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Interactive comment on "Weak precipitation, warm winters and springs impact glaciers of south slopes of Mt. Everest (central Himalaya) in the last two decades (1994–2013)" *by* F. Salerno et al.

Anonymous Referee #2

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The authors present a very interesting study on precipitation and temperature trends in the Everest region between 1994 and 2013. They analyze high altitude datasets gathered by the EV-K2-CNR project and they compare those high altitude data to other datasets which are regionally available. They draw several interesting conclusion: (i) The minimum temperature increases much stronger than the maximum temperature at high altitude, (ii) the temperature trends are stronger than for the surrounding areas; (iii) there is a significant negative trend in precipitation. This factors combined will have a very strong impact on the glaciers in the region, which is supported by recent observations of geodetic mass balances and flow velocities of the glaciers in the Khumbu region. The paper is generally well written and it is suitable for publication in

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the Cryosphere. I suggest the following minor revisions:

The detection of precipitation trends is essential; however those measurements are conducted using tipping buckets, which are unreliable for snow fall. The authors touch upon this topic briefly (p5917), however I do not find this discussion convincing. Temperatures at the 5050 reference altitude only above zero for a limited period of time. The authors state that more than 90% of annual precipitation falls during the monsoon, but how can this be proven if only observation during the monsoon months can be trusted. It could be that there has been a shift in precipitation from the monsoon to other (colder) seasons which remains undetected because of the tipping buckets. This should be more extensively discussed.

The authors reconstruct a P and T series at an altitude of 5050 and they use a quantile mapping approach to fill in missing data. It would be interesting to know how the percentage of missing data progresses with time, so it can be excluded that false trends may be attributed to trends in missing data occurrence.

Very limited information is provided about the sensors which have been to measure the temperature and precipitation and whether they have been the same for the entire period or whether replacements have been made that may have interrupted the data series.

The minimum temperature trends seem extremely large ($\sim$ 0.2 degrees Celsius / year) for some months. I am not sure if this is realistic.

I really appreciate Figure 4, but I suggest for precipitation the color scheme is change. Now blue = drying , which is counterintuitive.

The P-H relation in Figure 5 is also very interesting, but it could be related a bit more to other studies in this field , the regional context and the underlying patterns that would explain this relation.

Interactive comment on The Cryosphere Discuss., 8, 5911, 2014.