

---

New WRB & related publications

- ✓ *CD ROM Tropical soils*
- ✓ *CD ROM SOTER Southern Africa*
- ✓ *WRB translations*

---

**THE NEW WRB LEADERSHIP**

---

Summer School: soil survey and WRB  
WRB and the IUSS Congress in 2006

---

Upcoming WRB Meetings

---

WRB discussion Papers  
WRB Forum and Discussion site

---

Web-sites referring to WRB

---

New WRB & Related Publications

The CD ROM "Properties and Management of soils of the tropics" published as FAO Land and Water Digital Media Series # 24 is a complete reworked and updated version of the standard text book written by Professor Armand van Wambeke on: Soils of the tropics - properties and appraisal (1991).

The present text reviews soil conditions in the tropics and describes land types in terms of their qualities and major constraints. It addresses an audience of students and other interested readers, who have a basic understanding of the concepts, definitions, and terms that are used in soil science or in natural resource management. In a first part the tropical environment and its interactions with soils is described, while the second part **describes the major kinds of soils of the tropic using the World Reference Base for Soil Resources as the framework to subdivide the subject matter.** This system stresses the properties that relate to soil forming processes and highlights their importance for soil management. Slides of the major soil types and tropical landscapes complete the text. The whole has been arranged digitally in an interactive user-friendly way.

Minimum system requirements: Viewing of the CD ROM requires a Pentium PC with Windows 9x/ME/2000 or NT, at least 64 Mb Ram and 15 inch or larger colour monitor with a resolution of 800 \* 600 pixels or higher and a colour palette of 65536 colours. A free copy can be ordered from [freddy.nachtergaele@fao.org](mailto:freddy.nachtergaele@fao.org).

- ✓ The CD ROM "Soil and Terrain database for Southern Africa" at 1:2 million scale using WRB as a reference classification .

This CD ROM published as FAO Land and Water Digital Media Series # 25, compiles the regional soil and terrain data for southern Africa (SOTERSAF) using material from eight countries in the region (Angola, Botswana, Mozambique, Namibia, South Africa, Swaziland, Tanzania and Zimbabwe.) following the SOTER methodology. The compilation of this material has taken over three years and did involve the active cooperation of the national soil institutes in the countries mentioned on the back cover, the technical expertise of the International Soil Reference and Information Centre (ISRIC) and the financial support of UNEP for the Zimbabwe study. This compilation would not have been possible without the wealth of soil survey information gathered over the years through the cooperation of the national soil institutes in the countries and the field programme of the Food and Agriculture Organization of the United Nation (FAO). The scale of the materials used varies between 1:250 000 (South Africa) and 1: 2 500 000 (Angola), but an effort has been made to balance the outputs equivalent to a 1:2 000 000 scale of information. More detailed- soil and other land resources information for specific countries has also been included where available. A manual describing the procedures followed is also included.

Minimum hardware requirements: A Pentium PC with Windows 9x/NT/2000/, at least 64 Mb RAM and 15" or larger colour monitor with a resolution of 1024 x 768 pixels and a colour palette of 65 536 colours.

Required software: All the maps are provided in ArcView 3.2 GIS (Geographic Information System) software in ARC/Info native format or in SHAPE format. Therefore ArcView 3.2 ESRI software is required to access the maps and projects prepared in GIS. For non ArcView users, display and query of the ARC/Info Covers or SHAPE files can be done using free software ArcExplorer 2 which can be downloaded directly from the following URL address: <http://www.esri.com/software/arcexplorer/aedownload.html>. A free copy can be ordered from [freddy.nachtergaele@fao.org](mailto:freddy.nachtergaele@fao.org).

- 
- ✓ **WRB translations:** WRB is now published in 10 languages: English, French, German, Spanish, Italian, Lithuanian, Japanese, Romanian, Vietnamese and Polish. A Norwegian version is available on the WRB web-site: A translation into Russian by Victor Targulian, Maria Gerasimova and Andrei Rozanov prepared with FAO assistance is ready for printing. FAO and UNESCO will support the translation of WRB into Chinese and Arabic in 2004.
- 

## THE NEW WRB LEADERSHIP



**Erika Micheli** (Chair) is a professor in the Department Soil Science and Agricultural Chemistry, Szent Istvan University, Hungary. She is teaching general Soil Science, Soil Genesis and Classification for students in Agronomy, Environmental Sciences and Geology.

