Paleopedology newsletter

IUSS Commission 1.6–Paleopedology
INQUA Palaeopedology Working Group

Issue 32, February 2023
Paleopedology Newsletter is a joint initiative of the International Union of Soil Sciences (IUSS) Commission 1.6–Paleopedology and INQUA Palaeopedology Working Group.

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Cover photo: meeting of Paleopedology Comission in Amsterdam, 1970 (For details see page 17). Photo courtesy: Maria Gerasimova.
Dear Friend of Paleopedology,

Welcome to the February 2023 Newsletter, which comes after one year pause.

First, on behalf of Paleopedology group I would like to express our gratitude to Danny Itkin, who was the editor of Paleopedology newsletters since 2018. Danny also managed our Twitter account which is our unique social media page. Thank you, Danny, for your time and dedication!

I also would like to thank all members of Paleopedology group who provided material for this newsletter.

Please find below brief review of past events and coming activities, as well as possible publications options. After that you will find an essay on History of Paleopedology written by Alexander Makeev.

Best wishes,

Lilit Pogosyan
Recent activities

In the pre-COVID epoch, we used to have once-a-year or once every two years meetings combined with field workshops. We have been planning XIVth International symposium and field workshop on paleopedology in Russia since 2020. We shifted it twice, but in 2022 it was definitively canceled because of the Russian-Ukrainian conflict.

Every year Commission 1.6 participates in the scientific program of the European Geosciences Union (EGU) General Assembly, within subdivision SSS3 – Soils as Records in Time and Space. Last year we held a session SSS3.2 Soils and palaeosols as records of past human land-use and environmental conditions co-organized by CL5.2 – Archives and observations, and GM3 Weathering, Soils, and Sediment Transport. It was held at EGU General Assembly, Mon, 23 May, 15:10–18:27 (CEST), Vienna, Austria & Online. Conveners: Anna Schneider, Maria Bronnikova, Anna Andreetta and Oren Ackermann. The session was devoted to soil records (memory) of current and past environments including those impacted by human activities. Nineteen short 7-minutes contributions were presented (eight on-site, eleven on-line).
Most of the presentations concerned paleosols, historical fire-affected soils (one of the most common topics), soils of mining areas, agricultural terraces, dating technologies, and environmental bioindicators in soils. Participants of the session were invited to submit their materials to an established Special Issue of Frontiers in Earth Science "Soils and Palaeosols as Records of Past Human Land-Use and Environmental Conditions".

At the 22nd World Congress of Soil Science, August 2022, Glasgow, originally, we applied for two sessions: “Paleosol as a domain of the geosystem environmental memory” and “Archaeological soils and sediments as a record of ancient human-environment interactions”, and the commission business meeting. Our sessions were not accepted because of the hybrid format of the congress and related restrictions on the number of sessions. We got only one joint session of Commissions 1.2 and 1.6: Session 12 “Soil Classification and Paleopedology” co-chaired by Curtis Monger, Maria Bronnikova, Bipin B Mishra, and Elizabeth Solleiro-Rebolledo, during the pre-congress period (abstract reviewing, compiling the program etc.). We accepted twenty-eight oral and thirteen poster submissions and got two 2-hour slots for our oral session so that we could schedule fifteen orals of twenty-eight accepted. The rest of those were transferred to poster sessions. During the congress, the oral session was guided by Curtis Monger and Elizabeth Solleiro-Rebolledo, 02/08/22, 9:00 - 11:00, and 13:00 - 15:00. A keynote lecture "Classification of paleosols: needs, concepts, and doubts" was delivered by Prof Cezary Kabala. Poster session was run 02/08/22 09:00 -11:00; and 02/08/22 13:00 -15:00.
Future events and activities

**First online international course on paleopedology** will be held on March 6 to 10th 2023, Mexico City, Organizers: Elizabeth Solleiro Rebolledo, Sergey Sedov, Maria Bronnikova. The event will continue a tradition of Commission 1.6 to disseminate among the younger generation of researchers the knowledge on paleosols, the basic concepts of soil genesis, soil development in time and space, soil as a recording system and a memory of landscape, and soil approaches in geoarchaeology. Internationally recognized specialists in paleopedology and pedology, micromorphology, soil approaches in archaeology and geoarchaeology will deliver their lectures for those who are interested in the subject.

