We extend our thanks to the anonymous reviewer for his input. We describe here all questions or queries and our responses. All queries are given as italic while comments as bold. The modifications suggested for the captions of figures and tables have been implemented and will be uploaded as a separate file. The use of acronyms will be done properly in the revised submission.

Specific Comments

Comment:

Abstract: I suggest to re-organize the abstract clarifying mainly theobjectives and method. It is necessary to define the acronym SW monsoon before itsfirst use. Its not clear the period of analysis. Was the study performed for the 2004Monsoon?

Response:

The abstract is now modified. The study was performed based on the observations documented during the South-West monsoon (SWM) months (June, July, August and September) for the year 2004. Availability of coherent data (for the period of 4 months) from three stations along the moisture track was critical for this work.

Comment:

P1L16-17: "Precipitation is the primary source of water on land, brought by the moisture generated due to evaporation of ocean water which gets advected towards the continent." Is the oceanic evaporation the only source of moisture for the land precipitation?

Response:

Precipitation is the primary source of moisture responsible for rain at continental sites while indigenous moisture of continental origin adds up to the original cloud mass.

Comment:

P2L22-25: Please, clarify the aims. Explain the novelty of this work in comparison to the previous studies. In which way do you think your study complement the results Obtained in previous works?

Response:

Previous studies assumed (Sengupta and Sarkar, 2006 and Kumar et al. 2010) the Bay of Bengal (BoB) moisture to be the sole contributor of rain at Kolkata. In this study we used the precipitation isotope data for two stations over the Indian region namely Bangalore and Kakinada, and the BoB for quantifying the moisture sources responsible for precipitation at Kolkata. Here isotopic data from these stations together with satellite based meteorological observations allowed quantification of moisture contribution from marine BoB and continental landmass for the SWM of 2004.

Comment:

Data and method P2L29-32: Please, define TRMM and include a bibliographic reference for each one of the data sets used.

Response:

The meteorological data used in this study is for the year 2004. Precipitation (*P*) data was obtained from the Tropical Rainfall Measurement Mission Project (TRMM) (Huffman et al., 2007) (3B42 V7 derived), Goddard Space Flight Center Distributed Active Archive Center (GSFC DAAC) (*http://trmm.gsfc.nasa.gov/*), Total Precipitable Water (*W*) , Air Temperature (*T*), Relative Humidity (*h*), Wind Speed: from Reanalysis 2 (Kanamitsu et al. 2002); (*http://www.esrl.noaa.gov/psd/data/gridded/data.ncep.reanalysis2.html*). For the surface water isotopic composition of the BoB values are extracted from the Global seawater Oxygen-18 Database (V-1.21) (Schmidt et al. 1999) (*http://data.giss.nasa.gov/o18data/*). The monthly averaged oxygen isotopic composition ($\delta^{18}O$) for the SWM from the GNIP (*http://www-naweb.iaea.org/napc/ih/IHS_resources_gnip.html*) dataset for Kolkata(2004) and Kakinada(2004). We arrived at monthly averaged $\delta^{18}O$ values for the Bangalore rain during SWM months after considering several years of observations. Although we tried to use 2004 monthly observation for our model study, we had limitation on procuring synchronous data set for every months corresponding to the monsoon time. Important features to operate the model require characterizing the initial isotopic composition at Bangalore for

predicting the monthly isotopic values at Kolkata. This was possible after taking into account average monthly observation recorded at Bangalore station for the year 2004. However, lack of observation for the month of August 2004 in the data set was compensated with monthly observations recently reported in three publications for other years (Rangarajan et al., 2013 and Rahul P. et al., 2016a,b). In both these studies the average monthly values were based to large number of observations and closely matches with the average values presented for the year 2004.The average $\delta^{18}O$ of rainfall over the BoB for the year 2012 collected during the BoB CTCZ expeditions was used as this is the only available dataset of rainfall over the BoB region.

Comment:

P3-L6-12: There is a lack of information concerning the analysis with HYSPLIT. Please
Introduce the hysplit model. How does it work? The input data used? Limitations of the model... Explain your experiments. How have u selected the rainy days during the2004 SW monsoon in each one of these places? Which months have you considered in the analysis? Have you calculated 4-day backward trajectories, haven0t you? Why have you chosen 4-day and not more (or less) days for the BW trajectory analysis? Do the elevations refer to the "initial position" of the particles at Bangalore and Kolkata? Do the colours of the different trajectories shown in the figure 4 identify the elevation of the particle at Bangalore and Kolkata, right? Or do the particles keep in the same elevation during the backward tracks? And why the HYSPLIT results are important for your study?

Response:

Backward air-mass Trajectories for the two stations are shown in Error! Reference source not found.**. The air-mass was back tracked for -48 hours, -72 hours and -96 hours at 200m, 500m, 1000m, 1500m, 2000m and 2500m elevation above the mean sea level at Bangalore and Kolkata for all rainy days during the year 2004 SWM time. Different colours represent the elevations at which the trajectories reach Bangalore and Kolkata. Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) (Draxler and Hess 1998) analysis from the National Oceanic and Atmospheric Administration (NOAA) Air**

Research Laboratory (*http://www.arl.noaa.gov/ready/hysplit4.html*) was used to trace the origin of the air-parcel back in time. HYSPLIT is a complete system for computing simple air parcel trajectories as well as complex transport, dispersion, chemical transformation, and deposition simulations (Rolph, 2016 and Stein et al. 2015). Back trajectory analysis revealed Arabian Sea and the Northern Indian Ocean as the major contributors for moisture in the air parcels responsible for rain happening during SWM period over the Indian region. (Rahul et al. 2016, Gimeno et al. 2010a, 2011).

The dimensions of the modelling boxes designed along the transport path was based on the HYSPLIT trajectories such that majority of the trajectories pass through them. Level of 850 hPa which corresponds to 1500m was considered as the core of air transport path via low level jet stream (Rao, 1976) in our study.

Comment:

Discussion and results P4L9-13 I miss more discussion concerning the HYSPLIT results. Are you talking about the figure 4? Please, refer to the figures in the text. If I understood it correctly, from figure 4 you can identify only the regions crossed by the air particles tracks, not the moisture uptakes or losses by the particles. How can you affirm that there is "moisture originating from the Arabian Sea" from this figure?

Response:

Rahul et al. (2016) identified Arabian Sea region to be the source of moisture parcel for rain happening at Bangalore. This was based on backward air trajectories and out-going long wave radiation fluxes confirming convective activity. A similar argument was previously suggested to be the origin for the 95% of the moisture particles that reach the Indian region based on global Lagrangian particle dispersion model runs using ECMWF (European Centre for Medium-Range Weather Forecasts) operational analysis for June, July and August (Gimeno et al. 2010a,2011). We cited these references for validation purpose.

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