Dear Colleagues,

Welcome to the October 2015 newsletter, the last one of this International Year of Soils. You will find comprehensive information about our Soil Micromorphology Meeting to be held in Mexico at the end of 2016. We thank the organizing committee for their timely preparations. Both the scientific programme and the excursions look terrific, so I encourage everybody to participate since it undoubtedly will be a unique experience from many points of view.

Also, I want to draw you attention to the scanned collections of thin sections of WL Kubiëna and J Benayas, that are available through the web pages of the CSIC (Spain) thanks to the effort of Em. Prof. Carlos Dorronsoro. Take your time to look at them, it’s really addictive! I take this opportunity to tell you about the value of these types of scanned collections. I really believe that if we had a good database of soil thin section collections around the world, it would significantly increase the advance of soil micromorphology. In the April 2012 newsletter, I reported that George MacLeod (U Stirling) had created a framework to register such collections. Although the page he developed is very good, few people have visited the site or registered their collections to date. I hope to be able to speak about that in our next meeting in Mexico.

Finally, I want to welcome the contribution of “El Canonge de la Seu” to our “The Last Page”. He is the alter ego of a well-known soil scientist and SOM specialist that has agreed to share with us his unique and wonderful drawings. Thank you very much!

Rosa M Poch

Chair, IUSS Commission Soil Morphology and Micromorphology
<table>
<thead>
<tr>
<th>CONTENTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter from the Chair</td>
<td>3</td>
</tr>
<tr>
<td>Forthcoming Meetings and Congresses</td>
<td>5</td>
</tr>
<tr>
<td>Research Notes and Publications</td>
<td>17</td>
</tr>
<tr>
<td>Forthcoming Courses</td>
<td>24</td>
</tr>
<tr>
<td>Past Courses</td>
<td>25</td>
</tr>
<tr>
<td>Thin Section Collections</td>
<td>29</td>
</tr>
<tr>
<td>The Last Page</td>
<td>30</td>
</tr>
</tbody>
</table>
FORTHCOMING MEETINGS AND CONGRESSES

15TH INTERNATIONAL CONFERENCE ON SOIL MICROMORPHOLOGY
Universidad Nacional Autónoma de México (UNAM). Colegio de Postgraduados. With mid- and post-conference field trips. Mexico city, November 27-December 5 2016

First announcement

Fifty-eight years ago the first Meeting on soil micromorphology summarized research into soil components, features and processes at micro-scale. Today, new application fields, beyond the “micropedology” give new impetus to micromorphology: environmental sciences, geoarchaeology, forensics, new materials research, among others. The 15th International Conference on Soil Micromorphology (15ICSM) to be held in Mexico, intends to develop these opportunity fields together with traditional research themes.

Conference organizers

- International Union of Soil Science, Division 1. Soil in Space and Time, Commission 1.1 - Soil morphology and micromorphology; 1.3 - Soil Genesis, 1.6 - Paleopedology.
- La Sociedad Mexicana de la Ciencia del Suelo.
- Instituto de Geología, Universidad Nacional Autónoma de Mexico (UNAM).
- Colegio de Posgraduados, Campus Montecillo, Texcoco Estado de México.

National organizing committee

- Sergey Sedov, Chairman. Instituto de Geología, UNAM. serg_sedov@yahoo.com
- Héctor Cabadas, Secretary. Universidad Autónoma del Estado de México. hvcabadasb@uaemex.mx, geocabadas@hotmail.com
Honorary Scientific Committee


Scientific Committee


Scientific Program

The Preliminary Program follows recommendation of the Business Meeting of the last 14th IWMSM to amplify significantly the scientific scope of the forthcoming Conference. It integrates corrections, comments and proposals of various experts in different fields of soil micromorphology and now is offered as the base for abstract submission. The final Program will depend upon the number of submitted abstracts: the topics could be left unchanged, split, joined together or cancelled to produce the list of scientific sessions in May 2016.

1. Soil ecosystem and agrosystem services: micromorphological criteria for soil quality, soil degradation, sustainable functioning specified for different soil and land-use types.