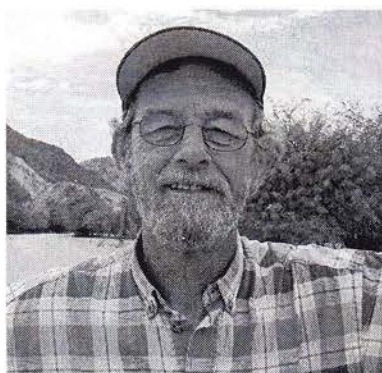
Her diploma work was on updating erosion maps with the use of aerial and satellite imagery. Her PhD thesis was based on research in predicting different soil parameters based on optical reflectance.

Her interest in soil classification developed during her post doctoral studies in the US and participation in soil field tours in Hungary, Europe, North America, Asia and Africa. Her major recent WRB activities were the organization of the International Symposium “Soil Classification 2001” and the coordination of the 1<sup>st</sup> European Summer School on Soil Survey” organized by the Joint Research Center of the EC.

**Peter Schad** (Vice Chair) is lecturer at the Technische Universität München in Freising-Weißenstephan (near Munich), Germany.

He is teaching Soil Science for students of Forestry, Agriculture, and Sustainable Resource Management.

After studying Biology and doing his Diploma thesis in Soil Science in the Spanish Pyrenees he did field work for his PhD thesis to the Bolivian High Andes where he studied the effects of traditional agriculture on soil fertility. His present research work is primarily in South America (Bolivia and Brazil) studying relationships between soil and (natural) vegetation as well as special aspects of soil classification. He joined the WRB working group in 1998. Various WRB field tours and other excursions led him to different sites in Europe, Asia, and Africa.



**Otto Spaargaren** (Secretary) is head of the Documentation and Information section of ISRIC – World Soil Information in Wageningen, the Netherlands. He studied Physical Geography and Soil Science, and obtained his Doctoral-degree studying limestone weathering and formation of Terra Rossa soils in Italy. He spent 14 years of his professional career in Africa and Asia, carrying out soil surveys, land stability studies, soil correlation and tropical soil management research. Otto has been active in the WRB working group since 1993 when he re-joined ISRIC and started reviewing and compiling proposals from IRB (predecessor of WRB) and WRB working group members for the 15th World Congress of Soil Science in 1994. He continued working for WRB developing proposals, and was instrumental in the publication of WSSR 84, 94 and the accompanying CD-ROM on the Major Soils of the World.

## **The WRB in focus in the 1st European Summer School on Soil Survey**

The 1st European Summer School on Soil Survey was organized by the Institute for Environment and Sustainability of JRC, EC in Ispra 21-25 July 2003.

The objective of the summer school was deliver specific training required for the development of the European Soil Information System (EUSIS) and information linked to the implementation of the new EU Thematic Strategy for Soil Protection.

The participants (26) of the course were mainly from candidate countries (11) coming from national soil surveys, universities and regulatory authorities.



Participants of the Summer School

The director of the summer school was Erika Micheli, the current chair of our Working Group. Otto Spaargaren and Peter Schad were also active and (as the picture from the fieldtrip shows) enthusiastic members of the teaching team.

The WRB was in the focus of the training. The history, the structure and the 30 Reference Groups of the WRB with lot of examples were covered in 2 days in class room followed by a one-day fieldtrip to Piemonte region. Thanks to Freddy Nachtergaele, all the participants received a copy of the Lecture Notes "The major soils of the world" (FAO, World Soil Resources Report 94).

Other topics of the summer school included "Soil survey - From landscape and profile description to digital cartography and pedometrics" and "Functions of soils and the threats to soils (as identified in the Communication on the Thematic Strategy for Soil Protection).



Otto Spaargaren and Peter Schad

---

## WRB and the IUSS Congress in Philadelphia 2006

In a follow up of the presentation "Suggestion for a harmonized terminology in soil classification" by E. Micheli, B. Ahrens, L. Montanarella and O. Spaargaren (see among WRB Discussion Papers & Comments) at Annual Meeting of the Soil Science Society of America in Denver in October 2003, Craig Ditzler (USDA) has made following proposals for Soil Taxonomy and WRB:

- Develop a written inventory of diagnostic horizons and features currently used in both systems.
- Document areas of agreement/disagreement
- Present a summary paper at the Paleosol meeting in June 2004 (see below)
- Advocate the use of both systems for the field trips related to the 2006 IUSS Congress in Philadelphia.
- Raise awareness on WRB through the NCSS Regional Soil Taxonomy committees.
- Prepare a final paper for the 2006 IUSS Congress.