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The course will be provided using the **zoom** platform, with no cost. The access is limited, therefore, to participate, it is necessary to register, sending a message to: daisyvalera1988@gmail.com, and filling the google form format.

Photo courtesy: J. Díaz-Ortega
To develop an interdisciplinary approach to paleoenvironmental studies and to promote soils as one of underestimated paleoenvironmental archive Commission 1.6, will pursue its collaboration and regular activities within European Geoscience Union (EGU) and International Union for Quaternary Research (INQUA). EGU-2023 General Assembly, will be held in Vienna, Austria & Online, 23–28 April 2023.

The deadline for abstract submission was on 10th January 2023. You still can register for on-site or virtual participation EGU Assembly 2023 here: https://egu23.eu/attend/register.html#virtualfees.

The Section SSS3 – Soils as Records in Time and Space have been merged with a geoarchaeology and therefore is divided into two subsections:

SSS3.1 Soils, sediments and buried structures as the memory of past environmental conditions and human impacts

**Convener:** Anna Schneider; **co-conveners:** Anna Andreeta, Rui Jorge Oliveira, Oren Ackermann, Pedro Trapero Fernández, Bento Caldeira, Maria Bronnikova

This session will be focused on the studies of polygenetic soils and sediments; including paleosols, anthropogenic soils, and archaeological structures. The special consideration will concern to anthropogenic soils and paleosols in archaeological contexts and studies that combine geophysics with geospatial methods. We have accepted 12 oral and 8 poster contributions.

GM11.4 New perspectives in geoarchaeology. Human agency and landscape change – from the Late Quaternary to the Anthropocene | PICO

This session seeks related interdisciplinary papers and specific geoarchaeological case-studies from both Earth Sciences and Archaeology/History that deploy various approaches and tools to address the reconstruction of former human-environmental interactions from the Palaeolithic through the modern period. Contributions may include (but are not limited to) insights about how people have coped with environmental disasters or abrupt changes in the past, how to define sustainability thresholds for farming or resource exploitation, or how to distinguish the baseline natural and human contributions to environmental changes.

**Convener:** Guido Stefano Mariani; **co-conveners:** Jago Birk, Julia MeisterECS, Kathleen Nicoll, Hans von Suchodoletz
INQUA Congress 2023, 13-20 July 2023, Sapienza University of Rome, Italy.

Oral session 190 Paleosol memory of environmental change and man-landscape interactions: from soil profile to geosystem. **Conveners:** Elizabeth Solleiro Rebolledo, Fabio Scarciglia. 23 abstracts have already been recieved, among which 8 are oral presentations and 15 are posters

The session contributes to the concept of soils and paleosols as a memory of environmental change and man-landscape interactions. The session will be focused on paleopedology-based environmental reconstructions applying both traditional and innovative methods. Special attention will be given to studies based on micromorphology as one of the key tools to understand soil processes and their time sequences, to discriminate lithological inheritance, pedofeatures related to different stages of pedogenesis and their diagenetic alteration.

All members of the global Quaternary community are welcome to participate in the INQUA Congress. The congress website (http://www.inquaroma2023.org) and the social media platforms will keep you informed about the Congress.

The **Scientific programme includes more than 200 sessions** https://inquaroma2023.org/conference-sessions/

All delegates are required to register online and pay the appropriate Congress registration fee. To register, please, join the platform: https://inquaroma2023.exordo.com/
XIV International Symposium and Field Workshop on Paleopedology

7-15, October 2023, Las Cruces, New Mexico State University, USA.