2. Micromorphology of key pedogenetic processes. Linking microscopic observations and analytical data for process identification and modeling, among them:
   - Microscopic features of mineral alteration and geochemical indices of weathering.
   - Pedogenic carbonates formation as identified by their crystal morphology and geochemical signatures.
   - Quantitative assessment of the degree of soil formation through micromorphological analyses, possibly combined with other techniques.
   - Detecting recent changes in soils, caused by changes in climate, vegetation, land-use and other factors.
Combination and interaction of diagnostic features of different processes on micro-scale. Microscopic evidences for developing polygenetic models of soil formation and tracing soil evolution pathways.

2a) Regional problems of micromorphological studies of soil genesis and soil classification:
- Soils of tropical and arid regions
- Soils and geomorphic processes in karstic and volcanic landscapes

2b) Contribution of micromorphology to national and international soil classifications: reality and potential.

3. Microscopic indicators of incipient pedogenesis on natural and artificial surfaces, biofilms.
   Micromorphological methods are especially effective for identification of the earliest stages of the soil and regolith development. This topic includes studies of:
   - Biocrust development in natural extreme environments: periglacial environments of Antarctica and Greenland, hyper-arid deserts, high mountains.
   - Early soil and ecosystem development on the fresh surfaces in profoundly disturbed landscapes (quarries and tailings, eroded land surfaces, military polygons etc.).

4. Soil-biota interactions on microscale:
   - Rhizosphere – soil interface processes.
   - Effects of mesofauna on soil porosity and aggregation; feeding features.
   - Bacterial films, excellular polymers as agents of soil microstructure development.
     Mineral and organic biogenic components, materials and features under microscope: biomineralization, opaline phytoliths, plant tissues, microfossils as a record of ecosystem dynamics.

5. Pedogenesis of anthropogenic soils and ecosystems: micromorphological features and indicators in soils of urban landscapes, industrial zones, landfill sites, agricultural substrates
   Contaminants on microscale documented by microanalysis: towards understanding of migration and adsorption processes and sites
   Biodegradation of artificial materials in soil and soil-like systems, biodeterioration of historical monuments.

6. Micro-paleopedology: paleosol-sedimentary sequences (loessic, volcanic, alluvial) and surface paleosols under the microscope. Micromorphological tools to improve resolution of paleopedological records and correlate them with global climate proxies. Micromorphological indicators of past environmental conditions.

7. Archaeological soil micromorphology: site-formation processes, ancient cultural landscapes, microartifacts; problems of conservation of archaeological heritage.

8. Novel methods and techniques and quantitative approaches in micromorphological research and problems they may help to solve:
- Combining microscopy and microanalytical techniques: micro XRF, micro XRD, micro gas chromatography/mass spectrometry on undisturbed samples and thin sections
- X-ray tomography and perspectives of three-dimensional soil micromorphological analysis.
- New opportunities in electron microscopy and microanalysis, experiences in applying environmental SEM and tunnel electron microscopy to soil objects.
- Computer techniques of micromorphometric research: towards quantification of porosity, structure, pedofeatures.

9. New opportunity fields for soil micromorphology:
- Application of micromorphology to geology and material science
- Forensic applications.
- Extraterrestrial regoliths.
- Subaqueous soils – can they be sampled and studied in thin sections?

9a) Micromorphological evidences of natural and technogenic catastrophes. Short-term but violent events, both natural (meteorite falls, volcanic eruptions, earthquakes, hurricanes, tsunamis) and human-induced (nuclear tests, industrial catastrophes, military clashes) catastrophic events, affect dramatically landscapes and societies. Soils and near-surface terrestrial sediments receive the materials and impacts generated by catastrophic events which produce recognizable and persistent microscopic evidences. Study of these features and linking them to the type and scale of the catastrophic processes both recent and ancient are expected within this topic.

Conference Schedule

The Conference organizers are planning a four-day program of oral and poster sessions, a micromorphology course and two (mid and post) conference tours.
- November 26-27, 2016. Micromorphology course with special attention to tropical, arid and volcanic soils and paleosols.
- November 28-30, 2016. Registration, scientific sessions. Conference oral and poster sessions at UNAM, Mexico City.
- December 1st., 2016. Mid-conference excursion
- December 2nd., 2016. Scientific sessions, Business Meeting of Commission 1.1. Soil Morphology and Micromorphology
- December 3-5, 2016. Post-Conference excursion.

Both oral and poster presentations are welcome.
Conference tours

1. Mid-conference one-day field trip to Cuicuilco and San Gregorio site (South of Basin of Mexico) archaeo-urban soils in archaeological sites. In these sites we can observe:
   - Properties of the paleosols buried beneath the lava flow of Xitle volcano.
   - First urban center in the south of Basin of Mexico
   - Soil diversity and landscape evolution before and after the eruption of the Xitle volcano.
   The cost is included in the registration fee.

