COMMISSION 1.1

SOIL MORPHOLOGY & MICROMORPHOLOGY

International Union of Soil Sciences

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Newsletter prepared by Commission 1.1 Officers 2022-2026
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Layout and design: CRISP

Cover: The highest petrified forest in the world (Anzangaro site, Peru) as the trace of a geological past from the beginning of the Cretaceous (130 Mya). Field trip of the 17th World Conference on Soil Micromorphology, Puno – Peru. Courtesy by Fabio Terribile, Università di Napoli Federico II, Napoli.

Comm. 1.1. Soil Morphology and Micromorphology - IUSS

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LETTERS FROM COMMISSION OFFICERS

Dear All,

We are pleased to announce the publication of our latest newsletter! It has been about a year since our last printed newsletter, but as you know, our news is now regularly updated on the Commission 1.1 website (https://micromorphology.net/). We understand that many of you are fond of our manually produced newsletter. To strike a balance, we plan to create a semi-automated newsletter later this year, which will gather news directly from our website.

In this issue, we present: (i) reports from the 17th World Conference on Soil Micromorphology in Puno, Peru; (ii) the minutes of the Commission 1.1 Soil Morphology and Micromorphology business meeting held in Puno, Peru; (iii) reports from previous courses; (iv) new publications; (v) metrics of soil morphology and micromorphology-related papers from the past year; and (vi) information about the next international soil conference connected with our Commission.

Here we want to quote that at the Puno conference, Fabio Terribile (as Chair of the Commission) raised the issue of the unsustainable workload involved in managing the Commission's numerous activities. Essentially, Fabio requested assistance from all those interested in the Commission's work, asking for active contributions to support one or more Commision activities. To assess the availability of individuals interested in supporting the Soil Morphology and Micromorphology Commission, a questionnaire has been prepared and can be found at this link *(please cut and paste in your browser)*: https://forms.gle/ELpQmktBQXr81SbW8

In this issue, we also continue our "Pills of Wisdom" section. This time, we feature contributions from Maja Kooistra and Rosa M. Poch. While we believe everyone knows Rosa (she served as our Commission chair for eight years), we would like to remind our younger colleagues that Maja Kooistra has been a benchmark for all soil micromorphologists for decades (e.g., in my own case, I still remember her pivotal work on soil structure). Thank you, Maja and Rosa!

😊.

Good Reading to all of you !

Fabio Terribile and Adam Szorba
IUSS Commission Soil Morphology and Micromorphology

PILLS OF WISDOM for soils and soil scientists

Dear reader, as you know, this section of our newsletter is usually devoted to publish small contributions from some of our major soil scientists, who decided to share with us some of their thoughts on key issues relevant for our Commission.
This time we have

- *Maja J. Kooistra, former head of the research section Soil structure and Micromorphology of the Netherlands Soil Survey Institute. This organisation is now part of the Research Institute Alterra. Maja recalls her research activities and then she dive in a perspective view about soil micromorphology.*
- *Rosa M. Poch that most of you well know. Currently Rosa works at the Departament de Medi Ambient i Ciències del Sòl at Universitat de Lleida and she has acted as President of the IUSS Commission 1.1 Soil Morphology an Micromorprphology for two mandates*

from Maya

At the start of 2024, I sent an email to Fabio to thank him and the commission for all the signs of vibrant micromorphological life I regularly received, and to ask him to remove me from the mailing list. My age is advancing, and a number of dear colleagues have by now passed away. Time has come for me to focus my energy on other matters and activities. Fabio responded with a request to write up a short contribution about certain items that are of relevance for our commission. Given that I served as secretary of our ISSS commission from 1985 to 1992 – first with Nicolas Fedoroff as chairman, followed by Larry Wilding, and as I was at the time responsible for the newsletters, I felt that I could not refuse this request.

Micromorphology entered my life during my PhD research (1973-1978). This research was focussed on soil development in recent marine sediments in the intertidal zone. After a field survey, it became clear that in this initial phase of soil formation many physical, chemical and also biological processes occurred and most of them seemed related to specific tidal levels. It proved quite the task to sample these wet sediments properly, with the goal to analyse and understand the occurring processes. Dr. Ir. A. Jongerius of the Netherlands Soil Survey Institute (Wageningen) suggested to use micromorphology, and so I did. It proved to be the ultimate tool to analyse not just the constituents and their respective compositions, but also their exact positions and mutual relations. A great number of new discoveries were ready to be made. Like explaining the standard presence of about 9% of clay in coarse sand deposits that could not be sedimented with the then present velocities (addition of clay-rich faunal excreta from worms and molluscs), discovering accumulations of polysulphides in and around organic matter that were causing decalcified zones in these tidal sediments and showing many types of faunal activities eliminating the stratification of the sediment. Using the freeze-drying technique for the preparations of the thin sections made it possible to study these wet sediments without serious shrinkage. It also allowed proper analysis of the different kinds of organic matter present, as well as the occurring faunal activities. Moreover, the previously mentioned institute, with specialists like Dr Jongerius and Dr. Bisdom, took a lead in the application of a range of sub-microscopical techniques on soils and weathered rocks, all of which I could make good use of. These, at the time, new applications, along with the options of image analyses and data quantifications had a long-lasting effect on my scientific career. They were an important reason that from that moment, until even after my retirement age, my research remained

focussed on micromorphological research. It resulted in about one hundred scientific publications and several editorships. Besides soil development in recent and reclaimed marine sediments, a wide array of research subjects were covered. The main subjects were as follows:

- Tropical soils. A large-scale micromorphological project comprised of the analyses of 80 Indian benchmark soils in order to standardise the soil map of India and to indicate their suitability for agricultural applications. Also, a number of other tropical soils were studied in Argentina, Kenya, Ghana and Mozambique. and as a curiosity – neoformations in the Zaire deep-sea fan.