Organizers: IUSS Division 1 Commission 1.2 Soil geography, Commission 1.6 Paleopedology, INQUA Paleopedology Working Group. Hosted by New Mexico State University

More than 50 years of research experience within the Desert Soil-Geomorphology Project conducted by the U.S. Soil Conservation Service in Donna Ana Country, southern New Mexico will be demonstrated and discussed during a four-day field workshop. Geomorphic surfaces, soils and soil-sedimentary sequences range from less than 150 years old to over 2,000,000 years old illustrating landscape evolution and climate change, glacial-interglacial effects on landscape stability, the concept of the geomorphic surface and its relationship to soil mapping, pedogenic carbonate accumulation, formation and destruction of argillic horizons, micromorphology of paleosols with special respect to pedogenic carbonates and textural pedofeatures, and other issues related to paleopedology, and at a wider scale, to soil development in space and time. Field Workshop will be preceded by 2-day academic sessions on all aspects of paleopedology including soil memory concept and other theoretical issues of pedology and paleopedology.

Extended information on registration fees, the rout of the Field Workshop, key topics of the academic session will be provided later.

Preliminary registration is important, as far as participation in field tour is limited. Please contact Maria Bronnikova (mabro@nmsu.edu) if you are interested in attending the Symposium and Field Workshop and fill the google form.
Other future events related to paleopedology

International symposium Reading the soil in archaeology: field practice and interdisciplinary perspectives

https://archeosol2023.sciencesconf.org/

This symposium will be hosted by the University of Tours, France, from November 29th to December 1st, 2023. It is planned to discuss soil science, stratigraphy, sedimentology, geophysics and other disciplines in application to archaeological contexts.

The proposed sessions include:

1. The implementation of cross-knowledge: complementarity of archaeological and pedo-sedimentary reading and approaches in the field; clarification and definition of the main and indispensable terminologies specific to each of the field actors; the question of practical training, whether as a student or during the professional career;

2. Results of pedo-sedimentary field studies and soil characteristics (1): specific contexts (prehistoric, urban, rural...) and structures (dug, elevated and combustion structures, surfaces such as buildings, courtyards, enclosures...);

3. Results of pedo-sedimentary field studies and soil characteristics (2): particular deposits (colluvium, dark earths, peat...) and soil horizons (occupation, cultivation, reference horizons...);

4. Methods: advantages and limitations of the systematization of field surveys of common and easily identifiable soil characteristics; creation and access modes of reference documents and choice of classification tools.

Important dates:

January 16 2023 – deadline for proposals submission, as soon as the programme will be available the registration for simple listeners will be open.

end February/beginning March 2023 = Acceptance of proposals;

March 2023 = Final programme available online.
Fourth Virtual Micromorphology Meeting (ViMi4)

https://sites.google.com/view/vimi4/home

This online meeting will take place from 26th to 27th of April 2023 (UCT+1)

ViMi4 is an informal meeting with live microscopy sessions and different breakout rooms where participants can show photomicrographs, discuss features, and get feedback from other participants. There will be keynote speeches for break out rooms and live microscopy sessions.

To participate in this event participants are invited to use the following registration link. Proposals for break-out room topics or live microscopy sessions can be sent to vimimeeting4faro@gmail.com until the 1st of March. A new “What is this??” Google Group was created where you can ask questions to the other participants about the things you find in your thin sections or discuss other archaeological micromorphology-related topics.

There are also planned the ViMi4 Photomicrograph Prize competition and students from undergraduate to PhD level are invited to send in their most interesting photomicrograph.
Workshops Archaeological Soil Micromorphology 2023

Meetings of the Working Group on Archaeological Soil Micromorphology are venues where early career and experienced researchers in archaeological soil micromorphology can meet, study thin sections and discuss micromorphology. In 2023, two workshops will be organized, each with a limited number of participants. In order to give everybody who wishes a chance to participate in these workshops, priority in the second workshops will be for participants that did not participate in the first workshop.

