**Session Proposal**

# Session Title

Open discussion session on observed phenomena in soils and their underlying pedogenic processes: bring and share photos of your macro- and micromorphological observations and join the discussion on debated phenomena!

# Session Organizers

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# Session Description

Despite significant advances in the field of pedology, there is a number of phenomena in soils and paleosols that are still under debate with respect to the pedogenic processes that create them, e.g., the formation of tongues in soils with clay illuviation (Glossic Retisols) and temporarily perched water (Glossic Stagnosols); the development of fragipans; the formation of Terra rossa; the question, whether the formation of pedogenic carbonates and redoximorphic features involves only inorganic processes or to what extent biological activity plays a role; the formation and behavior of what is called “mattic epipedon” in the Chinese Soil Classification, i.e., a topsoil horizon typical for high-mountain meadows, characterized by extremely abundant fine roots that occupy the majority of the horizon’s volume.

Many colleagues have made macro- and micromorphological observations on those phenomena and have developed their own explanations and hypotheses, based on their experience. This discussion session aims at a lively and interactive exchange of experiences and hypotheses among colleagues. We encourage all participants to bring photos of their observations on a USB key. These can illustrate the observations and the environmental settings they were made in, and can help the other participants to better understand the reported observations. Also, an important part of the discussion shall be dedicated to the question, how the existing different hypotheses on certain phenomena could be tested, including the application of novel methods that have evolved over the last decades (e.g., isotopic studies, NanoSIMS, single grain luminescence dating, etc.). The phenomena to be discussed include - but are not necessarily limited to - the ones named above. In order to help us structuring the discussion session, we ask colleagues who intend to contribute another topic to inform the session organizers by e-mail in advance.

# Format

The format is an open discussion format, aided by photos of the discussed phenomena taken by participants and provided on a USB key to be shared and discussed with the group. It is thus a very interactive format.

# Proposed Speakers

Proposed discussion participants include all colleagues doing pedological fieldwork, soil classification, micromorphological investigations, and pedological laboratory analyses, e.g., Jim Bockheim (USA), Maria Bronnikova (Texas Tech, USA; RAS Moscow, Russia), Edoardo A. C. Costantini (CNR-IBE Florence, Italy), Jozef A. (Seppe) Deckers (KU Leuven, Belgium), Endre Dobos (University of Miskolc, Hungary), Marek Drewnik (Jagiellonian University, Poland), Stefaan Dondeyne (Ghent University, Belgium), Alfred Hartemink (University of Wisconsin-Madison, USA), Richard Heck (University of Guelph, Canada), Curtis Monger (New Mexico State University), Rosa Poch (University of Lleida, Catalonia), Fabio Scarciglia (University of Calabria, Italy), Peter Schad (TU Munich, Germany), Randall Schaetzl (Michigan State University, USA), Sergey Sedov (UNAM, Mexico), Elizabeth Solleiro-Rebolledo (UNAM, Mexico), Marcin Switoniak (Nicolaus Copernicus University, Toruń, Poland), Fabio Terribile (University of Naples, Italy), Michael Thompson (Iowa State University, USA), Fei Yang (CAS Nanjing, China), Ganlin Zhang (CAS Nanjing, China)