- After I was appointed Dr. Jongerius' successor, I took up his research on soil structure and soil physics, and the scope widened and deepened accordingly. Subjects like the relation between soils and land use, soil structure and permeability, and soil compaction in arable soils were covered. These studies revealed that the role of soil organisms was often more important than expected.

- The focus of the research shifted thereafter to the interactions between soil structure and soil biology, viz. the effects of soil meso- and macrofauna, as well as rooting systems and functions of roots, in different arable systems.

- As a sideline, the acquired knowledge was used to reconstruct past (pre)historic landscapes and land uses. It turned out that historic land uses, like arable land, pasture, heath, moorland or forest, could be determined using the substantial knowledge of the micromorphological observations on more recent soil structures under different kinds of land usage. Changes in packing, occurrences and the scale of specific features could be decisive, all of which are not detectable by other kinds of analyses.

- Increased requests of archaeological research projects led to the development of integrated research strategies to reach a higher interpretive potential for when several specialistic research methods as palynology and soil micromorphology were applied in the same excavations. Professional soil profile descriptions were a prerequisite for sophisticated extrapolations. It resulted in a substantial improvement of the conclusions that could be drawn.

Looking back on 45 years of micromorphological research, I would like to make a few comments and recommendations.

- Despite recent great technological and digital developments, it remains essential to actually study thin sections under a polarisation research microscope with all its basic options. Properties of features can be studied in their context, their occurrence and its distribution determined. So many processes, natural and man-induced, may have taken place, that a sound focus on realistic options is the first prerequisite. Even then, the identified phenomena, in their context, could lead to surprising conclusions. A few examples: the origin of dark layers in the subsoil in archaeological excavations could in fact be quite different from the buried A-horizons they were expected to be. Examples from my own experience of this phenomenon are: (1) a layer of 12 cm depth, composed of small, rough, burned pieces of oakwood trampled into the sediment by large animals. The pieces of wood happened to be the remnants of a burned Roman castellum near (Woerden, the Netherlands), the exact past location of which could be located afterwards, by following this dark layer in the subsoil. (2) Another dark layer I once

studied consisted of burned wood and burned bone fragments, and turned out to be parts of a cremation field from the bell beaker culture (from the end of the Neolithic period), that turned up in an unexpected location. A third dark layer containing bronze age artifacts turned out to be a deposition of washed away material, and not the actual location of a settlement.

- Size matters. There has always been a discussion on the proper size of thin sections. Jongerius made his choice for large thin sections (8 x 15 cm), based on the size, shape, scale and distribution of the phenomena he encountered in Dutch soils. They take a lot of work to produce and are not easily handled under a microscope. Yet, they made it possible to identify (1) the 'smearing' of soil material caused by animals like cows or horses, instead of traffic or cultivation practices on arable land; (2) the burned bone and wood fragments present on top of a former A-horizon, instead of in pits – a reason for continued research with a surprising result; (3) soil fauna, viz. earthworms had reworked this layer to significant extent. Due to the size of the thin sections, small undisturbed locations with the original stratified deposits containing the artifacts became visible. In addition, with bigger thin sections the nature of features and their function in the soil can be attributed more precisely. Organic matter can be present in crop remains, where it is largely unavailable for organisms due to 'sealing' into the soil matric or internal slacking. Consequently, chemically determined organic matter contents need not always be indicative for the needs of crops. The kind of voids present may allow, hamper or block the permeability of a soil and options for rooting. Bulk densities are often not a decisive tool.

- Integrated research strategies are most successful when participating specialists understand each other, and the results can be communicated to a wider audience. The developed guidelines for the description of thin sections form a sound basis, but we need to keep in mind that sometimes an easy-to-understand descriptive terminology may attract more interested scientists and readers.

I will never forget the time – although at times laborious – that I dedicated to this fascinating branch of soil science. Micromorphology has provided me with a much deeper insight into all the unseen processes that have occurred, and still take place under my own feet.

Maja J. Kooistra
Former head of the research section Soil structure and Micromorphology of the Netherlands Soil Survey Institute. This organisation is now part of the Research Institute Alterra, Wageningen UR. The section on micromorphology was disposed of and I was able to take over the laboratory and all its equipment. With two collaborators, I continued to execute micromorphological research for 10 years as a private firm under the name of Kooistra Micromorphological Services, ending in 2013.

from Rosa

Travel Agency: The Landscapes of the World, Past and Present, Without Leaving My Microscope

I have tiny fragments from all over the world stored in drawers at the university's microscopy

lab. It's almost a secret, but I can confidently say that I travel every time I sit in front of the microscope: I have soils from the driest deserts and the lushest rainforests, generous and fertile soils that have provided well-being for many years to the people who have cared for them, and martyr soils that have been severely mistreated. I wander through soils from dense forests, endless grasslands, beaches, immense salt lakes, landscapes cultivated for centuries, and volcanic lands.

No one realizes that in these drawers, there are no borders or time limits: side by side, I find soils from places where people are currently in conflict, soils once walked upon by humans thousands of years ago, leaving behind traces that can still be read. The micro-landscapes I observe during my journeys are not static: they tell me about their climate—whether they crack when they dry, form puddles or turn to mud when it rains, if they have been burned or plowed, if earthworms or roots thrive within them, if animals graze on them… I decipher all this as if they were hieroglyphics, made of unique combinations of shapes and colors, offering me mesmerizing images without moving from my spot—no visas, no passports, no security lines, no jet lag.

