Response to the Editor request of a technical correction:

Dear Dr Maillard Barras and co-authors,

I am happy to accept your manuscript for final publication in ACP.

However, I have one request in terms of a technical correction: In Fig. 6a-c, I do not fully understand how the uncertainty ranges (i.e. shaded areas) are calculated. For MLR, for example, have you considered the uncertainty of the linear trend alone, or a combination between axis offset and trend? In terms of trend uncertainties, I would expect an uncertainty range growing with its temporal distance from a selected fixpoint (how was that chosen?), but what I see is an uncertainty range having the same width around the fit (which I would interpret as the uncertainty of the offset alone). Please could you describe in some more detail how the shaded ranges in Fig.6 a-c were calculated?
Except for this issue, your paper is fine and show go directly to the production.

Kind regards,
Gabriele Stiller

Dear Editor,

Thank you for accepting our manuscript for final publication in ACP.

MLR trend uncertainties representations:

The MLR trend results are given as a difference in DU to the 1970–1980 and the 2000–2010 means (see section 4.1). The trend in DU per decade +/-2 sigma is calculated with respect to the reference. A slope of a corresponding DU per year is plotted and the +/-2 sigma constant value is reported along the slope.
However, if we represent the slope +/- its uncertainties, we get a higher (+ 2 sigma) and a smaller (-2 sigma) slope, forming a V shape from a starting point. This can be seen as a 0 DU/y uncertainty at the starting point which, in our case, is not the reference. That's why we plot the uncertainty using the constant 2 sigma offset.

By analogy with the representation of the DLM trend uncertainties (for which the uncertainty varies with the year as the trend is calculated and represented in DU/year), we reported the MLR trend per decade uncertainty on the DU/y trend line and assumed the uncertainty to be constant within the decade.

We added an explanation of what the shaded areas represent and how they are calculated at the beginning of section 4.3.

"The blue shaded areas show the non-constant 2 sigma uncertainties in DU/y estimated by the DLM. By analogy, for the MLR, the grey shaded areas report the uncertainty in DU/y calculated from the constant 2 sigma offset trend uncertainty in DU per decade."

Kind regards,

Eliane Maillard Barras (on behalf of all co-authors)