

Responses to Referees

Anonymous Referee #1

The authors applied Marzeion's basic glacier surface mass balance model on glacier Echauren Norte (which is the glacier with the longest in situ mass balance records in the central Andes of Chile and Argentina) using monthly data (precipitation and temperature) from a nearby station (El Yeso). Using this simple model, they explained 78% of the variance in the annual glacier mass balance over the 1978-2013 period and showed that precipitation is the most important factor explaining mass balance variations.

They also used regionally averaged – monthly hydroclimatic data (discharge, snowpack) obtained following Masiokas et al, 2006 and showed that these data are correlated to glacier Echauren Norte annual mass balance explaining up to 68 % of the variation since 1909. Then, they compared the long term reconstructed mass balance pattern of glacier Echauren Norte with others glaciers mass balance and glacier front chronologies and found similar trends and glaciers advances suggesting Echauren glacier is representative of the region.

The paper is clearly in the scope of “The Cryosphere” presenting an updated regional overview of the glacier mass balance changes in the glaciologically poorly known region of the Central Andes.

We thank the reviewer for the favorable opinion about our paper.