2. Post-conference three-day field trip from Teotihuacan. It includes the visit to Teotihuacan archaeological zone. This excursion covers soil topo-chrono-climosequences, formed from different volcanic materials and the relation with archaeology.
   - First day. Teotihuacan archaeological zone: Visit to the key section of the Black San Pablo Paleosol — the soil used by the Teotihuacans. Visit to Cerro Gordo and Sierra Patlachique to observe the oldest paleosols in the valley and the intensive erosion processes of the area.
   - Second day. Tlaxcala - Barranca Tlalpan: The oldest volcanic paleopedological record in Mexico with the Brunhes-Matuyama boundary inside the sequence.
   - Third day: Tepetates (indurated volcanic materials) at Texcoco and their functioning in the agroecosystems.
   The cost of this three-day excursion is 250 €.
   The payment should be done by a bank deposit to the account, indicated below, before June, 2016.

Registration fee before June, 2016

The early registration fee for full participants at the Conference will be 200 €; the student fee will be 150 €, with appropriate verification of student status. This will cover all sessions, abstract volume, program, bag with conference materials, coffee during breaks, lunches during the session days, transportation from sede-hotel to meeting place and from meeting place to the hotel at the beginning and the end of sessions.

Registration after June 1st, 2015: an additional fee of 30 € will be added to the above mentioned conference fees.

Payment of registration and excursion fees should be made in € by bank deposit to:

- **Transfer in USD**
  
  **Bank name:** JP Morgan Chase Bank, N.A.
  
  **Account name:** Universidad Nacional Autónoma de México
  
  **Client address:** Torre de rectoría, piso Mezzanine, Colonia Ciudad Universitaria, Delegación Coyoacán, Mexico City, 04510, México
  
  **Banks address:** 2900 Woodridge, 1st floor, Houston, Tx 77087,USA
Account number: 00101693118  
ABA or Routing number: 111000614  
SWIFT or IBAN: Chasus33

- Transfer for national participants

Bank Name: BBVA Bancomer  
Account number: 0446634494  
Office: 7684  
Plaza: 001 Cd. de México  
CLABE: 012 180 00446634494 2  
Address: Bancomer SA, Av. Universidad 1200 Col. Xoco CP 03339, México DF.  
Beneficiary: Universidad Nacional Autónoma de México

Please note that the sender must pay all bank charges. Once you have made the transfer, scan the voucher and send it by email to Héctor Cabadas hvcabadasb@uaemex.mx; geocabadas@hotmail.com or Georgina Ibarra gigiotes81@yahoo.com.mx.  
Indicate in the receipt the kind of payment: registration fee or (pre, post) conference excursion.  
The delivery of this receipt is necessary in order to confirm your registration.

Abstracts

Contributors are invited to submit their papers electronically. Please prepare your abstract in English, Times 12 font, single spaced on one letter-size page including line drawings, tables, etc., within the format 2 cm free space on each margin.

Contributors will be informed within 4 weeks about acceptance as oral or poster presentation. A booklet of abstracts will be issued at the start of the meeting.

All abstracts must arrive latest by May 31st, 2016.

Each oral presentation will be 15 minutes in length and 5 minutes for questions. Computer system for Power point presentations are available. If you need additional equipment contact us.

The posters will stay on exhibition during the complete symposium. A special session for poster presentations is planned. Boards for poster presentations are 90 cm wide and 120 cm long, vertical orientation.

Accommodation

Several hotels and hostels in Coyoacán—the touristic area of Mexico City will be offered for accommodation of participants. The approximate prices are given in the examples below. Further information will be available at the Conference site and in the second announcement.
**HOTEL**

<table>
<thead>
<tr>
<th>HOTEL</th>
<th>Price per night (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostal Frida</td>
<td>Single/double room: 55 USD including taxes</td>
</tr>
<tr>
<td>Mina No. 54, Col. del Carmen Coyoacán C.P. 04100, México D.F. Tel: +52 (55) 5659 7005 Cel: +52 (1) 55 1649 9568 Cel: +52 (1) 55 9199 0161 <a href="http://www.hostalfridabyb.com">http://www.hostalfridabyb.com</a> <a href="mailto:hostalfrida@gmail.com">hostalfrida@gmail.com</a> or <a href="mailto:reservaciones@hostalfridabyb.com">reservaciones@hostalfridabyb.com</a></td>
<td></td>
</tr>
</tbody>
</table>

