



From the Chair

Dear Pedometricians,

It has been some time since our previous newsletter was distributed, so there is a need to inform you about the activities of our working group which took place in the recent past and which are scheduled in the near future. Therefore this newsletter reports on the Pedometrics 2001 conference, the voting of the Best Paper in Pedometrics 1999 and 2000, the decisions taken during the discussion session of Pedometrics 2001, the activities scheduled during the World Soil Congress in Bangkok and some of our future plans.

But, the issue that currently receives most attention is our request to upgrade from a working group to a commission. A formal request for such an upgrade has been sent to the IUSS. It will be put on the agenda of

the council meeting at the Bangkok congress (14-20 August 2002). More details are given in the newsletter, but I would like to call on everybody's support. The best way to provide this is by contacting your country representative in the council (in principle this is the chairman of your national soil science society) and persuade him/her to support our request. You might find some arguments in the letter I wrote to the secretary-general of the IUSS, Prof. W. Blum, which is also included in this issue.

The mandate of chairman of the WG-PM was given to me at the Montpellier World Soil Congress in 1998, and I believe that the time has come that someone else takes over. This point was addressed during a plenary session of Pedometrics 2001. It was decided that, from the Bangkok congress on, Pierre Goovaerts will become the new chairman and Gerard Heuvelink the new secretary of (hopefully) the Commission on Pedometrics. This excellent choice ensures both continuity, as Pierre is currently secretary, and the input of fresh ideas. Already now, I wish to congratulate the new team with their appointment and offer them all the support I can provide.

So, time has come to say good-bye. See you in Bangkok or at another Pedometrics related activity !

Marc Van Meirvenne
Chairman WG-PM

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From the Newsletter Editor

This issue has had an exceptionally long gestation period since it has been almost 2 years since our previous newsletter was published. The lack of material to publish as well as my increasing workload explained this long silence. But here it is, you are reading the 12th issue of Pedometron! As Marc mentioned, you will find important information on the past and future of our working group in this issue. This summer is particularly important since next month could see the upgrade of our group to a commission that I would have the great honor to chair.

Typically the edition of the newsletter is one of the duties of the secretary and therefore I will stop wearing both hats of secretary and editor after the Bangkok congress. In the past, I have complained about the lack of involvement of our members in the preparation of the newsletter. I invite you to send all your suggestions and contributions to Gerard Heuvelink (G.B.M.Heuvelink@frw.uva.nl), thereby ensuring the continuing success of our Newsletter.

It's now time to close this section "From the Newsletter Editor" and get ready to write the next "From the Chair" section.

Pierre Goovaerts
Secretary WG-PM

Proposal to upgrade from a Working Group to a Commission on Pedometrics

During the Pedometrics 2001 conference a majority of the delegates was in favour of putting a request to the council of the IUSS which will meet at the World Soil Congress in Bangkok. The following letter, with a reference to the article of Richard Webster in the last IUSS Bulletin, and with a list of the activities of the WG-PM (printed next page in this newsletter) was mailed to Prof. W. Blum:

Dear Prof. Blum, Secretary General of the IUSS,

As the chairman of the Working Group on Pedometrics (WG-PM) of the International Union of Soil Sciences I contact you regarding a proposal to upgrade our working group to a Commission.

As you know the Working Group on Pedometrics is one of the most productive working groups of the International Union of Soil Sciences. Attached you can find an overview of our activities since its foundation at the World Soil Congress in Kyoto in 1990 set up by the secretary of our Working Group, Dr. P. Goovaerts. The WG-PM organised 4 international conferences, each attracting about 60-80 participants, and 2 more are being scheduled (one in 2003 in the UK and one in 2005 in the US). Additionally we grant an annual award for the 'Best paper in Pedometrics' and we regularly distribute a newsletter 'Pedometron'. On a more permanent basis, contact with the about 200 subscribers of our mailing list is guaranteed by 3 webpages. We feel that these activities fit with the requirements of a Commission.

In the last issue of the Bulletin of the IUSS (no. 100), Richard Webster provided a comprehensive overview of the history, background and scientific reasons why such an upgrade can be motivated ('Proposal for a commission on Pedometrics', p. 47-49). I would like to add that unlike the application of other basic sciences (physics, chemistry, biology, mineralogy and geography) to soil, the application of mathematics and statistics has not received this recognition under the form of a Commission. We believe that in the past decade this application has grown to the situation that the time has come for such a recognition.

