The manuscript generates component of annual water balance based on a hydrologic model. The analysis is very routine and there is very little validation of output. Some of the concepts also needs to be corrected such as, the ET is calculated without considering wind and humidity. The manuscript, in this form, is not suitable to be published in HESS.

1. **There is no validation for variables such as ET and soil mositure. The authors must validate the model with satellite estimates of ET and soil moisture.**

Reply: As suggested by reviewers, estimated values of both ET and PET have been validated with available satellite estimates from GLDAS and MODIS (ET) and CRU TS (PET). The final equation used for estimating water yield involves two ET estimates viz. AET and PET which both are been validated using satellite based estimates for the respective years.

Parameter					**InVEST model**			
(mm)		**Source 2 (GLDAS)**	**Source 2 (CRU)**	**Strategy A (Lumped Zhang Model)**	**Strategy B (Large Model)**	**Strategy C (Global model)**	**Strategy D (Xu et al. 2013)**	**Strategy E (Donohue et al. 2012)**
AET	**1980**	555.0355		696.84	486.07	679.52	679.68	680.01
	1990	646.168		815.02	592.3	735.23	735.27	736.25
	2001	588.084		680.76	408.86	548.28	548.39	550.38
	2015	716.8316		900.11	625.41	743.48	743.52	744.34
PET	**1980**		1175.964	1376.64	1382.12	1382.12	1382.12	1382.12
	1990		1156.497	1456.16	1461.86	1461.86	1461.86	1461.86
	2001		1184.847	1457.08	1462.96	1462.96	1462.96	1462.96
	2015		1156.686	1544.20	1550.42	1550.42	1550.42	1550.42

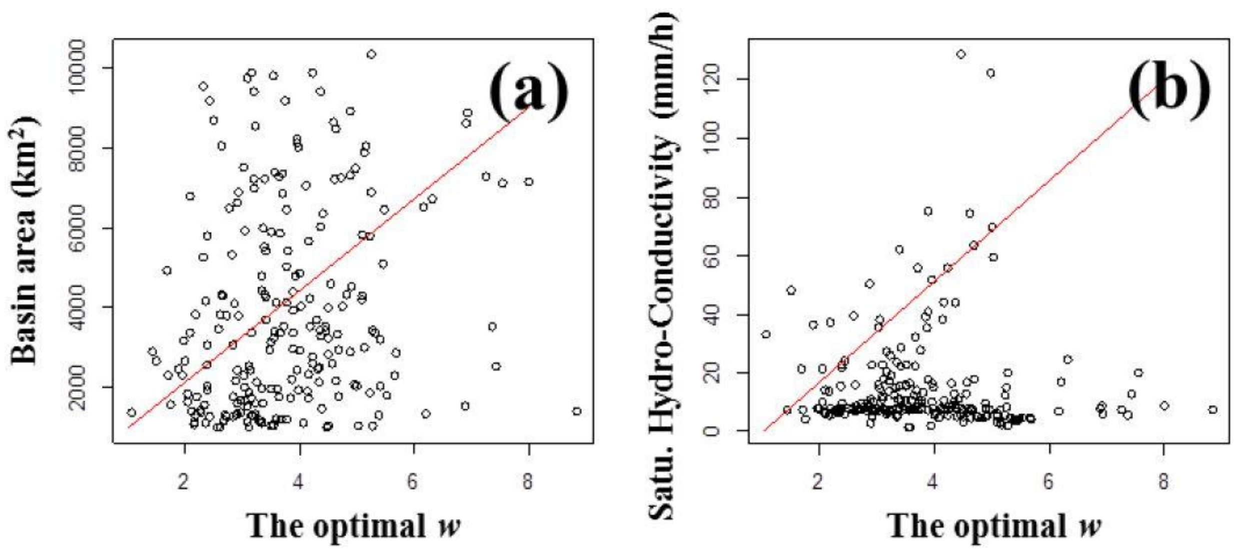
2. There is no specific scientific hypothesis, the article just reports results from some empirical equations without proper analysis.

Reply: Authors agree that the study lacks a precise scientific hypothesis. However, the parameters involved in the Budyko model are dependent on various factors such as basin characteristics (size, topography, stream length, slope, etc.), climate seasonality, etc. (Li et al. 2013). The factors affecting model parameters again vary both spatially and temporally. Moreover, the relationship between these factors and model parameters are not yet well defined (Ahn and Merwade, 2017). In such scenario, adopting a hypothesis by assuming few of these controlling factors (such as 'w') to be constant spatially or temporally is inappropriate. Considering these facts, the present study attempts to incorporate the spatial variability of model parameter for estimation of water yield at pixel level. As the computations are made at pixel level in GIS environment, the assumption of dependence of model parameters over scale of the catchment may also be disregarded.

Authors also agree that the computations made in present work are based on empirical equations, however, the application of these equations has been well documented worldwide for estimation of various water balance components at various basin scales (Zhang et al. 2008; Ma et al. 2008; Ning et al. 2017; Rouholahnejad et al. 2017; Wang et al. 2017). An illustrative summary of such studies has been added in the revised manuscript.

