Dear Prof. Lonnie Thompson,

Many thanks for your thoughtful referee comments. Below is a point-to-point response to your comments. The original comments are in black, and our response is marked in blue.

Referee Comments on the paper by Hou et al., Apparent discrepancy of Tibetan ice core $\delta^{18}O$ records may be attributed to misinterpretation of chronology, for The Cryosphere Discuss., https://doi.org/10.5194/tc-2018-295.

First, it is certainly good to see the recent interest in our work on the Guliya ice core record that was conducted in the 1990s. The community has come a long way since that time when the greatest challenge that Tandong Yao and I faced when drilling in that part of the world was the question of whether or not it would be possible to drill an ice core at those elevations and then keep it frozen during its transit across the Gobi desert. We didn't know at the time how that work would set the stage for all of those who have come along since those early days.

Regarding the time scales on the early Guliya cores, they raised as many questions as they answered and therefore our team returned to Guliya in 2015 where we successfully recovered 5 ice cores, 4 of which were drilled to bedrock. A recently published paper highlights the geophysical work conducted in the field (Kutuzov *et al.*, 2018). A primary goal of the 2015 drilling campaign was to better constrain the time-scale on the Guliya ice cap by taking advantage of additional, newer analytical approaches and applying them to the freshly drilled ice cores. A number of these analyses are focused specifically on dating the ice and are now underway.

Kutuzov, S., L. G. Thompson, I. Lavrentiev, and L. Tian. 2018. Ice thickness measurements of Guliya ice cap, western Kunlun Mountains (Tibetan Plateau), China, *Journal of Glaciology*, 64(248) 977–989, doi: 10.1017/jog.2018.91.

Response:

We share the same experience and challenge of drilling ice cores at such high elevations. An additional challenge is to set up a reliable chronology for these mountain ice cores, especially for their bottom sections due to the rapid thinning of the ice layers and the dynamic nature of mountain glaciers. At present, tens of ice cores to the bedrock have been recovered from the Tibetan Plateau, but so far only three of them (i.e., Dunde, Guliya and Puruogangri) have provided a continuous time series beyond the last two millennia. Even for these three ice cores, there is much inconsistency among their $\delta^{18}O$ records

(Fig. 3 of our TCD manuscript). Therefore, more Tibetan ice core $\delta^{18}O$ records with reliable chronologies, including the Chongce and the new 2015 Guliya ice cores, are extremely necessary to reconcile the inconsistency among the Tibetan ice core $\delta^{18}O$ records.

As an invited referee for the paper by Hou *et al.*, I have addressed a number of the specific issues raised in the manuscript but in short the paper lacks sufficient quantitative support for the authors' conclusions. I hope that the following points will help the authors improve their manuscript.

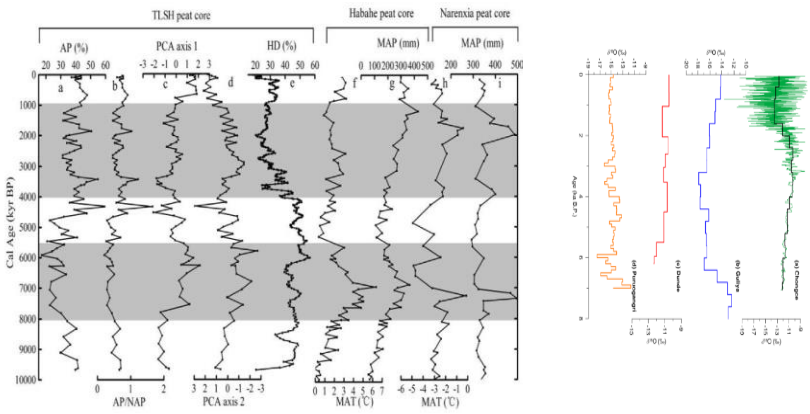
Response:

Many thanks for the thoughtful comments below. We believe that our detailed responses to your questions/comments show that our conclusion is reasonable and based on solid evidence.

Specific comments:

Lines 50-55*: "The Guliya record has been widely used as a benchmark for numerous studies since its publication (e.g., Fang et al., 1999; Rahaman et al., 2009; Sun et al., 2012; Hou et al., 2016; Li et al., 2017; Saini et al., 2017; Sanwal et al., 2019). Its stable isotopic record suggests a cooling mid-Holocene based on its decreasing $\delta^{18}O$ values during that period. However, this cooling mid-Holocene is not found in other Tibetan ice core records available so far."*

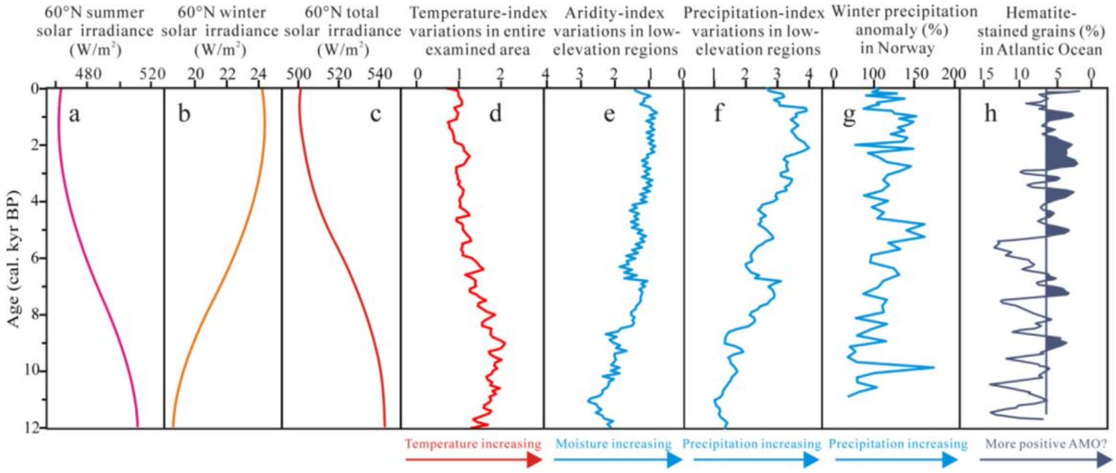
The first sentence will be addressed below. The third sentence is misleading. The mid-Holocene cooling is very noticeable in Tibetan climate records that are not from ice cores. For example, the regional vegetation and climate changes during the Holocene have been reconstructed from a high-resolution pollen record preserved in a peat sequence from the Altai Mountains of Xinjiang, China (Zhang *et al.*, 2018, *Quaternary Science Reviews*, 201, 111-123). These vegetation phases indicate that the regional climate changed from a cold and dry early Holocene to a warmer and wetter early-mid Holocene followed by a cold and dry mid-Holocene, which transitioned to a cool and wet late Holocene with warm and dry conditions characterizing the last millennium. Below is a figure comparing the data in Figure 6 of the Zhang *et al.* paper (left) with Figure 3 (right) from the Hou *et al.* paper. Note that the Guliya $\delta^{18}O$ record (blue) is more similar to the mean annual temperature (Figure 6, panel f, red star) than the Chongce $\delta^{18}O$ record. It is also important to note that the Guliya ice core was not used to help establish the chronology of the pollen record.