Reading (UK), March 30-31:

A small meeting of the Working Group on Archaeological Soil Micromorphology (WASM) will be held at the Department of Archaeology, University of Reading, UK, on 30th-31st March 2023. We are able to welcome 20 external participants and further details of booking and arrangements will be announced soon at: https://blogs.reading.ac.uk/integrated-microscopy-approaches-in-archaeobotany/wasm-2023/

This WASM installment will be held directly before the Integrated Microscopy Approaches in Archaeobotany (IMAA) workshop, which will take place on 1st-2nd April and is bookable as a separate event. Registration will be made through an online booking system which will open shortly. Contact Rowena Banerjea to make an expression of interest to attend r.y.banerjea@reading.ac.uk

Utrecht (NL), June 27-30:

A further WASM (c. 20 participants) will be held at the University of Utrecht (UU). As mentioned above, priority will be given to those who did not attend the workshop at Reading. 27 June icebreaker and 28, 29 and 30 June Workshop at the Earth Simulation Laboratory in Utrecht (Uithof campus). Organization of this workshop is supported by NWO through the project "Finding Suitable Grounds". Contact Hans Huisman for further details and application: hans.huisman@rug.nl
Publication activities

Commission 1.6 published the materials of the online 2021 commission event in the special issue of *The Boletín de la Sociedad Geológica Mexicana*, Volumen 74 Número 3; Volume 74 Issue 3 (2022): Paleosols and ancient societies: from early humans to the industrial revolution / Paleosuelos y sociedades antiguas: desde los primeros humanos hasta la revolución industrial Invited editors: Georgina Ibarra-Arzave, Elizabeth Solleiro-Rebolledo, Maria Bronnikova [http://boletinsgm.igeolcu.unam.mx/bsgm/index.php](http://boletinsgm.igeolcu.unam.mx/bsgm/index.php). The issue includes twelve papers. Five papers are devoted to earthen architecture in different cultural and landscape backgrounds: sources and processing of materials and building technologies. Paleoenvironmental conditions (based on paleosol data) during occupation periods were discussed in seven works for different regions of the world and different periods. Concepts and regularities of cultural layers formation, diagenetic processes in buried soils, desert rock varnish over a variety of rock types as a canvas for petroglyphs, and geopedological studies of ancient agricultural landscapes are also under discussion in the papers of this special issue.
Call for participation in the article collection "Soils and Palaeosols as Records of Past Human Land-Use and Environmental Conditions"

Manuscript submission is open for an article collection on "Soils and Palaeosols as Records of Past Human Land-Use and Environmental Conditions". You can learn more about the collection and register via the link below: https://www.frontiersin.org/research-topics/46456/soils-and-palaeosols-as-records-of-past-human-land-use-and-environmental-conditions. This is in collaboration with Frontiers in Earth Science (IF: 3.661 – CiteScore: 3.2).

All research will be published Open Access. We aim to bring together experts with different backgrounds worldwide and provide a forum for an interdisciplinary group, providing an up-to-date and comprehensive overview of the latest research developments in the field.

Manuscripts are welcome before the extended deadline of March 03 2023. We can also accommodate personal extensions.

Further information on article types can be found at the following link: https://www.frontiersin.org/journals/earth-science/for-authors/article-types

The Editorial Team: Anna Andreetta, Anna Schneider, Maria Artemovna Bronnikova

Journal of Plant Nutrition and Soil Science have announced the special issue titled “From parent rocks to soil: Co-evolution of structure and function during pedogenesis”. This issue is focused on fundamental understanding of the linkage of structure and function. Substantial progress has been achieved by experimental pedogenesis and the joint application of advanced spectroscopic, microscopic, and tomographic techniques and this knowledge is directly connected to soil functioning and therefore is important for understanding of soil health and sustainable land use development.

Further information on article types can be found at the following link: https://onlinelibrary.wiley.com/journal/15222624/homepage/sipedogenesis?

Guest Editors Kai Uwe Totsche, Ingrid Kögel-Knabner, Nadja Ray.

The deadline of manuscript submission is 15th March 2023.
Invited contributions

History of the Paleopedology Commission (1964 – 2022) by Alexander Makeev* **

*edited by M. Bronnikova

**the text is currently being updated and the final version will be published on a webpage

Dear friend of paleopedology,

Paleosol studies as a whole have much longer history and wider scope than presented below. Nevertheless, we hope the milestones in Commission activities will help us to shape them for the future benefit of the paleopedology.

