

The Cryosphere Discuss., referee comment RC3  
<https://doi.org/10.5194/tc-2022-100-RC3>, 2022  
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## Comment on tc-2022-100

Bernd Dachwald (Referee)

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Referee comment on "Brief communication: New sonde to unravel the mystery of polar subglacial lakes" by Youhong Sun et al., The Cryosphere Discuss.,  
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### General assessment:

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The manuscript provides an interesting and well-done summary about a the novel melting probe concept (RECAS) developed by the authors and its field test results in 2022 in Antarctica.

### General Comments:

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The devices of others are "probes" but your device is a "sonde". What is the difference that justifies another name?

On page 5, in the discussion of later extraterrestrial deployments, the authors should state that the current dimensions, mass, and power consumption may be problematic and miniaturisation may be an issue ... and, well, the diesel generator will not work :)

The English is understandable but could be improved.

### Technical Comments:

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Page 2: "Russian team" => "a Russian team", "UK team" => "a UK team". (Dozens of "a"s and "the"s are missing in the manuscript, but they will hopefully be inserted during the generation of the proof.)

Page 3: The Philberth-type probe was proposed in "(1976)"? It reached 1005 m in 1968? So it was proposed before 1968 and maybe the original paper, in which it was proposed, should be cited instead.

Page 3, "move in the borehole using inner cable recoiling mechanism on the same way as a spider climbs on the silk line": Well, I'm not an arachnologist, but I'm quite sure that spiders do not have such a device :) So it may be better to write "move in the borehole using an inner cable recoiling mechanism similar to a spider climbing on the silk line"

Page 3: The changes between "the team", "we", "research personnel", "ourselves" is a bit confusing. Are they different people? Could be harmonised.

Page 3, line 85: "send" => "sent"

Page 4, "Even the site demonstrates cold-based condition ...": I don't understand this sentence.

Page 4: When the test hole was started on January 18, why was the field test 2021–2022?

Page 5, "... can be back in safely and reliable manner": Better: "can be returned to the surface in a safe and reliable manner."

#### Review Aspects:

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Does the paper address relevant scientific questions within the scope of TC? yes

Does the paper present novel concepts, ideas, tools, or data?

Are substantial conclusions reached? yes

Are the scientific methods and assumptions valid and clearly outlined? yes

Are the results sufficient to support the interpretations and conclusions? yes

Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? not with this paper alone, but probably with given references

Do the authors give proper credit to related work and clearly indicate their own new/original contribution? yes

Does the title clearly reflect the contents of the paper? yes

Does the abstract provide a concise and complete summary? yes

Is the overall presentation well structured and clear? yes

Is the language fluent and precise? yes, enough, but could be improved

Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? N/A

Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? no

Are the number and quality of references appropriate? yes

Is the amount and quality of supplementary material appropriate? N/A