Editor Initial Decision: Publish subject to minor revisions (Editor review) (23 Jul 2014) by Tobias Bolch
Comments to the Author:

You have addressed the comments well and I am almost happy to accept it as it is now. I have only few minor issues left:

Comment 1: *It seems that you do not include a discussion but at least some discussions are provided in the section 3 ("Results"). Please rename the section in "Results and Discussion"*

Response: We agree and we have renamed the section "Results and Discussion".

Comment 2: *check if you can include some more discussions in this section (e.g.*
2a: *Comparison to existing studies with respect to the retreat of Imja Glacier*

Response: This is a very good suggestion and we have implemented it by comparing our results to the previous studies that have reported on the retreat of the Imja glacier. The following paragraph has been added to the "Results and Discussion" section

"Several other investigations have considered the retreat rate of Imja glacier and can be compared to our results. Based on a simple mass balance of glacial frontal change, Sakai et al (2005; citing Yabuki, 2003) found the retreat rate to be 43 m yr^{-1} for an unspecified period, which is higher than the value of 31.6±3 m yr^{-1} the same period reported in Table 4; however, for the period 1992-2012 our results show an identical rate of 43.0±3 m yr^{-1} (Table 4). Watanabe et al (2009) found a rate of 48 m yr^{-1} for the period 1997-2007 which is somewhat lower than 52.6±3 m yr^{-1} for 2002 – 2012 reported in Table 4."

2b: *Comparison to existing studies with respect to similar glacial lakes in the Himalaya*

Response: This is a very good suggestion and we have implemented it by comparing our results to the previous studies that have reported on similar glacial lakes in the Nepal Himalaya. The following paragraph has been added to the "Results and Discussion" section"

"We can consider similar glacial lakes in the Nepal Himalaya. The lakes Imja Tsho, Tsho Rolpa and Thulagi are somewhat similar in that they are all moraine-dammed, still in contact with their feeding glaciers, and they have been expanding upglacier through glacial retreat and calving in the past few decades. Imja Tsho has been expanding significantly at a rate of 0.039 km^2 yr^{-1} (Table 1) and the glacier terminus has been retreating at a rate of 52.6 m yr^{-1} (Table 4). The expansion of Tsho Rolpa has been minimal in the past decade (ICIMOD, 2011). The rate of expansion of Thulagi Lake is appreciably slower at 0.0129 km^2 yr^{-1} and retreating at a rate of 40.7 m yr^{-1} (1993-2009; ICIMOD, 2011). The volume of Tsho Rolpa is increasing by an average of 0.26 m^3 yr^{-1} (ICIMOD, 2011), Thulagi by $0.5x10^6$ m^3 yr^{-1}; (ICIMOD, 2011) and Imja by $2.59x10^6$ m^3 yr^{-1}."

Comment 3: *You could (just as a suggestion, it is also a matter of style) also move some of the information from the Introduction to the Discussion and discuss it with resepct to your results.*

Response: We agree and have implemented this. Please see the responses to comments 2a and 2b above.

Comment 4: *P. 2, L. 21f.: You present here the different mass balance estimates for Imja-Lhotse Shar Glacier and refer to the possibility of refinements of the mass balance estimate due to improved knowledge of the aqueous losses. This is a good and valuable information. However, please check if all the mentioned studies already consider the aqueous losses and, if possible, provide information how large the possible errors/improvements due to the improved bathymetry would be. I think this issue would fit better in the discussion section but it is your decision where you think this information would fit best.*

Response: We agree and we have revised the paragraph to read:

"Several studies have used remotely sensed data to estimate glacier mass loss in the Everest area over the past few decades. Bolch et al. (2011) studied the mass change for ten glaciers in the Khumbu region south and west of Mt. Everest, and found that the Imja-Lhotse Shar glacier exhibited the largest loss rate in the Khumbu region, −0.5±0.09 m.w.e. yr^{-1} (meter water equivalent per year) for the period 1970-2007 and −1.45±0.52 m.w.e. yr^{-1} for 2002–2007. They noted that this large mass loss was due in part to enhanced ice losses by calving into Imja Tsho. Nuimura et al. (2012) also report significant surface lowering of the glaciers of this area, including –0.81±0.22 m.w.e. yr^{-1} (1992-2008) and −0.93±0.60 m.w.e. yr^{-1} (2000–2008) for the Imja-Lhotse Shar glacier. Gardelle et al. (2013) reported −0.70±0.52 m.w.e. yr^{-1} (1999–2011), for the Lhotse Shar/Imja glacier. They note that for areas with growing pro-glacial lakes, their mass losses are slightly underestimated because they do not take into account the glacier ice that has been replaced by water during the expansion of the lake. The bathymetric survey reported here can help also to refine the mass balance estimate of the Lhotse Shar/Imja glacier because it will improve the quantification of these aqueous losses."

Comment 5: *You have now deleted the old Figure 6 where you presented the existing data about Imja Lake area. I think it would be valuable to keep and think it would be possible to illustrate it in a way so that the different information can be seen (e.g. with including a zoom for this parts where there are too many data existing).*

Response: We agree and we have included the previously deleted Figure (now Figure 5 in the paper). We have also revised Table 3 to include additional data from Sulva and Gspurning 2009.

Sulzer, W., and Gspurning, J.: High mountain geodata as a crucial criterion of research: case studies from Khumbu Himal (Nepal) and Mount Aconcagua (Argentina), International Journal of Remote Sensing, 30(7):1719–1736, 2009.