Passport and visa requirements

Please, to verify if your country of citizenship requires visa, follow the next link of the Mexican Ministry of Foreign Affairs:


In case you need visa to enter the country, please find the steps to get it here:


**IMPORTANT DEADLINES**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 March, 2016</td>
<td>Second announcement</td>
</tr>
<tr>
<td>31 May, 2016</td>
<td>Submission of registration form</td>
</tr>
<tr>
<td>31 May, 2016</td>
<td>Abstract submission</td>
</tr>
<tr>
<td>1st. August, 2016</td>
<td>Notification about visa support</td>
</tr>
<tr>
<td>September, 2016</td>
<td>Abstracts acceptance and publication of the 3rd Announcement</td>
</tr>
<tr>
<td>June, 2016</td>
<td>Payment of reduced registration fee</td>
</tr>
<tr>
<td>August, 2016</td>
<td>Payment of the excursion fees</td>
</tr>
</tbody>
</table>

The conference site will be opened before december 10, 2015

Where additional information about venue, accommodation and support for young scientists will be included.

Conference languages will be English, no translation will be available.

All colleagues interested in participation in this Conference are asked to fill the registration form at the end of this Announcement and send it back by e-mail to this address:

Dr. Héctor Cabadas
E-mail: 15icsm@geologia.unam.mx
Registration form

Please fill and send this registration form to Héctor Cabadas before May 31st, 2016.

I intend to participate in the International “15th International Conference on Soil Micromorphology” 15ISCM in Mexico City, November 27-December 5, 2016.

Name: _______________________________________________________________
Institution: __________________________________________________________
Postal Address _______________________________________________________
Phone ___________________________ Fax _________________________________
E-mail ______________________________________________________________

I intend to submit a paper entitled:
Oral: ________________________________________________________________
Poster: ______________________________________________________________

I intend to participate in Conference tours:
Pre-Conference ____ Post-Conference ____

Date: ___________________________ Signature: ____________________________
REGISTRATION OPEN!

From the letter of the President of ECSSS and EUROSOIL 2016, Prof. Dr. Ahmet Mermut

EUROSOIL 2016 will be a unique opportunity to provide an outstanding setting for all participants including young soil scientists, researchers, technical and Professional operators, company representatives and policy makers to share their projects, scientific experiences, innovations and ideas about the soil science.

The choice of the keynotes and invited speakers who will be chosen from not only Europe but all continents of our globe will set high standard and new visions in the field of soil science. Sessions covering all aspect of soil science and social and cultural events will help culminating the success of the Congress.

One of the most important aspects of the Istanbul congress is the “Young Soil Scientists Forum” in the Congress Progamme. We hope the young soil scientists drafting a declaration that can be published for the future of world soil science.

We are looking forward to recive participants from all over the world in Istanbul and to help us making all together the congress an unforgettable scientific event and feel the fascinating atmosphere of this world metropolis.

http://www.eurosoil2016istanbul.org/
We are pleased to inform you about the venue of a conference on 2015 December 8 at Paris in honour to the memory of Nicolas Fedoroff. This one day meeting is entitled “Empreinte des climats et des hommes dans les sols et paléosols – Mémoires de nos jardins”. (“Footprint of the climates and men on soils and paleosols – Memories of our gardens” It is organized by the French association for Quaternary studies (AFEQ) and the French Association for Soil Science (Afes). It will be held at the French Academy of Agriculture.

Please find enclosed the programme (mostly in French) of the conference and the poster announcement.

This special day will give us the chance to once more illustrate the potential of microscopic techniques for deciphering soil memories from past periods, revealing the impact of ancestral and present human activities and exchange about the ongoing evolution of soils.

Please contact Marie-Agnès Courty marie-agnes.courty@promes.cnrs.fr for information and registration (free).

Programme

Michel-Claude Girard et Marie-Agnès Courty. Accueil des participants et introduction de la journée “Les clés de la mémoire des sols: l’héritage de Nicolas Fedoroff”.

A. Paléosols, paléoclimats et occupations humaines

Pierre Antoine et Sylvie Coutard. Paléosols et complexes de paléosols des régions loessiques de la France septentrionale: archives paléoclimatiques et contexte environnemental des occupations paléolithiques.

