

## ***Interactive comment on “Complex Principal Component Analysis of Mass Balance Change on Qinghai-Tibet Plateau” by Jingang Zhan et al.***

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Thank you very much for your comments, which will help us to enrich our manuscript. Previous studies had done a lot of interesting works in Himalayan glacier change using satellite imagery, multi-temporal RS-DEMs and GPS data, as well as temperature and precipitation information (Thakuri et al., 2014; Bolch et al., 2011; Nuimura et al., 2012; Wagnon et al., 2013; Salerno et al., 2015& 2016). Here, the GRACE data also indicates that the Himalayan glaciers show a negative mass balance and was mainly influenced by the weakening Indian monsoon. In addition, compared with the interior plateau, the central and eastern Himalaya are weakly influenced by the westerlies and La Niña-related climate, which also lowered the chance of precipitation in this region to some extent. Our result from GRACE has a good agreement with the previous studies from other different data and provides further evidence of the weakening Indian monsoon in

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this area(Yao et al.,2012;Yi et al.,2014). Thanks again!

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