During our most recent conference ('Pedometrics 2001', September 2001) a discussion session was held about the future of the WG-PM within the IUSS. A distinct majority of the members was in favour of upgrading from a working group to a commission. Additionally, the following two points were formulated:

- 1. The proposed name of this new commission is 'Commission on Pedometrics', to guarantee the continuity of the activities of the working group into this commission.*
- 2. The proposed division for this Commission is Division 1 'Soil in Space and Time', since most contributions to our activities are related to the space-time variability of soil properties.*

May I therefore ask you, Mr. Secretary-General, to put the proposal to create a 'Commission on Pedometrics' in Division 1 Soil in Space and Time on the agenda of the meeting of the Council of the IUSS in Bangkok, Thailand?

Marc Van Meirvenne

Overview of the activities of the Working Group on Pedometrics 1992-2002

1. International meetings organized by the WG

1992, September 1-3, Wageningen, The Netherlands

"Pedometrics-92": First Conference of the Working Group on Pedometrics of the International Society of Soil Science. Local organizer : J.J. de Gruijter. Theme : "Developments in Spatial Statistics for Soil Science" The proceedings have been published as a Special Issue of Geoderma (1994, Vol. 62, Nos. 1-3: 1-326).

1995, October 30, St. Louis, U.S.A.

"Fuzzy sets in soil science" (with the Annual Meetings of the ASA,CSSA-SSSA).The proceedings have been published as a Special Issue of Geoderma (1997, Vol. 77, Nos. 2-4: 85-339).

1996, July, Melbourne, Australia

Pedometrics session (in Joint Australian and New Zealand Soil Science Societies Conference), organized by our Working Group and the Australian Collaborative Land Evaluation Program. This was quite successful and very well attended. The Keynote Address by Johan Bouma appeared as a Discussion Paper in Geoderma (1997, Vol.78: 1-12).

1996, August 7-9, Wageningen, The Netherlands

"Soil and Water Quality at Different Scales" (together with the Working Groups on Soil and Moisture Variability, and Soil Pollution). The proceedings have been published as a Special Issue of Nutrient Cycling in Agroecosystems (1998, Vol. 50, Nos. 1-3: 1-324).

1997, August 18-20, Madison (Wisconsin), U.S.A.:

2nd International Conference on Pedometrics (*Pedometrics '97*). Local organizer: K. McSweeney. Some 60 delegates from a dozen countries took part. The proceedings have been published as a Special Issue of Geoderma (1999, Vol. 89, Nos. 1-2: 1-175).

1998, August 19, Montpellier, France

One-day Symposium on Soil Geostatistics, prior to the World Congress on Soil Science. Local organizer: M. Voltz. The theme was *"Developments in Quantitative Soil Resource Assessment"*. The proceedings have been published as a Special Issue of Geoderma (2000, Vol. 97, Nos. 3-4: 1-424).

1999, September 27-29, Sydney, Australia

3rd International Conference, ISSS-PM '99. Local organizer: A. McBratney. The theme was *"Estimating uncertainty in Soil Models."* Some 70 delegates from a number of countries took part. The proceedings have been published as a Special Issue of Geoderma (2001, Vol. 103, Nos. 1-2: 1-229).

2001, September 19-21, Gent, Belgium.

4th International Conference *"Pedometrics 2001"*. Local organizer: M. Van Meirvenne. The theme was *"Applications of Pedometrics"*. Some 70 delegates from a 23 countries (from all continents) took part. The proceedings will be published as a Special Issue of Geoderma.

2003, September, Reading UK.

5th International Conference on Pedometrics. Local organizer: M. Oliver.

2. Annual awards for the best paper in Pedometrics

At the inaugural conference of the Working Group held in 1992 in Wageningen, it was resolved that the Group issue a yearly award for the best paper in Pedometrics. Nominations of papers published in a particular year are made by a well-known expert selected by the Chair and/or Secretary of the Group. The nominator preselects about 5 papers, which are then ranked through a secret ballot by the readership of the newsletter of the Working Group. In the reporting period the following papers have won the award of **'Best paper in Pedometrics for the year...'**:

- 1992 TANG H. & VAN RANST E., 1992. Testing of fuzzy set theory in land suitability assessment for rainfed maize production. *Pedologie* 17: 129-147
- 1993 RASIAH V., KAY B.D. & PERFECT E., 1993. New mass-based model for estimating fractal dimensions of aggregates. *Soil Science Society of America Journal* 57: 891-895.
- 1994 BIERKENS M.F.P. & WEERTS H.J.T., 1994. Application of indicator simulation to modelling the lithological properties of a complex layer. *Geoderma* 62: 265-284
- 1995 PAPRITZ A. & WEBSTER R., 1995. Estimating temporal change in soil monitoring : I Statistical theory. *European Journal of Soil Science* 46 : 1-12.

