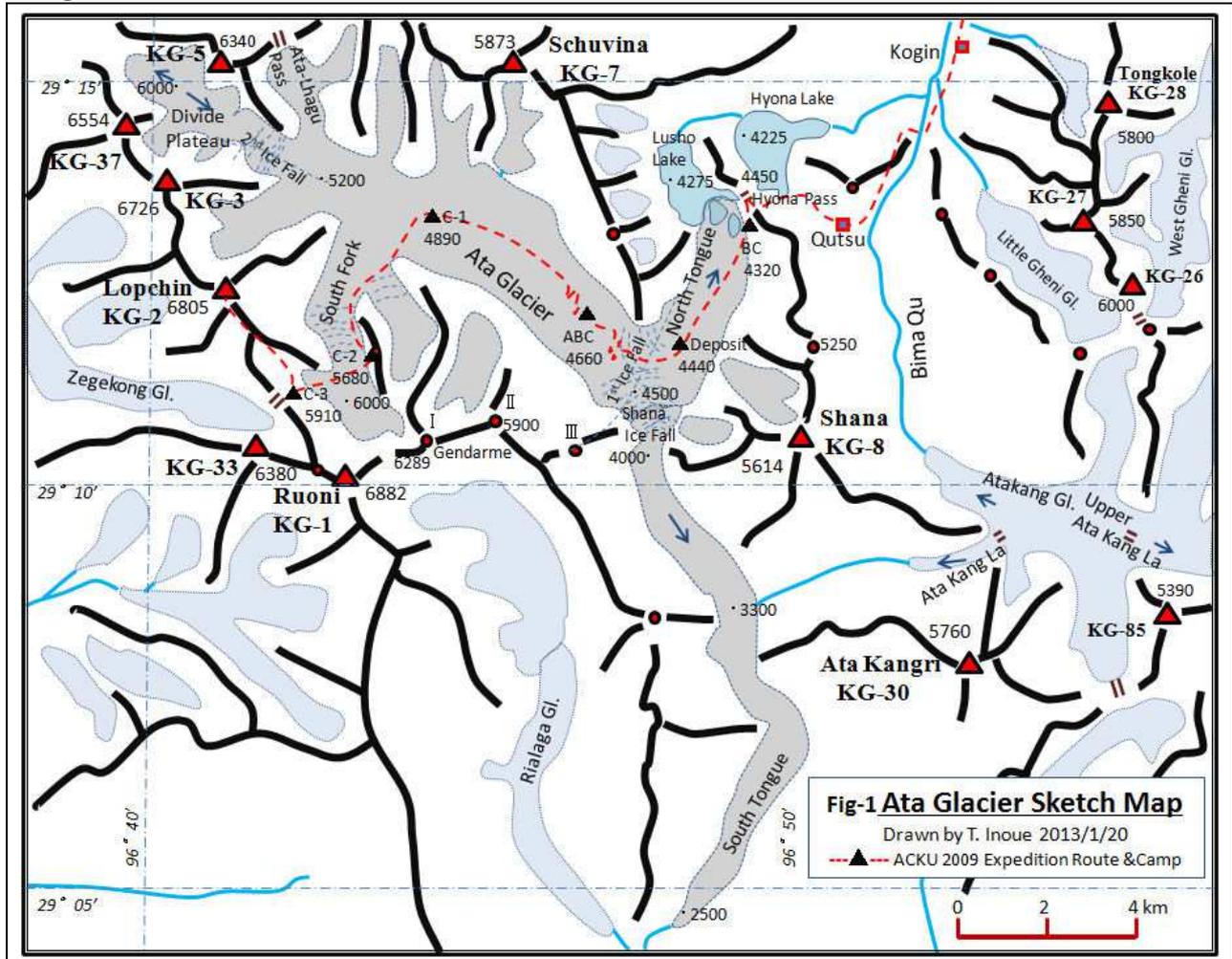


Glaciers Receding in Kangri Garpo, Eastern Tibet The Climate Change of the Ata Glacier

Tim (Tatsuo) Inoue

◆The Ata Glacier

As the Fig-1 show the two legs of the Ata Glacier, south and north, we can see well developed glaciers in the southeast Kangri Garpo Mountains. The evidence of heavy snow fall is that there are 4 glaciers which have two-legs over the divide ridges in this area.