Sometimes, I discover an image, a shape, or a color I have never seen before. That is when the excitement begins—diving into the search for answers, as if I were exploring a virgin jungle for the first time or stepping onto fresh snow while trying to reach a mountain summit, where any clue in an article or a casual comment from a colleague might suddenly shed light on the mystery and allow me to see the landscape in all its fullness.

Do you realize how lucky I am?

Rosa M Poch
Departament de Medi Ambient i Ciències del Sòl, Universitat de Lleida
Former President IUSS Commission 1.1 Soil Morphology an Micromorprphology

REPORTS FROM 17th WORLD CONFERENCE ON SOIL MICROMORPHOLOGY PUNO – PERU (produced by Juan Carlos Loaiza Usuga).

Short overview about the 17th World Conference on Soil Micromorphology December 2024, Puno Peru

More than 50 people from universities and research groups from Argentina, Brazil, Canada, Colombia, Spain, Mexico, Peru, Poland, Russia, United Kingdom and Italy participated in the 17th World Congress on Soil Micromorphology. With more than forty presentations in four thematic sessions:

Session 1. Micromorphology as key technique to decipher pedogenetic processes.

Session 2. Novel methods, techniques and new opportunities for soil micromorphology.

Session 3. Paleopedology and geoarchaeology.

Session 4. Micromorphology in different environments and cultures.

In the poster session the work developed for students in different areas of micromorphology was prizewinner.

1st prize. Daniela Schievano de Campos – USPI Brazil, Origin of macro and micromorphological diversity in petroplinthic plinthosols.

2nd prize. Manuela Moncada & Juan P Ruiz – Universidad Nacional de Colombia, Edaphic characteristics and organic carbon in the colombian catena ¿What can soil micromorphology give us?

3rd prize. Yazmin Rivera. UNAM – Mexico. Micromorphology of pedosediments in the kart systems of the Yucatan peninsula, Mexico.

The catchword of this conference “Micromorphology make Friends” in an atmosphere of friendship and camaraderie, the attending experts were able to strengthen knowledge networks and exchange experiences. Additionally, other activities were carried out such as a visit to Lake Titicaca, the Chulpas de Sillustani (pre-Inca funerary structures) and an excursion to the structures of Waru Waru (pre-Hispanic ridges), the closing of the event was held in the Peruvian Puna with the traditional pachamanca.

PHOTOS

Photo 1. Invited presentation on Archaeological soil micromorphology and the web of disciplinary science by Dr. Carolina Mallol Duque.

Photo 2. Tribute to Professor Georges Stoops by his students and friends.

Photo 3. Visit to the UROS islands in the Titicaca Lake in the conference aperture field trip.

Photo 4. The Caporales dance in the conference aperture Dinner at the Puno harbor.

Photo 5. Attendees at the field day in the Peruvian puna on the occasion of the closing of the event.

Photo6. Sillustani chulpas prehispanic funerary structures.

Short Overview About The Soil Micromorphology Postconference Field Trip.

As the final activity of this congress, the post-congress excursion was carried out from the Peruvian highlands to the Amazon basin in Puerto Maldonado on the border with Bolivia and Brazil. A total of 12 pedologists attended this excursion in which different soil profiles were observed, starting with the soils on ancient terraces of Lake Titicaca evidenced by badlands areas. The petrified forests of Anzangaro were visited, highest petrified forest in the world as the trace of a geological past from the beginning of the Cretaceous (130 million years), paleontological and geological heritage with plants and animals from prehistory.

At 5000 m.a.s.l glacial reliefs and soils typical of high mountain wetlands (Bofedales) developed on fluvial glacial deposits at the Macusani site were observed. Continuing with a catena of soils on ancient anthropogenic terraces in slope areas, moving on to the areas of Amazonian farms (multi-strata cultivation systems). The soils developed in hilly areas, alluvial terraces and alluvial plains were described and characterized through the soil-relief relationship and their ecological characteristics. This entire journey was carried out during a period of five days in which the geology and geomorphology associated with the Peruvian high mountains are also the focus of interest of this tour represented by high mountain structures and processes, as well as the wetland systems and associated soils, soil mountains associated with the Peruvian Amazon basin highlands, as well as alluvial systems, and soils in the context of traditional production systems.

PHOTOS

Photo 1. Badlands area associated with the oldest terrace of Lake Titicaca.

Photo 2. Prof. Sandro Sardon characterizing paleosol associated with the first level of Lake Titicaca.

Photo 3. Petrified trees at the Anzangaro paleontological site.

Photo 4. Ancient anthropic terraces systems in the Peruvian high plateau.

Photo 5. Wetlands systems in the peruvian highlands.

Photo 6. Soil in the traditional agricultural system Chacra in Peruvian Amazonia.

Photo 7. Cacao plantation in alluvial terrace in the amazon catchment.

Photo 8. Participants in the postconference field trip in the Macusani museum.

MINUTES OF THE BUSINESS MEETING OF THE COMMISSION 1.1. „SOIL MORPHOLOGY AND MICROMORPHOLOGY”

The business meeting for Commission 1.1. „Soil Morphology and Micromorphology” was held the 3rd December 2024 at the Universidad Nacional del Altiplano, Puno, Perú (Carlos A. Torres Guerrero / Fabio Terribile)

List of contributors to the Business meeting and abbreviations
Fabio Terribile (FT)
Carolina Mallol (CM)
Richard Heck (RH)
Sergey Sedov (SS)
Ellizabeth Solleiro (ES)
Rosa M Poch (RP)
Juan Carlos Loaiza (JL)
Tomasz ZALESKI
Lukasz Uzarowicz
Carlos Torres (CT)

Agenda

- A view on soil micromorphology research activities
- Update on Commission activities (website, newletter in the future)
- Our problems and our potentialities
- Next Soil Micromorphology conferences
- Revision rules for the micromorphological awards,
- Kubiena award
- Miscellaneous...