The text below was compiled from an input of senior members and the records of Paleopedology Commission. We are especially grateful to Dan Yaalon (Israel), who provided his recollections on the earliest period of Commission activities.

A. Makeev
Paleopedology is devoted to recording and interpreting the records of past soil formations. When Liu Tungsheng (China) presented in 1961 at the 6th INQUA Congress in Warsaw, Poland the detailed Quaternary loess-paleosol sequences in China, this caused quite a stir and also resulted in increased interest in paleosols in Europe and America. An International Paleopedology Commission was established as an INQUA Commission in 1965 at the 7th INQUA Congress in Boulder, Colorado, USA, following a proposal by Dan Yaalon (Israel). **Academician I. P. Gerasimov (Russia)** was selected to be the first President.

Multidisciplinary nature of paleopedology stimulated the ways of its broader identification in the system of environmental sciences. And during the 9th International Congress of Soil Science, 1968, Adelaide, Australia, the Commission has been affiliated to the Soil Genesis, Classification and Cartography Commission of the International Society of Soil Science.

The President of Commission had no appointed or selected colleagues by that time. The position of the President was considered sufficient as it involved mainly making paleopedology a respected topic by sponsoring a thematic meeting during the next congress and corresponding by airmail with relevant colleagues. The main focus of Commission activities was organizing special paleopedology sessions during the INQUA, and later also Soil Science Congresses.

**President R.V. Ruhe (USA)** replaced I.P Gerasimov after 8th INQUA Congress in Paris 1969. At that time the dating of humus and soil organic matter by 14C became more prevalent and of greater interest also in the paleosol context for the ISSS. A turning point in activity was when Prof F. A. van Baren, then ISSS Secretary General obtained funds from UNESCO to organize a 1970 international meeting in Amsterdam dealing with the age of soils and parent materials and asked Dan Yaalon to edit and publish the proceedings. This was done by 1971 and the volume Paleopedology: Origin, Nature and Dating of Paleosols was published (Jerusalem, 1971). It is now also on the website of the Paleopedology Commission.
Group photo from meeting of Paleopedology Comission in Amsterdam, 1970. Photo courtesy: Maria Gerasimova. We gratefully thank M. Gerasimova and Daniela Sauer for help with people identification. There are still some people we could not identify. If you have any suggestions that could help us, we kindly ask you to contact us.
An important aspect of this meeting was the call to distinguish between buried and unburied paleosols and the conclusion of the Working Group on the Origin and Nature of Paleosols that both these groups need to be studied by the same methods used for current unburied soils. This led gradually to greater attention to the sequence of processes taking place in soils over time due to inevitable environmental changes, thus expanding the traditional five factors Dokuchaev model of soil formation and leading to paleoenvironmental interpretation and reconstruction studies of both buried and unburied soils.

Dan H. Yaalon (Israel) was elected as a President in 1977 during the 10th INQUA Congress in Birmingham. Position of vice-President and a secretary was then formally recognized (in line with INQUA statutes and byelaws). So the board of Commission officers became similar to its present status. For the period of 10 years (1977 – 1987) it consisted of Dan H. Yaalon as a President, J.B. Dalrymple as a Vice-President, and K.W.C. Valentine as a Secretary. Dan Yaalon recalls: - “There certainly was no treasurer because no funding was involved. We just needed willing people to spend a lot or some of their time (and postal expenses) on these things”. A first set of working groups were established by that time, to cover specific activities within Commission:

- On register paleosols (Chairman G.C. Beckmann);
- German working group on paleopedology (Chairman Helmut E. Stremme).


Commission started to produce Newsletters. K.W.C. Valentine compiled first 5 issues, distributed by mail. Mailing list of 118 members was also published in Newsletters. International standard serial number was obtained: ISSN 0256-2340, that was later forgotten.

Dan Yaalon started to seek collaborators for compiling small-scale paleopedological maps of the Continents, starting as a first stage with the map for the LGM period of 18,000 years BP. This idea was then partially realized in the scope of PAGES initiatives.