☆

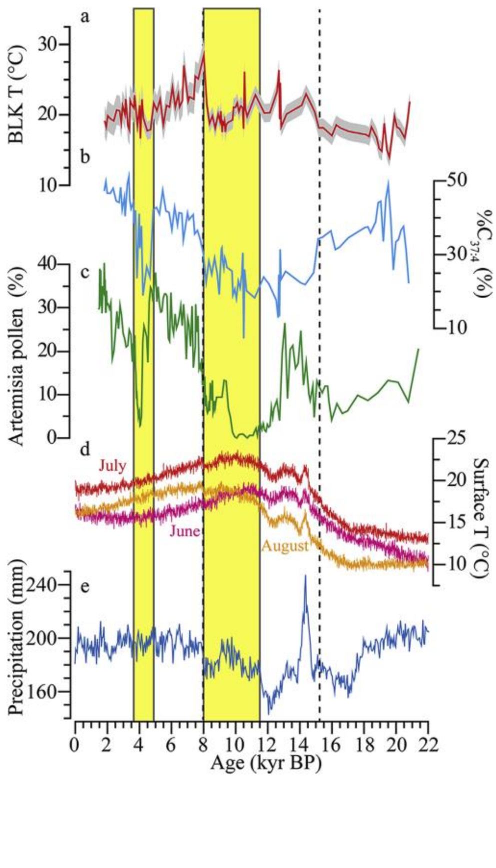
The figure is a composite of Figure 6 (Zhang *et al.*, 2018) and Figure 3 (Hou *et al.*, unpublished). The records above, along with other examples given below, dispute Lines 136-140 *("This warming trend during the mid-Holocene is similar to recent paleoclimatic reconstructions in other parts of the world (Samartin et al., 2017; Marsicek et al., 2018). By comparison, it seems that the δ*^{18}*O profile of the Guliya ice core, especially for the period of 6-7 kaBP to ~3 kaBP, is at odds with this warming trend during the mid-Holocene.")*. Here the authors are picking records from regions thousands of miles away in much different climate regimes to confirm the Chongce δ^{18}O record (and time scale). The Samartin *et al*. records are from the Mediterranean while the Marsicek *et al.* records are from Europe and North America. Hou *et al.* (Lines 35-40) state that *"Marsicek et al. (2018) recently presented temperature reconstructions derived from sub-fossil pollen across North America and Europe. These records show a general long-term warming trend for the Holocene until ~2 kaBP (thousand years before present), and records with cooling trends are largely limited to North Atlantic, implying varied regional climate responses to global drivers")*. There are several publications that link North Atlantic climate to the climates of Central Asia and China. Although most of them discuss the linkages between precipitation and westerlies influenced by North Atlantic atmospheric and oceanic processes, papers such as Feng and Hu (2008, *Geophysical Research Letters* 35 doi: 10.1029/2007GL032484) present an argument that North Atlantic SST anomalies strongly affect the TP surface temperature and heat sources, at least in the last century.

There are other records that call into question their conclusions regarding Holocene climate variability as inferred from the Chongce cores. For example, Zhang and Feng (*Earth-Science Reviews*, 2018, 185, 847-869) presented a compilation of pollen records from the Altai Mountains and surrounding regions that show a mid-Holocene cooling trend. Below see their Figure 37 (note panel d) from their synthesis of regional pollen records.



This is Figure 37 from Zhang and Feng, 2018 which was cited above.

Another example that does not support the conclusions drawn from the Chongce ice core is an alkenone-based 21 ka paleotemperature record from Lake Balikun (43.60-43.73ºN, 92.74- 92.84ºE, 1570 masl). As shown in the figure below (see panel d), this lake record shows that in this region the peak summer temperature occurred at 8 ka and was followed by general cooling throughout the Holocene.



This is Figure 8 is from Zhao *et al*. 2017 (Contrasting early Holocene temperature variations between monsoonal East Asia and westerly dominated Central Asia. *Quaternary Science Reviews* 178, 14-23).

Warmer conditions for the Early Holocene and cooler temperatures in the mid-Holocene are inferred by additional eastern TP records (see papers cited below). Many of these records are consistent with the Northern Hemisphere summer insolation curve (see panel a in the figure above from Zhang and Feng, 2018).

Shen, J., Liu, X., Wang, S., Ryo, M., 2005. Palaeoclimatic changes in the Qinghai Lake area during the last 18,000 years. *Quaternary International* 136, 131–140.

Yu, X., Zhou, W., Franzen, L.G., Xian, F., Cheng, P., Jull, A.J.T., 2006. High-resolution peat records for Holocene monsoon history in the eastern Tibetan Plateau. *Science in China (Series D)* 49, 615–621.

Herzschuh, U., Kramer, A., Mischke, S., Zhang, C., 2009. Quantitative climate and vegetation trends since the late glacial on the northeastern Tibetan Plateau deduced from Koucha Lake pollen spectra. *Quaternary Research* 71, 162–171.

