

Clay Minerals Group 2025 CMG Bursary Report

XVIII International Clay Conference, Dublin, Ireland

I write to express my gratitude for support received via a 2025 CMG Bursary, awarded by the Clay Minerals Group of the Mineralogical Society of the United Kingdom and Ireland. With CMG support, I was able to travel from my home institution, Montana State University (Bozeman, United States), to attend and speak at the 18th International Clay Conference in Dublin, Ireland from 13–18 July 2025.

Hundreds of scientific delegates (representing 56 countries around the world) converged on historic Trinity College Dublin for an invigorating, clay-filled week. This was my first opportunity to attend a clay conference in-person since Euroclay 2019 in Paris, France, so I was especially appreciative of CMG (and AIPEA) travel support. Beyond my time in sessions ranging from martian phyllosilicates to clay-hosted energy- and technology-critical metals, I was lucky to tack on extra days in Ireland (visiting the colossal Cliffs of Moher) and in Scotland (completing a geologist’s bucket-list pilgrimage of sorts to the “birthplace of modern geology,” James Hutton’s famous unconformity at Siccar Point).

During the conference week, I much enjoyed the additional benefit of finally being able to connect with globally-distributed colleagues with whom I’d only had “virtual” contact prior—clay colleagues hailing from Türkiye to Sudan’s Al-Neelain University to Imperial College London, The University of Cambridge, The James Hutton Institute, and even U.S.-based colleagues from NASA Ames to Georgia.



Figure 1. Receiving award from AIPEA President, Dr. Bruno Lanson (at right), ICC Closing Ceremony.

My talk fell on the final day of ICC, Friday 18 July, in the very well-attended (i.e., jam-packed) session “Critical Minerals in Clay-rich Deposits: Processes, Occurrences, and Resource Potential.” Our morning talks focused on lithium deposits of Chile and the Western U.S., while late-morning to afternoon focused on clay-hosted rare earth elements (REE) of Southern China, Southeastern U.S., and my talk on “the Southern Continent” (Antarctica). I was equally intrigued by morning and afternoon sessions, as my own research program includes investigations of both lithium and REE processes. After my talk, which focused on permafrost- and salt pond-mediated mobility and concentration of sediment-hosted REE under polar desert conditions of Antarctica’s McMurdo Dry Valleys, I was delighted to receive excited and excellent questions from the large audience, including questions both on the enigmatic clay mineralogy of sampled sediment profiles, as well as on REE projects elsewhere in the world (and, even on in-situ resource utilization in the context of planetary exploration beyond Earth).

An additional highlight: The work I presented at ICC was recently published, and I am thrilled to share the open-access article (with much-warranted acknowledgement and thanks to CMG therein!):

Burton, Z. F. M., Koeberl, C., Bishop, J. L., Englert, P. A. J., Smith, M. P., Foerder, A. B., & Gibson, E. K. (2025). *Controls on cold-climate critical minerals: Regolith-hosted REE at three polar desert salt ponds (McMurdo Dry Valleys, Antarctica)*. *Cold Regions Science and Technology*, v. 239, 104583. <https://doi.org/10.1016/j.coldregions.2025.104583>

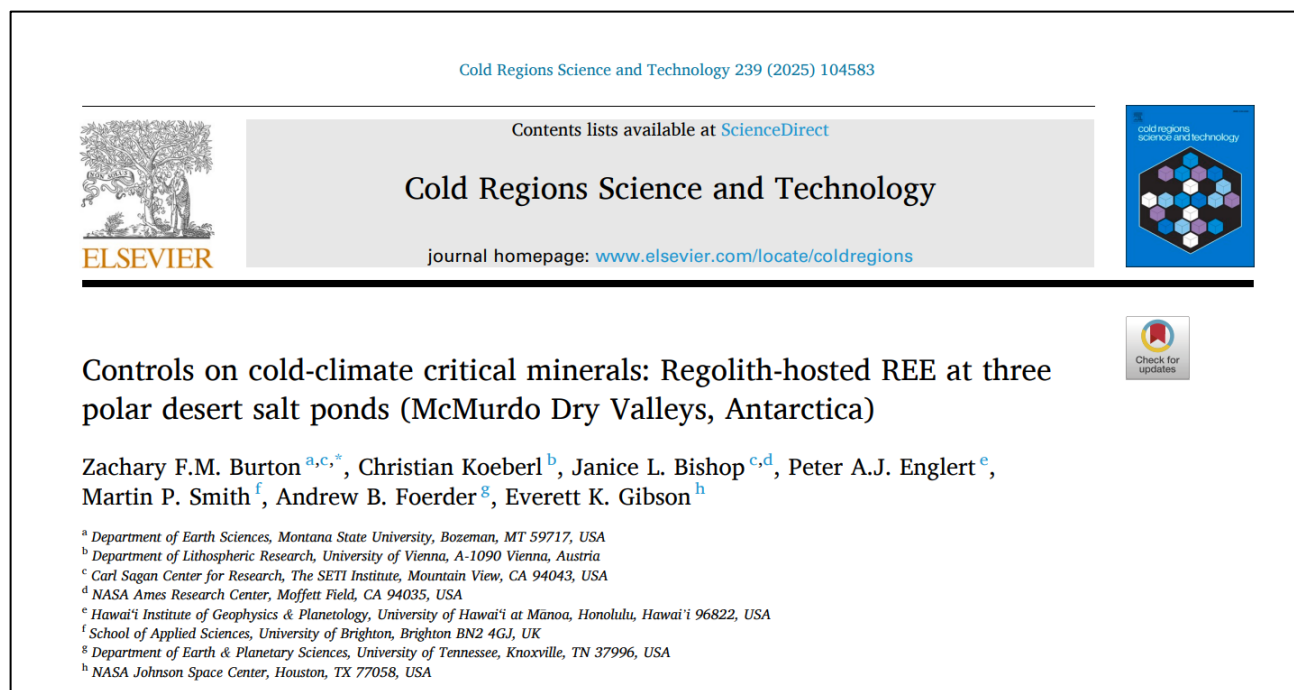


Figure 2. Journal article published on the contents of my ICC talk, and with thanks to CMG support.

In closing, I'd like to voice another tremendous thanks to the Clay Minerals Group for supporting my participation at the 18th International Clay Conference. I look forward to continued engagement and collaboration with our global scientific community, and much look forward to seeing everyone in-person again—at latest—for CLAY 2027 in Madrid, Spain. *Thank you!*