

---

New WRB & related publications

- ✓ CD ROM
  - ✓ WRB translations
  - ✓ International Symposium for Soil Classification, Hungary
  - ✓ International Symposium for Soil Classification, Charlotte
  - ✓ 17<sup>th</sup> World Congress of Soil Science
  - ✓ WRB World Soil Resources Map
- 
- 

**NEW WRB LEADERSHIP**

---

---

*Summary Report WRB correlation tour  
South Africa and Namibia.*

*WRB Workshop Mexico*

---

---

Upcoming WRB Meetings

---

---

WRB discussion Papers

---

---

---

New WRB & Related Publications

- ✓ The ‘**CDROM on the Major Soils of the World**’ accompanying the Lecture notes on Major Soils in the World was published by FAO/ISRIC and more than 1 000 copies have already been distributed. Free copies can be ordered from [freddy.nachtergaele@fao.org](mailto:freddy.nachtergaele@fao.org). More information on this CD on :[http://www.fao.org/icalog/search/dett.asp?aries\\_id=102985](http://www.fao.org/icalog/search/dett.asp?aries_id=102985). In the Annexes revised versions of the Key to Reference Soil Groups, the definitions of diagnostic horizons, properties and materials and the qualifiers are given. Besides some corrections of obvious errors in the World Soil Resources Report no. 84 (1998) these versions have to be understood as suggestions for a future revision of WRB. For classification purposes the Report no. 84 is still the official version of WRB.
- ✓ **WRB translations:** WRB is now published in 10 languages: English, French, German, Spanish, Italian, Lithuanian, Japanese, Romanian, Vietnamese and Polish. A translation into Russian is being undertaken by Victor Targulian, Maria Gerasimova and Andrei Rozanov with FAO assistance. UNESCO is considering the translation of WRB into Chinese. Mabel Pazos has volunteered to translate the lecture notes in Spanish, while Jean Chapelle is working on a French version.
- ✓ The proceedings of the ‘**International Symposium on Soil Classification, 8 – 12 October, 2001, Velence, Hungary**’, a meeting organized by the Hungarian Society of Soil Science, Szent Istvan University, Hungary and was supported by institutions such as IUSS, EU Joint Research Centre, FAO and USDA. It was a very successful event with attendance exceeding 50 international experts and soil scientists of more than thirty different nations were published by the European Commission together with FAO. They can be ordered from: [robert.jones@jrc.it](mailto:robert.jones@jrc.it)
- ✓ The proceedings of the “**International Symposium for soil classification held in Charlotte, North Carolina, USA from 18-27 October 2001**”, where WRB was represented by Ahrens (USA), Costantini (Italy), Dudal (Belgium), Deckers (Belgium), Eswaran (USA), Laker (RSA), Nachtergaele (FAO), Napoli (Italy), Yi-Halla (Finland), Karklins Aldis (Latvia) were published by Hari Eswaran , Thomas Rice, Robert Ahrens and Bobby A. Stewart as a hard cover book : “Soil Classification A Global Desk Reference.” . It can be ordered at <http://www.barnesandnoble.com/> (99.95US\$ plus mailing costs)
- ✓ The general meeting of our IUSS Working Group was held at the event of the **17th World Congress of Soil Science** at Bangkok, Thailand from 14 – 20 August 2002. Suzana Pazos organized Symposium Nr. 21, ‘Soil classification, accomplishments and future’. Deckers presented a paper on WRB. As promised we did not propose major changes, but reported on findings from all the field testing since 1998. Rudi Dudal presented a paper on the classification of Anthrosols. Both contributions are available from the forum below.

## **WRB World Soil Resources Map (1: 30 Million scale)**

FAO - ISRIC - EU

( 120cm \* 85 cm )

Over the last eight years The FAO/Unesco Soil Map of the World has been partly updated under the SOTER Programme and the FAO legend has been replaced by the World Reference Base for Soil Resources (WRB). In 1998 the latter was adopted by the International Union of Soil Sciences as the standard for soil correlation and nomenclature. In the light of these new developments it was decided to prepare an updated version of the generalized paper Map of the World Soil Resources at 1 : 25 000 000. The updating exercise covered:

- the switch from the original map projection to a Flat Polar Quartic projection.
- the conversion of the FAO legend into the WRB classification.
- the incorporation of additional soil data obtained from new or revised soil map sources.
- the matching , when possible of soil unit boundaries with major landforms.

