Detailed geologic maps are the basis of nearly every Earth-science investigation and can be used for natural hazard mitigation, resource identification and exploration, infrastructure planning, and more. A component of the congressionally mandated National Cooperative Geologic Mapping Program (NCGMP), EDMAP is a partnership among the U.S. Geological Survey (USGS), the Association of American State Geologists, and participating colleges and universities that provides mentorship and training opportunities to geology students nationwide. Under the guidance of a faculty member, EDMAP supports upper level undergraduate and graduate students to gain meaningful experience working on 1-year geologic-mapping projects. Between 1996 and 2019, EDMAP funded research projects for more than 1,200 students at more than 160 universities. Every Federal dollar awarded through the EDMAP program is matched by the student’s university.

EDMAP students have found that their project provided them with quality field-based experience; it allowed them to explore new research methods, sharpened their critical thinking skills, and helped them to pursue their own research. EDMAP students gain leadership experience and build professional relationships with their fellow students, professors, and geologists from State geological surveys and the USGS.

EDMAP not only provides an opportunity for students to gain geologic-mapping experience, but also to contribute to the overall mapping efforts of the Nation. Student mapping is commonly carried out in close collaboration with STATEMAP and FEDMAP, the State and Federal components of the NCGMP. Project proposals selected for EDMAP funding typically complement the mapping priorities of the NCGMP, and make it possible for students to produce a geologic map and report with primary authorship.
EDMAP projects can yield geologic maps that inform major decisions, having the potential to affect environmental quality and human health into the future. The Clean Water Project at the Hartford Metropolitan District Commission is a $2 billion public-works project to design and build new wastewater infrastructure in Hartford, Connecticut. Planning and construction of below-ground infrastructure relies heavily on information provided by geologic maps to identify and characterize ground conditions before and during the project. When planning the 4-mile-long South Hartford Conveyance and Storage Tunnel in 2011, the existing bedrock geologic maps were inadequate to fully understand the rock types and possible faults that could have had serious financial and structural implications during construction.

In the spring of 2012, in response to the need for better geologic maps to guide the building of the tunnel, the Connecticut Geological Survey published “Bedrock Geology of the Hartford South Quadrangle”—a map created through the EDMAP program. In collaboration with the Connecticut Geological Survey, EDMAP students and their mentors at Eastern Connecticut State University updated an unpublished 1970s-era map of bedrock in the Hartford South area, combining information from unpublished manuscripts in the Connecticut Geological Survey archives with their own extensive fieldwork and laboratory analyses. The Clean Water Project used the map to characterize the geology, identify the optimal route for the tunnel, and provide other vital information that would otherwise be unavailable or costly to duplicate.

“EDMAP has put me in connection with private, State survey, and USGS researchers and has enabled me to select a non-university member for my graduate committee. The mentorship of EDMAP has extended beyond scientists directly tied to the project, introducing me to workers involved in auxiliary studies and methods which contribute to my dissertation.”

Sylvia Nicovich
Montana State University, 2016 EDMAP student

Project: Geologic Mapping of the Zapata and Blanca Sections of the Northern Sangre de Cristo-Front Fault System, South-Central Colorado

“EDMAP provided an opportunity to experience the full mapping spectrum, from field exploration and data collection to reviewing multiple datasets for mapping interpretations during digital cartography. My EDMAP experience served as an extremely important foundation for my remaining mapping project during my graduate studies, and also for my future research ambitions… I certainly plan to continue mapping as part of future employment.”

Sarah VanderMeer
Western Michigan University, 2015 EDMAP student

Project: Surficial Geologic Mapping of the Indian Town and Wood Island SE 7.5 Minute Quadrangles, Pictured Rocks National Lakeshore, Michigan

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Interested in applying for EDMAP?

University faculty can apply to fund a student mapping project. Graduate students are eligible for $17,500 in project funding; undergraduates are eligible for $10,000. For more information about EDMAP and other career-building opportunities through the National Cooperative Geologic Mapping Program, visit: https://ncgmp.usgs.gov/.

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Reston, Virginia 20192
Darcy K. McPhee, Associate Program Coordinator and EDMAP Program Officer
(703) 648-6973

By Abby Ackerman and Darcy McPhee
Edited by Monica Erdman
Layout and artwork by Kimber Petersen

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<th>PROJECT DATE</th>
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<th>NOTES</th>
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<td><strong>1.</strong> Visit <a href="https://www.grants.gov/">https://www.grants.gov/</a>. Applications period typically opens in September and closes in November each year.</td>
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