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Soil quality — Field soil description

Qualité du sol — Description du sol sur le terrain

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 190, *Soil quality*.

This second edition cancels and replaces the first edition (ISO 25177:2008), which has been technically revised.

The main changes compared to the previous edition is as follows.

— The 2015 edition of the World Reference Base for soil resources[24] has been adapted.

— References to geotechnical standards ISO 14688-1[3] and ISO 14688-2[4] have been made.

— A new Clause 4 describing how to use this document has been added and subsequent clauses have been renumbered.

— A new Clause 5 describing objectives and methods has been added and subsequent clauses have been renumbered. The aspects to describe and how to do this is more separate from the observations and background information.

— The numbering and encoding have been made more consequent and logical.

— New aspects about coarse anthropogenical elements, oil-water reaction pan and signs of pollution or contamination have been added.

— A new Clause 11 about reporting has been added.

— A new Annex A about landforms has been added and subsequent annexes have been renumbered.

— The former Annex B listing reference soil groups of the WRB[24] has been removed.

— A new Annex G about common coarse elements found in soil and soil surface has been added.

— A new Annex H about recording soil description observations for specific types of soil quality investigations has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Traditionally, description of soils and their environment was carried out as parts of soil surveys and soil inventories, the purpose being to describe the pedogenic context of the soil and assess applied aspects, principally agronomic potentials.

Today, many soil observations are made as part of either much broader, or alternatively more focused, environmental studies, and might include analysis for objectives such as:

— identifying human influences on soils, with, particular attention being paid to the negative effects of these influences (for example contamination with possible hazardous substances, or deterioration of physical soil properties);

— land protection within the context of sustainable agriculture and forestry;

— assessing the fate of contaminants introduced to the soil;

— assessing the consequences arising from changes in the use of the soil;

— setting up monitoring programs for specific purposes (such as observation of changes of soil properties over time);

— developing spatial databases (used in the context of GIS) aimed at facilitating the geographical representation of soils;

— and for many other purposes.

While the general framework of this document has stayed the same in this updated version, additions include references to the ISO 18400 series (see Figure 1), observations for soil contamination, and description of artificial material and soil layers.

The description of soils and sites is often accompanied by field and laboratory measurements, and therefore field measurement observations are included in this document.

The original text was based on aspects of the traditional approach to soil description {for example the "Guidelines for soil description" from the FAO (Rome 2006)[30] and the soil type classification from the World Reference Base for soil resources (WRB)[24]}.

Soil descriptions and associated soil data are used and re-used for a variety of purposes. For wider utilization of data from soil descriptions, this document can be used in conjunction with other (commonly and publicly available) standards. Some types of soil information, specifically soil contamination data and data on anthropogenic and exogenous material, were not available in earlier versions and have been included here.

Depending on the objective/s of an investigation, specific observations of interest will be made and recorded. Even within a particular field of interest, the degree of detail in the soil description in the field will vary, depending on the scope of the project.

The quality of field soil descriptions is strongly dependent on the knowledge and especially the experience of the person making and/or recording the observations in the field, since most field observations are estimations (sometimes with the help of reference materials and devices like colour-charts, magnifiers, sieves, or scatter diagrams).