Topics presented

1. Presentation by the Chairman of the Commission 1.1

FT: The chairman of commission 1.1 presented the agenda and the different topics to be discussed during the business meeting

2. Problems and possibilities

CM: Pointed out the issue regarding the representation of archaeology within the overall scientific output of micromorphology, as illustrated by a graph presented by FT. However, she mentioned that in the geoarchaeology community, there isn't a similar feeling regarding the perception of their field as producing the majority of works. She concluded her remarks by proposing the establishment of a permanent committee within the Commission.

FT: Mentioned to develop a new connection between these communities.

JL: Replied "the connections already exist; we should use them"

CM: Proposed to create a mailing list could be a possibility to engage and develop interactions between groups, for instance, Geo-archaeologist and Soil scientists.

FB: Stressed the need to create a strategy to develop communication and collaboration between groups.

RH: Supports the idea of a mailing list; however, He is concerned that compliance with data privacy policies could pose a problem. He also suggests organizing workshops and meetings before the China meetings and the upcoming ICSM.

ES: Offers support for holding virtual meetings (since he has had very satisfactory previous experiences).

SS: Suggested the creation of strong communities through meeting points and regular meetings that take place.

FT: Suggested the web page https://micromorphology.net/ can serve as a meeting point among the different commissions. He stressed the need for collaboration to improve the content and add all the important events and information. He also explained that until now he has mostly worked alone or with little collaboration from other members (he mentions the help of Richard Heck and Dany Itkin). He concluded his participation with the proposal to identify the tasks in which the different participants can collaborate.
Fabio made a general call for engaging colluegues to Commission activities (to this respect please see next section on Commission activities)

RH: Proposed reaching out to other IUSS committees (i.e. pedometrics) to generate coordination between them.

CT: Stressed the importance of establishing an appropriate communication strategy, based on the website and social networks to increase the reach of messages. He also stressed that in order to achieve this objective, the involvement of young generations is desirable. Finally, he mentioned his interest in collaborating in developing virtual meetings.

RH and ES: Supports the involvement of the students.

3. Forthcoming meeting

IUSS Commission 1.1 has invited proposals to host the 18th International Conference on Soil Micromorphology, to be held in 2028. Final proposal documents will be discussed at the business meeting at WCSS in China where a formal presentation is expected.
A general discussion was opened on the issues related to the cancellation of the conference in Warsaw as a consequence of the tensions related to the conflict between Russia and Ukraine. Tomasz Zaleski, Lukasz Uzarowicz and Fabio Terribile actively participated in this discussion, highlighting the hope of organizing the next conference in Warsaw. The Polish colleagues will

evaluate the feasibility of this option; by June-July 2025 they will confirm or not the availability to organize the conference in Warsaw. Only in the negative case, Fabio Terribile revealed the availability of the University of Napoli Federico II (Italy) office to organize the next international conference on soil micromorphology.

COMMISSION ACTIVITIES AND WEBSITE

Here we aim to update you about our new website at https://micromorphology.net/. The current version is updated on a regular base and - needless to add - we need some volunteer who can support us (please let us know your availability writing to fabio.terribile@unina.it).

We recall that the website must be empowered by all of us friends and members of the commission 1.1. Please be proactive by providing useful material for the website.

After difficulties we managed to be able to get our website as one of the first to be dispayed when you browse soil micromorphology and soil morphology. Then now we must really perform to make this website better and better…

To this respect, at the Puno conference, Fabio Terribile (as Chair of the Commission) raised the issue of the unsustainable workload involved in managing the Commission's numerous activities. Essentially, Fabio requested assistance from those interested in the Commission's work, asking for active contributions to support one or more activities.

To assess the availability of individuals interested in supporting the Soil Morphology and Micromorphology Commission, a questionnaire has been prepared and can be found at this link *(please cut and paste in your browser)*: https://forms.gle/ELpQmktBQXr81SbW8.

Please complete the questionnaire as soon as possible, and by the end of March at the latest. What happens next?

Based on the responses received, individuals will be identified as leads for each activity. The Commission will appoint one or more leads for each activity. These leads will then be contacted by Fabio Terribile to plan the activities. Subsequently, the leads will independently organize small meetings (e.g., one per semester) with colleagues who have offered their availability, according to specific needs, to plan the activities.

REPORT FROM PREVIOUS COURSES

MICROMORPHOLOGY PRECONFERENCE COURSE IN PUNO PERU, November 27 to 30, 2024 (Juan Carlos Loaiza Usuga)**.**

From November 27 to 30, 2024, the pre-congress course of the XVII World Congress of Micromorphology, and the V Latin American Course on soil micromorphology and complementary techniques was held in the National University of the Altiplano in Puno, Peru.
This course is sponsored by commission 1.1 Soil morphology and micromorphology, International Union of Soil Sciences. In this edition of the course, 20 international students participated.
The professors Juan Carlos Loaiza from the Department of Geosciences (Universidad Nacional de Colombia) - Colombia, Sergey Sedov, and Isabel Solleiro from Universidad Nacional Autonoma de Mexico (UNAM) – Mexico, Carmen Gutiérrez Castorena from the Escuela de Postgraduados in Mexico and Professor Edgar Gutiérrez Castorena from the Universidad Autonoma de Nueva León were in charge of teaching. The course was emphasis on the areas of earth sciences, geoarchaeology, agricultural sciences, environmental sciences, soils, biology, paleopedology, paleontology and related areas. In this course, in addition to the basic foundation, new advances in the area of micromorphometry, the study of soil organic matter and soil microcartography were addressed.