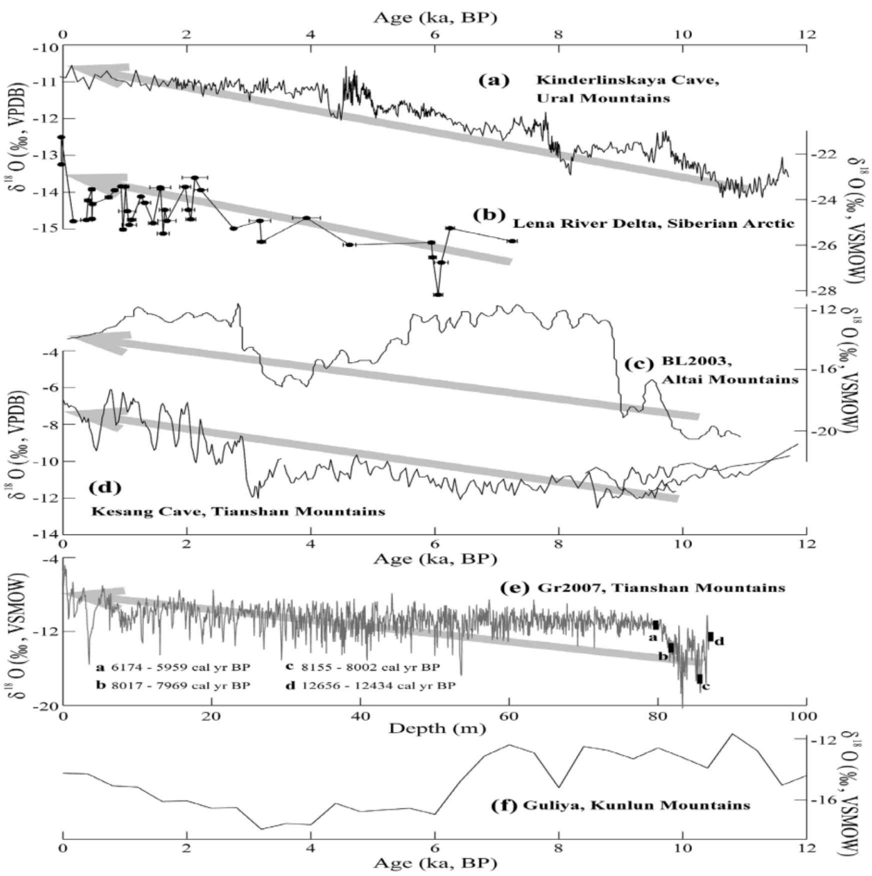
Zhang, C., Mischke, S., 2009. A Late Glacial and Holocene lake record from the Nianbaoyeze Mountains and inferences of lake, glacier and climate evolution on the eastern Tibetan Plateau. *Quaternary Science Reviews* 28, 1970–1983.

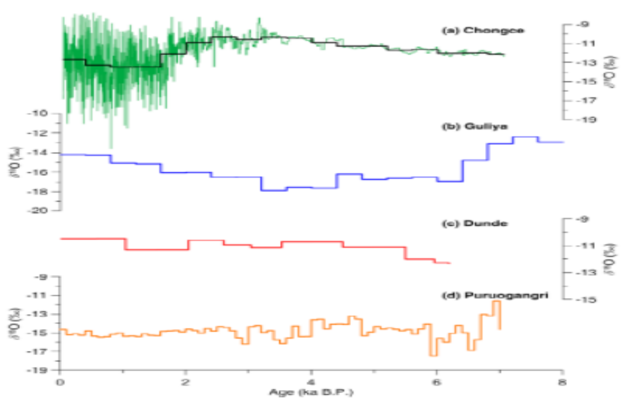
Kramer, A., Herzschuh, U., Mischke, S., Zhang, C., 2010. Holocene tree line shifts and monsoon variability in the Hengduan Mountains (southeastern Tibetan Plateau), implications from palynological investigations. *Palaeogeography, Palaeoclimatology, Palaeoecology* 286, 23–41

Response:

The reviewer listed a few studies in support of the Guliya record, which suggest warmer conditions for the Early Holocene and cooler temperatures in the mid-Holocene. However, there are many other studies that suggest otherwise. Most recently, Rao et al. (Earth-Science Reviews, 2019) compiled climatic reconstructions from lake sediments, loess, sand-dunes and peats in the Xinjiang and surrounding region of Norwest China, including northern parts of the Tibetan Plateau. The reconstructed records suggest a long-term warming trend during the Holocene. It is worth noting that the study area of Zhang et al. (2018) mentioned by the reviewer is in the Altai Mountains of the northern Xinjiang region, which is within the focus region of the Rao et al. (2019) study. Figure 5 of the Rao et al. paper (upper) is presented here with Figure 3 of our TCD paper (lower). The caption of Figure 5 (Rao et al., 2019) reads: “Fig. 5. Comparison of relevant Holocene $\delta^{18}O$ records from the Xinjiang region and its surroundings. (a) Stalagmite $\delta^{18}O$ record from the southern Ural Mountains (Baker et al., 2017); (b) ice wedge $\delta^{18}O$ record from the Lena River Delta in the Siberian Arctic (Meyer et al., 2015); (c) ice core $\delta^{18}O$ record from the Western Belukha Plateau in the Siberian Altai Mountains (Aizen et al., 2016); (d) stalagmite $\delta^{18}O$ record from Kesang Cave in the western Tianshan

Mountains (Cheng et al., 2012); (e) ice core $\delta^{18}O$ record from the Grigoriev Ice Cap in the western Tianshan Mountains (Takeuchi et al., 2014); (f) Guliya ice core $\delta^{18}O$ record from the western Kunlun Mountains (Thompson et al., 1997). All these $\delta^{18}O$ records exhibit an overall long-term positive trend, as indicated by the grey arrows. The sole exception is the Guliya ice core $\delta^{18}O$ record, which may be partially influenced by the Asian summer monsoon. Consequently, we speculate that the Holocene stalagmite $\delta^{18}O$ record from Kesang Cave in the western Tianshan Mountains is a record of changing temperature rather than moisture."





The possible reasons for such dramatic differences between Rao et al. (2019) and Zhang et al. (2018) reconstructions of the same region is beyond the scope of this document and our TCD paper. It is sufficient to say that further studies and data are necessary to reconcile the differences and narrow down the uncertainties in the Holocene climate history on the TP.

