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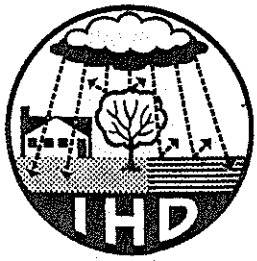


# IHD BULLETIN

## NEW ZEALAND

No. 8 - June, 1970

**The International Hydrological Decade Bulletin is an official publication of the New Zealand National Committee for the International Hydrological Decade and presents, twice annually, a survey of programmes, activities and findings of hydrology in New Zealand, carried out under the auspices of the IHD; and also a summary of international activities.**

## THE VALUE OF IHD

The International Hydrological Decade is not merely a two-way affair between New Zealand and the Secretariat in Paris; there are other important benefits besides those emanating from UNESCO, the IHD working groups and panels of experts, and their publications. The resolutions of the Co-ordinating Council have established a world-wide pattern for hydrological data collection and research. The objective is to provide the basic hydrological information each country needs for its economic development. In New Zealand, as in other hydrologically advanced countries, activities such as establishing representative and experimental basins started before the idea of IHD evolved; but there was only limited contact with other countries and, particularly in instrumentation, there was much trial and error. Now, with activities the world over more or less co-ordinated through IHD, enhanced benefits are being received from international co-operation and exchange of information.

New Zealand is now publishing hydrological research reports, definitive hydrological procedures, and miscellaneous publications. These are being exchanged with other countries. Not all that is being received from abroad is of direct value, but much of it is. Some can be used to fill gaps in our own hydrological research, though generally the applicability to New Zealand conditions must first be tested. Some, while not directly applicable, are of assistance in solving methodological problems. Some, such as a report on sediment problems and catchment management in Taiwan, are of considerable interest though not of direct use here. Most of all, through IHD, valuable contacts have been made with individuals working in similar fields in other countries.

Another type of publication is the catalogue of hydrological research. Catalogues have been received from Australia, Canada,

the United Kingdom, the United States, and other countries. They provide concise references as to who is doing what, and facilitate the making of contacts concerning matters of common interest. Publications performing the function of our *Hydrology Annual* have also been received from a number of countries, notably West Germany. All of these are of value, for the ways in which other countries present their data are of assistance to us in deciding how best to present ours.

Not only has IHD promoted contacts with hydrologists in other countries and their writings, but it has also strengthened the contacts of New Zealand hydrologists with such international organizations as the Scientific Committee on Water Research (COWAR), the Food and Agricultural Organization (FAO), the International Atomic Energy Agency (IAEA), the International Association of Scientific Hydrology (IASH), the World Health Organization (WHO), and the World Meteorological Organization (WMO). The reports and handbooks of these organizations relating to various aspects of water are more readily available. Notable amongst these are the FAO report *The Influence of Man on the Hydrological Cycle*, and the reports of the WMO/IHD projects, the latest of which is *Hydrological Network Design — Needs, Problems and Approaches*. Furthermore IASH, in co-operation with the Royal Society of New Zealand, is sponsoring an international symposium in New Zealand in December of this year.

Finally IHD, through its New Zealand National Committee, has facilitated interdepartmental co-operation and liaison with universities. Co-ordination of hydrological research and avoidance of duplication of effort are being fostered. The goal is to have research of the right type and of the right amount carried out by the agencies best equipped to perform it. The value of IHD is reflected in the better integration that is now apparent of research programmes and the overall strengthening of the whole hydrological effort. This is timely, for the Water and Soil Conservation Act, passed in 1967, has made a better knowledge of water resources essential.

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## UNESCO/IHD TECHNICAL PUBLICATIONS

With the Decade half way over, technical publications resulting from IHD activities are beginning to appear. These are useful guides that universities and others may wish to purchase. Those so far received are listed below. Prices quoted are in sterling. The Government Printer is the New Zealand agent for UNESCO publications.

### Technical Papers in Hydrology

Contributions to the International Hydrological Decade by UNESCO and IASH:

No. 1. *Perennial Ice and Snow Masses.* 1970, pp. 59, 24 shillings.

Subtitled "A guide for compilation and assemblage of data for a world inventory". Chapter headings: ice and snow on the surface (glacier inventory); ice beneath the surface; three pilot studies for the IHD world inventory of glaciers (one in the Arctic, one in the Rocky Mountains, and an inventory of glaciers in the Mount Everest region). The first two chapters list the sort of data to be collected and how it can best be recorded. The last and longest gives three examples of data presentation.

