

The Cryosphere Discuss., author comment AC1
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Reply on RC1

Youhong Sun et al.

Author comment on "Brief communication: New sonde to unravel the mystery of polar subglacial lakes" by Youhong Sun et al., The Cryosphere Discuss.,
<https://doi.org/10.5194/tc-2022-100-AC1>, 2022

This is an excellent paper which illustrates development and testing of a melt probe that can be recovered.

Thank you for the kind words. Just a quick note to remind of the requirements of TC brief communication type papers (https://www.the-cryosphere.net/about/manuscript_types.html): 2–4 journal pages, 3 figures and/or tables, a maximum of 20 references, and an abstract length not exceeding 100 words. Our submitted paper already slightly exceeds the limits.

If the space allows, it might be good to provide more technical details such as structure of the cable (eg number of wires, redundant wires?, shield),

Please, see separate paper about the cable: Zhang, N., Liu, H., Talalay, P., Sun, Y., Li, N., Fan, X., Li, B., Gong, D., Hong, J., Wang, T., Liu, A., Li, Y., Liu, Y., Wang, R., Yang, Y., Wang, L.: New synthetic fiber armored cable for freezing-in thermal ice probes. *Ann. Glaciol.*, 62(85-86), 179-190, doi.org/10.1017/aog.2020.74, (2021).

what voltage was used to sent power down to the probe (some kind of an electrical block diagram would be useful),

Please, see separate paper about the control system: Peng, S., Jiang, X., Tang, Y., Li, C., Li, X., Huang, S., Zhu, T., Shi, J., Sun, Y., Talalay P., Fan, X., Zhang, N., Li, B., Gong, G., and Yu, H.: Recoverable autonomous sonde for subglacial lake exploration: electronic control system design. *Ann. Glaciol.*, 62(85-86), 263–279, doi.org/10.1017/aog.2021.1, (2021).

how the tensioning mechanism worked,

The separate paper "Recoverable autonomous sonde for subglacial lakes exploration: driven unit design" is currently in the works. Tension sensor itself was described in Shi J., Huang S., Wang B., Li C., Peng S., Sun Y., Talalay P., Yu H. (2021). Design and analysis of deepwater tension sensors for ice drill application. *Ann. Glaciol.* 62(84), 46–52.
<https://doi.org/10.1017/aog.2020.71>

which parts of the probe were flooded, which were dry,

We will add in the revised version of the paper: "Motors and electronics were integrated in the pressure chamber while all other parts of the sonde were flooded".

was the water sample analyzed in a lab to reveal something interesting?

Because of covid situation in Shanghai, recovered samples are still in the port. Thus, analyzing of the sampled water did not start yet.