Introduction of quantitative indexes to drill core observation

A-TiC introduces quantitative indexes to boring core observation, which has been performed based mainly on qualitative assessment, to improve reliability of observation results.

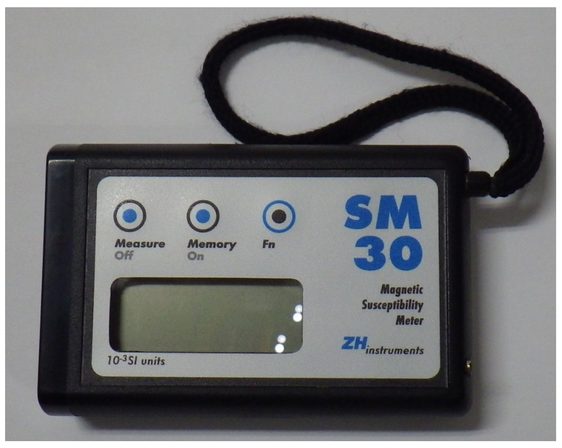
Problems in boring core observation

- Boring core observation is based mainly on qualitative assessment, and therefore it is difficult to understand basis for judgment and it lacks in repeatability.
- Evaluation results differ depending on observers.
- Standard for comparison among plural cores easily becomes vague.

Introduction of quantitative indexes

○Measuring and digitaizing core sample color → Portable spectral colorimeter

○Measuring core sample magnetic susceptibility → Portable susceptibility indicator



Measurement can be performed even under the condition that the cores are in the core box in the site.

Strong weathering～Weathering～Unweathering
・・・Where is the boundary?

D・CL・CM・CH・B(Rock class)
・・・Classification standard?

Improving reliability of observation results by supplement of core observation judgment basis

- Judgment basis becomes clear by adding numerical data to the judgment basis such as stratum classification, rock facies classification, weathering classification and rock classification, which reduce evaluation difference by observers.
- When comparing weathering degrees or rock classification among plural cores, the basis for comparison evaluation becomes clearer by adding numeric data.
- It enables to grasp slight difference in weathering degrees and properties for which it is difficult to recognize difference by eye observation with naked eyes.

Measurement of susceptibility

Susceptibility of bedrock and soil is greatly influenced by type, size and ratio of iron mineral contained.
Generally, in the weathered and altered parts where iron mineral is oxidized and / or hydroxylated, the values are lower than those of the fresh part.

General comparison of susceptibility

Fresh rock>Alternated rock
Fresh rock>Weathered rock

Digitizing of color (Image of L*a*b* color system)

「quoted from "Story of reading colors" by Konica Minolta, Inc.」

Object color is digitized with three axes of

white - black (L*),
red - green (a*),
yellow - blue (b*)

by using spectrum colorimeter.