Although it is tempting to simply compile a list of studies supporting our conclusions in order to "settle the scores", we also realize that to do so is missing the point of our paper. The purpose of our TCD paper is not to provide a definitive proof of a warming or cooling Holocene, but rather an attempt to reconcile the apparent discrepancy between the $\delta^{18}O$ records of two specific ice cores, i.e. Chongce and Guliya, which were retrieved at two sites only ~30 km apart. Both drilling sites are located in the western Kunlun Mountains on the northwestern Tibetan Plateau, where significantly positive correlation between air temperature and $\delta^{18}O$ in precipitation and ice cores is well established (Tian et al., 2006; Yao et al., 2013; An et al., 2016), and stays fairly stable throughout the Holocene (Risi et al., 2010). Therefore, the Chongce and the Guliya ice core $\delta^{18}O$ records reflect the temperature variation of the same region and should share very similar, if not exactly the same, characteristics given their close proximity to each other. Such similarity was not found between the two records based on the original Guliya chronology. Instead, they show divergent temperature trends for the Holocene, with a significant negative correlation between the two records during the common period ($r = -0.79$, $n = 16$, $p = 0.00$). However, if we compare the depth $\delta^{18}O$ profiles directly, we do see much similarity between the two ice cores. When the Chongce $\delta^{18}O$ values were averaged based on the same relative depth intervals of the Guliya profile (Fig. 5 in our TCD paper), the two records are highly correlated ($r = 0.57$, $n = 110$, $p = 0.00$). The chronology of the Chongce ice cores are well established by an array of newly developed as well as traditional dating methods such as the measurements of ^{14}C (22 samples for the Chongce Core 4 and 9 samples for the Chongce Core 2, respectively), ^{210}Pb, tritium and β-activity (Hou et al., TC 2018). Such evidence has led to a reasonable doubt for the validity of Guliya's original chronology, particularly in the light of the extraordinary length of the record, which is nearly two orders of magnitude longer than all other ice cores on the TP (Hou et al. 2018). We are pleased to see that new ice cores were recovered from the Guliya ice cap in 2015, and analyses of ^{14}C, ^{36}Cl, ^{10}Be, $\delta^{18}O$ of air in bubbles and argon isotopic ratios ($^{40}Ar/^{38}Ar$) on deep sections of the new Guliya ice cores are under way (Thompson et al., 2018). We look forward to the new Guliya ice core results. As stated in our TCD paper, "Our study highlighted the urgent need for more ice core records with reliable chronologies, especially results from the 309.73 m Guliya ice core drilled in 2015 close to the 1992 Guliya core drilling site (Thompson et al., 2018) to verify past temperature variation on the TP".

Returning to Lines 50-54, The definition of “benchmark” is a point of reference from which measurements may be made. In none of the references cited above are the time series constructed to match that of Guliya. Those chronologies were independently developed. Therefore the suggestion that the Guliya record misled the development of the climate records in these or any other papers is false. This sentence should be rephrased as “The Guliya record has been compared with climate records from numerous studies…..”). The records in these and other references were broadly compared to the Guliya record. If the climate records from these independently dated records match the Guliya record then it is not because they *were matched to* Guliya in order to develop their chronologies, it is because their independent chronologies were coherent with the Guliya chronologies. Also, if the Holocene temperature records presented in these publications are similar to Guliya’s Holocene $\delta^{18}O$ (temperature) time series, which contradicts the Chongce $\delta^{18}O$ (temperature) record, it raises a serious challenge to the validity of the interpretation of the Chongce records, which the authors should address.

Response:

We revised the sentence as suggested. The Guliya record has been widely cited (999 times from Google Scholar on March 16, 2019), However, most of the time the record was used to provide a broad climate context, and very few studies made direct comparison, in part because the original data were not publically available. We would also like to point out when the Guliya record was compared with other reconstructions, not all of them were in agreement, such as the aforementioned Rao et al. (2019) study, which did bring to the attention the disagreement between the Guliya and other records. Cheng et al. (2012) also argued that the chronology of the Guliya ice core should be shortened by a factor of two in order to reconcile the difference in the $\delta^{18}O$ variations between the Guliya ice core and the Kesang stalagmite records. It is indeed very challenging to establish an accurate chronology for Tibetan ice cores, which has led to frequent inconsistencies among different records. We shall continue to test the validity of Chongce chronology and its temperature reconstruction through comparisons with other observation records as well as model simulations. We believe that all of us engaging in Tibetan ice core research should work together to reconcile existing inconsistencies among the Tibetan ice core records in order to enhance their credibility and increase people’s confidence in the climate history reconstructed from these important ice cores.

Hou *et al.* make statements that are inconsistent with existing evidence. For example they state (Line 179-181): "*This would also cast doubt on the notion of asynchronous glaciation on the TP on Milankovitch timescales (Thompson et al., 2005), which is developed based on the original chronology of the Guliya ice core.*"

Guliya is not the solitary piece of evidence supporting asynchronous glaciation on the Tibetan Plateau. There are a number of exposure dates that also point to asynchronous glaciation. Owen *et al.* (2008, Quaternary glaciation of the Himalayan-Tibetan orogeny in *J. Quaternary Science* 23, 513-531) state in their abstract "Glaciers throughout monsoon-influenced Tibet, the Himalaya and the Transhimalaya are likely synchronous both with climate change resulting from oscillations in the South Asian monsoon and with Northern Hemisphere cooling cycles. In contrast, glaciers in Pamir in the far western regions of the Himalayan–Tibet orogen advanced asynchronously relative to the other regions that are monsoon-influenced regions and appear to be mainly in phase with the Northern Hemisphere cooling cycles."