WRB intends to propose a full symposium during the Congress on Developments of WRB since Bangkok. The provisional title could be: "WRB and other classification systems, especially Soil Taxonomy". At the same time we are hoping to present a new version of WRB.

---

### WRB Forum and Discussion Site

Proposals for modification or enhancement of WRB should be accompanied by a justification statement, proposed definitions (including possible consequences for other definitions), and supporting evidence in the form of site and soil descriptions and relevant analytical data.

The site description should follow the FAO guideline of profile description. The analytical data should include all the information necessary to define the diagnostic criteria of soils of the actual reference groups.

If you find errors or contradicting or inconsistent texts in WRB, please send a message in the following form:

first text: headline, page, line, "citation"

(second text: headline page, line, "citation")

(third text: headline, page, line, "citation")

explanation: Please explain the error or explain, why the two (or more) cited texts are contradicting or inconsistent.

suggestion: Please suggest how to solve the problem.

example:

first text: Petrocalcic Horizon, page 41, line 10, "A petrocalcic horizon is an indurated calcic horizon, which is cemented by..."

second text: Petrocalcic Horizon, page 41, line 19, "thickness of at least 10 cm, or 2.5 cm if it is laminar and rests directly on bedrock"

third text: Calcic Horizon, page 27, line 34, "thickness at least 15 cm"

explanation: A petrocalcic horizon with a thickness of at least 10 cm (or 2.5 cm if...) and less than 15 cm fails the requirements of a calcic horizon. Therefore a petrocalcic horizon cannot be called "an indurated calcic horizon".

suggestion: Replace the first text by "A petrocalcic horizon can originate by induration of a calcic horizon and is cemented by..."

Such proposals can then be discussed through the WRB Forum to be launched in January 2004. Please contact: [WRB-L-Moderator@mailserv.fao.org](mailto:WRB-L-Moderator@mailserv.fao.org). The proposals and the responses will be evaluated by a WRB board presently being established, before decision for changes made and incorporated into WRB

Preferred Language used will be English, but you are welcome to submit in French, Spanish or any other international language.

---

## UPCOMING WRB MEETINGS

- FAO Soil Correlation and Land Evaluation Meeting for **East and Southern Africa in Tanzania/Kenya**, 28 May – 6 June 2004. This meeting will provide training on the use of WRB in tropical soils . A field tour is planned from Dar-es-Salaam to Nairobi, thereby focusing on soils such as Ferralsols, Nitisols, Andosols, Solonetz, Solonchaks, Acrisols, Lixisols, and Arenosols. For more info Contact [lamourdia.thiombiano@fao.org](mailto:lamourdia.thiombiano@fao.org)
- Conference and Field Trip Paleosols: memory of ancient landscapes and living body of present ecosystems **Florence, Italy, 7-11 June 2004.**

Papers and/or posters are invited on the following or related subjects:

1. Recognizing paleopedological processes;
2. Classification of paleosols and soils of reclaimed anthropic areas in **World Reference Base and Soil Taxonomy and comparison between the different systems**
3. Evaluating soilscape dynamics on paleosols and anthropic soils
4. Building soil typological units on paleosols and anthropic soils
5. Mapping techniques for paleosols and anthropic soils
6. Managing the old and anthropic surfaces

More info at: <http://www.issds.it/paleo/>

Contact: Dott. Rosario Napoli e-mail: [napoli@issds.it](mailto:napoli@issds.it)

- The International Conference on Soil Classification 2004, will be held at **Petrozavodsk, Russia**, from August 3-8 2004, The program of the Conference will include a plenary and 5 particular sessions:

Plenary session. Conveners: Gleb Dobrovolsky, Ahmet Mermut, Robert Ahrens

1<sup>st</sup> session The development of the WRB. Keynote speakers: Erika Micheli, Sergey Goryachkin

2<sup>nd</sup> session The development of national soil classification systems: Keynote speakers: Craig Ditzler, Lev Shishov

3<sup>rd</sup> session Classification of anthropogenic soils. Keynote speakers: Rudi Dudal, Maria Gerasimova

4<sup>th</sup> session Numerical and "computer-based" soil classifications. Keynote speakers: John Galbraith, Vitali Rozhkov

5<sup>th</sup> session Indigenous soil classifications. Keynote speakers: Narciso Barrera Bassols, Pavel Krasilnikov

