

The Cryosphere Discuss., referee comment RC1
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Comment on tc-2021-377

Ugo Nanni (Referee)

Referee comment on "Topology and spatial pressure distribution reconstruction of an englacial channel" by Laura Piho et al., The Cryosphere Discuss.,
<https://doi.org/10.5194/tc-2021-377-RC1>, 2022

General comment:

The study is a methodological contribution that presents a new method to map the topology of supra and en glacial flow and retrieve the water pressure along flow. Such method will benefit to the investigation of glacial hydrology and its influence on ice dynamic. The paper well presents the method. However, the purpose of the work is not clearly articulated and it lacks a wider comparison with other methods (dye tracing, GPR, seismic, satellite observations) that would help to highlight the benefits of this new methods. It also lacks information on what kind of observation are currently needed by the glacial hydrology community and how this new method may contribute to provide such observation.

I think that the proposed method is valid and suitable as well as very original and will bring new and useful information about glacial hydrology, at relatively low cost and easy deployment. It is therefore important for such method to be shared with the glaciological community.

I support the publication of this manuscript on the condition that the authors highlight (1) the advantages and limitations of their method (e.g., water pressure measurements, applicability to other setups, to subglacial environments ...) (2) how their method finds its place in the current methods used to observe and model glacial hydrology and the associated challenges. Such changes might necessitate to revisit the structure of the discussion and conclusion sections as well as to provide some changes on the introduction.

See comments for more details (annoted pdf and comments pdf). My comments are aimed at highlighting where changes could be made to improve the clarity of the manuscript.

Please also note the supplement to this comment:

<https://tc.copernicus.org/preprints/tc-2021-377/tc-2021-377-RC1-supplement.zip>