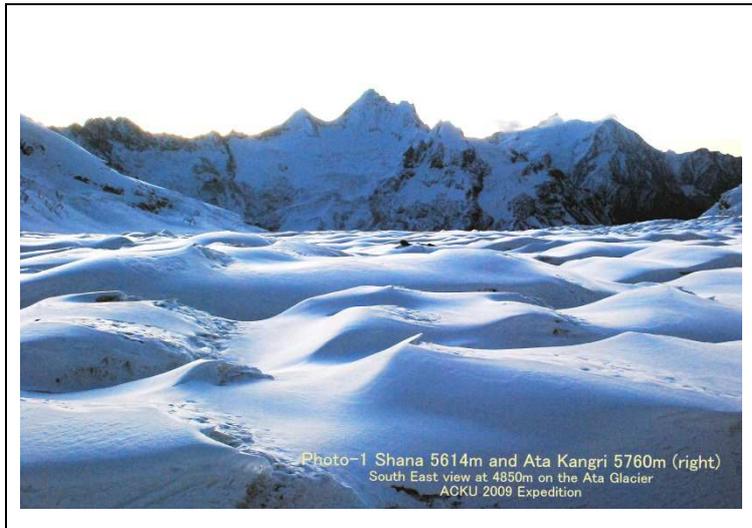


The Lhagu Glacier has about 31 km length and the Ata glacier has about 28 km length, too. The south leg of the Ata Glacier has about 15km length and the north one has about 5 km length. It is remarkable that there are those large glaciers in the Kangri Garpo Mountains. We can see such long glaciers only in the Karakorum Range as those two glaciers.

◆What we saw in the Ata Glacier

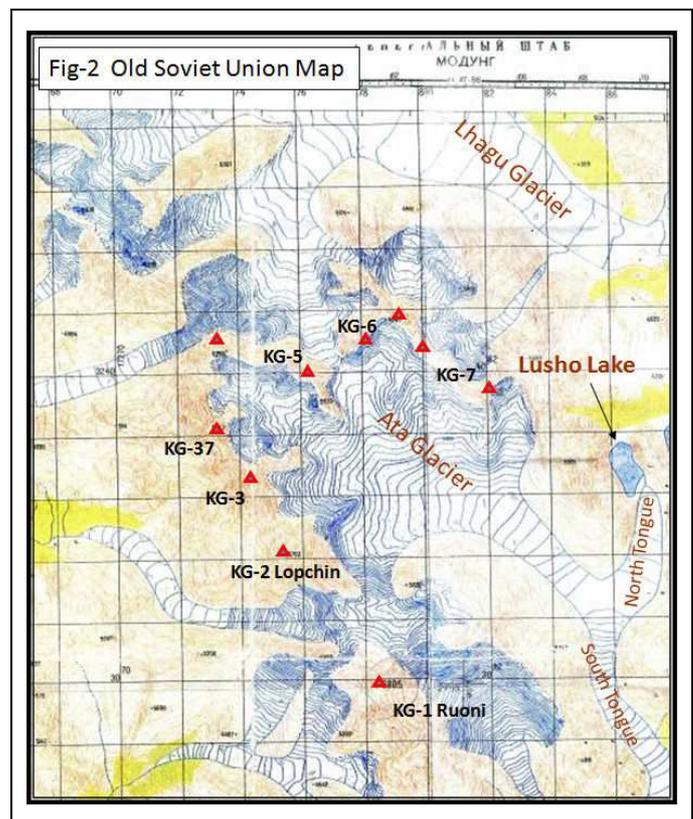
It is said that the influence of global warming also began to affect Himalaya mountain climbing. On the other hand, glacial growth is observed in Scandinavian

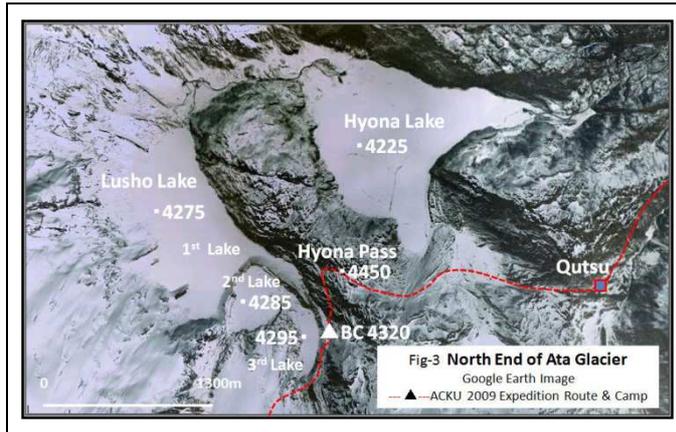
Peninsula. Moreover, although warming in winter is accepted in the high altitude in Himalaya, it is said that warming in summer is not observed.



