
Fulfilling what its title promises, these proceedings lift the reader to the highest mountain regions of the world, and to the sources of rivers that pass through much of civilization. The journey is to the Alps, the Carpathians, the Caucasus, the Rockies; the ranges of Scotland, Japan, Norway, New Zealand, India, Central Asia, and China; to the Karakoram; and up the slopes of Everest. This truly international adventure consists of 34 rather short papers (about ten pages each) on a variety of subjects, but never too far from a pervading and unifying theme — to predict the discharge of mountain basins. For this was largely a meeting of water resource people.

Although the co-convenors (Drs. Glen and Roots) divided the conference and its proceedings into seven parts, the reader quickly senses that the unifying theme overwhelms the division. In retrospect, perhaps it is the size scales of the problems and basins that form a more natural way to approach a discussion of these proceedings.

First prize for providing the largest-scale study (global mountain hydrology) could be awarded to Dreyer et al., who present part of their World Atlas of Snow and Ice Resources, which is being compiled by the Institute of Geography, USSR Academy of Science. Stream-flow maps on scales 1:10° and 1:10° are given for the Tien Shan, Pamirs, Hindu-Kush, Karakoram, and Canadian Rockies. On the large scale, the reader also finds contributions on sub-glacial hydrology by Rango and Martinec who extend the concept of “snow depletion curves”, by Tom Andersen who uses image analysis to refine snow mapping for optimization of Norwegian hydro-power resources, by Kotyakov and Krenke who made use of Soyuz-1 satellite-aided hydrology by Rango and Martinec who extend the concept of

A contribution from the World Meteorological Organization (WMO) announces that results from a “World Cup competition” which sets 11 snow-melt models of glacier data sets to be published shortly. At a still smaller scale, the reader who is interested in the thermodynamics and physics of flow will find a collection of six technically relevant papers on flow processes through snow, firn, and glaciers: “Master plumber” Collins contrasts fast reservoir runoff through moulin-conduits with slower runoff through the firn-aquifer system; an excellent contribution by Oerter and Moser details the firn-aquifer system; Iguchi and Tanaka explain the parallel flow patterns in seasonal snow; Rau and Herrmann show that the snow-pack structure changes from a “stratified” media to a “homogeneous” media before the initiation of melt; Gurnell has observed “rapid flashes” of sediment in glacial streams, and concludes that even hourly discharge observations may be misleading; and Kazansky, citing Kazansky, expands earlier theoretical analysis by Kazansky on glacier channels.

That “mountain hydrology” is really a broad subject is underscored by some interesting papers on miscellaneous topics: Abe on alternate bars, Lai, et al., on freshet floods, and Rau and Herrmann show that the snow-pack changes from a “stratified” media to a “homogeneous” media before the initiation of melt; Gurnell has observed “rapid flashes” of sediment in glacial streams, and concludes that even hourly discharge observations may be misleading; and Kazansky, citing Kazansky, expands earlier theoretical analysis by Kazansky on glacier channels.

Last mentioned, but not least, is the single paper that emphasizes high mountain hazards — Hewitt’s “Natural dam and outburst floods of the Karakoram Himalaya” — which provides a summary of 400 years of major disasters, and is based on 20 years of research.

Indeed, it was an international venture, but why was North and South American hydrology not represented in proportion to European and Asiatic studies? Surely, not because of a lack of problems. In the late spring and summer of 1983, just as these proceedings were distributed, rapid and unpredicted snowmelt filled dams on the Colorado River to beyond capacity; floodwaters poured from the Sierras onto some of the most precious agricultural land in California, and mudslides descended from mountain slopes onto developed areas in Utah and British Columbia. The streets of Salt Lake City turned into rivers; Hoover Dam overflowed; and transportation came to a grinding halt on the Trans-Canada highway for nearly two weeks.

Thanks to its indefatigable editor, John Glen, and others acknowledged in its preface, these proceedings were quickly distributed within a year of the Exeter, U.K., meeting. The best recommendation that can be given to any publication in these days of “fast track” science is that it is up-to-date.

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This is the third atlas in a series on the world’s oceans published by the USSR. The first dealt with the Pacific Ocean, the second with the Atlantic and Indian Oceans. Arctic Ocean is basically intended to enhance navigation and teaching, but it also will serve as a comprehensive source of data for a wide range of people interested in the physical components of the Arctic Ocean. Not only will a variety of technical and scientific students benefit from the atlas, but all those concerned with applied studies in the Arctic Ocean and adjacent land masses will probably make frequent use of its extensive materials. Pergamon Press has translated the atlas’s table of contents, the descriptions which precede each of the Introduction, Sections, and most of the index. To make effective use of the atlas, however, the user of each map needs to transliterate the Russian text and to translate the legends and related data. The Pergamon supplementary booklet contains neither a translation guide, a Russian-English gazetteer of terms appearing in the map legends, nor reference to appropriate Russian-English dictionaries and technical manuals. The Russian-language prose, however, is beautiful and precise throughout the atlas and should cause little difficulty for translation by readers who have a knowledge of related English technical terms in their own areas of expertise. For the generalist, Arctic Ocean provides an appropriate opportunity to become familiar with the Russian language and to acquire a broad understanding of many features of the Arctic.