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Hydrometry — On-site measurement of snow depth and depth of snowfall

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Mesurage sur site de la profondeur de neige et de la profondeur de la chute de neige

Vor-Ort-Messung der Schneehöhe und der Schneefalltiefe

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Contents

Page

European foreword ... **4**
Introduction ... **5**
1 Scope ... **6**
2 Normative references ... **6**
3 Terms and definitions ... **6**
4 Symbols ... **10**
5 Principles ... **10**
5.1 General ... **10**
5.2 Snow depth ... **11**
5.3 Depth of snowfall ... **12**
6 Measurement principles ... **12**
7 Siting and exposure ... **12**
7.1 General ... **12**
7.2 Terrain ... **13**
7.3 Wind ... **13**
7.4 Thermal radiation ... **13**
7.5 Obstacles ... **13**
7.6 Disturbance by humans and animals ... **13**
7.7 Maintenance of measurement site ... **13**
8 Measurement of snow depth ... **14**
8.1 General ... **14**
8.2 Calibration ... **14**
8.3 Manual measurements ... **15**
8.3.1 Measurement techniques ... **15**
8.3.2 Procedure ... **15**
8.4 Sources of error ... **16**
8.4.1 General ... **16**
8.4.2 Reading errors ... **16**
8.4.3 Misjudgement of the base level ... **17**
8.5 Automated measurements ... **17**
8.5.1 General ... **17**
8.5.2 Ultrasonic measurements ... **18**
8.5.3 Optical measurements ... **20**
8.5.4 Data quality control ... **23**
8.6 Sources of error ... **23**
8.6.1 General ... **23**
8.6.2 Optic measurements ... **24**
8.6.3 Ultrasonic measurements ... **24**
8.7 Choice of measuring method ... **24**
9 Measurement of depth of snowfall ... **24**
9.1 General ... **24**
9.2 Measurement ... **25**
9.2.1 Measurement techniques ... **25**

9.2.2 Procedure **25**
9.3 Sources of error **26**
10 Quality assurance **26**
Annex A (informative) Snow stake **27**
Annex B (informative) Manual snow depth measuring devices **28**
Annex C (informative) Electronic probe **29**
Annex D (informative) Ultrasonic snow depth measuring station **30**
Annex E (informative) Laser snow depth measuring station **31**
Annex F (informative) Snow board **32**
Bibliography **33**

European foreword

This document (CEN/TR 17909:2023) has been prepared by CEN/TC 318 “Hydrometry”, the secretariat of which is held by BSI.

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Introduction

Snow depth, representative within a given area, is one of the most difficult weather parameters to be measured in an accurate and consistent manner. Together with snow density it is the most important factor in the estimation of snow water equivalent and thus of crucial importance for the assessment of threatening hazards such as flooding, snow avalanches and building collapses. Preventive measures due to the knowledge of snow amounts can save lives, properties and infrastructure. The data has a wide variety of users, including national weather and hydrological services, waterpower industry, snow avalanche forecasters, climate researchers, water resource managers, construction engineers, winter resort managers, farmers, and many others.

In addition to weather forecasts, measurements of depth of snowfall (also called new snow height) are essential in the preparedness of winter road plowing and airport snow removal. Resources can be adapted to the current weather situation and serious traffic break downs can be reduced.

Much of the information in this document is based on the World Meteorological Organization (WMO) Guide to Meteorological Instruments and Methods of Observation, Volume II – Measurement of Cryospheric Variables, published in 2018.

1 Scope

This document defines the requirements for on-site measurements of snow depth and depth of snowfall. This document provides guidance on manual and automatic measuring techniques, and information about sources of errors and measurement uncertainty.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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

3.1
ablation
combined processes (such as sublimation, fusion or melting, evaporation and movement due to wind and avalanches) that remove snow or ice from the surface of a glacier or from a snow field

[SOURCE: EN ISO 772:2022, 10.1]

3.2
blowing snow
snow being transported by wind high (approximately 2 m) above a *snowpack* (3.27) surface, where visibility is noticeably reduced

Note 1 to entry: See also *drifting snow* (3.3).

[SOURCE: EN ISO 772:2022, 10.2]

3.3
drifting snow
snow being lifted from the snow surface and transported by wind just above the *snow surface* (3.23), where visibility is not noticeably reduced

Note 1 to entry: See also *blowing snow* (3.2).

[SOURCE: EN ISO 772:2022, 10.6]

3.4
new snow
snow layer that is not transformed, densified or settled, from current or recent precipitation having characteristic grain size range of 1 mm to 3 mm

Note 1 to entry: New snow height can be measured by use of a *snow board* (3.8).

[SOURCE: EN ISO 772:2022, 10.11]