1. Voir www.academie-agriculture.fr/
Mathieu Rué et collaborateurs. Paléosols pléistocènes et occupations humaines en contexte de dépôt condensé: apports et limites de la micromorphologie à l’étude de sites paléolithiques du Bassin aquitain.

Eric Boëda et collaborateurs. Paléosols, paléoclimats, ressources naturelles et occupations humaines au cœur du désert syrien: 100 000 ans d’histoire.

Yin Qiuzhen et Guo Zhengtang. Les sols rouges vermiculés du sud de la Chine, indicateurs d’une mousson exceptionnellement forte en Asie du sud-est au Pléistocène moyen.

B. Sols et anthropisation des paysages: approche historique


C. Terres de jardins, mémoires de notre Histoire


Cécilia Cammas, Carole Vissac et Richard Macphail. Approche géoarchéologique de la gestion des sols des espaces non bâtis en milieu urbain et périurbain.


Marie-Agnès Courty. Eclairage de la mémoire de nos jardins sur l’évolution future des sols.
INTERNATIONAL WORKSHOP ON ARCHAEOLOGICAL SOIL MICROMORPHOLOGY

2016, May 26-29. Masaryk University, Institute of Geology Academy of Sciences of Czech Republic, Mendel University and Czech Geological society. Brno, Czech Republic

FIRST ANNOUNCEMENT

The department of Earth Sciences, Faculty of Sciences, Masaryk University in Brno, Czech Republic will be hosting the 2016 Workshop on Archaeological Soil Micromorphology in their building on Kotlářská 2 in Brno. Like the previous workshops, most of the time will be reserved for “microscope time”. Therefore presentations will mostly be in the form of posters. Everybody will have a chance to present her/his own thin sections provided for the workshop microscoping. All participants are therefore strongly encouraged to bring along their own thin sections. E.g. slides they are currently working on, which they want to discuss or that may be instructive for other participants.

The preliminary excursion programme includes Roman temporary camps near Mikulov, Dolní Věstonice last climatic cycle section and Early Medieval Great Moravia site in Mikulčice.

We hope to see you in Brno!

On behalf of the organizers,

Lenka Lisá and Aleš Bajer lisa@gli.cas.cz; bajer@mendelu.cz

Preliminary programme

Monday 26: Evening registration & reception
Tuesday 27: Sessions
Wednesday 28: Sessions; dinner
Thursday 29: Excursion

We have room for 30 participants.

Costs are 50 EURO pp. (incl. lunches, excl. dinner and excursion)

Announcements and registration will appear on: www.gli.cas.cz/kvarter/micromorphology.html
Thin-section (micromorphological) analysis of samples from the upper 1.5 m of a core obtained in 2007 from Anderson Pond, Tennessee reveals a coherent 15,000 yr record of late Pleistocene to Holocene climate change supporting interpretations from previous pollen and charcoal records from the site, paleoclimate records from correlative floodplains, as well as a high-resolution speleothem record from Raccoon Mountain Cave, Tennessee. Legacy sediments recording Euro- and Native American (?) disturbance dominate the upper 60 cm of the core (<1600 cal yr BP) and are characterized by mixed, darker-colored and coarser-grained deposits containing reworked soil aggregates, which sharply overlie finer-grained and lighter-colored, rooted Middle and Early Holocene sediments. Middle Holocene sediments (60-90 cm) record extensive warm-dry subaerial soil conditions during the Middle Holocene Thermal Maximum, manifested by illuviated clay lining root pores, and also contain the highest charcoal concentrations (avg. count: XX). Late Pleistocene sediments (100-150 cm) are very dark-colored and very organic-rich recording open-water conditions, and include siliceous aggregate grains at 121-148 cm (13,950-14,400 cal yr BP) recording fires. Although not commonly used in lacustrine paleoclimate studies, we advocate a multi-analytical approach involving use of thin sections, in addition to more standard methods, because of enhanced resolution of depositional and pedogenic processes.
Abstract

A strong earthquake (Mw=6.3) destroyed and damaged many constructions of L’Aquila town (Central Italy) and its surrounding districts in the 6 April 2009. 309 people were killed.

Work on the post-earthquake reconstruction led to the execution of a large number of geological, geotechnical and geophysical surveys, aimed also to the knowledge of the geotechnical properties of the
soils and rocks occurring below L’Aquila town and to get more information on their behaviour against future dynamic stresses.