The next board (1987 - 1995) of officers was elected during the 12th INQUA Congress in Ottawa, Canada (1987) with John A. Catt (UK) as a President, Dan H. Yaalon (Israel) as a Vice-President and Leon R. Follmer (USA) as a Secretary-treasurer. The position of a secretary-treasurer was formally recognized within INQUA because all Commissions were receiving limited support from the INQUA Executive Committee, mainly to cover printing and mailing expenses for their Newsletters.

5 Newsletters (numbers 6-11) were produced and distributed by mail. A selection from these newsletters are available on Commission web site.

A significant and well attended event was the II International Symposium and Field Workshop on Paleopedology in 1993 in Champaign, Illinois, organized
by Leon Follmer and Don Johnson (transactions published in 1998 in Quaternary International Vol. 51/52) which was devoted to wide ranging discussions to many topics of both Quaternary and pre-Quaternary paleosols and surface paleosols as well. Paleopedology Glossary, prepared by John A. Catt (UK) was approved during that meeting and later published in Newsletter 14 (1998). It is now available on Commission web site.

New working groups were established at this Conference:

- Definitions, used in Paleopedology (Paleopedology Glossary), Chairman J.A. Catt, UK
- Classification of Paleosols, Chairman W.D. Nettleton, USA
- Methods of field and laboratory study of Paleosols, Chairman R. Kemp, Great Britain
- Pedostratigraphy, Chairman R.B. Morrison, USA
- Diagenesis of paleosols, Chairman B. Van Vliet-Lanoe, France
- Alluvial pedogenesis, Chairman Whitney Autin, USA
- Paleosols and Paleoclimatic Change in Eastern and Central Asia, Chairman X.M. Fang, China
- Geoarchaeology, Chairman E. A. Bettis, USA.

Left: John A Catt; right: Arnt Bronger (Photo courtesy A. Makeev)
The Conference was supplemented by field trip (that then became a tradition for paleopedology meetings), covering 5 States of the Middle West with a route over 4,000 km. An excellent guide-book provided thorough explanations on numerous Quaternary and pre-Quaternary paleosols, visited by Conference participants.

The next board of Commission officers was elected at the 14th INQUA Congress in Berlin, 1995. It served for two inter-Congress period (1995-2003) with Arnt Bronger (Germany) as a President, John A. Catt (UK) as a Vice-President and Alexander O. Makeev (Russia) as a Secretary-treasurer. Two additional working groups were requested by the members and approved at the Commission business meeting in Berlin:

- Geopedology of Soils in China, Chairman Lu Jinggang, P.R. China
- Inter-American group on Paleopedology, Chairmen M. Singer and R.B. Morrison, USA.

The idea of working groups thought to be very productive by that time. But later it became obvious that working groups remained mostly inactive, being narrow focused, while the members tend to have broader interests, working alternatively in different areas. In the course of a few years Commission working groups terminated.

An Internet era started during that period. Commission web site was launched in 1995 on the facilities of Moscow State University, supported by Alexander Makeev. 8 Newsletters were issued and distributed both by mail and electronic mailing list of 450 members. Newsletters are still available on Commission website.

Commission continued to organize special sessions on International Congresses of INQUA and IUSS. Besides this, four International Symposia and Field Workshops on Paleopedology have been conducted: Third – in Rauischholzhausen, Germany, 1997; fourth in Lanzhou, P.R. China, 1998; Fifth in Suzdal, Russia, 2000; Sixth in Mexico-city, 2001. The reports of these meetings are available on Commission web site.

Proceedings of these meetings were published in the following journals:

1. Special issue of Catena “Reconstruction and climatic implications of paleosols” (Volume 34 nos 1-2, 1998);


3. Special issue of Catena “Recent and paleo-pedogenesis as tools for modeling past and future global change (Vol. 41, nos 1-3, 2000);
4. Two special issues of Revista Mexicana de Ciencias Geologicas (v. 20 n.3 and v. 21, n.1, 2001);

5. Special issue of Catena ‘Records in soils of environmental and anthropogenic changes” (Vol. 41, 3, 2001)


The next board of Commission officers was elected at the 16th INQUA Congress in Reno, Nevada, USA in 2003 and served for the period of 2003-2010 with Edoardo Costantini (Italy) as President, Alexander O. Makeev (Russia) as Vice-President and Francesco Malucelli (Italy) as a Secretary.

