General Remarks:
This paper presents an important and comprehensive overview of thermal profiles of mountain glaciers worldwide, filling a significant gap in our understanding of temperature patterns in both accumulation and ablation zones. The authors have done impressive work, and the paper is well-positioned for publication, particularly given the previous lack of such detailed reviews. As the authors correctly state in their article (line 320), the significance of older thermal profiles cannot be overstated, especially for future modeling approaches. These historical data sets are invaluable for validating new models or reassessing older ones, enabling refinements to improve their accuracy. This is particularly important in cases where drilling was performed using steam drills, as this method can sometimes affect the accuracy of temperature readings due to local heating during the drilling process. By scrutinizing these older datasets, researchers can correct for potential biases introduced by earlier techniques and ensure that these historical profiles continue to contribute to the scientific understanding of glacier thermal dynamics. Furthermore, the comparison of old and new data can provide insights into long-term changes in glacier temperature regimes, which is critical in the context of ongoing climate change.

However, I was slightly surprised to see only two authors listed for such an extensive project. For instance, a related publication on Greenland and the Canadian Arctic by Løkkegaard et al. (2023) had 27 authors, highlighting the collective efforts that often underpin these kinds of long-term measurements. Acknowledging the people responsible for gathering this invaluable data, sometimes over decades, is crucial. In this case, I noted that some contributors were neither listed in the authorship nor recognized as data collectors in the Zenodo list provided by the authors (https://doi.org/10.5281/zenodo.11516611). This omission also extends to the paper's acknowledgments, where funding institutions, such as universities, research organizations, and other key contributors, deserve proper recognition.

A key recommendation would be to ensure that all individuals and institutions responsible for the data collection over these many years are appropriately credited, either in the Zenodo list or directly in the paper's acknowledgments. Proper attribution not only honors the hard work of these researchers but also strengthens the scientific integrity of the study.

Another critical point is the long-term accessibility of this dataset. I strongly suggest that the authors integrate their data fully within the World Glacier Monitoring Service (WGMS) framework. This would ensure that the information remains accessible to the broader research community and is housed within a recognized database infrastructure. Since one of the authors is already affiliated with the WGMS, this integration would be a natural step and would provide consistency and oversight for future data use.

Smaller remarks:
Line 41: I would not talk here only by ice as the important part is also firn. Therefore, correctly I would write here *firn/ice*. The heat transfer in both is completely different and energy exchange is also different. Therefore, please refine here the expression.

Line 47: In the project GLAMOS (Glacier Monitoring Switzerland) continuous englacial temperature monitoring was introduced as a permanent process within glacier observations of Switzerland.

Line 54: add reference Machguth et al. 2024.

Line 96: why not joining all measurements, this paper, Løkkegaard et al. (2023) and Vandecrux et al. (2023) in one database?

Line 108: insert a blank *usingthe*

Line 115: what does this statement really mean? *'Some columns were added later in the data compilation process, therefore not all field are equally well populated.'* Maybe give some examples or if possible complete them now? Correct also *field* into *fields*

Line 287: Error analysis: The authors have provided a thorough analysis of various sources of error within the dataset, particularly focusing on digitization errors. However, I would like to suggest that the authors expand the scope of their error analysis to include additional critical aspects related to the measurements themselves. Specifically, it would be highly beneficial to include the following information in the database if it is existing:

1. **Calibration of Thermistors/DTS and other Systems**: Accurate temperature measurements are heavily reliant on the calibration of thermistors, distributed temperature sensing (DTS) systems, and other instrumentation used in glacier thermal monitoring. Providing details on how the instruments were calibrated, including the frequency of recalibration and any potential drift over time, would give readers a better understanding of the measurement precision and reliability.
2. **Measurement Error Considerations**: The authors report a mean error of approximately ±0.14°C at a depth of 15 to 20 meters. While this may seem minor, in the context of long-term glacier temperature monitoring, such an error could significantly affect the interpretation of subtle temperature trends. Based on my own experience at Colle Gnifetti, I have observed that an error of ±0.14°C for a single measurement is already quite large for long-term monitoring, especially when attempting to assess historical temperature changes that are often much smaller than the current rapid changes we are witnessing. Reducing this error margin is crucial for accurately detecting and interpreting the long-term thermal evolution of glaciers. At Colle Gnifetti, for example, we observed a temperature change of approximately +1.52°C at a depth of around 20 meters between 1992 and 2023, with an annual increase of approximately +0.046°C per year (*Gastaldello et al., in review*). In such cases, even small measurement inaccuracies can have a compounding effect over time, making it harder to identify these slow but critical temperature changes. Therefore, I recommend that future studies aim to reduce measurement error as much as possible to allow for more precise long-term monitoring. Achieving smaller errors would be crucial, particularly for distinguishing past changes from recent and accelerating warming trends.

Line 320: you could cite here some existing examples, which are already using models for validation or calibration: e.g. Licciulli et al. 2019, Mattea et al. 2021, Gastaldello et al. 2024

Description of tables 1-4: I would suggest that the authors also would include which type of thermistors/DTS or other systems were used. For re-evaluation processes, it is highly recommended to know about the type of measurement equipment.

Figure 4: The references are described in the article but should also be added as references in the caption of figure 4

Line 189: The authors write: *This is not surprising. For one, temperate (or even partially temperate) ice is of little interest to ice-core investigations because it does retain a memory of past climatic conditions.* I think that they may should write …it does **not** retain a memory of past climatic…

Line 191-193: I think that recent measurements have shown that even temperate ice has some very interesting past effects. Please cite Di Stefano et al. 2024.

Line 215-216: please add some references (e.g. Dyurgerov and Dwyer 2001)

Line 227: insert a blank 'Cat'

Di Stefano, E., Baccolo, G., Clemenza, M., Delmonte, B., Fiorini, D., Garzonio, R., Schwikowski, M., and Maggi, V., 2024, Temporal markers in a temperate ice core: insights from 3H and 137Cs profiles from the Adamello Glacier: The Cryosphere, v. 18, no. 6, p. 2865-2874.

Dyurgerov, M. B., and Dwyer, J. D., 2001, The steepening of glacier mass balance gradients with northern hemisphere warming: Zeitschrift für Gletscherkunde und Glazialgeologie, v. 36, p. 107-118.

Gastaldello, M., Mattea, E., Hoelzle, M., and Machguth, H., in review, Modelling Cold Firn Evolution at Colle Gnifetti, Swiss/Italian Alps: EGUsphere [preprint], https://doi.org/10.5194/egusphere-2024-2892, 2024.

Licciulli, C., Bohleber, P., Lier, J., Gagliardini, O., Hoelzle, M., and Eisen, O., 2019, A full Stokes ice-flow model to assist the interpretation of millennial-scale ice cores at the high-Alpine drilling site Colle Gnifetti, Swiss/Italian Alps: Journal of Glaciology, v. 66, no. 255, p. 35-48.

Machguth, H., Eichler, A., Schwikowski, M., Brütsch, S., Mattea, E., Kutuzov, S., Heule, M., Usubaliev, R., Belekov, S., Mikhalenko, V. N., Hoelzle, M., and Kronenberg, M., 2024, Fifty years of firn evolution on Grigoriev ice cap, Tien Shan, Kyrgyzstan: The Cryosphere, v. 18, no. 4, p. 1633-1646.

Mattea, E., Machguth, H., Kronenberg, M., Van Pelt, W. J. J., Bassi, M., and Hoelzle, M., 2021, Firn changes at Colle Gnifetti revealed with a high-resolution process-based physical model approach: The Cryosphere, v. 15, p. 3181–3205.