Detailed analysis of data from 448 boreholes allowed the characterization of a geological unit neglected and scarcely described in previous studies, here informally named “Limi Rossi (Red Silts) of L’Aquila”.

Geological, geotechnical as well as pedological criteria and devices performed the study of the Limi Rossi unit that are really clayey silts and silty clays after geotechnical classification. Pedological information was carried out using the polarizing microscope on 13 undisturbed samples. Results suggested that Limi Rossi unit represents one or more buried soils derived from the strong dissolution of a carbonate substratum during an interglacial climatic condition before 560 ky. Similar soils (Alfisols and Ultisols), even if less weathered, are also occurring today in the environs of L’Aquila and in many places of the Mediterranean Region.

Moreover the microscopy analysis of some hundred micro-photos pointed out the occurrence of more recent soil features as the break of quartz and feldspar crystals, the formation of frequent macro coatings and others, which could be attributed to periglacial conditions. Finally, other features still more recent of the previous ones, as the mechanical deformation and reorganization of the silt and clay dominions, suggest that all investigated material were subject to a dynamic stress as the putting in motion of faults or a strong earthquake.

This note besides a better knowledge of the Limi Rossi unit in relation to its distribution and cronostratigraphic definition, again points out the noteworthy relevance of the soil micromorphology contents for an accurate and correct interpretation of micro features induced by seismic events on soft-geologic material.

Thick coatings of light clay (macro-coatings), probably due to strong waters circulation during deglaciation. The base of each photo is 100 µ.
Deformation and rupture of the silty-clay coatings and infillings of alluvial origin. The base of each photo is 100 µ.

THE NEW CUTSPROF SAMPLING TOOL AND METHOD FOR MICROMORPHOLOGICAL AND MICROFACIES ANALYSES OF SUBSURFACE SALT MARSH SEDIMENTS, ALGARVE, PORTUGAL

João Araújo-Gomes, Ana Ramos-Pereira
IGOT, Centre of Geographical Studies, University of Lisbon, 1600214 Lisbon, Portugal
e-mail: joaopgomes@campus.ul.pt


A new tool and method for collecting undisturbed subsurface samples in estuarine environments by means of trenching, timbering and sectioning is presented. Smoothing of sidewalls is achieved by a so-called cutting sediment profiler (CutSprof), while water draining into the trench is cleared by pumping. From smoothed sidewall sections, undisturbed thin sediment slices can then be collected for micromorphological and microfacies analyses. Results demonstrating the successful application of this procedure are presented for salt marshes of the Bensafrim River estuary (Lagos, Algarve, Portugal). In addition to palaeo-reconstructions in salt marsh settings, the CutSprof would be highly suitable in various other research domains as well as for environmental management purposes, particularly where sampling below the groundwater table is desirable to explore, for example, animal–sediment relationships in tidal-flat and mangrove ecosystems as well as the dynamics of coastal wetlands today threatened by ever-increasing anthropogenic influence.
Ironstones or petroplinthites are common materials in soils under humid tropical climate, generally defined as the result of Fe oxide accumulation in areas where the water table oscillates, and may exhibit considerable morphological variability. The aim of this study was to examine the internal structure and porosity of an ironstone fragment from a Petroferric Acrudox in Minas Gerais, Brazil, by computed tomography (CT) and conventional techniques. The sample analyzed had total porosity of 59.5 %, with large macropores in form of tubular channels and irregular vughs, the latter with variable degrees of infilling by material released from the ironstone walls or the soil matrix. The CT scan also showed that the ironstone has wide variation in the density of the solid phase, most likely due to higher concentrations or thick intergrowths of hematite and magnetite/maghemite, especially in its outer rims. The implications of these results for water retention and soil formation in ironstone environments are briefly discussed.
The saprolite is a geological body constituted by the mixture of primary and secondary minerals resulting of physical and chemical weathering, which retains traces of the original rock structure. It differs from the soil by the evident litogenetic affiliation and insignificant biological activity. Although the definitions, however, the limit and the distinction between soil and saprolite are not always clear, because the continuity between these bodies in terms of hydrological and geochemical processes, as well as their physical and mineralogical compositions, which creates great confusion in morphological descriptions and information network. Due to the multidisciplinary nature of the sciences involved and the partial dedication of all of them in the saprolite investigations, there is a great lack of standardization of terms and procedures for characterization and analysis. The overall objective of this thesis is the
characterization of saprolite developed from various lithologies in order to draw up procedures for the
description, classification and saprolite analysis. Specifically aimed to evaluate in detail the patterns of
physical, mineralogical and geochemical changes in some materials influenced by lithological attributes
how the mineralogical and chemical composition, as well as the structure of parental material. For this
were described and sampled 15 weathering profiles, composed of soil, saprolite and rock derived from
sedimentary and metamorphic rocks in southeastern Brazil, in the states of São Paulo and Minas Gerais.
The descriptions shown that saprolite evaluated can be grouped into four main morphological types,
proposed the following structural categories: continuous, fractured, fragmented and earthy. Among all
evaluated saprolite, those derived from metamorphic rocks showed higher morphological complexity.
Thus, 9 affiliated profiles schists and gneisses to have been subjected to physical, geochemical and
mineralogical analyzes to evaluate the change processes and to developing the classification system
of saprolites. The mineralogical composition of soils and saprolite was similar, however, there were
dissimilarities regard geochemical attributes between this bodies. Physical properties such as density
and porosity showed no significant differences between soil and saprolite, however, when considered
in isolation saprolite samples, there was a positive correlation between weight loss and total porosity,
making this last attribute able to integrate the proposed saprolite classification.
FORTHCOMING COURSES