One Newsletter was produced and replaced by posting the news on electronic Commission forum. Starting from 2010 Commission decided to continue producing Newsletters on the regular basis besides news and other posts in electronic forum.

Besides paleopedology sessions during the INQUA and IUSS Congresses two International Symposia and Field Workshops on Paleopedology have been conducted in Florence, Italy (2004) and Chennai, India, 2008. Proceedings of Symposium in Florence have been published in a special issue of Quaternary International, v. 156-157 (2006) and papers of the paleopedology Symposium during the INQUA Congress in Cairns, Australia – in a special issue of Quaternary International, v.209, issues 1-2 (2009).

At this time, the Commission realized that a new push to Paleopedology should only could given by the international recognition given by funded projects. Some attempts have been tried and, aimed at increasing the opportunities of a wider involvement of Paleopedology within environmental focused projects, join meetings with other Societies (EGU, INQUA) and IUSS Commissions were launched.
Among the others, a prominent position was taken by the cooperation between the IUSS Commissions belonging to Division 1 (Soil in Time and Space). The international congress “Soil geography; new horizons” was held in Huatulco (Oaxaca, Mexico) from the 16th to the 20th November 2009. The success of the initiative supported the new tendency and motivated its re-edition in the year 2011 in Germany.

In 2003 the structure of INQUA was changed and paleopedology became only a Sub-commission within the Commission on Terrestrial Processes, Deposits and History (TERPRO), but activity essentially continued as before until the 17th INQUA Congress in Cairns, Australia. A very disappointing decision was approved there by INQUA General Assembly to delete all existing and leave only four synthetic Commissions. According to the new structure Paleopedology as a group could find itself within Commission on Terrestrial Processes, Deposits and History (TERPRO) and only in the form of a Focus group, a narrow-focused unit existing only within one inter-Congress period.

Very fortunately the structure of ISSS was also reorganized (it is was then called IUSS – International Union of Soil Science Societies), and the new IUSS Council approved in April 2004 to rename the Paleopedology Working Group and to establish it as Paleopedology Commission within IUSS Division 1 – Soils in Space and Time (see IUSS Bulletin 104, p. 8, 2004). So, in a formal way the International Paleopedology Commission became not an INQUA, but IUSS Commission and the latest board of officers was elected on IUSS Congress in Brisbane, Australia (2010).

At the Brisbane IUSS Congress 2010 the new Paleopedology Commission officers were presented and elected: Daniela Sauer as president, Sergey Sedov as vice-president, Alexander Makeev as secretary. Thus, Daniela Sauer became the youngest woman who took a position of Commission president in the history of IUSS.

Paleopedology sessions were held in the framework of the World Congresses:

- World Congress of Soil Science: the 19th, Brisbane, Australia, 2010; and the 20th, Jeju, Korea, 2014.

- INQUA Congresses: the 18th, Bern, Switzerland, 2011; the 19th, Nagoya, Japan, 2015.

Besides these, sessions were held in the framework of European Confederation of Soil Science Societies (Eurosoil), in Freiburg, Germany (2012) and Istanbul, Turkey (2016). Two International Symposia and Field Workshops on Paleopedology have been conducted in Stuttgart, Germany, 2011, Kursk, Russia (2013) and Torun, Poland (2014). In 2015 an International Symposium was organized to commemorate centenary of Dan Yaalon’ birth (Vienna-Krems, Austria). Field Workshops and academic sessions were organized by
Commission 1.6 and/or by INQUA paleosol related Focus Groups and Projects PASTSOILS, RAISIN, QUASAP etc. in Mexico (2010, 2016), USA (2014), Brazil (2015), Canada (2018).