Response:

The synchronicity of glaciation on the TP is a long standing issue of intellectual debate. There seems to be evidence on both sides. Evidence for synchronous glaciation on the TP is presented in many studies (e.g. Schäfer et al., 2002; Yi et al., 2008). Solomina et al. (2015), in an invited review to QSR, indicated that "Many glaciers worldwide record strong centennial scale climate signals. The accuracy and coverage of the records is still too low to assess the global or regional synchronicity of advances at the centennial scale with high confidence. At least some groups of glacier advances were clustered – for example, the advances at 11.0-11.4 ka documented in the NH and in the tropics, the events at 9.1-9.2 ka and 8.0-8.4 ka recorded in the NH and SH.". Our paper does not argue for or against synchronous glaciation on the TP, but rather we suggest that given our new understanding of the Tibetan ice core chronology, the Guliya record may not provide supporting evidence for asynchronous glaciation on the TP because of possible errors in its original chronology. We rephrased our sentence in the revised manuscript accordingly: "*This would also cast doubt on using the Guliya record as supporting evidence for asynchronous glaciation on the TP on Milankovitch timescales (Thompson et al., 2005), as it was based on record of its original chronology.*"

Lines 182-184: *Recently, Ritterbusch et al. (2018) applied ^{81}Kr dating, with the updated laser-based detection method of Atom Trap Trace Analysis (ATTA), to the bottom ice samples collected at the terminal of the Guliya ice cap. The resulting ^{81}Kr ages are <50 kaBP.* ^{81}Kr ages on the margin of the Guliya ice cap tell us nothing about the age of the bottom ice of the

308m ice core at the Plateau "Site 2" drill site (where the 1992 core was drilled). Ice samples collected in 2015 for ^{81}Kr analyses were collected down the flowline and in close proximity to our 1992 Site 1 drill (see locations in Figure 1 of Thompson *et al.*, 1995, *Annals of Glaciology*). In 1992 the first Guliya core "Site 1" was drilled to 92.2 meters, at which point we terminated drilling because we found an unconformity in the ice layers 83 meters below the surface (see discussion on page 176 in the aforementioned Thompson *et al.* 1995 paper). Thus, there is no reason to believe there is a time stratigraphic linkage between the bottom ice along the margin (near the camp, see aforementioned map) and the ice at the bottom of our deep core drilled on the Plateau at Site 2 (see map).

Response:

In this study, they collected samples for ^{81}Kr measurement at three sites (red stars in the map below), and only one sampling site is near "site 1". The ^{81}Kr samples at different sites yielded remarkably consistent results, and all of the resulting ages are ~ one order of magnitude younger than the original chronology of the Guliya ice core (Tian Lide, Lu Zhengtian, personal communications). Such high consistency suggests that they indeed measure the same bottom age of the Guliya ice cap, and are unlikely to be affected by localized unconformities.

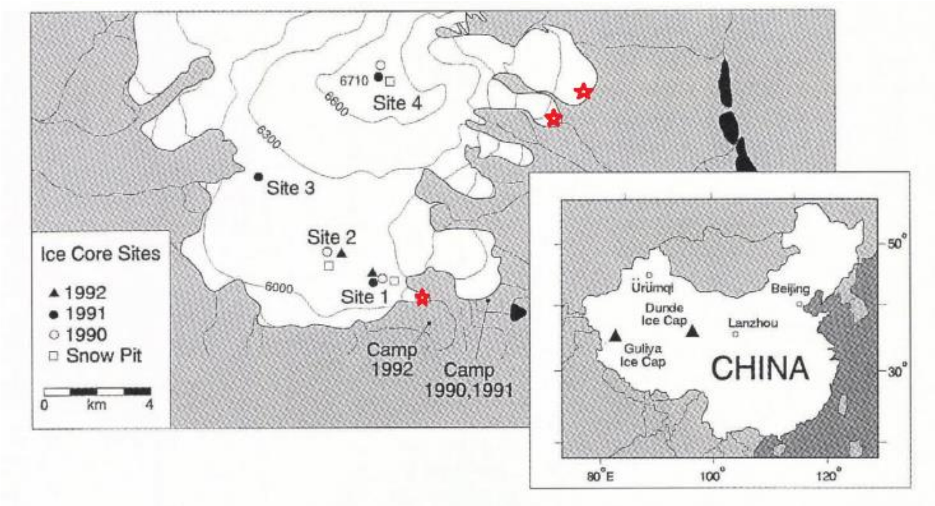


Fig. 1. Locations of the Guliya and Dunde ice caps, and of snow-pit and ice-coring sites on Guliya.

This is Figure 1 of Thompson et al., Annals of Glaciology, 1995. The three red stars indicate the sampling locations for the ^{81}Kr measurements.

Minor points

Some statements are erroneous or misleading and need to be checked and verified. For example, on *Lines 128-130 they state: "However, this high δ18O value is not observed around the depth of ~211 m* *in the Puruogangri depth δ18O profile (Fig. 2). Indeed, all δ18O values in the depth profile of the Puruogangri core are well below -12‰. Therefore, the high δ18O value around ~7 kaBP of the Puruogangri core (Fig. 3) needs further verification."* Those values exist in the raw data around 211 meters (the raw data below are ~ 6.9-7.0 ka), and this high δ18O value is a function of the time averaging (100 yr averages), whereas the authors are basing their observations on one meter averages, which incorporate ~30 data points).

Depth (m)	$\delta^{18}O$ (‰)
210.960	-11.35
210.990	-11.30
211.025	-12.12

Response:

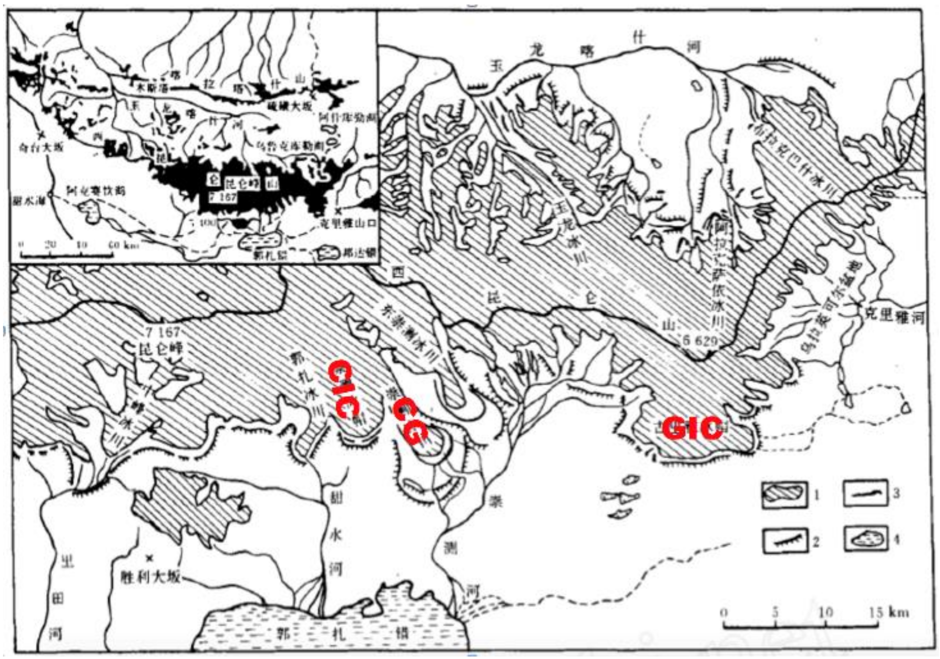
Many thanks for clarifying the Puruogangri profiles. We included this information in the revision. We'd like to point out that this kind of misunderstanding could have been avoided if the original raw data of the Puruogangri ice core were shared. We strongly believe that complete data sharing is extremely important for future scientific progress. As indicated in our TCD manuscript, we plan to provide the complete $\delta^{18}O$ data of the Chongce ice core upon the publication this paper.