PHOTOS

Photo 1. Attendees of the V Latin American Course on soil micromorphology and complementary techniques held from November 27 to 30, 2024 in the city of Puno, Peru.

Photo 2. Opening of the course and conference by Professor Sergey Sedov from the Institute of Geology of the UNAM, Mexico.

Photo 3. Students during the practices of describing thin sections under the petrographic microscope at the Faculty of Geological Engineering of the UNA Puno -Peru.

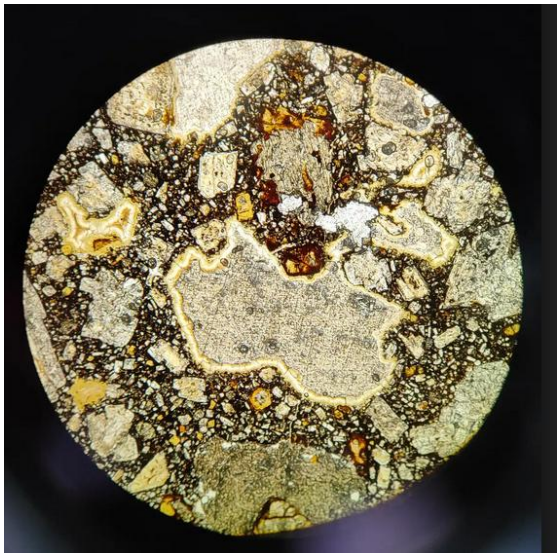


Photo 4. Thin section of soil under a microscope, opaline coatings in mineral.

Photo 5. Thin section preparation workshop led by Dr. Jaime Diaz (UNAM-Mexico).

Photo 6. Course teachers during the field trip to the Illpa experimental farm of UNA Puno, Peru. Prof. Edgar Gutiérrez Castorena (University of Nuevo León -Mexico), Isabel Solleiro (UNAM, Mexico), Juan C Loaiza (UNALMED), Tomasz Zaleski (URK – Poland), Jaime Diaz and Sergey Sedov (UNAM, Mexico from left to right, behind Prof. Gutiérrez Castorena (Postgraduate School, Mexico) and Sandro Sardon Nina (UNA Puno, Peru).

Photo 7. Field practices of characterization of soil profiles near Lake Titicaca in Puno, Peru during the course field trip.

Photo 8. Molllisol (Chernozem) polygenetic in the Peruvian pampas.

Photo 9. The Peruvian pampas correspond to an ecosystem with a dry temperate climate, whose rainy period occurs between December and March.

9th INTENSIVE TRAINING COURSE ON SOIL MICROMORPHOLOGY
Tremp, September 23rd – October 4th 2024

The 9th Intensive Training Course on Soil Micromorphology was organized by the Dept. of Environment and Soil Sciences and the Institute of Continuing Education of the U. of Lleida. It was possible thanks to the collaboration of the Centre de Suport Territorial de Tremp of the Institut Cartogràfic i Geològic de Catalunya and to the University of Barcelona. The teaching staff was composed by Profs. Cristina Villanova and Àngels Canals (Dept. Of Crystallography, Mineralogy and Mineral Deposits of the U. of Barcelona). Prof. Rosa M Poch, Prof. Ana M. Pelacho, MSc Daniela Álvarez and Tech. Sílvia Porras (U. Lleida), Prof. Fabio Scarciglia (U. Calabria) and Dr. Carolina Mallol (Archaeological Micromorphology and Biomarker Research Lab, U. La Laguna, Tenerife).

It was attended by 13 enthusiastic participants from ten countries (Austria, Brazil, Cameroun, China, Colombia, Italy, Slovakia, Slovenia, Spain, USA), with diverse backgrounds as agronomy, geology, geography, soil science, geomorphology and archaeology.

The lectures covered a broad spectrum of subjects, from basic principles of optical mineralogy to micromorphology of specific soil materials and applications to geology and geoarchaeology. Practical sessions included demonstrations of soil sampling in the field, visits to labs for preparation of thin sections and microscopy sessions.

The course was complemented by a presentation of the Geopark Origens where Tremp is located (Dr. Xavi Mir, Geoparc Orígens) and by a visit to the excellent soil monolith collection at the same center (Ing. Agnès Lladós, https://www.icgc.cat/en/node/22570)

The group showed great interest in the course, especially for the chance to ask about their research, to work with the different lecturers, and to share their experiences with their colleagues. They were eager to learn and worked hard with the microscopes, either with their own material or with sets of thin sections provided by the course. The course was a success in the sense that the participants learned the basic tools for the study of soil features and for the comprehension of

processes at a microscopical scale. Following the periodicity of these courses since 2007, this course will probably be offered again in the last trimester of 2026.