At the World Soil Congress in Rio-de-Janeiro, Brazil, 2018, the new Board of Paleopedology Commission officers was elected: Maria Bronnikova as chair, Elizabeth Solleiro-Rebolledo as vice-chair, Tobias Sprafke as secretary and Danny Itkin as editor of the Newsletter. Maria Bronnikova and Elizabeth Solleiro-Rebolledo were re-elected, Fatima Kurbanova became new secretary of the Commission and Lilit Pogosyan was given responsibilities of the Newsletter editor during the 21st World Soil Congress in Glasgow till 2026.

The regular Commission activities for 2018 – 2022 included:

- Paleopedology sessions during the World Congresses:
  - World Soil Congresses – the 20th in Rio-de-Janeiro, Brazil, 2018, and the 21th in Glasgow, Scotland (2022);
  - The 20th INQUA Congress in Dublin, Ireland (2019);
  - sessions in the framework of the Congress of the European Confederation of Soil Science Societies (Eurosoil), Geneva, 2021;
Since 2018 the Paleopedology Commission established cooperation with the European Geosciences Union (EGU), which resulted in the organization of annual meetings at the EGU General Assemblies in Wien, 2018 – 2022.

Paleolber 2021: Iberoamerican course on Paleopedology and Geoarchaeology (7-9 June 2021).

International online paleopedology meeting: Paleosols and ancient societies – from early humans to the industrial revolution (June 10-12, 2021)

- Special issues of Quaternary International, Catena and Geosciences combined papers of these past meetings.
- Commission mailing list (https://groups.google.com/g/paleopedology) with the number of participants varying around 350.

The Commission newsletters gained new dimension since Danny Itkin (Israel) was involved as an Editor. They became more informative, colorful, well designed and issued on a regular basis (two issues per year). Besides News & Events and Reports they now include short papers, contributed by distinguished scientists.

Another important Commission endeavor was the request to INQUA President Thijs van Kolfschoten to reform the structure and include the Paleopedology Working Group as an unfunded lifetime part of the INQUA. The request was approved by the INQUA International Council in 2020.
Due to the efforts of Commission members, the Paleopedology courses are included in the bachelor’s and master’s programs in Moscow (Alexander Makeev and Elya Zazovskya), Saint-Petersburg (Alexey Rusakov) and Kazan (Natalia Kovaleva) Universities. They were performed in the University of Wurzburg, Germany in 2014 and 2017 (Birgit Terhorst and Alexander Makeev) and the University of Campinas, Brazil in 2015 (Francisco Ladeira and Alexander Makeev).

Paleopedology is experiencing such rapid development that latest approaches, methods and ideas often remains beyond the scope in University programs. For this reason, the Commission supported the initiative to organize summer schools for young scholars. Geochronology summer school, organized by Markus Egli was first held in Switzerland in 2009. Since that time and up to present, they are organized annually. Paleopedology summer school, organized by Maria Dergacheva and Alexander Makeev was first held in Altai Region, Western Siberia, Russia in 2010. Until 2019, 10 schools were held. Summer schools on Paleopedology was held in Wurzburg, organized by Birgit Terhorst and Alexander Makeev in 2014 and 2018. In addition to these schools, paleopedology schools were organized within the framework of various events, such as the Congress of the Dokuchaev Soil Science Society (Belgorod, Russia, 2016) and the Symposium of the INQUA Working Group Peribaltic (Petrozavodsk, Karelia, Russia, 2018).
In 2021 an online course with 13 lectures on paleopedology and geoarchaeology were presented on the platform of the Institute of Geography, Russian Academy of Sciences. The lectures are available on YouTube channel (https://www.youtube.com/watch?v=j2hH).

Thus, with a well-defined conceptual framework and the goal of dealing with and interpreting both buried and unburied paleosols in space and geologic time, including the most recent impacts on soils due to human intervention, the Paleopedology Commission is now an integral and active part of both IUSS, INQUA and EGU with a current membership of over 350 researchers on its website all over the world and organizing regular thematic symposia at congresses and meetings at both these organizations. Though cooperation or formal association with IUGS is still subject to improvements and this is considered as a priority of Commission activities for the future.

Alexander Makeev