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Management of observed hydrometric data - Recommendations

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National foreword

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Gestion des données hydrométriques observées - Recommandations

Mangement gemessener hydrometrischer Datensätze - Empfehlungen

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European foreword

This document (CEN/TS 17171:2018) has been prepared by Technical Committee CEN/TC 318 “Hydrometry”, the secretariat of which is held by BSI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Introduction

Water management decisions and policies ought to be based upon quantitative knowledge of the hydrological system. Commonly, such knowledge results from observational hydrometric data, the collection of which is the subject of other standards, e.g. EN ISO 18365. The subsequent management of such hydrometric data provides the linkage between field measurement and the eventual use of processed data to address a wide range of strategic and operational water management applications. As both the demand for and complexity of hydrometric data increase, it is important that the procedures and processes used to manage these data are standardized to allow greater integration of data and ensure their protection for future use.

The availability of high-quality observational data are vital to developing an understanding of the hydrological cycle. Optimizing data management systems helps ensure that the maximum benefits are achieved from those resources invested in hydrometric monitoring. Effective standardized procedures for data transmission, manipulation, quality control, expression of uncertainty and storage are vitally important and their use should be promoted throughout hydrometric observation networks.

Those responsible for hydrometric data management are encouraged by this Technical Specification to adopt the ethos of professional stewardship and to remember their role as guardians of an important national, and sometimes international, resource.

This Technical Specification is designed for use by all organisations and individuals collecting, processing or storing hydrometric data. Some of the clauses contained in standard are only applicable for those maintaining national or regional collections of hydrometric data (for example, 4.9). However most recommendations are widely applicable to all users, including organisations, companies or individuals involved in: hydropower production, water supply, environmental protection, scientific research or flood risk management.

This Technical Specification is concerned with general aspects of good practice in data management. Techniques for managing data are recommended, covering metadata collection, data storage and quality control. This Technical Specification assumes that the raw data have been collected and transmitted from the field in line with other European Standards for hydrometry, so this Technical Specification concentrates on the subsequent processing and management of these hydrometric data.

1 Scope

This document gives recommendations for the management of observed hydrometric data, including raw data and other data as well as statistics derived from these observations. Although the principles of data management can be applied to all hydrometric observations, particular focus is placed on measurements of precipitation, water level (including stage), volume and discharge in open channels.

NOTE The range of sites where water levels, and sometimes flow, are measured includes lakes, reservoirs, rivers, canals, tidal waters, sewers, wells, and boreholes.

The document covers metadata associated with hydrometric data, including recommendations for the production and management of descriptive, analytical and statistical material relating to sites where and measuring techniques, by which hydrometric data are collected. The recommendations of this document can be applied to some forms of data directly derived from observational records (for example, summary time series of monthly mean river flows). While not primarily designed for the management of data resulting from more complex numerical models or spatially aggregated data sets (for example, remotely-sensed data), many of the recommendations are applicable for such types of data.

This document does not cover the field collection of data or its transmission, but focuses on the management of data once they have been received in a hydrometric information management system.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 772, *Hydrometry — Vocabulary and symbols (ISO 772)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 772 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
data flag
indicator relating to the quality and characteristics of an observation

3.2
derived data
information calculated, or deduced, from raw data (3.5)

3.3
precipitation
water or ice derived from the atmosphere and deposited at ground level

NOTE Measured in terms of the depth in millimetres (mm) of its liquid equivalent.

3.4
quality control
process of confirming that the data held are a reliable representation of the variable being measured or derived