PREFACE

This volume compiles papers on snow and avalanche problems around the world. The topics covered include snow and snow cover properties, snow cover distribution, snow stability and avalanche forecasting, and finally how avalanches move and interact with structures. Almost a third of the papers deal with the last topic exemplifying that practical problems – avalanche mitigation – are among the strongest drivers for snow and avalanche science. In this particular issue almost half of the papers are contributions from Indian scientists. The Indian Himalayas are impressively rugged and avalanche problems have become more pressing as mobility of people and goods – as in other mountain regions of the world – is no longer limited to the snow-free periods of the year. Besides avalanches, the second crucial point about the Himalayas is the snow cover, and its potential change, since snowmelt is the major runoff for many rivers originating from the Himalayas, including those which are key elements of agricultural systems of South Asia.

These *Annals* reinforce the view that snow science is first and foremost an empirical science. A science of observation and experiment – of practical application. It has achieved great success, especially with regard to avalanche mitigation, both with respect to well-tested measures, such as avalanche hazard mapping, or modern problems such as information technology and avalanche warning. It remains a science where local knowledge of terrain and personal experience still play a role in solving daily problems. The statements 'I have seen this' and 'I know this region' still have some meaning.

Placing the emphasis on the practical is one of the strengths of snow science and the desire for useful solutions should not be abandoned. Yet it is likewise a problem: generalizations and simplifications remain difficult. Advances in the mechanics of avalanche formation and flow dynamics can be too easily negated by a single, often poorly-documented, case that can be invoked to stop all progress. Important contributions can be blocked by the argument that an idea is not useful.

The editors of this issue have made every effort to respect the strengths of snow science as well as open the door to new ideas, even if they are unfinished or too impractical to be of immediate use. Scientific breakthroughs in snow science are rare because the intricate and ever-changing material, snow, does not easily allow such immediate success. However, in these *Annals* readers will find many new ideas that support and explain the empirical truths of a useful science.

As Chief Editors, we thank all editors (Ed Adams, Eric Brun, Doug MacAyeal, Mohamed Naaim, Frode Sanderson, R.N. Sarwade, Atsushi Sato, Snehmani, Sergey Sokratov), reviewers and authors for their work towards the timely publication of this issue and hope it will be a valuable resource for solving future snow and avalanche problems.

We also thank the IGS General Secretary and the IGS production staff for their patience with our queries and their diligent work in preparing and publishing the papers.

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