<<中国冰川及其环境>>

图书基本信息

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前言

Since the professional institution for glaciology attached to the Chinese Academy ofSciences （CAS） was established in 1958, studies of glaciers in alpine regions, laterextended to Arctic and Antarctic regions, and then of Quaternary glaciations all overChina, have been developed gradually. The study fields include general glaciology,hydrology and climatology in glaciated regions, the physics of snow and ice,glaciochemistry, the extraction and analysis of ice cores, the seasonal snow cover, snowand ice hazards and their control measures, and climatic and environmental changes inrelation to glaciers. The study methods include expeditions, static observations,laboratory experiments and analyses, and a glacier inventory across China. It was myhonor to manage the studies from 1958 to 1984. Since then, I have become engaged inthis field until the present time. Therefore, I am lucky enough to have witnessed thewhole development of glaciology in China. Nowadays, the papers published in scientificperiodicals are increasing so rapidly that there are thousands already, calling eagerly forintegrated studies both for a single discipline and as a whole, so as to convenient theciting and reference providing for a broad range of scholars. For an integrated study, wehave produced two Chinese monographs: An Introduction to the Glaciers in China（Science Press in 1988） with 322 references and Glaciers and Their Environments inChina the Present, Past and Future （Science Press in 2000） with 794 references. Weare pleased to have them widely used by Chinese scholars.

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内容概要

However, due to language difference between China and the western countries, theprogress of glaciology in China, of which most accounts have been published in Chinese, is difficult for western scientists to appreciate. Therefore, we decided to publish anEnglish edition based on Glaciers and Their Environments in China——the Present, Pastand Future (in Chinese), as you see here, named Glaciers and Related Environments inChina, which in fact is an optimized version, with new research data till 2005 and arevised structure. It is our hope, through publishing this monograph, to enable foreignscientists to understand systematically the current situation and historical progress ofglacier research and other relevant environmental studies within the Chinese territory, so as to promote more cooperation with foreign glaciologists, who also share the wish todevelop further the field and to face effectively the widespread concerns as globalwarming, water cycle changes, glacier shrinking and deteriorating environments.

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章节摘录

插图：The methods of measurement and calculation of mass balance currently applied inChina are described as follows.4.1.3.1 Direct measurementA stake network is fixed on the glacier surface for direct measurement. The surfacelevel relative to the stake top is measured periodically. To measure snow depth anddensity and describe snow-firn stratigraphy in the accumulation area, snow pitting or icecore sampling should be conducted at some fixed sites within some fixed dates, so thatsnow accumulation rates for different time intervals can be calculated. By means of netbalance isopleths and/or altitude zones, an isoline diagram can be drawn on a large-scaleglacier map from the measurements for the calculation of the instantaneous, seasonal（winter and summer） or annual mass balance components.Xie Zichu and Zhang Jinhua （1988） have systematically summarized this method. Inthis Chapter, we only stress aspects of mass balance measurement and calculation thathave been improved and replenished.（1）In China continental or warm season accumulation glaciers are widespread withextensive development of superimposed ice. Therefore, it has been suggested that netbalance of snow/tim, superimposed ice and glacial ice should be measured separately ata fixed site. Although the measurements expend a lot of labor, these measurements arenecessary for calculating instantaneous net balance, therefore, the process of calculationcan be simplified.（2）In the wet snow zone or higher zones, it is possible that meltwater percolatesinto the firn formed in the previous year. So, when acquiring net accumulation by meansof snow pits, be careful to measure the mass increase in old firn.（3）In the previous studies, only the method of net balance isopleths was applied toestimate the net balance of a glacier. This method is inconvenient for studying theelevation related balance variation. To keep consistency with WGMS, it is suggestedthat the method of altitude zones should be employed simultaneously on those monitoredglaciers. In that case, their results can compare and compensate each other, thus thechance for errors got minimized.

编辑推荐

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