No. 2. *Seasonal Snow Cover.* 1970, pp. 38, 18 shillings.

This guide is the counterpart of No. 1. Subjects covered are: methods of measurement — observation sites, rate of snowfall and new deposits, drifting and blowing snow, snow cover depth and hydrological qualities, areal extent of snow cover; mapping of snow cover; programmes for snow measurement. There are three appendices: definitions; abstract of international classification for snow; suggested symbols for mapping snow cover features.

No. 3. *Variations of Existing Glaciers.* 1970, pp. 19, 7 shillings.

This is a guide to international measurement practices. Chapter headings and subheadings are: mountain glaciers — basin observations, more comprehensive measurements; ice sheets, ice caps and calving glaciers — variations of the ice edge, thickness variations, budget measurements, reporting results; data submission and publication — basic observations, more comprehensive measurements, meteorological and hydrological measurements, publication.

No. 4. *Antarctic Glaciology in the International Hydrological Decade.* 1970, pp. 16, 7 shillings.

This is a brief statement of what has been done since the IGY to measure accumulation, ablation, ice thickness and ice flow in the Antarctic where most of the world's fresh water is locked up. The observations have indicated that Antarctica is the world's driest continent. Annual precipitation, almost all in the form of ice crystals, is less than half that of Australia.

No. 5. *Combined Heat, Ice and Water Balances at Selected Glacier Basins.* 1970, pp. 20, 20 shillings.

Resolution I-14 of the Co-ordinating Council proposed that these balances be observed along north-south and east-west chains. Progress with these is set out in a table. The north-south chain extends down the west coast of the Americas from Alaska to the Antarctic; 8 out of a proposed 19 glaciers are being observed. Two west-east chains are being established — both in the Northern Hemisphere. One is at approximately 45°N, and 21 out of 23 stations are operational. The other is at about 66°N, and 17 out of 19 stations have been established. The guide gives notes on the selection of basins, on the balance equations, and on instrumentation — including a recommended list of instruments. There is an appendix on mass balance terms.

**Studies and Reports in Hydrology**

The first three had not been sighted at the time of going to press. They are:

No. 1. *The Use of Analog and Digital Computers in Hydrology.* Proceedings of the Tucson symposium.

No. 2. *Water in the Unsaturated Zone.* Proceedings of the Wageningen symposium.

No. 3. *Floods and their Computation.* Proceedings of the Leningrad symposium, August 1967.

No. 4. *Representative and Experimental Basins, an International Guide for Research and Practice.* C. Toebes and V. Ouryvaev (Eds.). 1970, pp. 348, 60 shillings.

This excellent work covers the field of hydrological observations and data processing in a manner not to be found in any present textbook — and covers it succinctly yet in detail. Its appeal will go much further than just to those working on experimental basins, and New Zealanders will find descriptions of many local techniques. After an introductory chapter (which contains seven useful pages of definitions) there is a chapter on the selection and organization of basin networks. Then follows an informative and practical chapter on the planning of observations according to research objectives. Chapter 4, of 120 pages, describes methods of observation and instrumentation and is essential reading for anyone contemplating hydrological studies in any field, from precipitation to ground water. The last two chapters are also long; the first is on data processing and publication and the second on analytical techniques and the interpretation of research results.

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## IHD RESEARCH PROJECTS

In IHD Bulletin No. 6 a request was made for reports, in a prescribed form, of hydrological research projects. This has resulted in a pleasing response from government departments and universities, over 90 reports being received. These have been edited and forwarded to the IHD Secretariat in Paris.

The same information has also been used to compile a catalogue of hydrological research in progress in New Zealand during 1969. This is now being printed. It is hoped that it and succeeding volumes will achieve three objectives:

(1) That it will inform workers in a particular field of what others are doing, and enable them to correspond on matters of interest.

Particular care has been taken to give the name and address of each project leader to facilitate this. Unfortunately, some of the reports omitted to give the name of the project leader, but in all cases the address is given.

(2) That it will help to eliminate duplication of effort.

(3) That it will, in time, indicate where there are gaps in hydrological knowledge and where further research is desirable. Apart from others, this may be a help to those at universities seeking subjects for theses.

As it is something new, it is not contended that the 1969 catalogue lists all hydrological research at present in progress; it contains only those projects which have been reported. It is hoped that next year the coverage will be more comprehensive.