COURSE

Archaeological Soil Micromorphology Training Course

Institute of Archaeology, University College London, UK. Training Week: 9th-13th November 2015
Practice Week: 16th-20th November 2015 There will be updates on: http://www.ucl.ac.uk/archaeology/studying/continuing/courses/micromorphology.

The course includes studies of Maya lime plaster floors, salt processing and Dark Earth formation at Marco Gonzalez, Ambergris Caye, Belize.


Contact: r.macphail@ucl.ac.uk

Please note that The Practice Week: 16th-20th November 2015 – has only 2-3 places left.
INTENSIVE TRAINING COURSE ON SOIL MICROMORPHOLOGY
Zagreb, 17 August-28 August 2015

The Intensive Training Course on Soil Micromorphology took place from 17-28 August, 2015 in Zagreb, Croatia. It was organised at the Croatian Geological Survey as a part of project of Croatian Science Foundation “Standardisation and Applied Investigation of Quaternary Sediments in Croatia” https://sapiqproject.wordpress.com/. The invited lecturers Prof. Rosa M. Poch (Dept. Environment and Soil Sciences, U. Lleida), Prof. Georges Stoops and Dr. Vera Marcelino (University of Ghent, Belgium) were already the backbone of the earlier courses in Barcelona, Lleida, Gent, Tubingen and Tremp last years. The lectures were contributed by Dr. Lidija Galović, Dr. Hrvoje Posilović and Dr. Mihovil Brlek from Croatian Geological Survey, Zagreb.

The course was all-day, interactive, and participants could discuss their own thin sections, too. For the practical exercises and personal work, sufficient good polarising microscopes were available (one per two persons), as well as facilities to work with the microscopes during extra time and to discuss the participants own thin sections with lecturers and colleagues. The participants were handled a certificate.

The organisation of a course in Zagreb was important to give students of Croatia and other countries an easier access to this discipline. Up to now the contribution of that part of Europe to micromorphological research was very limited, in several countries even not existing.

The program of the course was the following
- Principles of mineralogy and petrography, optical mineralogy
- Sampling and thin section preparation
- Guidelines for the description of thin sections of soils and regoliths
- Micromorphology of soil materials and identification of soil formation processes: carbonates and gypsum in arid soils, clay accumulation-, hydromorphic- and freeze-thaw features in soils, tropical and highly weathered soils.
- Micromorphometry and image processing.
- Application of micromorphology in carbonate concretion-investigations
- Application of micromorphology in archaeology
Additional techniques

Personal work: Thin section study, exercises on thin section description

20 students of 12 different counties (Croatia, Italy, Israel, USA, Germany, Poland, Russia, Czech Republic, Hungary, Serbia, Slovenia, and United Kingdom) participated in the course. Several of them were PhD-students, but most were post-doctoral researchers coming from different disciplines, ranging from geology over soil science and archaeology to geography. On Saturday a field excursion through the Hrvatsko Zagorje region enclosed visiting Kraneamus - Krapina Neanderthal Museum; Trakošćan - the Renaissance castle; and Aquae Iasae - Roman thermae.