The map is available as an image for download from the Internet in pdf, as.eps and Arc/Info export formats at: (<http://www.fao.org/ag/agl/agll/wrb/soilres.stm> )

Or it can be ordered for free (folded) from AGLL (contact Freddy Nachtergaele at [Freddy.Nachtergaele@fao.org](mailto:Freddy.Nachtergaele@fao.org))

It can be ordered - unfolded - from FAO Publications and Sales contact: [publications-sales@fao.org](mailto:publications-sales@fao.org)

---

---

## **NEW WRB LEADERSHIP**

At the IUSS Bangkok Congress the WRB meeting endorsed the following to lead WRB in the coming 4 years:

**Erika Micheli (Hungary) : Chair**  
**Peter Schad (Germany) : Vice Chair**  
**Otto Spaargaren (ISRIC) : Secretary**

*Their full professional profiles will appear in the next WRB Newsletter !*

Sepp Decker and Freddy Nachtergaele, respectively former Chair and Vice Chair, were thanked for their services to the WRB group and promised to remain active in the WRB Committee.

---

---

## **WRB Correlation Tour South Africa and Namibia January 22- February 4 2003**

Summary report - List of Participants

### **Abstract Summary**

On the occasion of the 50th anniversary of the Soil Science Society of South Africa (SSSSA), a field tour was organized through the (semi-)arid parts of western South Africa and the coastal zone of Namibia. Twenty-eight participants joined this tour, coming from Australia, Belgium, Burkina Faso, Germany, Hungary, Italy, Namibia, the Netherlands, Russia, South Africa, Tanzania, and the United States (see list of participants attached). Purpose of the tour was (1) to get better insight in the diversity of soils in (semi-)arid regions, (2) to study land use practices on these soils (irrigation, water harvesting, ripping), (3) to test the validity of WRB, with special focus on Solonchaks, Gypsisols, Durisols, and Calcisols, and (4) to appraise possible harmonization between WRB and the USDA Soil Taxonomy.

Duration of the tour was ten days and the total distance covered was some 5000 km. After an initial get together at the University of Stellenbosch and a welcome address by the President of the SSSSA, Prof. Huyssteen, the group boarded three minibuses and two "bakkies" to set off north. During the first part of the tour through the West and North Cape Provinces, mainly Durisols, exposed duripans or "dorbanke", silcrete, ferricrete and calcrete were studied, as well as the (unexpectedly) high influence of termites on soils in the semi-arid parts of this region. At Maanskloof Farm near Citrusdal three soils derived from wind-blown and colluvial deposits from Table Mountain sandstone were studied, all of which keyed out as Arenosols. Here a major discrepancy appeared between WRB and ST, because the clay illuviation features (lamellae) forced these soils into Ultisols in ST, recognizing the sandy character only at family level, whereas the sandy character in WRB is recognized at the highest (Arenosol) level. The discrepancy is also caused by the textural requirement for argic horizons in WRB, inherited from the Revised Legend of the Soil Map of the World, requiring at least 8% clay, which does not occur in the ST definition of argillic horizon.... For the full summary click above...

## Conclusions

The tour provided good insight into properties, variety and management aspects of the WRB group of Durisols, as well as those of typical desert soils as Gypsisols, Calcisols and Solonchaks. The need for refining the qualifier level was demonstrated on several occasions, particularly in relation to the chemistry of precipitates (e.g. puffed vs. non-puffed Solonchaks, presence of dolomitic precipitates) as well as to morphological characteristics of hardpans, such as petrocalcic, petrogypsic and petroduric. Special attention has to be paid to those hardpans that are fragmented and which allow roots to penetrate into the subsoil, a condition that is presently not catered for in WRB. Proposals for refining will be considered by the WRB group if these are accompanied by good examples (descriptions, physical/chemical data).

A negative aspect of the tour was the paucity in data and descriptions of the soils viewed. It must be emphasized to future organizers of WRB tours that soils to be studied need full field description according to FAO guidelines and that essential physical and chemical data are to be provided, in order to avoid fruitless discussions on whether a soil has e.g. a sandy loam or loamy sand texture.

