Dear Reviewer 2.

Thank you for your time and the suggestions to improve our paper.

Please find below the reply to your comments.

1. The authors have mentioned about Pathak et al. (2017). It is not clear, what are the extra added information/ findings from this analysis with respect to Pathak et al. (2017). I can see that majority of the conslusions are similar to both Pathak et al (2017) and Pathak et al (2015). It would be good, if the authors highlight in details of the agreements and disagreements with Pathak et al (2015) and Pathak et al. (2017) and specify the added findings from the present analysis.

R-1. Thank you for your suggestion, you are right. You can find in the new version new paragraphs concerning the main agreements and disagreements with Pathak et al (2014) and Pathak et al. (2017).

Pathak et al. (2017) also calculated the moisture contribution from oceanic and terrestrial sources for the ISM rainfall. However, in their method, the terrestrial sources were approximately selected based on the uniform climate subtype of Köppen and the percentage of forest cover in the year 2000; while the oceanic sources according to the VIMF. They considered divergent areas as the potential sources, whereas regions with high convergence were considered potential sink regions. Nevertheless, in our approach, moisture sources are considered those regions from where air masses uptake humidity before arrive to the basins.

Gimeno et al. (2010) obtained that the Red Sea source provides vast amounts of moisture that precipitate between the Gulf of Guinea and Indochina in June-August. Besides, Pathack et al. (2017) noted that a significant fraction of atmospheric moisture to the ISMR comes from five main moisture sources: the western Indian Ocean, central Indian Ocean, upper Indian Ocean, Ganges basin, and Red Sea and the neighbouring gulf. In agreement with the previous findings, we obtained that the Red Sea and the Persian Gulf acts as sources of moisture for the Indus, Ganges and Brahmaputra River basins. Nevertheless, in our analysis we considered them separated (not like Pathack et al., 2017), obtaining a negligible role from each one to the total moisture contribution mainly for the GRB and BRB in both the WPR and MPR.

It may be confusing that the total contribution to precipitation from continental sources is a little greater than from ocean sources for the IRB and GRB in the MPR (Fig. 6b,d); contrary of Pathack et al. (2017) results for the Indian region, which mostly comprises the GRB. Differences may arise because the method to calculate the moisture contribution, both based in a Lagrangian approach. Particularly Pathack et al. (2017) implemented an extension of the Dynamic Recycling Model (DRM) developed by Dominguez et al. (2006) and modified by Martinez and Dominguez (2014). Their method permits to quantify the relative contributions from different sources to the atmospheric moisture over a given sink region by calculating the fraction of atmospheric moisture collected by an air column along its trajectory between times considering the evaporation and the precipitable water, respectively, along the two-dimensional trajectory.

These results confirm that although the total moisture input to the GRB during the MPR is greater from continental sources than from oceanic (Fig. 6d), the IO plays a crucial primary role on the hydrological cycle for the monsoonal precipitation onset over this basin; agreeing to Pathack et al (2014; 2017), who highlight the key role of the IO on the Indian summer monsoon and the land surface processes role in the generation of precipitation within the Indian subcontinent.

2. The value of P-E in a water budget equation for monthly scales typically equates to the divergence with a negative sign. Often it is observed that such divergence is a better estimate when we perform any analysis at a monthly scale. Further to this, a recent article shows that uncertainty across reanalysis can be reduced by considering divergence. I can understand that the authors probably need daily data for their analysis, but a comment or discussion with some scope for future research may be a good addition. This is specifically because, the authors have used a single reanalysis, and use of multiple reanalysis may increase uncertainty, which we need to reduce. The authors may follow: https://www.nature.com/articles/srep29664.

R-2. Thank you. We tried to improve this explanation according to your suggestions:

Sebastian et al. (2016) found a huge uncertainty in the estimates of (P–E) over South Asia, when computed from different reanalysis, but recommend to use atmospheric budget for computation of water availability in terms of P–E rather than based on individual values of P and E. We also consider that in the state of the art discussion of three reanalysis (ERA-I, MERRA and CFRS), Lorenz and Kunstmann (2012) obtained that the ERA-Interim shows both a comparatively reasonable closure of the terrestrial and atmospheric water balance and a reasonable agreement with the observation datasets. This findings support the use of ERA-Interim reanalysis for running FLEXPART in order to reduce the uncertainty in this study. In the same way, the Vertical Integrated northward and eastward Moisture Flux data to calculate the Vertical Integrated Moisture Flux (VIMF) and it´s Divergence belong to the ERA-Interim Reanalysis with a resolution of 1° × 1°. Computing the P–E directly from atmospheric budget with divergence of moisture flux for different reanalyses improved correlation with observed values of P–E according to Sebastian et al. (2016) results; what we consider to do in future studies to evaluate the ability of different reanalysis in the representation of the moisture budget for the target region.

3. The authors have used CRU data and I am just wondering if they will get similar conclusions with IMD/ Aphrodite data. As the IMD/ Aphrodite uses more number of stations, and hence, such a check is better to be performed. Just a suggestion from this reviewer.

R-3. Thank you for your suggestion. Yes, for sure the quality of observational data from Aphrodite is an advantage. However, Aphrodite does not have AED data, which are necessary to estimate the weight of the water demand by the atmosphere in drought conditions through the SPEI, and also their availability is just until 2007, while our study covers until 2015.

4. I have some concern about combining Arabian Sea and Indian Ocean. I would rather be interested in considering them separately. This will give us some idea of the relative contributions from them.

R-4. Thank you. We understand your concern. However, please take into account that to do it we should implement another method to delimitate the boundaries of the sources, perhaps based on geographical borders. That would mean having to track backward and forward in time air masses from different sources and calculate once more the (E-P) along the trajectories. A further work could be done to evaluate specifically the role of the Arabian Sea.

5. Some comments on the contribution from Monsoon Depressions and their role in water cycle would be of great interest.

R-5. Thank you for this important suggestion. We added in the article the paragraph below.

Tropical cyclones and weak disturbances contribute to monsoon rainfall. Among these systems, the most efficient rain-producing system (responsible of about half of the Indian summer monsoon rainfall) is known as the Indian monsoon depression (MD) which generally forms around Bay of Bengal and propagates westward or northwestward with the typical life span of three to six days (Ramage 1971; Yoon and Huang, 2012). The change in the large-scale circulation, especially the converging atmospheric water vapour flux is responsible for modulation of a MD by the 30-60 day monsoon mode (Yoon and Huang, 2012). Over the Brahmaputra basin, the rainiest, heavy rainstorms are due to the shifting of the eastern end of the seasonal monsoon trough to the foothills of Himalayas in the north and the 'Break' monsoon situations during the monsoon season (Dhar and Nandargi, 2000). Summarizing, the BRB is wetter than the western GRB and IRB; this is because the monsoon rainfall dominates in the summer months in the eastern region and gets weaker on the western side with a time delay of a period of weeks (Hasson et al., 2014).