Dear Editor,

We have made the final technical corrections to the manuscript and supplementary information. Many thanks again for your work handling our paper. We have found the process of publishing in HESS a very positive experience.

Many thanks,

Jess Baker

Editor Decision: Publish subject to technical corrections (05 Mar 2021) by Stan Schymanski

Comments to the Author:
Dear authors,

Thank you very much for addressing all comments very thoroughly and further improving the manuscript. A special thanks for making available all the scripts used to process the original data. Could you add the link and/or doi of the HESSD manuscript to each of the zenodo records?

We have now added the link to the HESS paper to both Zenodo records.

Except for a couple of technical corrections listed below I see no more issues to be addressed before publication. I am confident that the readership of HESS will find your work very helpful.

Best regards,
Stan

TECHNICAL CORRECTIONS:

l324: ...due to there being...
Corrected.
l658: ...such as sap-flow.
Corrected.
Table S2: Could you explain the variables in the table caption, i.e. units and references to the equations used to compute them?

The caption for Table S2 is now as follows:

Table S2 – Seasonal variation in Amazon catchment-balance error estimates. Absolute uncertainties (in mm) in precipitation (σ_P), river runoff (σ_R), change in groundwater storage ($\sigma_{\frac{dS}{dt}}$), and evapotranspiration (σ_{ET}), and the relative uncertainty (in %) in evapotranspiration (υ_{ET}). σ_P was estimated as the random error (σ_{P_random}) plus the systematic error (σ_{P_bias}), combined in quadrature. σ_{P_random} was calculated following Eq. (4), from Huffman (1997): $\sigma_{P\_random} = \overline{r}\left[\frac{H-p}{pN}\right]^{\frac{1}{2}}$ where $\overline{r}$ is the climatological mean precipitation over the basin, H is a constant (1.5), p is the frequency of non-zero rainfall and N is the number of independent precipitation samples (defined as the number of Amazon pixels with finite P measurements in each month). For σ_{P_bias}, we used the value of –3.6 % from Table 4 in Paredes-Trejo et al. (2017). σ_R was estimated as 5% of monthly river flow (Dingman, 2015). Uncertainty in groundwater storage was quantified by combining GRACE measurement errors and leakage errors in quadrature. For these, we used Amazon-specific values from the literature (6.1 and 0.9 mm for measurement and leakage errors, see Table 1 in Wiese et al. (2016)). Since $\frac{dS}{dt}$ values were calculated using data from two consecutive months, groundwater error values were multiplied by $\sqrt{2}$ to obtain $\sigma_{\frac{dS}{dt}}$ (e.g. Maeda et al., 2017). σ_{ET} was estimated using $\sigma_{ET} = \sqrt{{\sigma_P}^2 + {\sigma_R}^2 + {\sigma_{\frac{dS}{dt}}}^2}$, and $\upsilon_{ET} = \frac{\sigma_{ET}}{ET}$ x 100. For further details please see the main paper. The Amazon region considered for this analysis is indicated by blue hatching in Figure 1.

Finally, I changed the shading in the inset map in Figure 6 from grey shading to hatched black lines to match the inset map in the other figures.