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Measurement of liquid flow in open channels — Methods for measurement of characteristics of suspended sediment

Mesure de débit des liquides dans les canaux découverts — Méthodes de mesurage des caractéristiques des sédiments en suspension



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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 4363 was prepared by Technical Committee ISO/TC 113, *Hydrometric determinations*, Subcommittee SC 6, *Sediment transport*.

This third edition cancels and replaces the second edition (ISO 4363:1993), which has been technically revised.

Annexes A and B of this International Standard are for information only.

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Introduction

Sediment has been defined generally as solid particles that are moved or might be moved, by stream flow in a channel. Sediment transportation creates numerous problems such as soil erosion, local scour, degradation and aggradation of streams, siltation in irrigation canals and navigation channels, loss of capacity of reservoirs, meandering of streams, damages to hydraulic machinery, etc. For solving varied sediment related issues arising out of human endeavours for development and management of water resources, a comprehensive knowledge of the mechanism of sediment transport and methods of determination of sediment load is highly essential.

Erosion is caused by water, wind, ice and human activities such as cultivation urbanization, mining, etc. Clods and aggregates of soil in the catchment area are broken down into small particles which are thrown into suspension and carried away as sediment. Not all the eroded material enters the stream channel. The total amount of eroded material which travels from a source to a downstream measuring point is termed as sediment yield.

The purpose for making measurements on suspended sediment is to determine the variation of the cross-sectional mean mass concentration and mean particle size distribution of suspended sediment in sediment transport processes using appropriate methods at a suitable frequency; then to determine the characteristic values of suspended sediment transport such as sediment load, mean particle size distribution, and sediment load of various particle sizes in various periods by jointly using the data of water stage, discharge, and suspended sediment.