Finally, the authors' failed to mention that evidence exists suggesting that Chongce may be a surging glacier. In 1991 Chinese scientists published a Quaternary Glacial Distribution Map of the Tibetan Plateau. According to this map, the terminal moraines around the Guliya ice cap are very close to their maximum position during the last two glaciations. However, this is not the case for the Chongce ice cap which shows the greatest variations in ice extent of any of the ice caps in this region. In addition, the Chongce glacier, which flows from the Chongce ice cap, surged between 1992 and 2014 while the Guliya ice cap remained static (Yasuda and Furuya, 2015; Fig. 3). Therefore, it might be inaccurate to assume that the timescale developed for the Chongce cores should reflect that of Guliya. In light of the geophysical considerations discussed above it is premature to conclude that the Chongce results invalidate the much longer Guliya timescale.

Yasuda, T. and Furuya, M. 2015. Dynamics of surge-type glaciers in West Kunlun Shan, Northwestern Tibet. *Journal of Geophysical Research - Earth Surface*, https://doi.org/10.1002/2015JF003511.

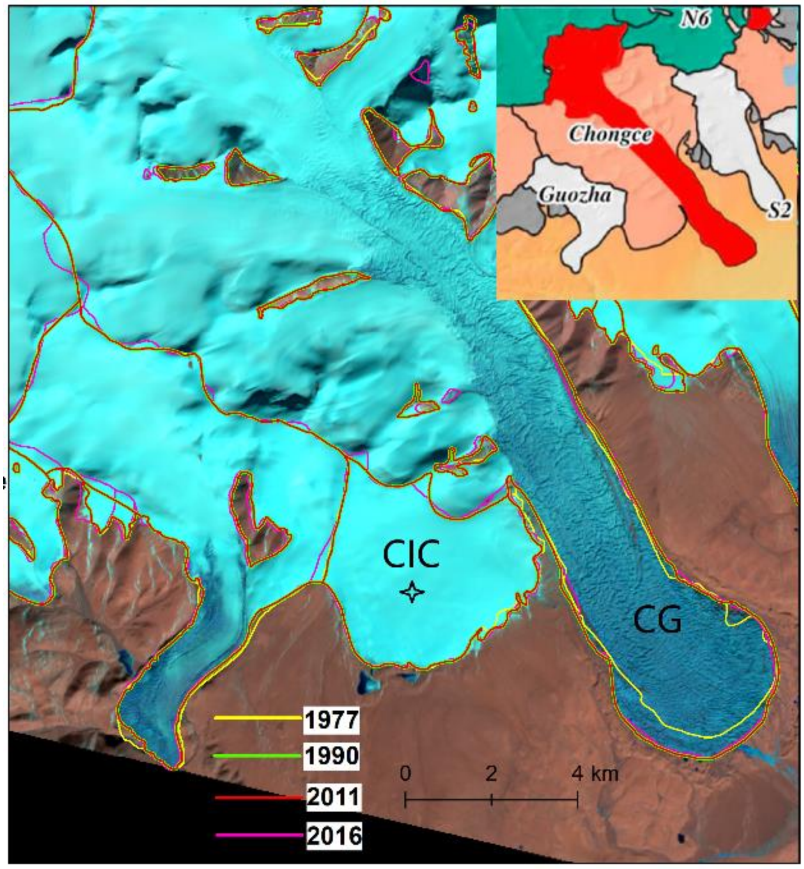
Response:

Although the 1991 Quaternary Glacial Distribution Map of the TP (Li and Li, 1991) can provide valuable information about the quaternary glacier variation on the TP, its spatial resolution (1:3,000,000) is often insufficient to delineate the variation of a specific glacier or ice cap. Later, Jiao et al. (2000) studied the evolution of glaciers in the West Kunlun Mountains during the past 32 ka (map below). It is clear that, although the Chongce glacier advanced considerably during the LGM, the present terminus of the Chongce ice cap is very close to their maximum position during the LGM, similar to the Guliya ice cap. This confirms the stability of the Chongce ice cap since the LGM.

