We again thank the referees for the review and comments. The comments were addressed in the revised manuscript as follows:

RC1

- The definition of “agglomerate of pixels”, “cluster” and “convective system” are now clarified in L78 and L113-117, and Fig. 2 was revised for better understanding of the terms used;
- Further explanation justifying the comparison between raw and filtered datasets was added in L199-205. The main goal of this subsection is to highlight the deep convection characteristics apart from the full (raw) dataset as well as provide a physical summary of both datasets for further convection studies that will use these datasets;
- All the grammatical issues were corrected;
- Further definitions were added, including references, for “isolated convective systems” (L164) and “initiation” (L193);
- Limitations about split/merge identification were added in L84-86.

RC2

1. We reworded the text and a figure was included to better illustrate what is a cluster (“a contiguous region (polygon) of pixels within the 3-km CAPPI reflectivity field that exceeds 20 dBZ reflectivity threshold identified at a single time step”) and what is a convective system (“a time-continuous sequence of clusters that are linked across radar volumes based on spatial overlap”). [See lines 113-117; and Figure 2];
2. The text regarding Figure 9 was revised;
3. Further information about the GLD360 dataset, including limitations, was included in Lines 65-73;
4. We acknowledge that the IOPs subset can be limited, but the same trends can be found in their respective seasons (the seasonal figure was suppressed for conciseness). This reference was added in Lines 219-220;
5. We appreciate the reviewer's detailed explanation. We agree that composite reflectivity can offer a more comprehensive depiction of the 3D structure of convective systems, and we understand the concern about using a single-level CAPPI. However, we believe that this concern is mitigated in the context of our study for the following reasons:
    a. We focus on precipitation cores, not anvils: Our primary interest is in tracking the precipitation cores of deep systems, not the anvil extent. For this reason, we apply a 20 dBZ threshold (rather than a lower value, e.g. 10 dBZ), which better isolates the vertically developed precipitation regions towards lower levels (3 km, in our case). As such, the more expansive upper-level reflectivity associated with anvils is outside the scope of our analysis;

b. Limited vertical shear in the Amazon: In the tropical environment of the Amazon, convective systems generally experience weak vertical wind shear, which reduces the likelihood of significant storm tilt or offset between low- and upper-level reflectivity. This justifies the suitability of using a horizontal 3-km CAPPI for identifying and tracking convective systems. Moreover, the low resolution of this radar (1.8 degree beam width) already impose limitations on resolving vertical structures, especially tilts;
c. Methodological consistency with regional literature: Similar CAPPI-based tracking approaches have been successfully used in the Amazon region in previous studies (e.g., Laurent et al., 2002; Albrecht et al., 2011; Leal et al., 2022; Gupta et al., 2024). These studies also used single-level reflectivity fields to characterize convective systems and have provided robust insights into storm morphology, lifecycle and vertical structure. Using a similar methodology ensures consistency and comparability with the existing body of work.

In conclusion, given the specific scientific goals of this study — focused on deep convection, within a weak-shear tropical environment, and aligned with precedent in regional literature — we consider the use of 3-km CAPPI appropriate and scientifically justified for the analysis performed. Future work may explore composite reflectivity or 3D segmentation to further examine differences in storm structure, particularly for tilted or multi-layered systems, however, this is out of the scope of our current work.

Accordingly, we have chosen to retain the use of 3-km CAPPI for tracking in this study. The details of our choice are now extensively explained in Sections 2.1 (Lines 56-64) and 2.2 (Lines 87-105).

Laurent et al., 2002 - https://doi.org/10.1029/2001JD000337
Albrecht et al., 2011 - https://doi.org/10.1029/2010JD014756
Leal et al., 2022 - https://doi.org/10.3390/rs14215408
Gupta et al., 2024 - https://doi.org/10.5194/acp-24-4487-2024