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Corrigendum to "Thinning of the Monte Perdido Glacier in the Spanish Pyrenees since 1981" published in The Cryosphere, 10, 681–694, 2016

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In this article, the published abstract contained three mistakes that may lead to misunderstanding regarding the recent rates of glacier wastage.

– First, the published abstract states that "…the rate of glacier thinning was 1.85 times faster during 1999–2010 (rate of surface elevation change $= -8.98 \pm 1.80$ m…"; -8.98 m is not a "rate of glacier thinning" but the total glacier thinning. For this reason we modify the abstract as follows: "…the rate of glacier thinning was 1.85 times faster during 1999–2010 (surface elevation change $= -8.98 \pm 1.80$ m…)"

– Second, the published abstract states that "From 2011 to 2014, ice thinning continued at a slower rate (rate of surface elevation change $= -1.93 \pm 0.4$ m yr^{-1}…"); -1.93 is not a rate of elevation change (in m yr^{-1}) but corresponds to the total elevation change between 2011 and 2014 so his unit should be "m" . Thus we made the following modification: "From 2011 to 2014, ice thinning continued at a slower rate (surface elevation change $= -1.93 \pm 0.4$ m…)".

– Finally, a few lines below it is stated that "…This deceleration in ice thinning compared to the previous 17 years can be attributed, at least in part, to two consecutive anomalously wet winters and cool summers". However, the ice thinning in this case is compared to the 1999–2010 period. Thus, the abstract must state ("This deceleration in ice thinning compared to the previous 11 years can be attributed…").

Please find the corrected abstract below:

Abstract. This paper analyzes the evolution of the Monte Perdido Glacier, the third largest glacier in the Pyrenees, from 1981 to the present. We assessed the evolution of the glacier's surface area by analysis of aerial photographs from 1981, 1999, and 2006, and changes in ice volume by geodetic methods with digital elevation models (DEMs) generated from topographic maps (1981 and 1999), airborne LIDAR (2010) and terrestrial laser scanning (TLS, 2011, 2012, 2013, and 2014) data. We interpreted the changes in the glacier based on climate data from nearby meteorological stations. The results indicate that the degradation of this glacier accelerated after 1999. The rate of ice surface loss was almost 3 times greater during 1999–2006 than during earlier periods. Moreover, the rate of glacier thinning was 1.85 times faster during 1999–2010 (surface elevation change $= -8.98 \pm 1.80$ m; glacier-wide mass balance $= -0.73 \pm 0.14$ m w.e. yr^{-1}) than during 1981–1999 (surface elevation change $= -8.35 \pm 2.12$ m; glacier-wide

mass balance $= -0.42 \pm 0.10$ m w.e. yr^{-1}). From 2011 to 2014, ice thinning continued at a slower rate (surface elevation change $= -1.93 \pm 0.4$ m; glacier-wide mass balance $= -0.58 \pm 0.36$ m w.e. yr^{-1}). This deceleration in ice thinning compared to the previous 11 years can be attributed, at least in part, to two consecutive anomalously wet winters and cool summers (2012–2013 and 2013–2014), which counteracted to some degree the intense thinning that occurred during the dry and warm 2011–2012 period. However, local climatic changes observed during the study period do not seem sufficient to explain the acceleration in ice thinning of this glacier, because precipitation and air temperature did not exhibit statistically significant trends during the study period. Rather, the accelerated degradation of this glacier in recent years can be explained by a strong disequilibrium between the glacier and the current climate, and likely by other factors affecting the energy balance (e.g., increased albedo in spring) and feedback mechanisms (e.g., heat emitted from recently exposed bedrock and debris-covered areas).