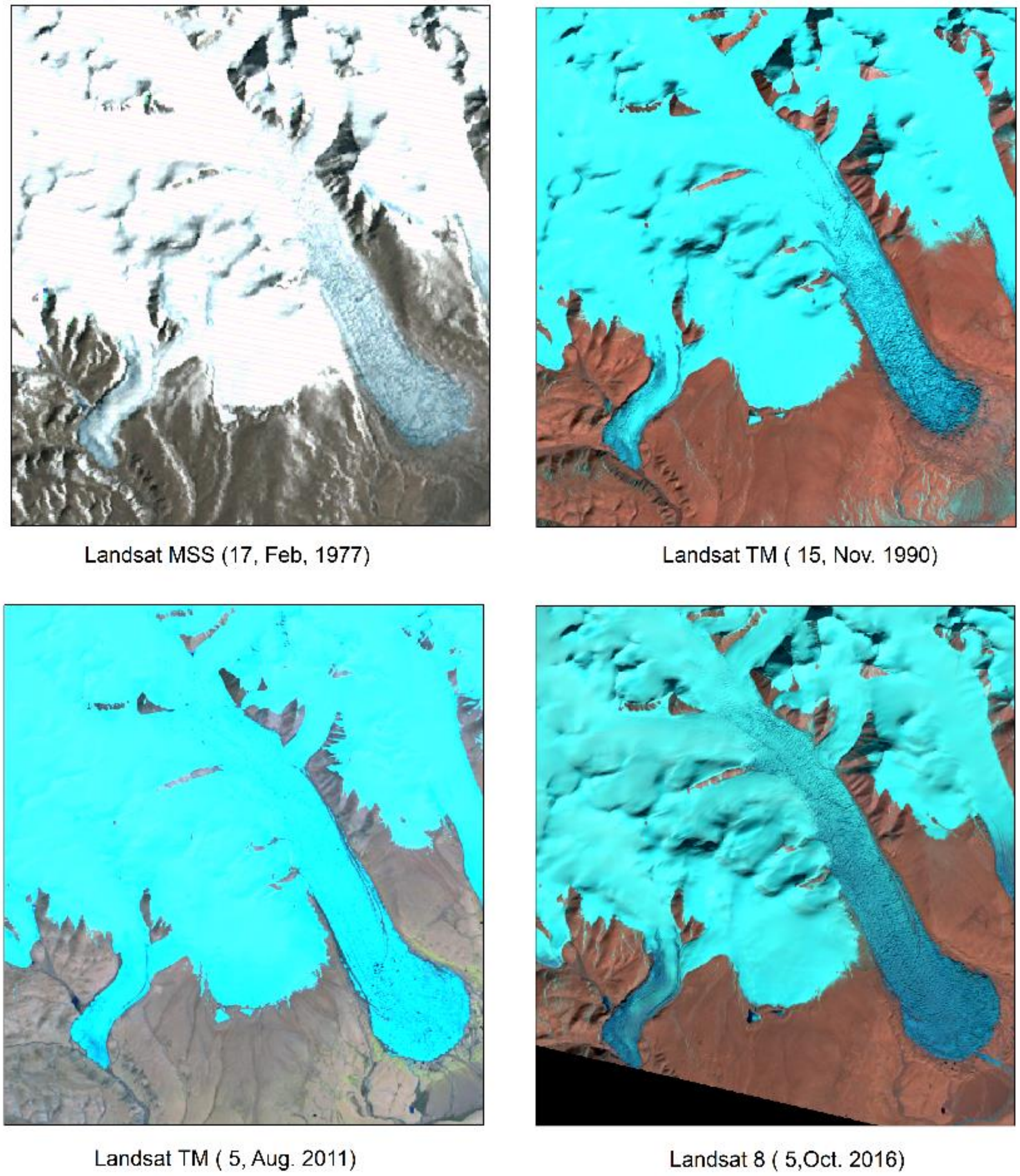


Map showing the glacier distribution and the lower limit of the LGM in the West Kunlun Mountains (Jiao et al., 2000). CIC: Chongce Ice Cap, CG: Chongce Glacier, GIC: Guliya Ice Cap. 1: present glacier, 2: terminal moraine during the LGM, 3: terminal moraine during the Neoglaciation, 4. lakes

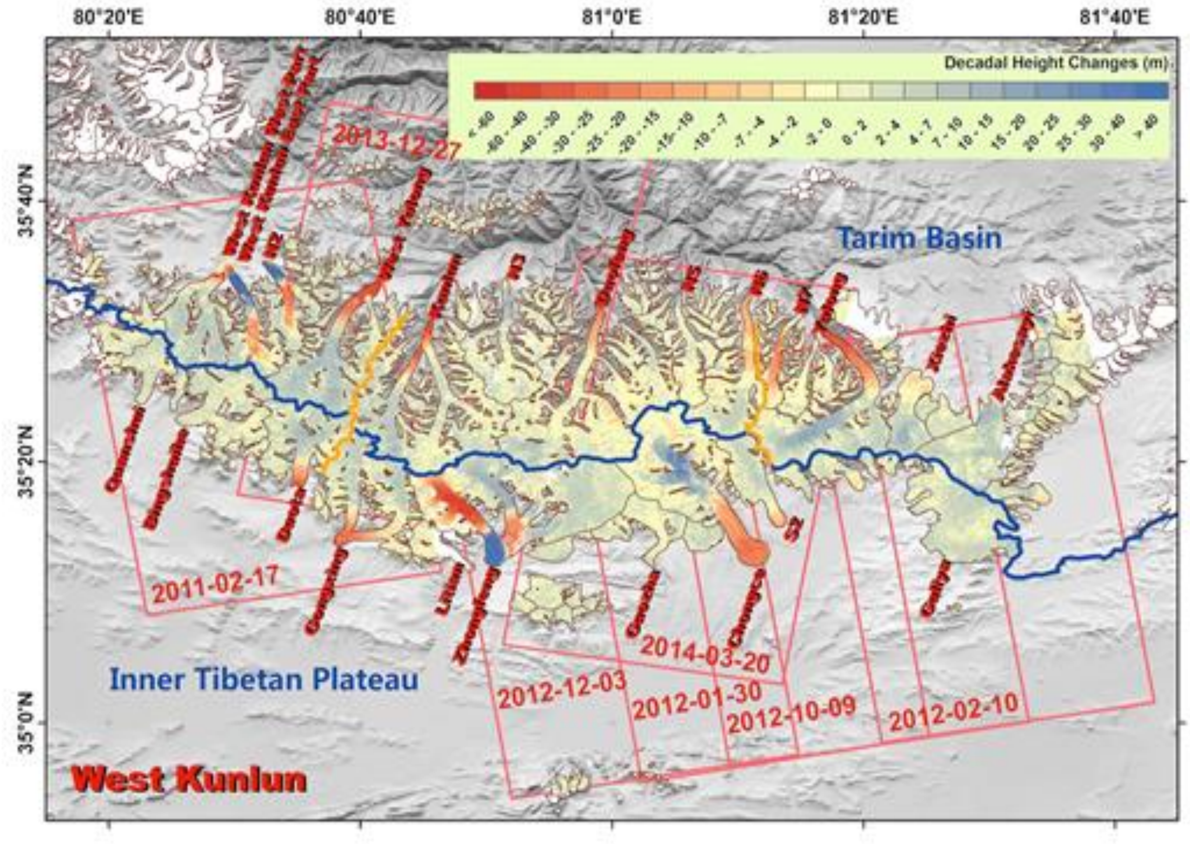
From Fig. 3 of Yasuda and Furuya's paper, it is clear that the surged area is confined within the Chongce glacier (map below). Using topographical maps, Shuttle Radar Topography Mission (SRTM) and Landsat data, Wang et al. (2018) examined the area changes of glaciers on the Western Kunlun Mountain (including the Chongce and Guliya ice caps) since the 1970s. For the whole area, change of the glacier area reveals insignificant shrinkage by 0.07 ± 0.1% yr^{-1} from the 1970s to 2016. The Chongce glacier retreated between 1977 and 1990, and advanced from 1990 to 2011 (period of surge), then remained stable until 2016. In contrast, the Chongce ice cap remained static from the 1977 to 2016, confirming the stability of the Chongce ice cap, where our ice cores were recovered. In addition, we observed similar mass changes for surge-type and non-surge-type glaciers over the Western Kunlun Mountains (Wang et al., 2018), suggesting that the flow instabilities seem to have little effect on the glacier-wide mass balance. Similar results are also reported for the Pamirs and Karakoram (Gardelle et al., 2013). Therefore, the impact of glacial surge on the stratigraphy of the Chongce ice cap is minimal, especially in its accumulation zone where our Chongce ice cores were drilled. This can be further confirmed by studies of by Lin et al. (2017) and Zhou et al. (2018), who estimated of elevation changes over the West Kunlun Mountain between 1973 and 2014 (Figures below), which shows minimal change for the Chongce ice cap. It is therefore reasonable to assume that Chongce ice cap is in balance over this period of time.