The warming climate of winter in the high altitude of not less than 5,000m, where glaciers are existing and the temperature is far under freezing point, cannot melt ice. Then, what on earth has occurred? It will become an aid of a true elucidation that we, the mountaineers, release the objective information observed there, and get a specialist's concern.

Through our 4 visits to the Ata Glacier area in 2002, 2003, 2007 and 2009, we experienced climate change. One change is the Shrinkage of the Ata Glacier. Another change was snowfall. We had predicted heavy snowfall in 2002, 2003 and 2007. The results were as expected. In the case of 2009, we did not experience such heavy snowfall. At DPC (Deposit Camp: 4,440m), we had daily snowfall, but no cumulative snow on the glacier. We put tents on the bare ice. At ABC (Advance Base Camp: 4,660m), we measured 130 cm snow pile up on the glacier ice. It has a unique climate condition around ABC. The south branch of the Ata Glacier flows in to the lower valley of 2,500m altitude. When the warm damp wind pressures upwards from the south branch of the glacier, clouds are exactly generated near ABC and snowfall is seen. But, At Camp 1 (4,890m), we met the same conditions as at DPC. We could get water on the glacier ice.





We felt hanging ice cornices on the flanks of the 3-Sisters (KG-1(Ruoni), KG-2(Lopchin) and KG-3) had shrunk compared with the past years when we compared pictures of each year. We suppose a drier climate is increasing in southeast Tibet recently.

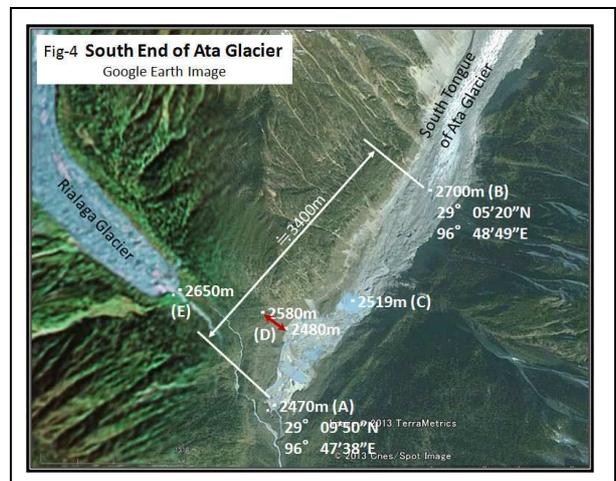
I read a report of a ski party they went to Ata Kang La area in autumn 2008. They took a ski tour to the

same area in autumn 2006 from Lhagu village, too. They enjoyed a good condition of the glacier surface with smooth down hill on the glacier in 2006. They said they had experienced surprisingly and badly surging condition of the glacier in 2008. They could not ski on the glacier in 2008.

We abandoned the usage of ski on the Ata glacier in 2009 as a result of the reconnaissance in 2007.

Fig-2 is a part of old Soviet Union map that shows the Lusho Lake. Fig-3 is a current image of Google Earth where we can see three lakes of Lusho. Two additional lakes were created in the past a half century.

What happens on the end of South Tongue of the Ata Glacier? Since we did not visit Ata Qu, we cannot affirm any conclusion about receding. Fig-4 is a Google Earth image of the snout of south tongue of Ata Glacier. It seems that the dead ice or debris and small lakes lie down in the valley and about 100m depth of sinking glacier is visible. Approximately 3400m length of the tongue had been disappeared already.

