Addressing the reviser concerns

Carlos García-García, David Alonso and Emilio Bellini

October 17, 2019

We would like to thank the referee for their careful reading of our manuscript. We have addressed the points raised as described below. All modifications are highlighted in red in the resubmitted version of the manuscript.

With regards to the specific points raised by the referee:

1. We have added an explicit reference to the CMB expertise in the abstract.
2. We have added a citation to GPE2 after Eq. 2.44.
3. We have reduced the range of Figures 6 and 7 to highlight the differences in the correlation matrices.
4. We have included a reference to GPE2 in the context of low-ell covariance estimation.
5. Thanks for noticing this. This is a typo (left over from a previous version of this sentence that read "error bars" instead of "covariance"). We have changed this sentence as suggested.
6. We have added the *fiducial Gaussian likelihood* caveat in Section 3.4. We are aware of the biases associated with varying the covariance at each point in parameter space.
7. Thanks for noticing this typo. This has been fixed.
8. We have added a caveat about the appropriateness of the Gaussian approximation. We have also noted that the approximate likelihood of Hamimeche & Lewis also require an accurate evaluation of the power spectrum covariance, and therefore these results are still valuable in that case.

Regarding the additional points raised by the referee:

1. We have changed Δx^2 to $\Delta^2 x$ (Δx^2 made sense in the case of flat skies, where this is just $\Delta x\,\Delta y$).
2. We have added a comment about bandpower averaging before Eq. 2.12.

Changes related to the CMB background:

1. We have expanded the list of references to the CMB legacy for covariance matrix estimation in the introduction, by including a reference to GPE2, to the Planck 2013, 2015 and 2018 likelihood papers, and to Challinog & Chon 2005 (we also cite the latter in section 2 in the context of mask gradients).
2. We have toned down the statement about the higher complexity of LSS masks.
3. We have added a statement about the role of anisotropic noise and other complications at the end of Section 4.

Other modifications:

1. We have updated the references to CMB in line 3 of the introduction.
2. We have added a citation to the HEALPix URL and the corresponding references and acknowledgements.