

# Report GD-29: Bibliography on the Hydrology of the Himalaya-Karakoram Region

by Gordon J. Young and Bhanu Neupane

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## **About the World Data Center System**

### **The World Data Center System<sup>1</sup>**

The World Data Centers (WDCs) were established in 1957 to provide archives for the observational data resulting from the International Geophysical Year (IGY). In 1958 the WDCs were invoked to deal with the data resulting from the International Geophysical Cooperation 1959, the one-year extension of the IGY. In 1960, the International Council of Scientific Unions (ICSU) Comite International de Geophysique (CIG) invited the scientific community to continue to send to the WDCs similar kinds of data from observations in 1960 and following years, and undertook to provide a revised *Guide to International Data Exchange* for that purpose. In parallel, the CIG inquired of the IGY WDCs whether they were willing to treat the post-IGY data; and with few exceptions, the WDCs agreed to do so. Thus the WDCs have been serving the scientific community continuously since the IGY, and many of them archive data for earlier periods.

In November 1987 the International Council of Scientific Unions (ICSU) Panel on World Data Centers prepared a new version of the *Guide to International Data Exchange*, originally published in 1957, and revised in 1963, 1973 and 1979. The new publication, *Guide to the World Data Center System, Part I, The World Data Centers (General Principles, Locations and Services)*, was issued by the Secretariat of the ICSU Panel on World Data Centers. This new version of the *Guide* contains descriptions of each of the twenty-seven currently operating disciplinary centers, with address, telephone, telex, and contact persons listed. The reader is referred to the new *Guide* for descriptions of the responsibilities of the WDCs, the exchange of

data between them, contribution of data to WDCs, and the dissemination of data by them. The WDCs for Glaciology are listed below.

| <b>World Data Center-A for Glaciology [Snow and Ice]</b> |   |
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| <b>World Data Center-B1 for Glaciology</b> |   |
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| Address:                                   | World Data Center B1 for Glaciology<br>Molodezhnaya 3<br>Moscow 117296 RUSSIA |
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| <b>World Data Center-C for Glaciology</b> |  |
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| Telephone:                                | (0223) 336556  |
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|  |  |
|--|--|
| <b>World Data Center-D for Glaciology [Snow and Ice] and Geocryology</b> |  |
| Address:   | Lanzhou Institute of Glaciology and Geocryology<br>Chinese Academy of Sciences<br>Lanzhou 730000 CHINA |
| Telephone:   | (86) 0931-26725, ext. 308  |
| Director:  | Professor Xie Zichu  |

Additionally, the World Glacier Monitoring Service provides international data services including data analyses and preparation of specialized data products. It merges the previous activity of the Permanent Service on the Fluctuations of Glaciers and the Temporary Technical Secretariat for World Glacier Inventory. These activities are not part of the WDC system but the center cooperates with WDCs in the discipline. Users wishing assistance in seeking data or services from this group may contact an appropriate WDC.

### **World Glacier Monitoring Service (WGMS)**

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<sup>1</sup>. Adapted from *Guide to the World Data Center System. Part 1. The World Data Centers (General Principles, Locations and Services)*. International Council of Scientific Unions. Panel on World Data Centers, November 1987, 91pp.

## **Bibliography on the Hydrology of the Himalaya-Karakoram Region: Foreword**

In 1982, WDC-A published a bibliography of glacial hydrology prepared by a Working Group of the International Commission on Snow and Ice, chaired by Professor Gordon Young, who also edited *Glaciological Data, Report GD-12*. The current issue represents a continuation of this focus. Snow and ice cover in the Karakoram-Himalaya play a dominant role in the hydrology of south Asia through their contribution to water supply, hydropower installations, and water-related hazards including river and glacier-lake outburst floods, and snow avalanches. Apart from hydrological considerations, Himalayan snow cover extent is a factor in the strength and timing of the Indian summer monsoon. The recession of glaciers in the Karakoram-Himalaya is also a significant component of the contribution of mountain glaciers to global sea-level rise.

We therefore welcome the compilation of this bibliography by Gordon Young and Bhanu Neupane and their contribution to its publication in this series. Thanks are due to Ann Brennan for editorial work, Carol Pedigo for word processing support, and Mike Meshek for HTML formatting of the bibliography for this WWW version.

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# **Bibliography on the Hydrology of the Himalaya-Karakoram Region: Preface**

## **Sources**

In order to compile this bibliography, a wide range of sources was extensively searched and referenced. These sources include books, journals, dissertations, reports and multi-media systems. The bibliography particularly relied on the individual collections of faculty members and students of Wilfrid Laurier University (WLU), various bibliographic updates of Cold Regions Research Centre of WLU, and the publications of institutions directly or indirectly related with the snow and ice hydrology of the Himalaya-Karakoram mountain ranges. Institutional sources include: World Data Centers for Glaciology in Lanzhou, China (WDC-D), and in Boulder, Colorado, USA (WDC-A); Japanese Society on Snow and Ice, Nagoya, Japan; Water and Power Development Authority (WAPDA) Pakistan; and Water and Energy Commission Secretariat (WECS) and International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.

The major book sources include, International Association of Hydrological Sciences (IAHS) publications, various scholarly accounts of scientific expeditions as well as bilateral and multi-lateral works on the snow and ice hydrology of Himalaya-Karakoram. The major journal sources include: *Annals of Glaciology*; *Bulletin of Glacier Research*; *Zeitschrift für Gletscherkunde and Glazialgeologie*; *Journal of Glaciology*; *Seppyo*; Italian journals on high mountain hydrology; *Mountain Research and Development*; and the Chinese journals of *Academia Sinica*. Among multi-media sources, the internet news magazine *Himnet*, especially its endnote, Arctic and Antarctic Region CD-ROM, and GEO-Ref CD-ROM contributed to a significant number of records in the bibliography.

## **Organization of the Bibliography**

The references are presented separately for the Himalaya and Karakoram mountain ranges. Within each of these major sections there are sub-sections as described in the table of contents. There is some overlap between the major sections and considerable overlap between the sub-sections.

The main stem of the Indus river has been taken as the basis for separating the two mountain ranges. References pertaining to upper-Indus basin and Nanga Parbat appear in both the Himalaya and Karakoram sections. General records, such as those written on the hydrology of the South-Asian mountains or those without clear distinction, also appear in both the sections. References pertaining to the catchments on the north slopes of the Himalaya and the Karakoram are included.

## **Acknowledgements**

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## **2.1 General References on Karakoram Hydrology**

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