

# International Union of Soil Science

19<sup>th</sup> World Congress

Brisbane, Australia

August 1-6, 2010

# International Union of Soil Science

## 19<sup>th</sup> World Congress

Division 1 – Soils in Space and Time

Division 2 – Soil Properties and Processes

Division 3 – Soil Use and Management

Division 4 – The Role of Soils in Sustaining  
Society and the Environment

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### Important Dates

August – Conference Registration opens

October 31 - Closing date for Paper submissions

December 15 – Confirmation of Oral presentations

February 15 – Confirmation of Paper acceptance

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## 19<sup>th</sup> World Congress

<http://www.ccm.com.au/soil/index.html>

# Opportunities for a Common Global Soil Classification System

**Micheal L Golden**

Director  
Soil Survey Division  
Natural Resources Conservation Service  
United States Department of Agriculture

May 11, 2009  
Las Cruces, New Mexico

Report to

U.S. National Cooperative  
Soil Survey Conference

# Opportunities for a Common Global Soil Classification System

In collaboration with

- Dr. Hari Eswaran, National Leader, World Soil Resources
- Dr. Craig Ditzler, National Leader, Soil Survey Standards
- Dr. Christopher Smith, National Leader, Tech Soil Services

# Towards A Global Soil Classification System

- Every Natural Science has
  - A common taxonomic system
    - Botany
    - Anthropology
    - Astronomy
- All Natural Taxonomic Systems are
  - Accepted & used Globally
  - “Soil Taxonomy”, viewed as a national system has yet to have an international acceptance

# Towards A Global Soil Classification System

- International Politics
  - Over last Century Personalities have  
“Mellowed”
  - Movement has been for more  
“Harmony”
  - Time is Ripe for Acceptance of
    - Standard Soil Terminology
    - Concepts and rationale in elaborating the system
    - Linkages with current systems

# Towards A Global Soil Classification System

- System must be Dynamic
  - Continuously Used and Tested
  - The System should not be just a Name
  - The detail of information depends on kinds of Use and Scale of Observations
  - Implies the System has to be “Multicategoric”

# Towards A Global Soil Classification System

- Multi-Categoric Systems
  - First Step for A Global System
    - Develop Guidelines for number of “Categories”
    - Develop A “Key” that enables the selection of Taxa

# Towards A Global Soil Classification System

- Determine Standards for Terminology and Definitions
  - Common Data Dictionary
    - Agreed upon terms and definitions
  - Common methods of Characterization & Soil Analysis
  - Common methods for Soil Descriptions
  - Scale of Observations **1:12,000 to 1:250,000**
- Core Group responsible for Binding Decisions into a Global System
  - Merge the Different Systems into a Universally Acceptable System
  - A Focus on Use and Management should be the Ultimate Goal

# Towards A Global Soil Classification System

- Build upon Existing Systems
  - “**Soil Taxonomy**” was built upon the 1938 soil classification system
  - Soil Conservation Service took ownership and became the Institutional Guardian
  - International Soil Scientists were Invited to contribute to a developing System
  - Individual Countries tried to propose Systems of their own and most have faded away into  
***“Pedological History”***
  - The FAO and WRB are also well known Systems

# Towards A Global Soil Classification System

- Considerations for a Global System
  - In Countries where soil classification was Developed by Individuals:
    - “Theoretical Academic Exercise”
      - Many of those Systems fell into disuse quickly
  - In Countries where they developed their own:
    - Examples: China, Russia, South Africa, Brazil, France, Australia, Argentina, Germany, Canada, United States
    - Still in use today

# Towards A Global Soil Classification System

- Considerations for a Global System
  - Countries that have adopted “Soil Taxonomy”
    - Examples: India, Thailand, Columbia, United States, etc;
  - “Soil Taxonomy” already translated into multiple Languages
    - Examples: Dutch-ISRIC, Indonesia, French, British, Spanish, Arabic, Italian, etc;

# Towards A Global Soil Classification System

- Multi-Categoric Systems
  - **FAO** (No Longer Maintained)
    - “Soil map of the World”
    - Three levels (Very Apt for Scale: 1:5,000,000)
    - There are Many Difficulties for National Mapping
  - **WRB** (ISRIC-Holland)

# Towards A Global Soil Classification System

- Considerations for a Global System
    - Making and Interpreting Soil Surveys
      - Subtitle of Soil Taxonomy
    - Linkage to a National Soil Survey Program
      - Important Tool for Many to Buy into the System
- “National Cooperative Soil Survey”**

# Towards A Global Soil Classification System

- Multi-Categoric Systems
  - **Soil Taxonomy**
    - Six levels or classes
      1. Series
      2. Family
      3. Sub Group
      4. Great Group
      5. Sub Order
      6. Order
    - 1960 – 7<sup>th</sup> Approximation
    - 1975 – 1<sup>st</sup> Edition
    - 1999 – 2<sup>nd</sup> Edition
    - 2009 – 11<sup>th</sup> Keys (planned)

# Towards A Global Soil Classification System

- **Presentations**

- National Academy of Science
- National Cooperative Soil Survey Conference
- Soil Science Society Of America - 2009
- International Union of Soil Science - 2010

- **Dr. Erika Micheli**

**Szent István University Gödöllő, Hungary**

- One of WRB Leaders

# Towards A Global Soil Classification System

- **Dr. Luca Montanarella, JRC**
  - “Would like to make a joint global soil classification that would be adopted by stakeholders”
  - He has started to move towards this goal
    - “I started to informally test the reaction of some of the key players and it is generating various levels of surprise, given our reputation of not having a common view on this topic across the ocean”
    - “We will have a new common vision between US and EU”

# Towards A Global Soil Classification System

- **Luca**

- “My question is: What is hampering us to make soil taxonomy a global system?
  - Is it a political/personal issue or are there truly technical and scientific reasons for this situation?
  - The fact that we agreed to work together should rule out the political/personal problems,
  - So I would expect that the only difficulties are of technical and scientific nature, if at all existing”

# Towards A Global Soil Classification System

- **Luca**

- Started to spread the word that USDA-EC
  - “Might jointly publish the next Soil Taxonomy edition as a common publication”
  - “With the ambition to make it a truly global soil taxonomy”
  - “I'm willing to support a follow-up meeting in order to bring together the key players to get the job done”

# Towards A Global Soil Classification System

- 8 - 37 Global

# Towards A Global Soil Classification System

- International Committees formed:
  - 1976 Low Activity Clays – (Alfisols, Ultisols, Oxisols)
  - 1978 Oxisol Order
  - 1978 Soil Moisture Regimes
  - 1980 Andisol Order
  - 1980 Aridisol Order
  - 1981 Vertisol Order
  - 1982 Aquic Moisture Regime
  - 1982 Spodosol Order
  - Their Intent was to:
    - Create a Globally Used System

# Towards A Global Soil Classification System

- **Soil Survey Division's View:**
  - The US should Not take the lead role –  
***But a support role!***
  - Not for the world to use our Soil Taxonomy but rather
  - Countries to have systems that incorporate the basic tenets of Soil Taxonomy so that
  - **Everyone can translate one to the other and communication is facilitated**

# Towards A Global Soil Classification System

- Next Steps
  - 19<sup>th</sup> World Congress (2010) in Brisbane, Australia
    - A decision **“To Proceed”** can be made
    - Form an **International Committee**
  - Charges to Committee
    - Decide on categories and classes for:  
**“Global Soil Classification System”**

**Questions ?????**

**Comments !!!!**

**Thank you**