



Standard Guide for Elements of a Complete Data Set for Non-Cohesive Sediments¹

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1. Scope

1.1 This guide covers criteria for a complete sediment data set.

1.2 This guide provides guidelines for the collection of non-cohesive sediment alluvial data.

1.3 This guide describes what parameters should be measured and stored to obtain a complete sediment and hydraulic data set that could be used to compute sediment transport using any prominently known sediment-transport equations.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 1129 Terminology Relating to Water²

D 4410 Terminology for Fluvial Sediment²

D 4411 Guide for Sampling Fluvial Sediment in Motion³

D 4822 Guide for Selection of Methods of Particle Size Analysis of Fluvial Sediments (Manual Methods)³

D 4823 Guide for Core-Sampling Submerged, Unconsolidated Sediments³

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminology D 1129 and D 4410.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *diameter, intermediate axis*—the diameter of a sediment particle determined by direct measurement of the axis normal to a plane containing the longest and shortest axes.

3.2.2 *diameter, nominal*—the diameter of a sphere of the same volume as the given particle **(1)**.⁴

3.2.3 *diameter, sieve*—the size of sieve opening through which a given particle of sediment will just pass.

3.2.4 D_x —the diameter of the sediment particle that has x percent of the sample less than this size (diameter is determined by method of analysis; that is, sedimentation, size, nominal, etc.).

3.2.4.1 *Discussion*—Example: D_{45} is the diameter that has 45 % of the particles that have diameters finer than the specified diameter. The percent may be by mass, volume, or numbers and is determined from a particle size distribution analysis.

4. Summary of Guide

4.1 This guide establishes criteria for a complete sediment data set and provides guidelines for the collection of data about non-cohesive sediments.

5. Significance and Use

5.1 This guide describes what parameters should be measured and stored to obtain a complete sediment and hydraulic data set that could be used to compute sediment transport using any prominently known sediment-transport equations.

5.2 The criteria will address only the collection of data on noncohesive sediment. A noncohesive sediment is one that consists of discrete particles and whose movement depends on the particular properties of the particles themselves **(1)**. These properties can include particle size, shape, density, and position on the streambed with respect to other particles. Generally, sand, gravel, cobbles, and boulders are considered to be noncohesive sediments.

6. Procedure

6.1 Parameters discussed here are divided into three major categories: sediment, hydraulic, and others. Within each of these categories there is a listing of the minimum parameters that should be collected or analyzed for and some additional parameters that, although are not critical, would add significant information to the data set if recorded.

6.2 *Sediment Parameters (Minimal):*

¹ This guide is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.07 on Sediments, Geomorphology, and Open-Channel Flow.

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² *Annual Book of ASTM Standards*, Vol 11.01.

³ *Annual Book of ASTM Standards*, Vol 11.02.

⁴ The boldface numbers in parentheses refer to the list of references at the end of this guide.