More info at: <http://biology.krc.karelia.ru/soil04/>

Contact: Pavel Krasilnikov [kras@bio.krc.karelia.ru](mailto:kras@bio.krc.karelia.ru)

---

## WRB Discussion Papers & Comments

Classification of urban & industrial soils in the World Reference Base for Soil Resources:

Working Document by D G Rossiter and Wolfgang Burghardt (July 2003)

<http://www.itc.nl/~rossiter/Docs/SUITMA/Vorschlag.pdf>

Suggestion for a harmonized terminology in soil classification by E.Micheli, B. Ahrens, L.Montanarella and O. Spaargaren. (October, 2003) <http://www.fao.org/landandwater/agll/wrb/news.stm>

---

## An updated selection of web sites referring to WRB

<http://home.t-online.de/home/f.bailly/texte/4wrbtxt.htm>

(WRB German site)

<http://www.soils.wisc.edu/soils/courses/325/Lecture13.pdf>

(Soil classification lecture University of Wisconsin)

<http://www.geo.unizh.ch/bodenkunde/> (Soil site University Zurich, Switzerland)

[http://home.hiroshima-u.ac.jp/er/Rres\\_D.html](http://home.hiroshima-u.ac.jp/er/Rres_D.html)

(WRB in Japanese)

<http://www.ar.wroc.pl/~kabala/online.html>

(Soil Science on line from Poland)

<http://www.fa.gau.hu/~sc21/>  
(Proceedings Hungary Soil Classification Workshop)

<http://www.css.cornell.edu/publications/soiltrop/soiltropinfo.html>  
(Cornell University Professor Armand van Wambeke's site)

<http://www.elsitioagricola.com/articulos/moscatelli/soils%20of%20argentina%20-%20nature%20and%20use.asp>  
(WRB in Argentina Mabel Pazos)

<http://www.itc.nl/~rossiter/teach/lecnotes.html>  
(ITC The Netherlands: David Rossiter's lecture notes on soils)

<http://www.fao.org/ag/agl/agll/wrb/>  
(FAO's WRB web site)

[http://lime.isric.nl/index.cfm?fuseaction=dsp\\_menu&mode=&menuid=2](http://lime.isric.nl/index.cfm?fuseaction=dsp_menu&mode=&menuid=2)  
(ISRIC's Home page web site)

<http://www.ersal.lombardia.it/Suolo/home/link2.htm>  
(Excellent Soil links)

<http://www.library.rdg.ac.uk/subjects/ir/irsoil.html>  
(Excellent soil links from Reading University)

<http://www.rala.is/desert/2-1.html>  
(Soils from Iceland)

<http://www.agiweb.org/ies/soil.html>  
(American Geological institute)

<http://soils.usda.gov/>  
(US Major Soil Site)

[http://www.uni-hohenheim.de/soilrus/cd\\_soils.htm](http://www.uni-hohenheim.de/soilrus/cd_soils.htm)  
(World Soils CD)

[http://www.ctu.edu.vn/colleges/agri/tlkh/soil/rsrch\\_ss\\_class.html](http://www.ctu.edu.vn/colleges/agri/tlkh/soil/rsrch_ss_class.html)  
(WRB in Vietnam)

[http://www.nijos.no/Publikasjoner/dokumenter/2003/Dok6\\_03.pdf](http://www.nijos.no/Publikasjoner/dokumenter/2003/Dok6_03.pdf)  
(WRB in Norway)

[http://www.iiasa.ac.at/Research/FOR/russia\\_cd/soil.htm](http://www.iiasa.ac.at/Research/FOR/russia_cd/soil.htm)  
(WRB and Soils of Russia)

[http://www.dea.met.gov.na/data/Atlas/html\\_files/2.20%20Dominant%20soils%20in%20Namibia.html](http://www.dea.met.gov.na/data/Atlas/html_files/2.20%20Dominant%20soils%20in%20Namibia.html)  
(Soils in Namibia)

<http://www.clw.csiro.au/publications/technical2002/tr30-02.pdf>  
(Vineyard soils in Australia)

[http://www.issas.ac.cn/index\\_English.htm](http://www.issas.ac.cn/index_English.htm)  
(Soil Map of China in WRB)

[http://nsidc.org/data/docs/fgdc/ggd602\\_map\\_cryosols/](http://nsidc.org/data/docs/fgdc/ggd602_map_cryosols/)  
(Circumpolar Soils)