Personal impressions and evaluation

“... All students were highly motivated during these lectures, as demonstrated by their cooperation (replies to questions of the instructor and their own questions for more information). Moreover there was an excellent cooperation between them, e.g., students with a good knowledge of optical mineralogy (geologists) helping those with only a very basic knowledge (archaeologists). A copy of the PPT-presentation was made available to all students. ...

As far as I can conclude, based on the few days of teaching, the course was very successful, as could deduce also from mails I received meanwhile from participants. It was well organised, and fulfilled its aim, giving young researchers from Croatia and neighbouring countries the possibility to get acquainted with the subject, and to exchange experience with colleagues of other countries. ...

A general problem encountered also during the former courses, is the lack of knowledge of most students of archaeology, and several of soil science, of optical mineralogy, and mineralogy/petrography in general. It would be worthwhile to reflect for future courses on the possibility to organise a two- or three-days pre-course on these topics...”

Em. Prof. Dr. G. Stoops (Department of Geology and Soil Science, Ghent University, Belgium)

“... It was also very beneficial to know the different points of view on science. Moreover, I am glad that I had a chance to meet world-renowned experts in the field of micromorphology and mineralogy of soils, including the creator of the micromorphological nomenclature – prof. Georges Stoops. I hope I will have the opportunity to participate in another, similar course, which developing my pedology skills as well as this one.”

Joanna Kowalska (Dep. of Soil Science and Soil Protection, University of Agriculture, Kraków, Poland)
“First of all I would like to sincerely thank you and all your colleagues for the perfect organization of this course and for creating the great and motivating atmosphere! Due to the very good structure of the course and great contributions of all the lecturers the course was of a very high value for beginners in micromorphology and also for those already working in the field. As a total beginner in this field I was able to learn the basics of soil micromorphology, get familiar with main concepts and challenges of this method and discover new potentials for my own research. The course was indeed a success and I’m really looking forward to the future events in micromorphology!”

Svetlana Khamnueva (Institute for Ecosystem Research, Kiel, Germany)

“… Being a geographer-geomorphologist, I was not in a position to use this method previously, but after this course I will certainly try to introduce it in the scope of activities within my Institute. There were several clear benefits for me: I started to work with microscope, met the best experts in soil micromorphology, learned about the variety of possible applications of the method, established valuable contacts and discussed about future cooperations. The possible applications of soil micromorphology for my further studies are related to periglacial geomorphology (determination of processes that led to formation of particular landforms), karst geomorphology (micromorphological study of cave sediments and doline infills may help in reconstruction of their evolution), landslide geomorphology (e.g. paleo-landslide determination through detection of deformation features), fluvial morphology and hydrology (e.g. detection of flooding events), aeolian morphology and paleoenvironmental reconstructions, etc. With this
new knowledge, the possibilities for interdisciplinary work increase and the new ideas are defined. The organization of the Course was excellent and the team of the Croatian Geological Survey showed a high level of enthusiasm, knowledge and teamwork skills. Sincere thanks to all of them."

Dr. Sc. Jelena Ćalić (Geographical Institute “Jovan Cvijić”, Serbian Academy of Sciences and Arts, Belgrade, Serbia)
COLLECTIONS OF THIN SECTIONS OF SOILS OF DR. JOSEFINA BENAYAS AND WL KUBIËNA

The collection Soil Thin sections obtained by Dr. Josefina Benayas, Research Scientist of the former Institute of Soil Science and Plant Biology of the CSIC (now Institute of Agricultural Sciences, ICA, Madrid) has been recovered and put in value. For several months in 2015, Em. Prof. Dr. Carlos Dorronsoro Fernández has carried out a detailed micromorphological study on a selection of 40 soil profiles of this collection. The result of this study, together with annotations by the same author are shown as navigable macroimages in PPL and XPL, and photomicrographs. All this work is available to the scientific community via the following link (you should click on the ▲ Home or ▲ Inicio icons at the upper right side of the page for accessing the scanned thin sections):


Similarly, the unvaluable collection of Prof. WL Kubiëna is also available here:


Kubiëna’s thin sections are smaller and belong to single horizons instead of whole soil profiles.

Images: C Dorronsoro
Actually, to be a fungus gives a lot of structure to my life...

Él canonge de la seu