We thank the referee for the comments on our manuscript, which we have addressed as follows. In order to facilitate a further revision we enclose, together with an amended version of the manuscript, also an annotated version of it, where additions to (deletions from) the original text are highlighted in blue (red).

- *Somewhere in the introduction it would be ideal to see some (very brief) summary of previous studies of the effect of deuteron corrections. I am aware that these did occur for both NNPDF2.3 (in a follow-up article) and for NNPDF3.0 (in the main article itself). This would help put the present approach in context.*

  We have added a discussion at the beginning of the first paragraph on Page 2 to explain what was done in previous NNPDF analyses, as suggested by the referee.

- *I would be interested to know if any experimental correlations are normally considered in the NNPDF fit between the proton and deuteron data, and if so, how this has been accounted for in the current study? I am not requiring, or even suggesting any corrections regarding this. It appears as though there is some limited correlation which might be applied, but the relevant experimental studies (BCDMS and SLAC) are very old, and some of this correlation information seems to appear in references given simply as "private communications".*

  Experimental correlations between the proton and deuteron data have been customarily included in NNPDF analyses for a long time. For BCDMS, the systematic uncertainties coming from the calibration of the incoming and outgoing muon energy (respectively for the beam and the spectrometer magnetic field), from the spectrometer resolution, and from absolute and relative normalisations, are fully correlated for all targets and for all beam energies, see Sect. 2.1.2 of [JHEP 05 (2002) 062]. For SLAC, the absolute and relative normalisation uncertainties are likewise fully correlated, for reasons similar to those explained in the same reference. In this respect our current analysis is equivalent to NNPDF3.1, and takes into account all these correlations whenever the proton and deuteron data sets are included in the fit of proton PDFs at the same time. We have added a sentence in which we explicitly mention this point in the first paragraph on Page 7.

- *In Figure 6 the authors admit that comparing NLO to NNLO PDFs may be part of the reason between the discrepancy between the current PDFs and those in nNNPDF2.0. Some reference might be given here to NLO/NNLO PDF differences previously observed, since these differences are very systematic, depending on e.g. NNLO corrections to structure function coefficient functions.*

  Available determinations of nuclear PDFs accurate to NNLO currently include only inclusive deep-inelastic scattering measurements. A systematic assessment of NLO/NNLO PDF differences was accounted for in two such recent analyses: [Phys.Rev. **D100** (2019) 096015] and [Eur.Phys.J. **C79** (2019) 471]. We have referenced these analyses at the end of the first paragraph on Page 9. We have also noted that, however, the large PDF uncertainties found there (as a consequence of the more limited data set than that used in nNNPDF2.0) do not make the actual phenomenological impact of higher-order corrections very clear.

- *Since the global-ite2-sh fit contains the shifts of the deuteron theoretical predictions I would naively assume it should give a better fit quality than ite-2-dw. In fact, the fit in Table 3 is slightly worse. It would be good to see some comment on this.*

  The global χ^2 per data point is 1.16 in both the global-ite2-dw and the global-ite2-sh fits, as we say in the text (see second paragraph on Page 10). We inadvertently typeset the wrong number in the last row of Table 3, which we have now corrected.

- *It seems to me that given there is no reason to expect the central value of the deuteron correction factor to be exactly equal to 1, and indeed in Figure 7 it is not, it should unambiguously be the case that ite2-sh is the preferred option compared to ite2-dw. It is stated that it is preferred on page 10. However, this seems almost an aside, and it is not really stressed that this is so in the summary.*

Unless I have misunderstood something I would suggest the conclusion regarding the preferred option is presented more clearly.

The approach in which nuclear effects give a correction with an uncertainty should be preferred to the more conservative one in which they give only a larger uncertainty because the uncertainty in the nuclear PDFs is correctly estimated by our procedure, and generally smaller than the corresponding nuclear correction. This point is introduced in the second paragraph on Page 1, and is then discussed in the second paragraph on Page 12. We have added two sentences to the concluding paragraph to further clarify the preferred option, as suggested by the referee.

We hope that the revised version of our manuscript is now deemed suitable for publication in Eur.Phys.J. C.