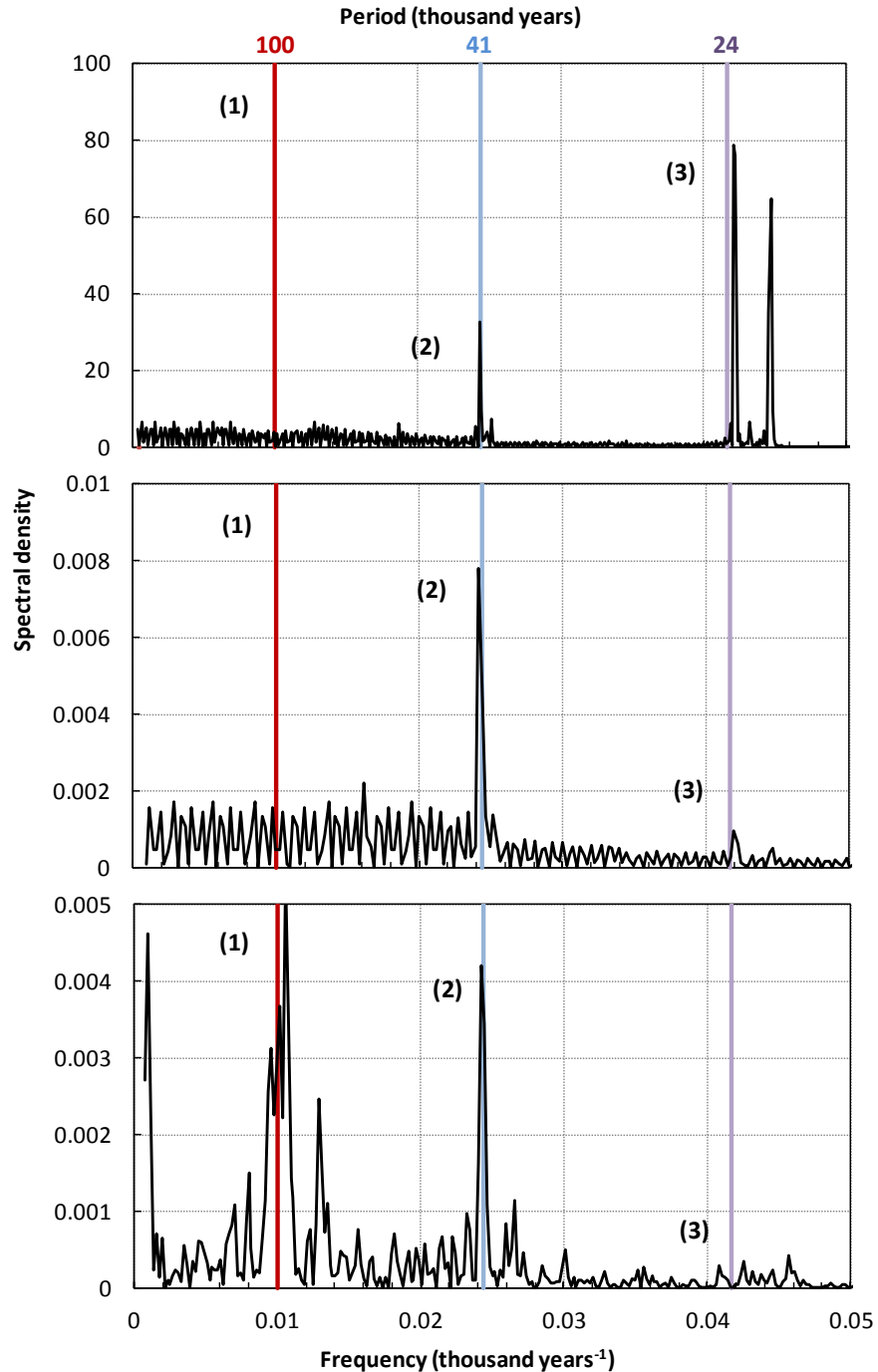
Corrected Fig. 2 Power spectra of: (a) insolation forcing in June at 65°N (classical orbital theory; Laskar et al. 2004), (b) integrated summer insolation at 65°N (modern orbital theory; Huybers 2006), and (c) two-million year temperature reconstruction (Huybers 2007). In (a) the obliquity cycle at 41 thousand years (marked as 2), and the precession cycles at 19 and 24 thousand years (marked as 3) have similar amplitude, whereas in (b) only the obliquity constituent is dominant. The power spectrum of temperature reconstruction (c) agrees with (b) and (c) in terms of the obliquity cycle, while it contains an additional peak at 100 thousand years (marked as 1) which does not appear in (a) or (b).
