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**Hydrometric data transmission systems —
Part 1: General**

Systèmes de transmission de données hydrométriques — Partie 1: Généralités

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6419/1 was prepared by Technical Committee ISO/TC 113, *Measurement of liquid flow in open channels*.

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Hydrometric data transmission systems — Part 1: General

0 Introduction

A system of hydrometric stations, data transmission and data handling constitutes a hydrometric data acquisition system, the density of which should relate to the scale of both existing and potential objectives.

Collection of hydrometric data may be governed by legal, present and anticipated scientific and operational needs.

If the network is sufficiently dense, generating large quantities of data, or if the time-interval of the necessary reaction to measurement is relatively short, then recourse to modern techniques of fast, concentrated data handling is necessary.

The advances already made and the continuing development in the technology of measurement, data transmission and data handling result in a wide variety of design and operation of data systems. However, with the increasing size and complexity of such systems and the special requirements of hydrometric data systems, it has become evident that standardization of some aspects of hydrometric telemetry would improve the design, specification and operation of systems, as well as delaying equipment obsolescence.

1 Scope and field of application

This part of ISO 6419 specifies the general functional requirements for hydrometric telemetry. It defines characteristics of the system required to transmit field data to a receiving station and the minimum processing for subsequent use.

2 References

ISO 646, *Information processing — ISO 7-bit coded character set for information interchange.*

ISO 772, *Liquid flow measurement in open channels — Vocabulary and symbols.*

ISO 1000, *SI units and recommendations for the use of their multiples and of certain other units.*

3 Definitions

For the purposes of this part of ISO 6419, and in addition to those given in ISO 772, the following definitions shall apply.

3.1 bit : A binary digit; a digit (1 or 0) used to represent a number in binary notation.

3.2 baud : A unit for measuring data flow on a communication path, equivalent to one bit per second.

3.3 remote station; outstation : All facilities and equipment associated with the sensing and transmission of valid data from a hydrometric station.

4 Units of measurement

The units of measurement used in this part of ISO 6419 are SI units in accordance with ISO 1000.

5 System description

5.1 General

The end-product of hydrometry is data, relating to measurements of relevant parameters.

The common objective in hydrometry is to acquire continuous data in which the acquisition rate will make it possible to understand the phenomena in general and predict its development in time.

It is convenient to examine the data acquisition system by means of each of the distinct stages through which the data shall pass before its ultimate use. Figure 1 illustrates this in block form.

5.2 Data system stages

Six distinct stages may be identified in any data acquisition system, however simple the system may be :

- a) primary measurement;
- b) encoding;
- c) transmission;
- d) decoding;
- e) validation;
- f) use.