- 1996 BRUS D.J., DE GRUIJTER J.J., MARSMAN B.A., VISSCHERS R., BREGT A.K., BREEUWSMA A. & BOUMA J., 1996. The performance of spatial interpolation methods and chropleth maps to estimate properties at points: A soil survey case study. *Environmetrics* 7:1-16.
- 1997 DE GRUIJTER J.J., WALVOORT D.J.J. & VAN GAANS P.F.M., 1997. Continuous soil maps - a fuzzy set approach to bridge the gap between aggregation levels of process and distribution models. *Geoderma* 77: 169-195.
- 1998 BOUCNEAU G., VAN MEIRVENNE M., THAS O. & HOFMAN G., 1998. Integrating properties of soil map delineations into ordinary kriging. *European Journal of Soil Science* 49 : 213-229.
- 1999 LARK R.M. & WEBSTER R., 1999. Analysis and elucidation of soil variation using wavelets. *European Journal of Soil Science*, 50: 185-206
- 2000 GOOVAERTS, P., 2000. Estimation or simulation of soil properties? An optimization problem with conflicting criteria. *Geoderma*, 3-4: 165-186.

3. Newsletter of the Working Group

Since 1994 twelve issues of the newsletter of the Working Group 'PEDOMETRON' have been published and distributed to members. Dr. Inakwu Odeh has kindly been editing the Newsletter until 1998, and since then Dr. Pierre Goovaerts is the Newsletter editor. It proved to be a useful medium for communicating news about the activities of the Working Group, especially the conferences, but also the doctoral theses and publications in *Pedometrics*. It also served as a medium for discussion. A major improvement was the electronic distribution of the newsletter that can also be downloaded from the webpage www-personal.engin.umich.edu/~goovaert/pedometrics.html.

4. Webpages of the Working Group

During the rejoinder session at Sydney, it was mentioned that a good way to enhance the visibility of our working group would be to have a website specifically dedicated to *Pedometrics*. In the Fall 1999, a first step has been taken in the right direction through the joint development and linking of three websites located on three(!) different continents and hosted, respectively, on the webpages of Alex McBratney

(<http://www.usyd.edu.au/su/agric/acpa/people/pedometrics.htm>), Marc Van Meirvenne (<http://soilman.rug.ac.be/~mvm/WG-PM.html>) and Pierre Goovaerts (<http://www-personal.engin.umich.edu/~goovaert/pedometrics.html>). These three sites provide complementary information on the topics of *Pedometrics*. Beside the definition of *Pedometrics* that Alex coined in 1992 the Australian site presents a summary of their work on *Pedometrics* until 1997 as well as valuable information on fuzzy sets and geostatistics. The European site gives a detailed account of the procedure followed for the election of the best paper in *Pedometrics* and the list of award-winning papers since 1992. The US site is the electronic repository of all the previous issues of *Pedometron* that can be downloaded in pdf format. Currently attempts are being undertaken to merge these websites into one.

Pierre Goovaerts
Secretary WG-PM

Pedometrics at the 17th World Soil Congress in Bangkok

At the World Soil Congress in Bangkok (14-20 August 2002) the WG-PM is represented by symposium no. 48: '*Developments in soil data processing*'. The chairman of WG-PM, Marc Van Meirvenne, was appointed as convenor of this symposium and the Thai co-convenor is Chairatna Nilnond. Both evaluated a large number of papers and 31 of them were accepted for this symposium, of which 7 for oral presentation and the remaining as posters.

As at previous congresses, we expect a number of papers using or developing pedometrical techniques to be scheduled in other symposia. It would be good if delegates related to the WG-PM would indicate to these authors the existence of our WG, so that we all can benefit from their research if they would decide to join our activities.

If delegates who renew their subscription to the IUSS would be asked to indicate their field of activity/interest, please check also the WG-PM box. These counts are used to indicate the impact of our WG within the IUSS.

Marc Van Meirvenne

Best Papers in Pedometrics

A new procedure was followed to award the “Best Paper in pedometrics” for 1999 and 2000. The members of a committee of 5 persons (the present chair (Marc Van Meirvenne and Pierre Goovaerts), the previous chair (Alex McBratney and Jaap de Gruijter) and Margaret Oliver) nominated one paper each as their best paper in Pedometrics for a given year. These five papers were put to a vote by the delegates of the Pedometrics 2001 conference. Here are the results (a full list of all years can be consulted at : <http://soilman.rug.ac.be/~mvm/Bestpaper.html>)

1999

Awarded paper:

LARK R.M. & R. WEBSTER 1999. Analysis and elucidation of soil variation using wavelets. *European Journal of Soil Science*, 50: 185-206

Nominated papers:

- R.R. Filgueira, Ya. A. Pachepsky, L.L. Fournier, G.O. Sarli & A. Aragon 1999. Comparison of fractal dimensions estimated from aggregate mass-size distribution and water retention scaling. *Soil Science* 164: 217-223
- V.J. Kollias, D.P. Kalivas & N.J. Yassoglou 1999. Mapping the soil resources of a recent alluvial plain in Greece using fuzzy sets in a GIS environment. *European Journal of Soil Science* 50: 261-273
- G.M.B. Heuvelink & E.J. Pebesma 1999. Spatial aggregation and soil process modelling. *Geoderma* 89: 47-65
- B. Minasny, A.B. McBratney & K.L. Bristow 1999. Comparison of different approaches to the development of pedotransfer function for water-retention curves. *Geoderma* 93: 225-253

2000

Awarded paper:

GOOVAERTS, P., 2000. Estimation or simulation of soil properties? An optimization problem with conflicting criteria. *Geoderma*, 3-4: 165-186.

Nominated papers:

- Chaplot V., Walter C., Curmi P., and Hollier-Larousse A., 2000. The use of auxiliary geophysical data to improve a soil-landscape model. *Soil Science*, 165: 961-970.
- Grunwald S., Barak P., McSweeney K. & Lowery B., 2000. Soil landscape models at different scales portrayed in virtual reality modeling language. *Soil Science*, 165: 598-615.
- Lark R. M., 2000. A comparison of some robust estimators of the variogram for use in soil survey. *European Journal of Soil Science*, 51: 137-157.
- Lark R. M., 2000. Designing sampling grids from imprecise information on soil variability, an approach based on the fuzzy kriging variance. *Geoderma*, 98: 35-59.

We congratulate all authors for their excellent work !

Forthcoming Conferences

In the next few months three conferences, which are of interest to pedometricians, will be held in Europe and the United States.

The first meeting is the *2002 Annual Conference of the International Association of Mathematical Geology* that will take place in Berlin on September 15-20. At least four sessions, 2 of them chaired by WG members E. Pebesma and P. Goovaerts, will be devoted to geostatistics. More information can be found at <http://www.fu-berlin.de/iang2002/>

The second meeting is the *2002 ASA-CSSA-SSSA Annual Meeting* to be held in Indianapolis on November 10-14. Sabine Grunwald and Larry West are organizing a symposium ‘Soil Landscape Modeling’ that includes Pedometrics in the list of topics. The website is <http://www.asa-cssa-sssa.org/anmeet/>

The last meeting is The Fourth European Conference on Geostatistics for Environmental Applications, *geoENV2002*, that will be held in Barcelona, Spain, November 27-29, 2002. Like the last editions (see 8th issue of *Pedometron*), several sessions will be devoted to applications of geostatistics to soil science.

Pedometrics 2001: Conference Report

After Wageningen (1992), Madison (1997) and Sydney (1999), the fourth International Conference on Pedometrics, under the auspices of the IUSS Working Group on Pedometrics, took place in Ghent (Belgium), from September 19-21, 2001. The Organising Committee consisted of Marc Van Meirvenne (Chair), Gerard Govers (Vice Chair), Marijke Meul (Secretary), Stefaan De Neve, Inge Leroy and Maarten Vanoverbeke. The conference was sponsored by Ghent University and the Flanders Fund for Scientific Research. There were 71 participants, coming from 23 countries and all continents.

The scientific program started with a plenary lecture by R.M. Lark on wavelets. Under the general theme 'Applications of Pedometrics', a total of 23 oral presentations followed, grouped into 6 sessions:

- Pedometrical methodology
- Soil biology and chemistry
- Sampling and sensing
- Soil physics
- Precision agriculture and environment

In addition, every day in the afternoon about 10 posters were presented, smartly organised as follows. The posters were divided into two sets and displayed in two

separate locations. The participants were also divided into two groups, each making a guided tour along both sets of posters. In front of each poster, the author gave a 5 minute oral presentation, followed by a discussion led by the tour guide. This proved to be a very successful formula. The Best Poster Award went to Meul and Van Meirvenne.

After a special discussion session it was concluded that the Working Group should aim to become a Commission on Pedometrics. In the closing session it was announced that the proceedings of the conference will appear as a Special Issue of *Geoderma*, and that the next conference in this series will be in 2003 in Reading, UK.

Altogether, the scientific program was generally rich, interesting and well presented. The medieval ambiance of Ghent was magnificent, the atmosphere was very friendly, there was ample opportunity for informal exchange and contact among the participants, and the conference dinner was superb (what else in Flanders?). In short, this conference a great success, both scientifically and socially. Many thanks to the organizers and the participants! Up to Reading.

*J.J. de Gruijter,
Wageningen, The Netherlands*



Picture of participants to Pedometrics 2001, taken outside the conference room! Additional pictures of major conference events can be viewed at <http://soilman.rug.ac.be/pedometrics2001/pedomframe.html> .