

Dominic Hildebrandt, Massachusetts Institute of Technology, Cambridge, MA USA for his project: *The smectite-illite transition and its role for carbon mobility in the lithosphere*.

Dominic Hildebrandt is a Ph.D. student in the Department of Earth, Atmospheric, and Planetary Sciences at MIT (USA) working with Profs. Oliver Jagoutz and Leigh Royden. He earned a Bachelor's degree in Geosciences from LMU and TU Munich (Germany), and a Master's degree in Earth Sciences/Geology from ETH Zurich (Switzerland), before coming to the U.S. He is a curiosity-driven geologist with a keen interest in how the earth's surface and interior interact. In the past, he has worked on problems in the fields of geomorphology and paleoclimate as well as tectonics and structural geology from disciplinary viewpoints. In his Ph.D., he aims to use these process-driven insights and petrological techniques to integratively study how Earth systems interact.

Dominic is particularly interested in developing a quantitative understanding of how solid earth processes modulate the cycling of carbon and volatile elements and how this impacts climate and planetary habitability. His research typically starts in the field with rigorous observations and sampling, followed by state-of-the-art textural and geochemical characterization,



aiming for quantitative constraints on the behavior of rocks and minerals and their chemical and physical properties under varying geological boundary conditions and across various timescales. Recently, he began to delve into experimental petrology to understand key mineral transformations for volatile cycling under laboratory conditions.

With the funds from the Lipman Student Research Grant, Dominic will study thermally overprinted sedimentary rocks next to an intrusion to learn more about the thermal stability of smectite clays and how this affects the mobility of carbon in the lithosphere.