

GSA 2025 Short Course

Geochemical Modeling for Critical Minerals Resourcing and Processing

Date & Time

Saturday, October 18, 2025

8:00 AM – 12:00 PM (CDT)

Free of charge (*Pro bono*)!

About the Workshop

This short course introduces students to the concepts of critical minerals and geochemical modeling. Through examples of industrial and geological applications, students will appreciate the role of geochemical modeling as a bridge between fundamental sciences and societal applications.

Instructors

Dr. Peng Lu

Geological Specialist, EXPEC Advanced Research Center, Saudi Aramco, with 19 years of experience in geochemical modeling. A recipient of the Kharaka Award.

Dr. Chen Zhu

Professor, Indiana University, USA

- Co-author of *Environmental Applications of Geochemical Modeling* (Cambridge University Press)

- Fellow of GSA, AAAS, MSA, and IAGC.

Tentative Agenda

- Introduction to geochemical modeling;
- Application to concurrent critical metal extraction and CO₂ sequestration (see graph on right);
- New modeling tools and databases for rare earth, lithium, nickel, and cobalt modeling.

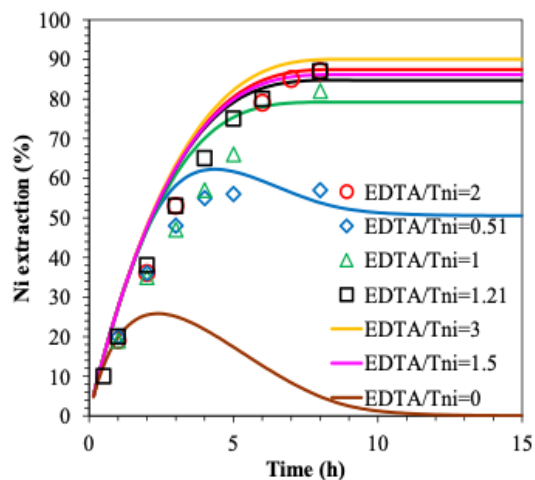
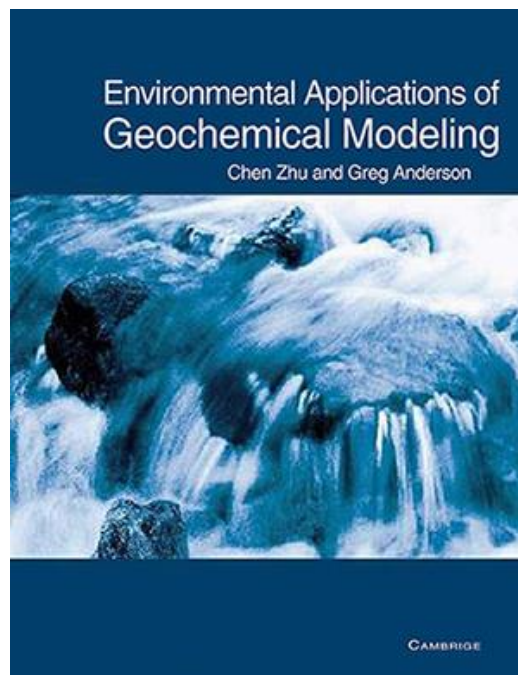
Online geochemical modeling tools can be accessed at:

<https://hydrogeochem.earth.indiana.edu/index.html>. Click the button “Geochemical Modeling Resources”.

Format: Online via Zoom/Teams (link provided upon registration)

Registration is required:

<https://store.geosociety.org/products/sc25cn532>.



Example of geochemical modeling output for nickel extraction from peridotite.