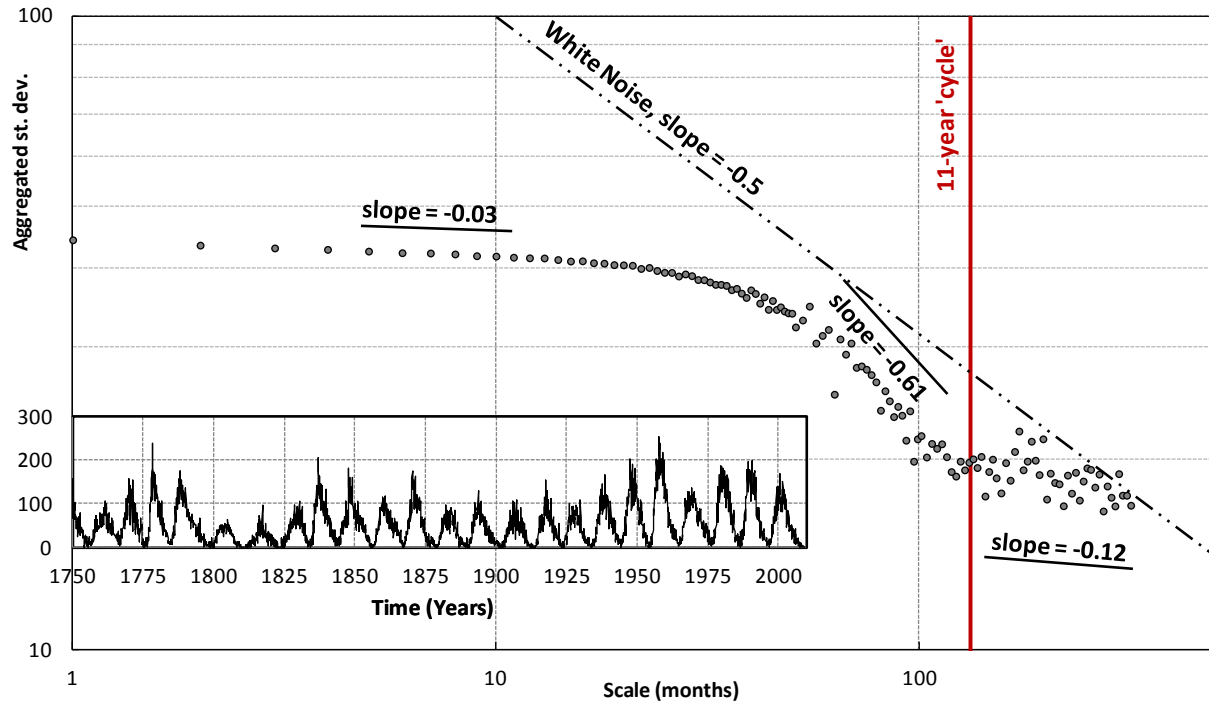
Corrected Fig. 11 Climacogram of sunspot number from original data (shown in the embedded graph) from the Royal Greenwich Observatory & USAF/NOAA (http://solarscience.msfc.nasa.gov/greenwch/spot_num.txt).