Rosa M Poch
Departament de Quimica, Física i Ciències Ambientals i del Sòl – Universitat de Lleida

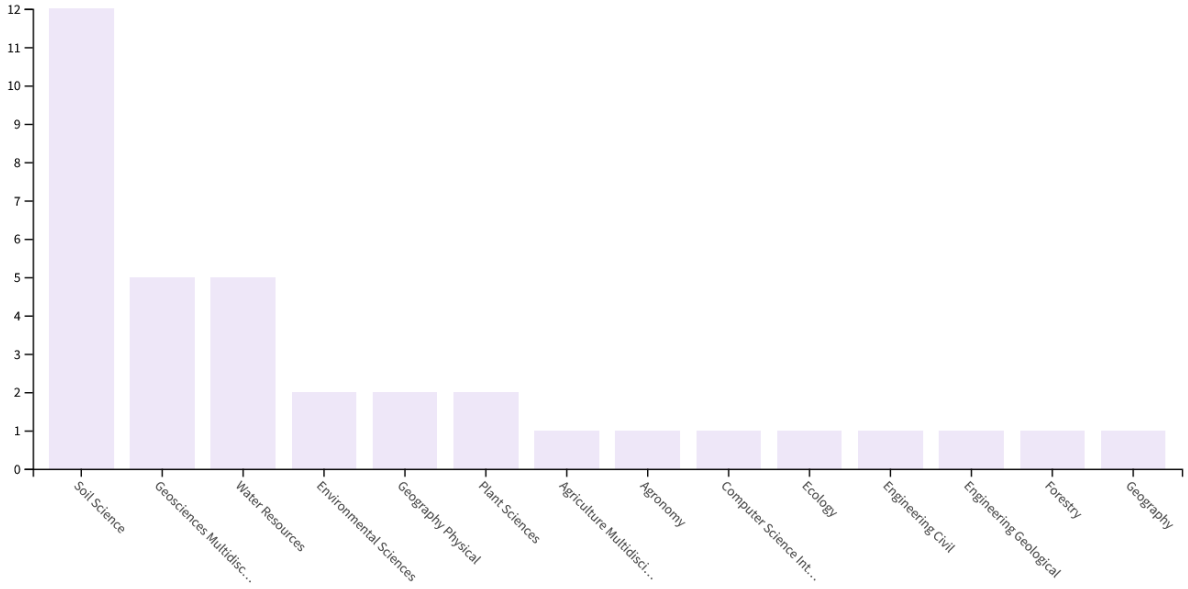
Group photo of the course (Photo: Lola Boquera)

View of the classroom (Photo: Lola Boquera)

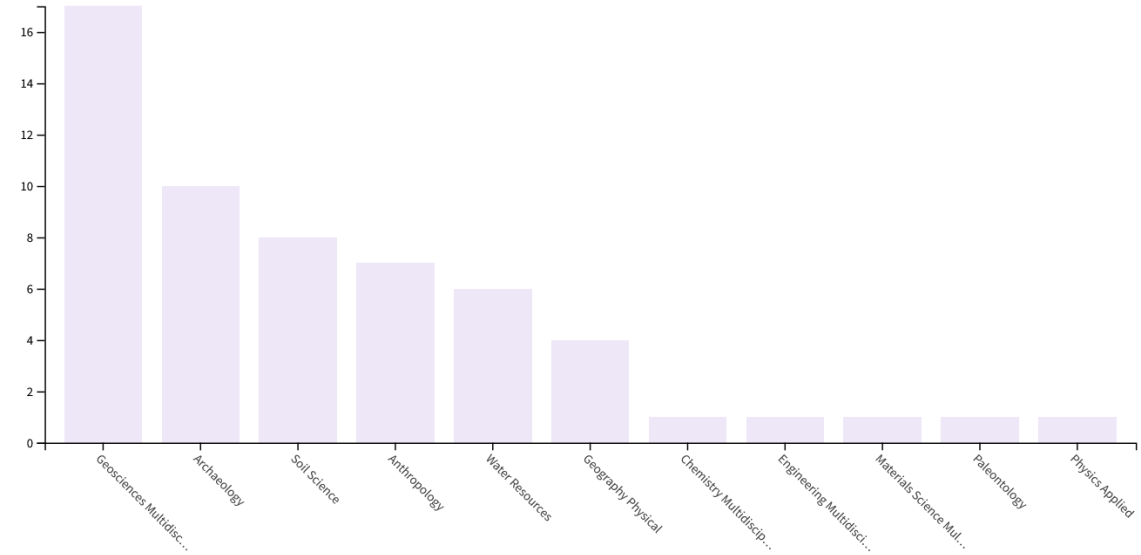
Visiting the soil monolith collection (Photo: Lola Boquera)

PUBLICATIONS, ADDITIONAL NOTES

Papers published in the last year (March 2024-March 2025) having “soil morphology” or “soil micromorphology” in the topic;



SOIL MORPHOLOGY



SOIL MICROMORPHOLOGY

The most quoted soil morphology papers (March 2024-March 2025)

Title	Authors	Source Title	Publicatic	Volume	Issue
SOC bioavailability significantly correlated with the microbial activity mediated by size fractionation and soil morphology in agricultural ecosystems	Xiao, Shujie; Gao, Jie; Wang, Qiuying; Huang, Zixuan; Zhuang, Guoqiang	ENVIRONMENT INTERNATIONAL	APR 2024	186	
Spatiotemporal Changes in the Erosion and Deposition Processes in a Small Catchment in the North of the Central Russian Upland	Golosov, V. N.; Shamshurina, E. N.; Kolos, G. I.; Petel'ko, A. I.; Zhidkin, A. P.	EURASIAN SOIL SCIENCE	MAY 2024	57	5
Soil Formation in the Early Pliocene by Data of the Alma-Peschanoe Loess-Soil Sequence, Western Crimea	Khmeleva, M. V.; Panin, P. G.; Frolov, P. D.; Tesakov, A. S.; Bukhonov, A. V.	EURASIAN SOIL SCIENCE	JAN 2024	57	1
Computed tomographic visualisation and 2D/3D microscopic evaluation of soil macro- and micromorphology	Pospisilova, Lubica; Pliskova, Jana; Jaques, Victory Armida Janine; Zikmund, Tomas; Sedlak, Lubos;	SOIL AND WATER RESEARCH	2024	19	3
Distribution and Pools of Soil Organic Carbon in Chernozemic Soils Impacted by Intensive Farming and Erosion in the Loess Plateau in South-East Poland	Łabaz, Beata; Kowalska, Joanna Beata; Kabala, Cezary; Kobierski, Miroslaw; Waroszewski, Jaroslaw; Dudek, Michal; Szopka, Katarzyna;	AGRONOMY-BASEL	NOV 2024	14	11
Relationship between extreme species richness and Holocene persistence of forest-steppe grasslands in Transylvania, Romania	Novak, Jan; Samonil, Pavel; Rolecek, Jan	HOLOCENE	NOV 2024	34	11
Leveraging ecological monitoring programs to collect soil and geomorphology data across the western United States	Martinez, P.; Brehm, J. R.; Nafus, A. M.; Laurence-Traynor, A.; Salley, S. W.; McCord, S. E.	JOURNAL OF SOIL AND WATER CONSERVATION	MAY-JUN 2	79	3
Model calibration using hydropedological insights to improve the simulation of internal hydrological processes using SWAT	Smit, Edward; van Zijl, George; Riddell, Edward; van Tol, Johan	HYDROLOGICAL PROCESSES	MAY 2024	38	5
Black Soils in the Eastern Mediterranean: Genesis and Properties	Hag Husein, Hussam; Baeumler, Rupert; Lucke, Bernhard; Sahwan, Wahib	GEOGRAPHIES	MAR 2024	4	1

