

Remarks on gmd-2016-314-author_response-version2.pdf

1. Major comment 6: In response to my criticism of the wording ‘total error’, authors have changed that to ‘global error’. They say: *Therefore, we changed the wording to global truncation error, which implies that the numerical errors investigated here originate from the accumulation of local truncation errors that are introduced at each time step. This terminology is consistent with the literature of numerical mathematics.*

Unfortunately, even if this may be an established term in numerical mathematics, it still does not clearly convey the nature of the error which is analysed in this paper. As this is really a central topic of the whole work and its correct understanding is crucial, I think it is necessary to add a clear explanation at the first usage of the term. Furthermore, I find that the explanation provided in the response is not satisfactory. As I said in my review of the revised version, the transport deviation that we observe after 10 d is not only caused by truncation errors. Using different time steps also leads to different interpolation errors; these differences are amplified as well. Also, the final transport deviation is not just an ‘accumulation of local truncation errors’, such errors will be amplified in a way that is flow-dependent. I would therefore ask the authors to spend a full sentence or two on explaining what is behind the ‘global error’.

2. Specific and Minor Remarks 1: The title. The authors now propose *Trajectory errors diagnosed with the MPTRAC advection module driven by ECMWF operational analyses*. While the term ‘domain-specific’ has been eliminated, my suggestion to include a reference to different numerical schemes and time steps was not taken into account. I leave it to the discretion of the editor how to handle that. However, I think that being more specific in the title will be very beneficial for the potential readership so that the content of the paper can be more quickly grasped, and including that still wouldn’t make it too long.
3. Specific and Minor Remarks 3: ‘Kinematic equations of motion’. The authors answer: *We traced back our usage of the phrase Equations of motion to the reference paper of Bowman et al. (2013). We also think this is a standard term in physics textbooks. We kept it as is but added the term trajectory equation as a synonym.* Bowman et al. is not a meteorological textbook (as requested). Physics textbooks would not be very relevant for a meteorological paper (and a specific reference hasn’t been provided). Also, only in the third occurrence of the term (among many), ‘or trajectory equation’ has been added. As in meteorology the term ‘equations of motion’ is firmly connected to the dynamical equations (see the AMS Meteorological Glossary, http://glossary.ametsoc.org/wiki/Equations_of_motion), I find this misleading rather than helpful and I would ask the authors to stick to ‘trajectory equation’ (which they may explain as they feel proper, including to add a phrase such as ‘sometimes also called kinematic equation of motion’ if they deem that helpful).

All other issues are resolved in an acceptable way—thank you!