Apart from this, the tour was well organized and the Stellenbosch University, in particular Freddie Ellis and Jan Lambrechts have to be complemented for a job well done. Many thanks go out as well to the drivers of the vans and "bakkies" who brought us safely back to Stellenbosch.

**Otto Spaargaren**

Wageningen, February 10, 2003

---

---

### WRB Workshop Mexico (Susana Pazos)

#### Report on the Training Course on WRB in México

The INEGI (*Instituto Nacional de Estadística, Geografía e Informática*) from México decided to follow WRB 1998 and subsequent updates as the standard for the 1:50.000 soil map of México. From 9 to 13 of December 2002, Susana Pazos gave a WRB course to about 35 field and lab soil scientists of INEGI from different regions of México, under the leadership of Francisco Orozco Chávez, Chief of the Soils Department. After a short introduction on WRB illustrated with examples of soils and soil features from different parts of the world and some guided readings with discussion, most of the course was devoted to the application of WRB to Mexican problem soils provided by the participants. A one day excursion allowed visiting the surroundings of Dolores Hidalgo (beautiful colonial city) in the so called Mesa del Centro where a good example of a Planosol was described.

It was a very stimulating experience with a lot of interest and fruitful discussions. They still have a big task ahead on reclassifying soil profiles, as well as classifying newly surveyed ones. Communication continues with the preparation of a full report with soil profile data, coverage, and suggestions for the improvement of WRB. Some preliminary comments follow as WRB in México - Report N° 1.

---

## UPCOMING WRB MEETINGS

- The European Soil Bureau will organize a WRB Summer School in August 2003, for soil surveyors of countries in access to the EU. The course will be given at Ispra, Italy.. Contact: [Luca.montanarella@jrc.it](mailto:Luca.montanarella@jrc.it)
- FAO Soil Correlation and Land Evaluation Meeting for East and Southern Africa in Tanzania/Kenya, January 2004. This meeting will focus on the use of WRB in the region. A 10-days field tour is planned from Dar-es-Salaam to Nairobi, thereby focussing 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)
- Participation in the International Conference on Soil Classification 2004, held at Petrozavodsk, Russia, from August 3-11, 2004, which will focus amongst others on further development of WRB, classification of anthropogenic soils (still a "hot" item in WRB discussions), and indigenous soil classifications (see <http://biology.krc.karelia.ru/soil04/>). Contact: Pavel Krasilnikov [kras@bio.krc.karelia.ru](mailto:kras@bio.krc.karelia.ru)

---

## WRB Discussion Papers & Comments FORUM

[The human factor of soil formation \(Dudal, Nachtergaele, Purnell\) ....](#)

[Towards a rationale in the World Reference Base for Soil Resources \(Deckers, Driessen, Nachtergaele, Spaargaren, Berding\)](#)

[Remarks on WRB issued from the Workshop in Mexico \(Pazos, Schad, Nachtergaele\)](#)

[The "soils" that we should classify in WRB \(Nachtergaele\)](#)

[Colluvium and Fluvic \(Berding\)](#)

[On the evolution of Definitions of diagnostic horizons and soil unit names \(Nachtergaele\)](#)

[Tropical Soils in the classification systems of USDA, FAO and WRB \(Deckers, Nachtergaele, Spaargaren\)](#)

---

## A selection of web sites referring to WRB

<http://home.t-online.de/home/f.bailly/texte/4wrbt.txt.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://sfst.org/17WCSS\\_CD/papers/2031.pdf](http://sfst.org/17WCSS_CD/papers/2031.pdf)

(Pavel's paper on WRB correlations presented at IUSS Bangkok)

[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://sfst.org/17WCSS\\_CD/pages/SA/Sym\\_21.htm](http://sfst.org/17WCSS_CD/pages/SA/Sym_21.htm)  
(All papers presented in the soil classification symposium in Bangkok)  
<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://soils.usda.gov/ncss/act\\_news/newsletters/issue19.pdf](http://soils.usda.gov/ncss/act_news/newsletters/issue19.pdf)  
(NCSS Newsletter)  
<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)