Standardization and Digitization of the ISRM Suggested Methods on Rock Mechanics Tests

Zuyu Chen, Yufei Zhao & Ming Chi

China Institute of Water Resources and Hydropower Research
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1. Background

The ‘Joint Working Group on Representing ISRM Suggested Methods in Electronic Form (Abbreviated to JWP/RISMEF or RISMEF) was established after the 11th ISRM International Conference in Lisbon, under the auspice of JTC2 and ISRM TM.
The 52 suggested methods of RISMEF are published by the Commission on Testing Methods, International Society for Rock Mechanics (ISRM).
23 October 2007

Prof. Dr. Zuyu Chen
China Institute of Water Resources
and Hydropower Research
PO Box 366, Beijing
China 100044

Dear Professor Zuyu Chen

REPRESENTATION OF ISRM SUGGESTED METHODS IN ELECTRONIC FORM (RISMEF)

As you are well aware, the Commission on Testing Methods of ISRM aims to generate and publish Suggested Methods (SMs) for testing or measuring properties of rocks and rock masses, as well as for monitoring performance of rock engineering structures. Therefore, one of the objectives of this Commission is to encourage collaboration of those who practice in rock mechanics testing. Your suggestion for a new SM on “Representation of ISRM Suggested Methods in Electronic Form (RISMEF)” is considered to be an important issue by the ISRM and the Commission on Testing Methods of ISRM. Given the importance of the subject and the studies by JTC2 on this issue, the rock mechanics community needs such an SM.

Based on your well-known contributions to this subject and the draft for this SM you introduced to ISRM, on behalf of the ISRM and the Commission on Testing Methods, I kindly invite you to establish a Working Group for the preparation of this SM as the Group Leader.

If you accept this mission, the draft SM will be sent to two or three selected experts by the Commission on Testing Methods for reviewing. After the comments of the reviewers are considered by the Working Group, the draft document will be introduced to the Commission members to take their final comments.

I should be glad if you will send me your responses as soon as possible and also inform me when the Working Group you will chair can deliver the first draft of the SM.

I am looking forward to hearing from you soon. Many thanks for your kind interest and your contributions.

Sincerely yours

[Signature]

John A. Hudson
Emeritus Professor, Imperial College, UK
President of ISRM (for the period 2007-2011)
The primary purpose of RISMEF is to encompass the data obtained from an ISRM-suggested testing method to be 

Born electronic
Born in form
Advantages

1. Ensure the data obtained by the suggested method to be processed appropriately.

2. Allow these data to be made available on a web server—and searchable anywhere in the world.
Advantages

3. Require limited effort in training for the lab. staff and users

4. Facilitate second-phase developments such as a component of
   – A master Database, et., a GIS system
   – A commercial apparatus, or
   – An analysis package
2. The brief introduction to XML

- XML is a markup language and similar with HTML in programming, a subset of SGML (the Standard Generalized Markup Language to generate the standardize document of ISO8879 published in 1986). It inherits the self-defined markup character, and changes the deficiency of HTML in function, to have more extendable character.
2. The brief introduction XML

XML’s files can be viewed by IE with the aide of CSS (cascading style sheets) and the extensible stylesheet language.
- XML file (.xml)
  - contains the data (with tags)

- Schema file (.xsd)
  - contains the defined structure and rules for validating

- Stylesheet files (.xsl)
  - converts XML data into a format for viewing in web browser
Procedures

To input and process the data in an Excel spreadsheet: XLS

To save the data in an XML document: xml

To store and display the data in a database: Oracle or SQL

The ‘3L’ project
3. The Pilot Work

As a pilot work, the rock triaxial compress test method was firstly selected to perform the standardization and digitalization by using XML technology.

There are several files, such as the ‘EXCEL’ file, ‘.xsd’ file, ‘.xml’ file, ‘.xsl’ file etc.
the photos of the rock specimens
the stress-strain curve of the rock specimens
Future work

- Finalize the first group of standardized methods and have that published at the International Journal of Rock Mechanics and Mining Sciences.
- Establish a homepage at the ISRM Web
- Build a database of rock mechanics tests on web, and can provide the widely network share on the base of the XML technology.
- Develop an active membership of RISMEF
Please contact us at

chenzuyu@iwhr.com

Thank you for your attention!