Prof. Pieter van der Zaag
HESS Editor
29 Sept, 2014

Dear Pieter,

We sincerely thank you for your comments and encouragement to take a closer look at the Chiang Sean station results. My co-authors and I took a deeper look into the data set for Chiang Sean and consulted with other colleagues on the matter. After a thorough investigation we identified that the Chiang Sean data set we were using from MRC had not been corrected for the discrepancy identified by Lu et al, 2014, where the water level station was moved resulting in fixed vertical shift in water level after 1993. This discrepancy has now been corrected and the results in all tables and figures have been updated. The results now show much less of a difference in dry season levels. Fluctuations and fall rates were not affected, but mean levels (particularly in the dry season) are not as different pre to post 1991 as previously reported. The results now show only moderate dry season changes, which are in line with what would be expected from the observed level of mainstream dam development upstream. When one considers dry season flows in the driest month(s) (considerably less than the average dry season flow of 1,120m3/s), the two dams built prior to 2008 can feasibly make dry season water levels changes (30 and 90 day minimums) as now observed. We agree that the two dams which became operational after 2008 would have a reduced impact on the analysis of pre and post 1991 dry season water levels. The impact of filling would be observed primarily during the wet season.

Furthermore, Lu et al. 2014 studied rainfall upstream of Chiang Sean and they didn't find observable variation in rainfall (total and seasonal) pre and post 1991, but they did find a slight increase in temperature (as shown in Figure 1 below). There is no consensus or definite evidence upstream as to the potential effect of snowmelt in raising flows in the dry season.

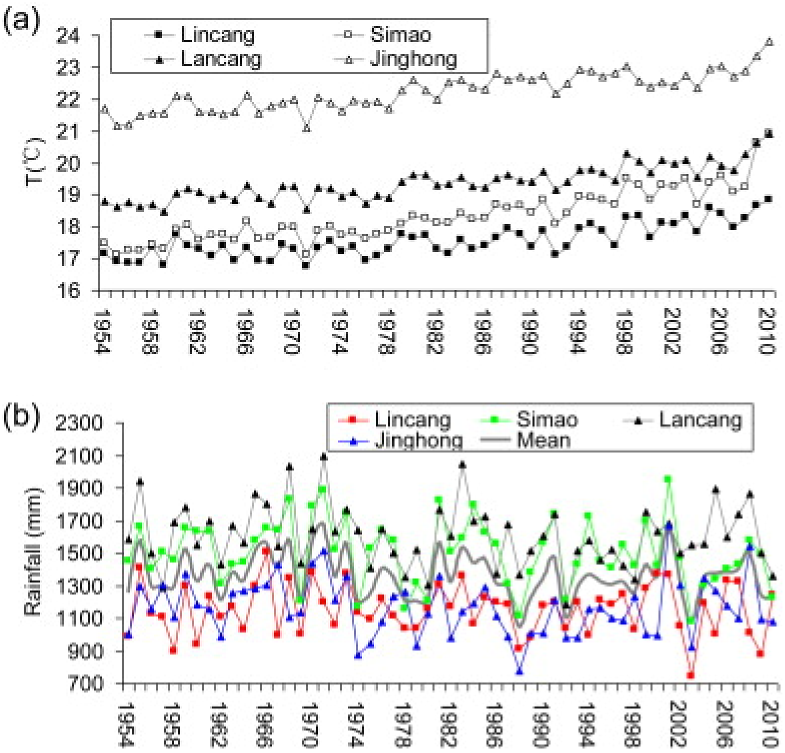
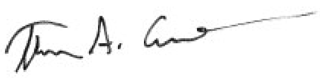


Fig. 1. Historical annual temperature and rainfall records for multiple stations in the upper Mekong basin. Source: Lu et al., 2014.

We have modified the text, tables, and figures in the manuscript to reflect these changes and to address the comments where relevant. We have also re-checked our other data sets and have found them to be sound and up to date. To make the review process easier, we have attached a “track changes” version of the manuscript.

Again, we sincerely thank you for your valuable comments and suggestions which have enabled us to improve the manuscript and ensure we were using the most updated and accurate data.

Sincerely,



Tom Cochrane