Editorial

Foreword to the thematic set on 'Supergene mineralogy: insights into the mobility of elements during weathering process'

Dear Readers,

In your hands you are holding a thematic collection of papers devoted to the mineralogy of supergene phases. Our intention was to collect exemplary contributions, reflecting the wide range of research currently being undertaken on supergene phases. The field of supergene mineralogy deals with the nature and origin of secondary alteration products (minerals) and precipitates formed as a consequence of weathering and processes such as acid-mine drainage. Thus, an important aspect involves studies into the environmental impact of supergene minerals in relation to mining and the ecosystem.

Crystallography and crystal chemistry not only contribute to the study of supergene mineralogy via the description of new mineral species, but they also help us to decipher basic crystal-chemical principles, enabling us to understand the conditions under which these minerals form. Geochemical techniques, including stable isotopes and fluid-inclusion studies, provide insights into the fluids involved in supergene processes.

This issue is introduced with a crystallographic paper by *Kampf and Mills* focussing on the role of hydrogen in tellurite minerals. This study contributes to our understanding of the hydrogen bonding mechanisms, which control the thermodynamical stability of supergene tellurites.

A paper by *Pekov and co-authors* deals with a new supergene arsenate mineral from the ancient silver mining site at Laurion (Greece). Agardite-(Nd), $NdCu_6(AsO_4)_3(OH)_6 \cdot 3H_2O$, was recently approved by the International Mineralogical Association and we are delighted to present the type description of this mineral phase.

The Jáchymov ore deposit (Czech Republic) is particularly famous for complex and rich supergene mineral associations, reflecting the geochemical diversity of ore veins where the secondary minerals formed. *Sejkora and co-authors* present and discuss an interesting type of supergene mineral association, characterised by the dominance of lead, until now unknown at Jáchymov.

A paper by *Števko and co-authors* covers a detailed description and discussion on the type and origin of supergene mineralization at Poníky (Slovak Republic), which is characterised by a suite of secondary copper arsenates.

The unique copper mineralization, in which dioptase is the dominant supergene phase, from Saldán, Córdoba (Argentina) is highlighted in the study by *Colombo and co-authors*. They applied mineralogical techniques, as well as fluid inclusion studies, to trace the source of the parental fluids.

The alteration of metamict U, Th-enriched Y, REE, Nb, Ta, Ti-oxide minerals from the Obrázek I pegmatite, Písek (Czech Republic) and mechanism of their replacement, is the topic of the paper by *Škoda and co-workers*. They describe a previously unknown mineral assemblage connected with late low-temperature hydrothermal alteration.

The last paper presented by *Klimko and co-authors* discusses the chemical compositions of neutral and acidic mine tailings at the abandoned stibnite deposits, Dúbrava and Poproč in Slovakia.

We hope that this issue will provide you with an insight into the beauty and diversity of supergene mineralogy. We are convinced that such a selection of interesting shorter papers may be more appealing than a series of voluminous reviews.

We would like to express our deep gratitude to all the authors who contributed to this thematic set. We are also indebted to the reviewers who offered their time and effort to improve each paper and thus the overall quality of the issue. Thank you!

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[Guest Editors]