

We would like to thank Dr Matthew Rodell for his excellent suggestions and comments. We are confident that, after addressing the reviewer's comments, the manuscript will be greatly improved. For instance, we will expand and improve the description of our methods, to avoid any misinterpretation on how the components of the water balance were obtained. Furthermore, as suggested by Dr Rodell, we will include uncertainty analysis for the ET estimates, which can be presented in several figures (including extra figures in the supplementary material) and discussed in the text.

Detailed replies for each comment are provided below:

Comment: Equation 2 is incorrect. It should be

$dS_n = (TWSA_{n+1} - TWSA_{n-1}) / ((n+1) - (n-1))$, or equivalently,
 $dS_n = (TWSA_{n+1} - TWSA_{n-1}) / 2$,
as shown in equation 13 in Swenson and Wahr (2006). This error leads to dS , and consequently monthly/seasonal ET, being inaccurately estimated throughout the manuscript.

Reply: We believe a lack of details in the description of our methods might have misled the reviewer. We will improve this section to clarify the dS/dt calculations. Equation 2 refers only to the dS component, which is later divided by dt . Hence, the dS/dT component was indeed calculated similarly as in Swenson and Wahr (2006), in the sense that we have properly accounted for the inherent temporal sampling of GRACE. In our case, as the unit used in our water balance equation was mm month^{-1} , we have first divided dS by the number of days between GRACE observations, and then multiplied by the number of days in the month. Another detail is that we performed centered differences for calculating dS (instead of forward or backward differences, as suggested in Landrer et al 2010). For this, we have adjusted the TWSA values for the beginning ($TWSA_{n-1}$) and end ($TWSA_{n+1}$) of the respective months, resulting in a dt of 3 months, consistent with the three-month sliding window used for P and R. As pointed out by the reviewer, failing to correctly calculate the changes in water storage would lead to inaccurate ET estimates, which would probably be evident in our results.

Comment: There is no uncertainty analysis provided for the water budget ET estimates. It should be included, and could be accomplished by computing the square root of the sum of the squares of the P, R, and dS errors. See, for example, Rodell et al. (2011).

Reply: This was an excellent suggestion. We will carry out the uncertainty analysis as suggested. The calculations will be made as described in Rodell et al. (2011), but with a small difference in the assessments of rainfall errors. In our case, we will assess rainfall errors using TRMM 3B43 relative errors layer. Interestingly, after making preliminary tests, we observe that rainfall is shown to be the main source of uncertainty. We will then add the 95% confidence limits in the figures showing the ET seasonal pattern. The uncertainties for each component of the water balance will be shown in new figures at the supplementary material.

Comment: Page 2, line 30 – Add to the literature review that Rodell et al. (2011) applied the water balance approach (with observed precipitation, runoff, and GRACE terrestrial water storage) to ET estimation over the Tocantins River basin (among others) and found that the seasonal cycle of ET in that basin is weak.

Reply: We will add this literature review. Nonetheless, we would like to point out the fact that the Tocantins River basin is not part of the Amazon River basin. The vegetation cover across the Tocantins River basin is also quite different, being mostly covered by Cerrado (Savannas).

Comment: Page 7, line 6 – “are” should be “is” (the subject is “analysis”).

Reply: Will be corrected as suggested.