Referee Report on Guidicelli et al., 2022, 4-11-2022

I thank the authors for the thorough revision of their manuscript, they have addressed the concerns that I raised.
I see 2 minor additional complements, that would likely further improve the manuscript without requiring much effort.

- 1/ the use of the downscaled reanalysis variables as predictors should be better explained in the Methods (section 3.1 for instance) and also on Fig 3.
The methods states that "**In addition to** the original variables, the GBR requires some downscaled variables of the reanalyses as predictors at the glacier
elevation,...." but when reading the legend of Table B3 it is less clear whether for instance all single-level variables from Tables B1 and B2, are used in addition to the ones mentioned in Table B3, or just some of them. Following, we do not know which of the reanalysis variables (downscaled ? all ?) are withdrawn in the tests from Fig 3.

2/ Fig 3 and its analysis : it is at first very surprising that the suppression of reanalysis data, leads to the best performance/smallest rmse for the season independant GBR, as reanalysis variables could be hypothesized to carry the "climatological" information shaping the temporal dynamics of the adjustment factors.
The authors analyse this finding in the new section "5.2.1 Site-independent and season-independent GBRs", whereby seasonal-independant GBR models are hypothesized to split into individual sub-models adapted to individual glaciers and hence better able to predict a glacier-specific (but maybe temporally constant ?) adjustment factor inferred from the training accumulation seasons.
Actually, I see a possible alternative explanation of this finding, which occurs concomitant with the important role of the year as a predictor for season-indep GBR : it may point towards the fact that the year may be the one predictor to actually vehicle the climatological information (the GBR model then learning 'by heart" which years correspond to negatively biased winter accumulations for the glaciers in this region, and which other years correspond to more balanced/less biased ones). Though such a model may perform well in the past, its use in extrapolation to future conditions (using for instance GCM/RCM data in lieu of reanalysis), is doomed to fail.
Maybe the authors could comment on this and add a note in the discussion if they find this explanation possibly relevant

Regards