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Interactive comment on "Modeling Slope Environmental Lapse Rate (SELR) of temperature in the monsoon glacio-hydrological regime of the Himalaya" *by* Renoj J. Thayyen and Ashok P. Dimri

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In this paper Thayyen and Ashok are evaluating the monthly temperature lapse rate variations in the monsoon regime of the Himalaya.

I suggest to refer a key recent paper investigating the climate, its elevation-dependences, and temporal trends at high elevation in the Himalayan range.

Salerno F., N. Guyennon, S. Thakuri, G. Viviano, E. Romano, E. Vuillermoz, P. Cristofanelli, P. Stocchi, G. Agrillo, Y. Ma, and G. Tartari, 2015. Weak precipitation, warm winters and springs impact glaciers of south slopes of Mt. Everest (central Himalaya) in the last 2 decades (1994–2013). The Cryosphere 9, 1229-1247.

Pag.2 line 15-16 The authors show an increase in temperature and decrease in precipitation for the last twenty years using land meteorological stations.

From Pag.2 line 30 to Pag.3 line 7 Salerno et al., 2015 present the highest altitudinal gradient of the world (77–8848 m. a.s.l.). They found an altitudinal gradient of 0.60 °C (100 m)-1 on the annual scale with a linear trend. Furthermore they calculated the seasonal gradients and found a dry lapse rate of -0.65 °C (100 m)-1 during the pre-monsoon season when weather station registers a mean relative humidity of 62%. A saturated lapse rate during the monsoon season is -0.57 °C (100 m)-1 with a mean relative humidity of 96%. During the post-monsoon period, they found a lapse rate equal to that registered during the monsoon: -0.57 (100 m)-1 even if the relative humidity is decidedly lower in these months (44%). Kattel et al.. (2013) explain this anomalous low post-monsoon lapse rate as the effect of strong radiative cooling in winter.

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