



Preface

Recent controversy regarding changes in Himalayan glaciers, triggered by an erroneous statement in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (IPCC, 2007), has highlighted major gaps in knowledge of the present and future behavior of Himalayan glaciers and in understanding of the underlying processes. The description in the IPCC's report referred to poorly substantiated estimates of the rates of recession and dates of disappearance of Himalayan glaciers. Meanwhile, views on changes in Himalayan glaciers by many researchers, including Japanese, have differed (*e.g.*, Asahi, 2001; Waragai, 2010). It is well known that the 'IPCC statement on the melting of Himalayan glaciers' was released on 20 January 2010 (IPCC, 2010), in which IPCC had to correct its previous statement.

In addition, glacier changes not only imply change in water availability but also altered risks due to glacial hazards, not the least of which are glacial lake outburst floods (GLOFs). GLOFs are recognized worldwide, and in fact are considered a major natural hazard in the Himalayas. GLOFs have been studied in the Nepal Himalaya at least since the 1980s (Fushimi *et al.*, 1985; Ives, 1986; Vuichard & Zimmermann, 1987), and the Imja Glacier Lake, one of the most heavily studied glacial lakes in Nepal, was first systematically examined in 1988 (Hammond, 1988). Nevertheless, research and mitigation measures have been limited, even in Nepal, mainly due to the high altitudes involved and difficult accessibility.

Much literature on glacier changes, glacial lakes, GLOFs and resultant phenomena has been published in South Asia, especially in the Nepal Himalaya. Such studies have greatly advanced in the last decade. However, there still exist regional imbalances in terms of the amount of knowledge of these phenomena. This special issue carries state-of-the-knowledge studies led by Japanese scientists, focusing mostly on the state of glaciers in the Bhutan Himalaya, which has been poorly understood.

GLOFs are a great concern not only to researchers but also to local communities. Knowledge of GLOFs is delivered to the local residents mostly through mass media and rumors, often resulting in unnecessary threats. In this regard, conducting research alone with no follow-up may not be appreciated; mitigating actions and dialogues with local residents together with research activities are important components of a well balanced approach. One project in Bhutan by the Japan International Cooperation Agency (JICA) and Japan Science and Technology Agency (JST) is providing a good example of bridging the gap between research and mitigation/dialogues with local residents on GLOF issues. In addition to promoting natural sciences, the GLOF project in Bhutan involves training of local experts, technology transfer, and a proposal for an early warning system.

Ten years have passed since the UN's International Year of Mountains (IYM), and we can find increasing necessity for projects combining research itself with feedback mechanisms to the local communities. We do hope that this special issue, a contribution to the IYM Plus 10 by the Japanese science community, will lead to further development and promotion of research and action projects in mountain areas worldwide.

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Note

Spellings of place names adopted in this issue vary among the papers, because they differ among different maps and information sources.



References

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