The most quoted soil micromorphology papers (March 2024-March 2025)

Title	Authors	Source Title	Publication Date	Publication Year	Volume
Neolithic livestock practices in high mountain areas: A multi-proxy study of pastoral enclosures of Molleres II (Eastern Pyrenees)	Pescini, Valentina; Carbonell, Arnau; Colominas, Lidia; Eguez, Natalia; Mayoral, Alfredo; Palet, Josep Maria	QUATERNARY INTERNATIONAL	FEB 20 2024	2024	683
The geoarchaeology of seismically triggered soft sediment deformation structures (SSDS)	Gaggioli, Amanda M.	JOURNAL OF ARCHAEOLOGICAL SCIENCE	MAY 2024	2024	165
Late Pleistocene pedogenesis and loess magnetism in northwestern Ukraine	Bonchkovskyi, Oleksandr; Hlavatskyi, Dmytro	QUATERNARY RESEARCH		2025	
Roman farmers in eastern Iberia: A spatial, geoarchaeological and bioarchaeological approach to agrarian strategies	Mira, Ignasi Grau; Gutierrez-Rodriguez, Mario; Saez, Jose Antonio Lopez; Portillo, Marta; Gallello, Gianni; Sarabia-Bautista, Julia	QUATERNARY INTERNATIONAL	JUL 30 2024	2024	699
A multi-proxy geochemical and micromorphological study of the use of space and stratigraphy of a Viking-age house in Ribe, Denmark	Trant, Pernille L. K.; Wouters, Barbora; Croix, Sarah; Sindbaek, Soren M.; Deckers, Pieterjan; Kristiansen, Soren M.	ARCHAEOLOGICAL AND ANTHROPOLOGICAL SCIENCES	APR 2024	2024	16
Magnetic micro-archaeology: a method for conducting rock magnetic microfacies analysis on archaeological soil micromorphology samples, with a case study from El Salt, Alcoy, Spain	Dinckal, Ada; Carrancho Alonso, Angel; Hernandez Gomez, Cristo M.; Mallol, Carolina	ARCHAEOLOGICAL AND ANTHROPOLOGICAL SCIENCES	MAR 2024	2024	16
Paleosol distribution and morphology along a late Cretaceous distributive fluvial system in the Bauru Basin, Brazil	de Oliveira, Emerson Ferreira; Batezelli, Alessandro; Zinn, Yuri Lopes	JOURNAL OF SOUTH AMERICAN EARTH SCIENCES	MAR 2024	2024	135

Books

Phillips, E. and Menzies, J. (eds.) 2025. Micromorphology: a practical guide to the microscale analysis of glacial sediments and processes. Quaternary Research Association, London. ISSN: 0264 9241, ISBN: 0 907780 296 24222.

The book provides students and researchers with a clear and accessible guide to the microscale analysis of glacial sediments to aid their understanding periglacial and subglacial to ice-marginal processes. It covers all aspects of the microscale analysis of glacial sediments and processes. The first part of the book provides guidance on sample collection and the preparation of thin sections, followed by a clear description of how to describe glacial sediments under the microscope. This not only includes an introduction to mineralogy and the range of microtextures and microstructures seen under the microscope, but also detailed instruction on applying a range of techniques which can be used in the digital analysis of glacial sediments in thin section. The second part of the book uses detailed case studies to show how micromorphology can be used in glacial sedimentology and sediment provenance, as well as understanding glacial and periglacial processes such as soft-sediment deformation, the evolution of sediment-filled hydrofractures and the formation of subglacial tills.
The book is being published by the Quaternary Research Association (QRA) here in the UK. The book will be sold via the QRA's web site and online bookshop at https://www.qra.org.uk/bookshop/ with all proceeds going to support future Quaternary research/science.
Text by Emrys Phillips (he has been research scientist at the British Geological Survey).

Database

I-GEOARCHive: A new image database for profile photos to microscope images

I-GEOARCHive, an open access image database, is now online. A team from the University of Basel and the Vrije Universiteit Brussel, in cooperation with DASCH (Swiss National Data and Service Centre for the Humanities; https://www.dasch.swiss/), has created an online database designed for micromorphology. The aim of this database is, on the one hand, the long-term and secure storage of digital images and, on the other hand, to make data and images accessible for research and teaching. In this way, a digital, high-resolution image reference collection will be developed that is freely accessible to everyone all over the world.

