Payal Banerjee, University of New Mexico, Albuquerque, NM, for her project: Constraining Paleoclimate Conditions of Quaternary Lake Chalco, Mexico Using Triple Oxygen Isotopes.

Payal Banerjee is a third-year PhD candidate in the Department of Earth and Planetary Sciences at the University of New Mexico, under the supervision of Dr. Zachary Sharp. Her doctoral research focuses on using stable isotope geochemistry, particularly triple oxygen isotope analysis ($\delta'^{18}O$, $\Delta'^{17}O$), to reconstruct past hydroclimatic variability in tropical Mesoamerica.

Her project centers on Lake Chalco, a closed-basin lake in the Basin of Mexico, which contains a ~400ka sediment record of environmental change. By analyzing authigenic carbonates from deep sediment cores, Payal aims to disentangle the isotopic signals of evaporation, precipitation, and atmospheric circulation. She uses isotopic modeling to detect shifts between steady-state and non-steady-state evaporation regimes and to evaluate their relationship with orbital and millennial-scale climate oscillations and the ITCZ migration.

With support from the Lipman Student Research Grant, Payal will conduct high precision $\delta'^{18}O$ and $\Delta'^{17}O$ analyses using Tunable Infrared Laser Direct Absorption Spectroscopy (TILDAS). The funding will also enable her to refine evaporation models and expand her study across multiple glacial-interglacial cycles (MIS 2–11), ultimately contributing a rare, long-term terrestrial climate archive from the northern tropics.

Payal earned both her B.Sc. in Geology and M.Sc. in Applied Geology from the University of Calcutta, India. She is passionate about building inclusive research environments and making climate science accessible through outreach and mentorship. Payal is grateful to the Howard and Jean Lipman Foundation and the Geological Society of America's Mineralogy, Geochemistry, Petrology, and Volcanology Division for supporting her research.