



# The Clay Minerals Society

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## PRESIDENT'S CORNER



Prakash Malla

Dear CMS Community,

What makes the Clay Minerals Society special and unique is the willingness and enthusiasm of our members to step up and volunteer to execute much-needed tasks. Unlike some of the large professional societies, the CMS does not have dozens of office staff to run the organization. Our society is run entirely by volunteers, except for an office manager, and they seldom get a pat on the back. I would like to take this opportunity to recognize two volunteer members: Ian Bourg and Katerina Dontsova.



**Ian Bourg** holds degrees from the National Institute of Applied Sciences in Toulouse (France) and the University of California, Berkeley (USA). He is currently an assistant professor in Civil and Environmental Engineering at Princeton University (USA), and he researches the nanoscale properties of water at interfaces, particularly in clay-rich soils and sedimentary environments. Ian has served as editor of the CMS news page in *Elements* for the past three years, but this year he leaves and passes that baton to Katerina Dontsova. Thank you, Ian, for your fabulous and dedicated service to the society.



**Katerina Dontsova** has stepped up as the new editor of the CMS news page in *Elements*, effective 1 January 2016. Katerina is an associate research professor at the University of Arizona, Biosphere 2 (USA). She studies soil clays, inorganic and organic carbon sequestration in the soils during biological weathering, and the fate and transport of organic contaminants in soils. She received her education from National Agricultural University (Ukraine) and Purdue University (Indiana, USA). Thank you and welcome, Katerina.

With best regards,

**Prakash B. Malla, PhD**  
President, The Clay Minerals Society  
Research & Development  
Thiele Kaolin Company, Sandersville, Georgia, USA

## STUDENT RESEARCH SPOTLIGHT

Congratulations to **Linden Schneider** (University of California, Berkeley, USA), **Christopher Aucoin** (University of Cincinnati, Ohio, USA), and **Erin Lynch** (University of Michigan, USA) for winning a CMS Student Research Grant!



Linden Schneider is in the second year of her PhD in biogeochemistry at the University of California, Berkeley (USA) and is researching **microbially mediated reductive dissolution of iron (Fe) minerals coupled to dissolved organic carbon (DOC) release in subalpine wetland soils** at the USDA Fraser Experimental Forest in Colorado (USA). Iron-reducing microbial communities in the wetland soils that experience contrasting hydrological regimes respond differently to temperature increases in laboratory assays with intact soil cores. Slope wetlands in the experimental forest experience year round inundation and high

flow velocities: Fe-reductive dissolution unexpectedly decreases with temperature increases. In the depressional wetlands, which experience peak inundation during snow melt and then drying throughout the summer, Fe-reductive dissolution expectedly increases with increasing temperature. Linden intends to investigate these differing responses by looking at the dissimilarities in microbial populations, Fe-containing minerals, and carbon substrate quality and availability between the two wetland types. The Clay Minerals Society generously provided funds so she could travel to Colorado last Fall to collect soil cores from the wetlands.



Christopher Aucoin studies the **Ordovician sediments known as "butter shales" from the Ohio-Indiana-Kentucky tristate area**.

They are called "butter shales" because of their soft nature and tendency to become as soft as butter when wet. These shales are known for their excellent ability to preserve various fossils, including trilobites and bivalves, and their "buttery" property is thought to be a product of

a high content of clay minerals (illite, chlorite) and high clay size-fraction. Part of Christopher's PhD dissertation will involve studying a number different butter shales using X-ray fluorescence, X-ray diffraction, scanning electron microscopy, sulfur and total organic carbon analyses, microfacies analyses, and polished blocks of in situ shale samples. The hope is that Christopher will be able to better determine what gives the butter shales their unique properties, what was their depositional environment, and how these properties aid preservation of macro- and microfossils.



Erin Lynch is working on **characterizing the geofluids that are present during deformation in fold-thrust belts**.

She has collected clay-rich samples from folded and faulted sedimentary units in the Andean Precordillera of Argentina and from the Sevier fold-thrust belt of Wyoming and Montana (USA). After separating the clay minerals from the bulk rock material, she is able to determine the hydrogen isotopic composition of the neoformed clay minerals, primarily low-temperature illite.

Using geologically reasonable temperature constraints on hydrogen isotope fractionation, she calculates the isotopic composition of the geofluids from which the illite crystallized, thereby determining the source of the fluids. Preliminary results indicate that meteoric water is a major component of geofluids in the deforming upper crust.

## CMS MEMBERSHIP RENEWAL

Don't forget to renew your membership for 2016!

## 2016 CMS ANNUAL MEETING

The 53<sup>rd</sup> Annual Meeting of the Clay Minerals Society ("Resurgent Clays") will be held 5–8 June 2016 in Atlanta, Georgia (USA) (conferences.illinois.edu/CMS2016).

## CORRECTION

We sincerely apologize that in the printed version of the February 2016 issue of *Elements*, CMS news photographs of 2015 CMS awardees, Dr. R. James Kirkpatrick and Reinhard Kleeberg, were replaced with the photos of the former presidents of CMS, Michael Velbel and Crawford Elliott, who presented the awards. Corrected version of the news is available on the *Elements* webpage: [http://www.elements-magazine.org/archives/e12\\_1/e12\\_1\\_soc\\_CMS.pdf](http://www.elements-magazine.org/archives/e12_1/e12_1_soc_CMS.pdf).