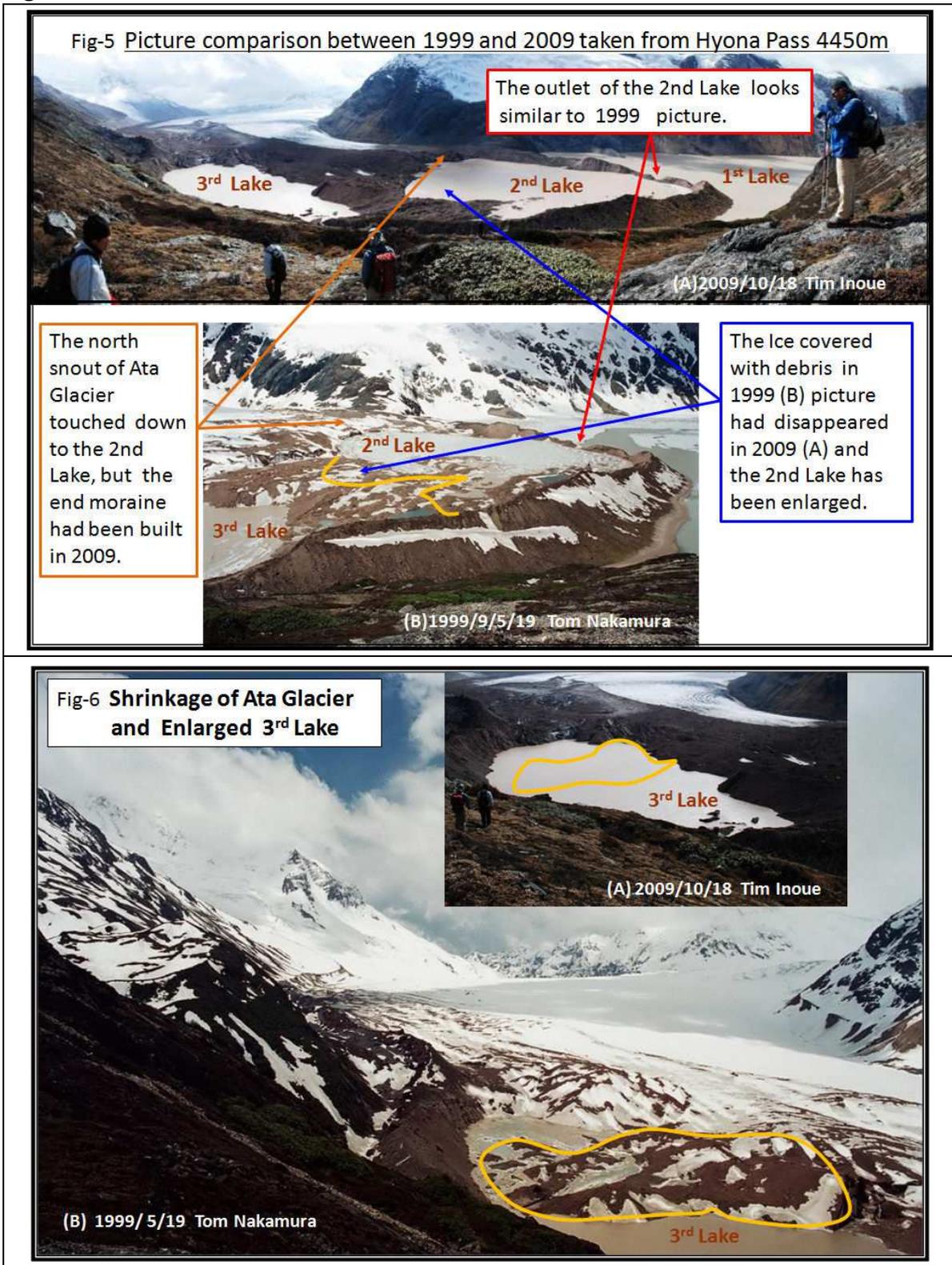


◆Evidence of 10 years change of the Ata Glacier

Mr. Tamotsu (Tom) Nakamura provided a few pictures taken from the Hyona pass (4,450m) in 1999. I have pictures taken from the same Hyona pass in 2009. Fig-5 and Fig-6 are the comparison of a decade change of the glacier.

In 1999, three lakes of Lusho were already created, but the 2nd and 3rd lakes were smaller than those in 2009. The north snout of Ata Glacier touched down to the second lake in 1999, but the end moraine of the glacier snout had been built in 2009. A part of the ice in the 2nd lake and 3rd lake shown in 1999 were melted away in 2009. The depth of the Ata Glacier Tongue had become thin in 2009. I suspect

the 4th lake may be born in the future on the right (southern side moraine) bank of the glacier.



The Kangri Garpo Mountains is under the front between the wet/warm air zone (Bengal) and dry/cold air zone (the southeast Tibet). It is surely obvious that the

wet/warm air has been dominating in this region recently. We suppose the front had become unstable because of the climate change.