

The Cryosphere Discuss., author comment AC2
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Reply on RC2

Dominic A. Hodgson et al.

Author comment on "Drainage and refill of an Antarctic Peninsula subglacial lake reveal an active subglacial hydrological network" by Dominic A. Hodgson et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2022-144-AC2>, 2022

Thank you for this constructive review, and for highlighting the additional references, which will help strengthen our paper.

General remarks

1) Are there any accessible datasets which could be used to investigate the actual lake drainage prior to 2013?

We are fortunate that the prepublication of our paper in The Cryosphere prompted a colleague (a UK glaciologist) to examine their photographic archives of overflights of the Mars Glacier. As a result, we now have an image of the site in January 2011 which records the emptying of the basin, collapse of the overlying ice, and formation of the ice cliffs. This will be included in the revised version of the manuscript.

We could not find earlier publicly available satellite images with sufficient resolution to aid our interpretations.

2) The Authors state that a southerly shift of subglacial lake appearance...

We are careful to state that the drainage '*may* indicate the southward expression of this phase of glacier response to regional warming'; i.e., this is speculation. We have not observed similar drainage features elsewhere at these latitudes, but this may be due to under reporting. To address this, we add the sentence: 'However, the presence of these features has not been systematically mapped and may therefore be underreported.'

Specific comments

We will address these constructive observations in the revised version. The suggested additional references are really helpful and will strengthen the discussion.