

Interactive comment on “Local $\delta^{18}\text{O}$ and $\delta^2\text{H}$ variability in UK rainfall” by M. D. Jones et al.

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I do not want to dampen the authors' enthusiasm too much, but I fear that 18 months' worth of monitoring data is far too short a period on which to base claims such as "d18Op has changed in the UK over the last 20 years..." and that "Local gradients in d18Op appear to be of the same order as national trends...". With regard to the former claim, there is certainly little evidence for this from the Wallingford GNIP site, where the years 2002–2005 average out at -7.12 permil d18O, not readily distinguishable from the -7.28 permil of the previous 20 years (Darling & Talbot, 2003). Clearly it takes decades of monitoring before baseline changes can be identified with any certainty. With regard to the latter claim, there only needs to be (for example) a major convective rainfall event affecting one of the local sites to skew the weighted average in the short term, potentially giving rise to the kind of difference observed between Keyworth and Sutton

Bonington over 18 months. Again, I am afraid that long-term monitoring is the only way in which one could be certain of such a marked local d18Op gradient.

I agree the spatial picture is bound to be more complicated than the results from a few GNIP stations can show (Summary & conclusions). This was one of the reasons we developed an isotope map of UK groundwaters (Darling et al, HESS vol 7, 183-195, 2003). However, the map indicates that d18Op gradients in the interior of lowland Britain are nowhere near as high as suggested by the short-term dataset provided in the present MS.

Overall I agree with Referee #1 that the data are worth publishing, but recommend that you follow his/her advice to focus in on the local detail, leaving comparisons with the wider national picture until you have a much longer dataset.

A few detailed comments:

P 2404, line 13: no point in mentioning 17O in this context.

P 2404, line 23: Darling et al, 2006 - should be 2005?

P 2405, line 1: 'often' is overstating it - 'sometimes' would be more accurate.

P 2405, line 6: replace '19' with '20' (these are the full years in the period 1982-2001).

P 2408, lines 16-17: in fact Darling & Talbot (2003) addressed this issue (see P 170).

P 2411, lines 8 & 9: the words 'can't' and 'push' are a bit colloquial in this context.

Table 4 and Fig 6: I would like to see the data sources identified in the titles.

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