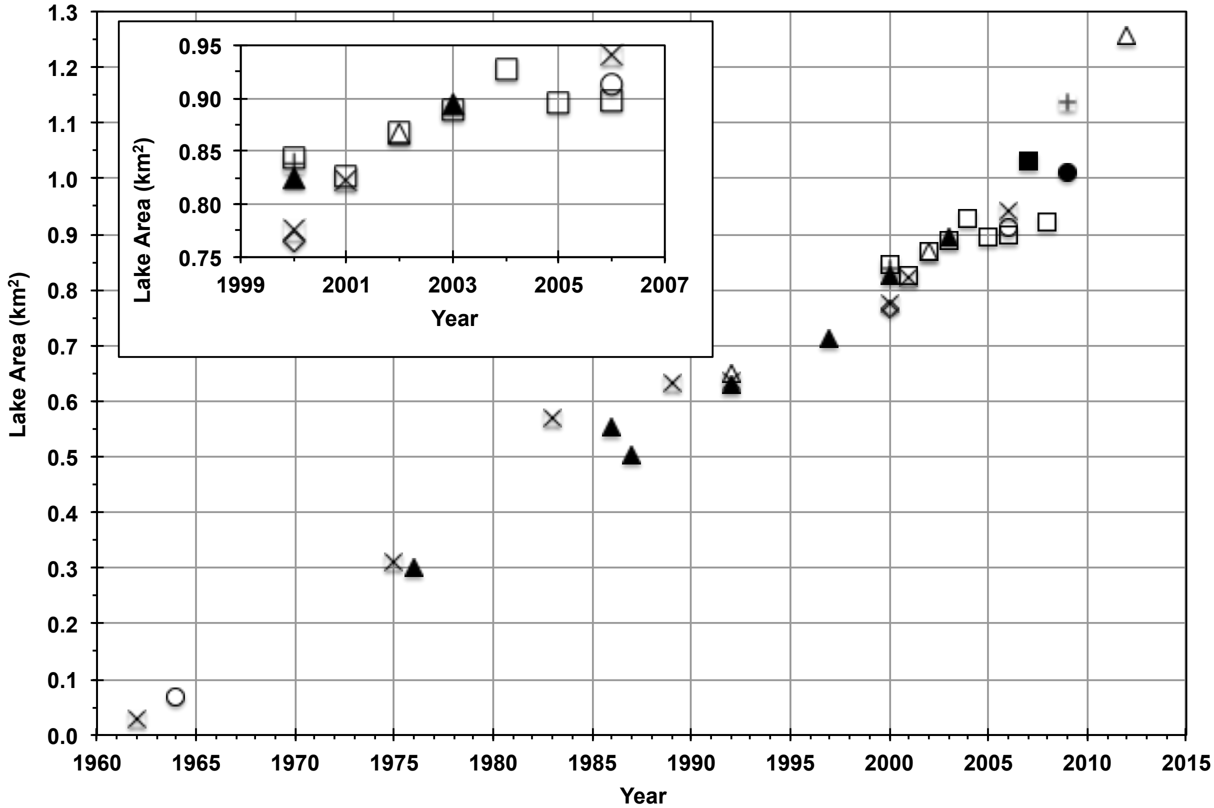

Figure 5. Imja Tsho Area Expansion 1962-2012. Source: Bajracharya et al. (2007) - X; Lamsal et al. (2011) - O; This study - △; Bolch et al. (2008) - ◇; Gardelle et al (2011) - +; Fujita et al. (2009) - □; Watanabe et al. (2009) - ■; ICIMOD (2011) - ●; Sulzer and Gspurning (2009) - ▲.

Table 3. Imja Tsho Area Expansion 1962-2012.

Year	Area (km2)	Uncertainty (km2)	Reference
1962	0.028		Bajracharya. et al. (2007)
1964	0.068		Lamsal et al. (2011)
1975	0.310		Bajracharya. et al. (2007)
1976	0.301		Sulzer & Gspurning (2009)
1983	0.569		Bajracharya. et al. (2007)
1986	0.555		Sulzer & Gspurning (2009)
1987	0.505		Sulzer & Gspurning (2009)
1989	0.633		Bajracharya. et al. (2007)
1992	0.631		Sulzer & Gspurning (2009)
1992	0.636		Bajracharya. et al. (2007)
1992	0.648	0.073	This study
1997	0.712		Sulzer & Gspurning (2009)
2000	0.766		Bolch et al. (2008)
2000	0.775		Bajracharya. et al. (2007)
2000	0.824		Sulzer & Gspurning (2009)
2000	0.838	0.263	Gardelle et al (2011)
2000	0.844	0.036	Fujita et al. (2009)
2001	0.824		Bajracharya. et al. (2007)
2001	0.827	0.040	Fujita et al. (2009)
2002	0.867	0.091	This Study
2002	0.868	0.037	Fujita et al. (2009)
2003	0.889	0.039	Fujita et al. (2009)
2003	0.894		Sulzer & Gspurning (2009)
2004	0.928	0.041	Fujita et al. (2009)
2005	0.896	0.042	Fujita et al. (2009)
2006	0.897	0.041	Fujita et al. (2009)
2006	0.913		Lamsal et al. (2011)
2006	0.941		Bajracharya. et al. (2007)
2007	1.030		Watanabe et al. (2009)
2008	0.920	0.036	Fujita et al. (2009)
2009	1.012		ICIMOD (2011)
2009	1.138	0.328	Gardelle et al (2011)
2012	1.257	0.104	This study