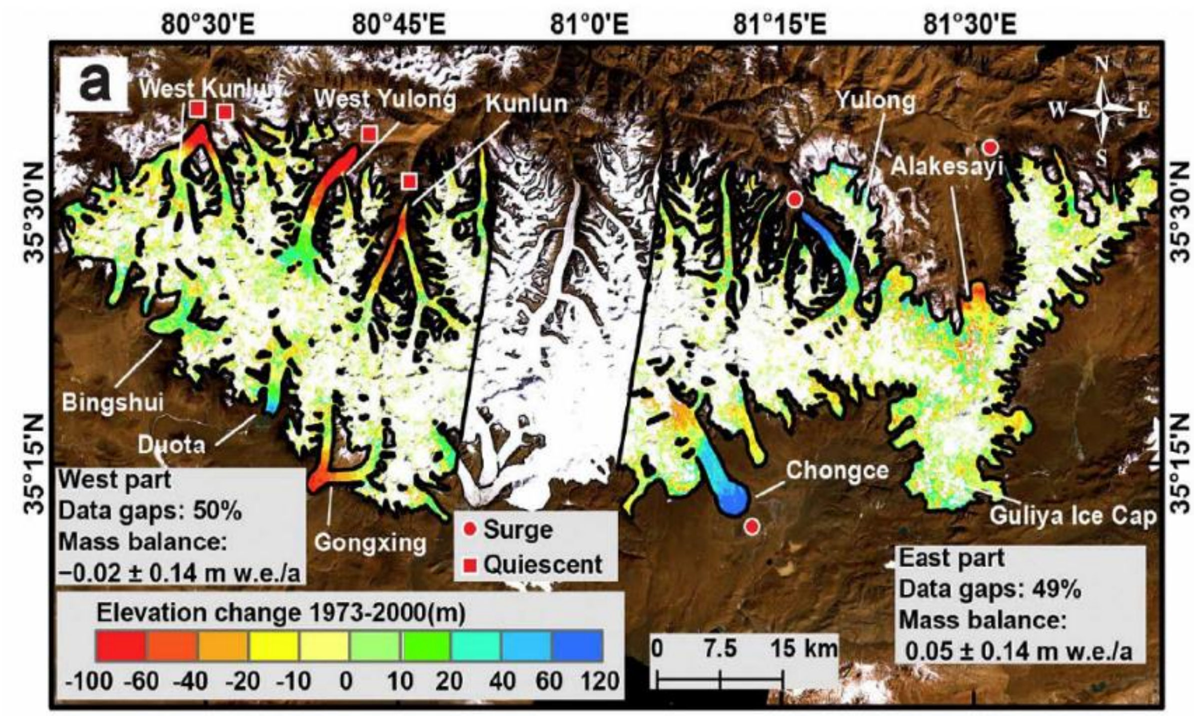
Map showing the Chongce Ice Cap (CIC) and the Chongce Glacier (CG), with the terminus positions at different time (Wang et al., 2018). The star shows the drilling site of the Chongce Cores 2 and 3, which we deem to be an optimal location for retrieving an undisturbed paleoclimate record. The inset is from Fig. 3 of Yasuda and Furuya (2015) with red showing the surged area, which is confined within the Chongce glacier. Terminus positions are determined from Landsat images as shown below.



LandSat images for the Chongce glacier and ice cap terminus position assessment. They are co-registered to the topographical maps and the accuracy of co-registration is about 20 m (slightly more than half of one pixel of Landsat images) (Wang et al., 2018).



Glacier height changes from 2000 to the 2010s from Lin et al. (2017)



Glacier elevation change from 1973 to 2010 from Zhou et al. (2018)

Note to readers of this review:

When asked by Editor Carlos Martin to serve as a referee for this paper, I inquired whether this would constitute a conflict of interest as our Guliya record is a major subject of the paper. I was told "My view is that there is no conflict of interest". Therefore, I opted to serve as a referee.

Response:

We certainly welcome and appreciate the opportunity to discuss our study directly with Dr. Lonnie Thompson.

References cited:

An, W., Hou, S., Zhang, W., Wu, S., Xu, H., Pang, H., Wang, Y., and Liu, Y.: Possible recent warming hiatus on the northwestern Tibetan Plateau derived from ice core records, Sci. Rep., 6, 32813, doi: 10.1038/srep32813, 2016.

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