Public justification (visible to the public if the article is accepted and published):

The authors have in my view well addressed the review comments and provided key clarifications to the manuscript. One point remains blurred, which is on spatial and temporal representation.

The authors comment that the physical limitation of RO data in terms of horizontal resolution is about 300 km, hence the RO data set cannot have a better spatial resolution, though spatial sampling could be anything. According to the definitions I know, sampling does not improve resolution, but may help to better represent a field (i.e., Nyquist sampling). Moreover, the GO data set is further blurred by a 2-day temporal window. How much is the spatial resolution decreased by such broad window, in which the wind has moved the air by about 3500 km (at 20 m/s) ? Finally, a 150/300 km SD Gaussian filter blurs the RO signal furthermore, again reducing the spatial resolution of the resulting GO fields. Admittedly, the latter step also reduces the GO noise and is thus useful for analyzing the remaining blurred signal.

On the IFS and ERA5 side, the 2-day filter may be missing, while model winds are much filtered due to spatial and temporal diffusion operators. This appears most clearly in spatial analyses of collocated wind observations and model data.

It is clear that the ERA5 and RO data have different spatiotemporal representation. The manuscript would much improve when the distinction between sampling and resolution was made and unjustified claims on 2.5 degree resolution were removed.

Furthermore, a better estimate of resolution would obviously benefit the manuscript as contributions of the geostrophic and ageostrophic components of the atmospheric flow will depend on the resolution (rather than sampling) of the instrument.

We thank to the Editor for drawing our attention to this aspect where we misuse the term “resolution”. We corrected “2.5° resolution” claims to “2.5° spatial grid” and added few sentences regarding the differences between ERA5 and RO spatio-temporal representation in the Study method section (L225).

“*Such filtering smoothes not only the noise component, but part of the signal too. Hence the spatial resolution of the field decreases (Vishwakarma et al., 2018). The amplitude of the damped signal depends on the selected type of filter. For a Gaussian filter the resulting resolution of the fields gets coarser by a factor of two, compared to the smoothing radius (Devarju, 2015). Overall, it is clear that there are differences in the spatio-temporal representation of ERA5 and RO data. Regarding the temporal component, we can assume that temporal weighting applied to the daily RO profiles does not strongly influence the monthly-mean value. On the other hand, ERA5 (and ECMWF-IFS model) winds are also filtered by spatial and temporal diffusion operators (Hersbach et al., 2020). In summary, these post-processing methods affect the physical spatial resolution of the field. To estimate the effective physical resolution of the resulting climatic field is hence not an easy task (e.g., Vishwakarma et al., 2018). We plan to investigate this aspect more thoroughly in our future research by testing various filtering options and inspecting their influence on wind fields over mountainous regions, where fine horizontal structures are usually observed.*”