The online database is based on six different levels that are linked to each other:

(1) Excavation: Information on the archaeological excavation

(2) Profile: Images, documentation and information on the profile

(3) Sample: Images, documentation, layers and information on the block sample

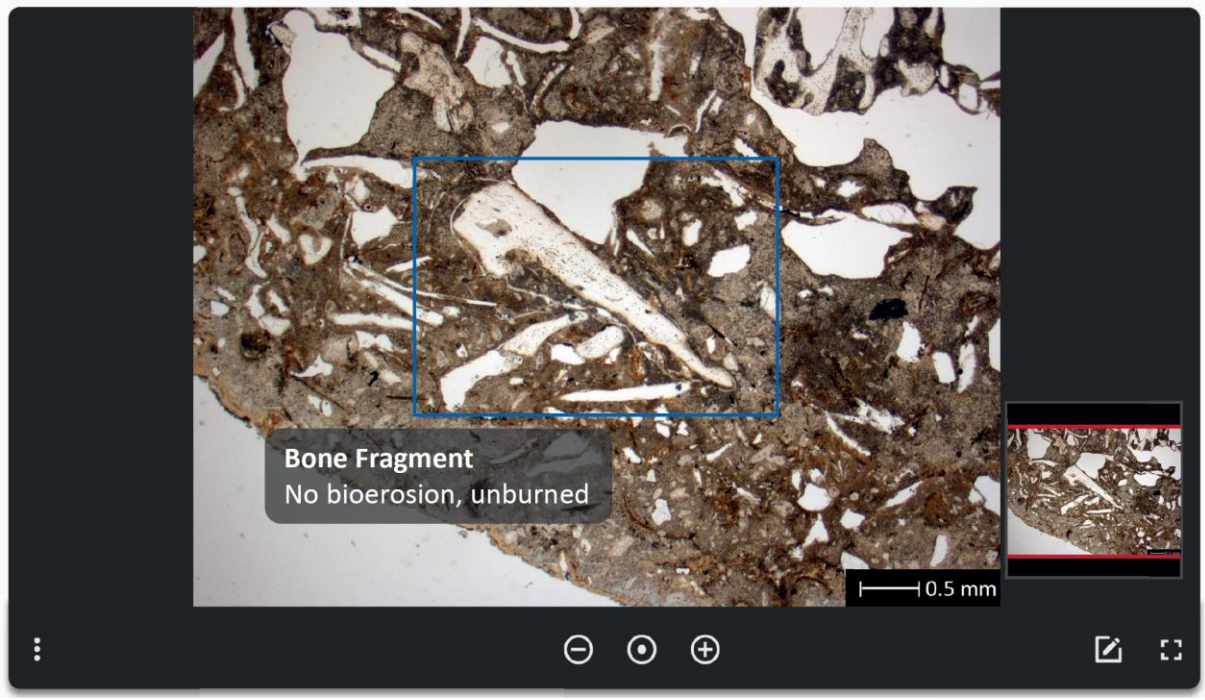
(4) Thin section: Thin section scan, description (keywords) and petrography (keywords)

(5) Micromorphological Unit (Layer): Description (keywords) and interpretation (keywords)

(6) Microscopic image: Images (different filters), description (keywords), petrography (keywords), interpretation (keywords) and annotations (see figure)

The description of layers (micromorphological units), thin sections and microscopic images is carried out using a hierarchical thesaurus (> 800 keywords). The same applies to the interpretation of a layer (> 300 keywords) and for petrography (125 keywords).

All datasets can be searched using a full text search or an advanced search. In This way, all microscopic images with, for example, bone fragments can be displayed. Each image and each data record gets a permanent link.



Example of how a microscopic image is displayed in I-GEOARCHive (level 6; microscopic image). The image shows a detail of a possible dog coprolite with bone fragments embedded in it. Areas in the image can be marked and described (annotation; blue inset).

The I-GEOARCHive online database can be reached as follows:
https://www.dasch.swiss/project/i-geoarchive (home page)
https://app.dasch.swiss/project/n0eRr0vWTDOArdaBAZ-jQQ (data)
https://meta.dasch.swiss/projects/0838 (metadata)
Contact: david.broennimann@unibas.ch

Literature

Lo Russo, S., Brönnimann, D., Pümpin, C., Ismail-Meyer, K., Rentzel, P., Gautschy, R., Wimmer, J., Devos, Y., Nys, K., 2024. Recording, sharing and linking micromorphological data: a two-pillar database system. Open Archaeology 10 (1).

NEXT INTERNATIONAL SOIL CONFERENCES CONNECTED TO COMMISSION 1.1 ACTIVITIES

International Soil Science Conference (SOILS 2025)

The Malaysian Society of Soil Science (MSSS) will host the International Soil Science Conference (SOILS 2025) at Bertam Resort & Water Park, Penang, Malaysia, from 6th to 8th May 2025.
SOILS 2025, themed "Soil Health for Sustainable Future: Bridging Soil, Agriculture, and Environmental Stewardship," aims to foster discussions on tropical soil sustainability.

More information related to the seminar is also announced on the MSSS website:https://www.msss.com.my/

Soils For Our Future

A Gathering of Global to Local Perspectives
July 20-25, 2025, RBC Convention Centre, 375 York Avenue; Winnipeg, Manitoba Canada

The SOILS FOR OUR FUTURE 2025 Conference brings together three conference events; 5th Global Soil Security Conference, Canadian Society of Soil Science Annual Meeting, and International Union of Soil Sciences Division 1 - Soils In Space and Time Meeting.
Contact: soils2025@mbsoils.ca
website : https://soilsforourfuture.ca/