

Interactive comment on “Applying artificial precipitations to mitigate the melting of the Muz Tau Glacier, Sawir Mountains” by Feiteng Wang et al.

Suryanarayanan Balasubramanian (Referee)

suryanarayanan.balasubramanian@unifr.ch

Received and published: 4 February 2020

General Comments This paper is well written and provides good scientific evidence on the impact of artificial precipitation on glacial mass balance. Although, the experiment setup being novel, requires further context in the paper. Even though the paper provides compelling evidence by quantifying the impact of 2 artificial precipitation events, the 13 day measurement duration is too short to provide sufficient evidence for the hypothesis suggested.

Specific Comments 1. Given that the premise of the paper is to measure the effect of artificial precipitation, little effort has been taken to distinguish or categorize precipita-

C1

tion events as artificial and natural. There needs to be a control experiment without igniting the smog generators to compare the difference in precipitation quantities. References are also lacking to categorize the precipitation events as "artificial".

2. The albedo decay of the artificial precipitation and the snow quality data is required to claim a long term glacier mass balance impact. These need to be factored in the hypothesis mechanism. Particularly, the variation in likelihood of a precipitation event occurring with or without a smog generator needs to be quantified or referenced.

Technical Corrections 1. Lines 126 to 137 which describe the AWS instruments can be better presented in the form of a table.

Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2019-269>, 2019.

C2