3. I do not see a proper conclusion coming out of this work.

Reply: Present study attempts to compute water yield from a Himalayan catchment using InVEST water yield model. The study attempts to incorporate the spatial variability of parameters involved in the model thorough pixel level estimation of parameters which are otherwise taken as lumped in the previous studies. Study results show that the water yield estimated considering spatial variability in model parameters are in better agreement with the observed water yield as compared to the water yield estimated by considering the parameters to be lumped over the study region. Further, the computations of various parameters are made at pixel level, therefore, the estimates of water balance components using this approach are expected to be independent of the assumption of dependence of parameters on catchment size. As the variation between Budyko's model parameters and their controlling factors has not shown well defined trend (see Fig 1), the study emphasizes water yield estimation using pixel based computations.



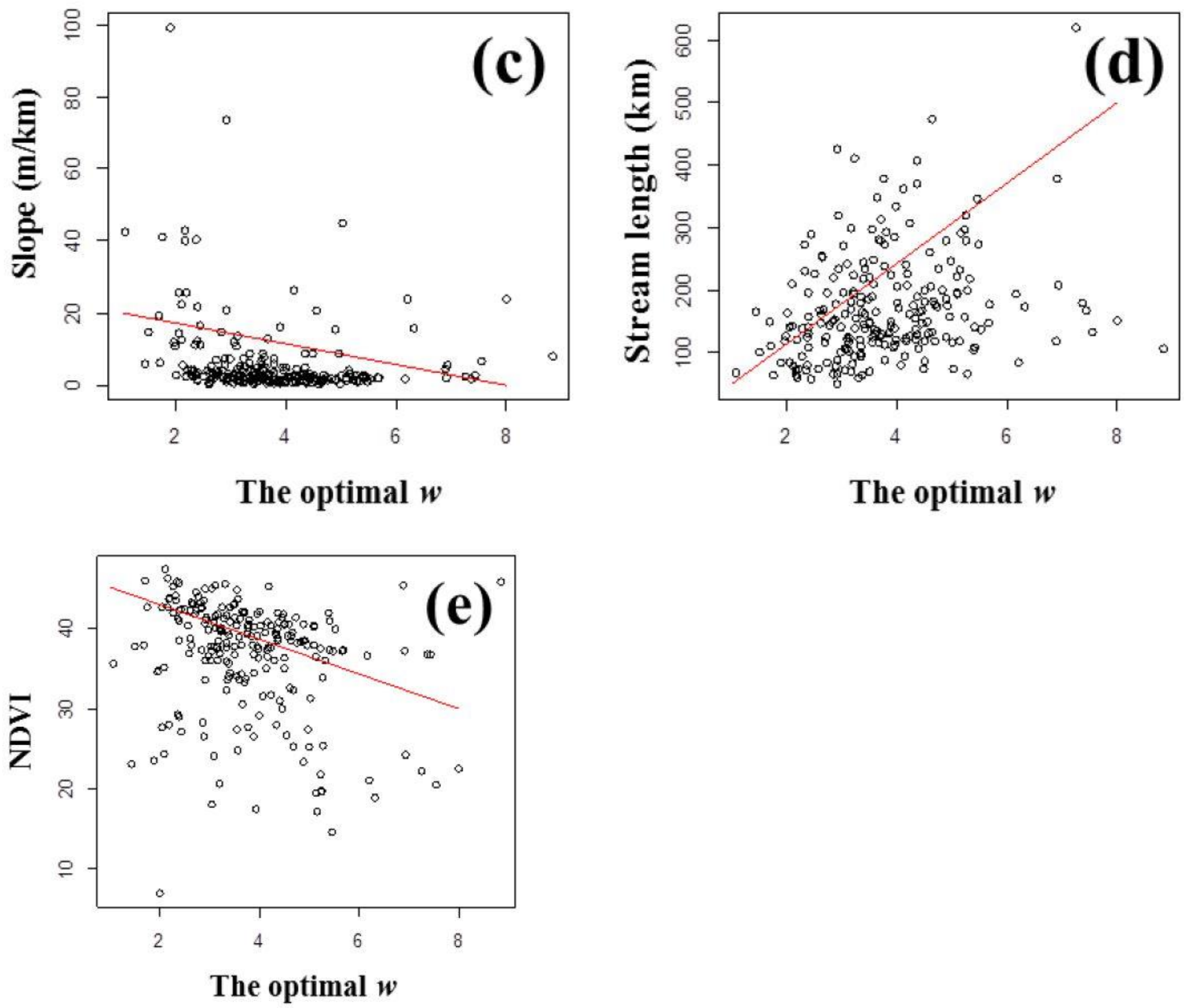


Figure 1: The relationship between basin characteristics and optimal w values (Source: Ahn and Merwade, 2017)

4. The write up is extremely poor and needs significant revision.

Reply: As per reviewer's suggestion, the write up has been improved wherever required. Our endeavor will be that the revised paper is much better than the current version.

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