PROCEEDINGS OF THE KECK GEOLOGY CONSORTIUM

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2023-2024 Projects

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2023-2024 Projects

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Amherst College, Beloit College, Carleton College, Colgate University, The College of Wooster, The Colorado College, Franklin & Marshall College, Macalester College, Pomona College, Trinity University, Union College, Washington & Lee University, Whitman College

2023-2024 GATEWAY PROJECTS

GEOCHEMICAL CONTROLS ON URANIUM CONTAMINATION OF GROUNDWATER IN THE CENTRAL VALLEY AND HIGH PLAINS AQUIFER SYSTEMS
Faculty: BRADY ZIEGLER, Trinity University
Peer Mentor: MARK NICKELS, Trinity University
Students: YARELY CONTRERAS-JOYA, Hamilton College; ANNA HEIKES, Trinity University; HOLLY MIRALES, Hamilton College; AMBER NELSON, Amherst College

THE IMPACT OF LARGE FLOODS ON FLUVIAL SYSTEMS IN NORTHERN YELLOWSTONE NATIONAL PARK
Faculty: LYMAN PERSICO, Whitman College
Peer Mentor: SARAH HOFFMAN, Whitman College
Students: KATALYN DENBY, Washington and Lee University; YOEL IZAGUIRRE, Carleton College; ANDREA KAUFER, Union College; SOPHIA POWERS, Macalester College; MIA SANCHEZ, Amherst College

2023-2024 ADVANCED PROJECTS

STRUCTURAL EVOLUTION OF A SEGMENTED NORMAL FAULT TRANSFER ZONE, SEVIER FAULT, SOUTHERN UTAH
Faculty: BEN SURPLESS, Trinity University
Students: PIERCE HAYTON, Colorado College; AUDREY JENNINGS, Trinity University; JACK MRACHEK, Purdue University; MORGAN SHARP, Whitman College

YOUNG EYES ON OLD ROCKS: EVALUATING TECTONIC MODELS FOR NEOARCHEAN(?) BASIN FORMATION IN THE METAMORPHIC CORE OF THE BLACK HILLS, SOUTH DAKOTA
Faculty: TREVOR WALDIEN, South Dakota School of Mines
Students: REBECCA BRAUN, South Dakota School of Mines; LIAM FRY, Eckerd College; WILLA OBRINGER, Lake Superior State University; ALEXANDRA ROBINSON, Pomona College

2023-2024 ADVANCED PROJECTS – continued

INTEGRATED STRATIGRAPHIC AND PALEOENVIRONMENTAL STUDY OF THE MIDDLE-LATE DEVONIAN CARBONATE TO BLACK SHALE TRANSITION IN THE MICHIGAN BASIN
Faculty: JAY ZAMBITO, Beloit College; PETER VOICE, Western Michigan University
Students: TIFFANY BARKER-EDWARDS, University of Texas at San Antonio; MIKAYLA GIEHLER, Macalester College; JACK GUGINO, Miami University – Oxford; ISABEL JOHNSON, Beloit College; HOLIDAY O'BRYAN, Macalester College; CONNOR QUIROZ, California State University, Monterey Bay; LAM TRUONG, California State University Long Beach; AINSLEY WIESNER, The College of Wooster; MARCELLA WINGET, Hamilton College

Conference Presentations – California Gateway Project

Contreras-Joya, Y., Heikes, A., Nickels, M., Mirales, H., Nelson, A., Mine, A., and Ziegler, B., 2023, Spatial and statistical analysis of uranium in the High Plains aquifer in comparison to the Central Valley aquifer, *in* Geological Society of America Abstracts with Programs. Vol. 55, No. 6, doi:10.1130/abs/2023AM-390307.

Mirales, H., Nelson, A., Heikes, A., Contreras-Joya, Y., Ruiz, S., Mine, A., and Ziegler, B., 2023, Evaluating geochemical and microbial influences on uranium mobilization in Central Valley, California, *in* Geological Society of America Abstracts with Programs. Vol. 55, No. 6, doi:10.1130/abs/2023AM-390308.

Conference Presentations – Yellowstone Gateway Project

Denby, K., Izaguirre, Y., Kaufer, A., Powers, S., Sanchez, M., Hoffman, S., and Persico, L., 2024, A tale of two floods: comparing peak discharges of the 1918 and 2022 northern Yellowstone National Park floods, *in* Geological Society of America Abstracts with Programs. Vol. 56, No. 4, doi:10.1130/abs/2024CD-399418.

Hoffman, S., and Persico, L.P., 2024, Reconstructing peak discharge variability of the June 2022 flood in northern Yellowstone National Park, *in* Geological Society of America Abstracts with Programs. Vol. 56, No. 4, doi:10.1130/abs/2024CD-399728.

Persico, L.P., and Meyer, G., 2024, Exploring variability in peak discharge and erosion caused by the June 2022 atmospheric river flood in northern Yellowstone National Park, *in* Geological Society of America Abstracts with Programs. Vol. 56, No. 4, doi:10.1130/abs/2024CD-399897.

Short Contributions – Utah Advanced Project

TESTING MODELS OF NORMAL FAULT PROPAGATION AND DAMAGE ZONE DEVELOPMENT
BENJAMIN SURPLESS, Trinity University

THE ROLE OF FAULT DAMAGE ZONES IN STRUCTURALLY CONTROLLED LANDSCAPE EVOLUTION, SEVIER FAULT ZONE, SOUTHERN UTAH
PIERCE HAYTON, Colorado College
Project Advisors: Tyler Grambling, Sarah Schanz

COMPUTER MODELING OF NORMAL FAULT-RELATED DAMAGE ZONES: IMPLICATIONS FOR ESTIMATING GEOTHERMAL ENERGY POTENTIAL
AUDREY JENNINGS, Trinity University
Project Advisor: Benjamin Surpless

GEOLOGICAL TIMELINE & EXTENSION OF MARTIAN FAULTING IN THE ALBA MONS REGION OF MARS
JACK MRACHEK, Purdue University
Project Advisor: Michael Eddy

Short Contributions – Black Hills Advanced Project

Short Contributions – Michigan Basin Advanced Project

DIAGENESIS OF A PYRITIZED CONTACT OF THE MIDDLE TO LATE DEVONIAN TRANSITION FROM CARBONATE TO BLACK SHALE
HOLIDAY R. O'BRYAN, Macalester College
Project Advisors: Kelly R. Macgregor and Jeff T. Thole

AN ANALYSIS OF STRATIGRAPHIC, PALEOECOLOGIC, AND GEOCHEMICAL VARIABILITY IN THE "SQUAW BAY FORMATION," MICHIGAN BASIN
AINSLEY S. WIESNER, The College of Wooster
Project Advisor: Shelley A. Judge

GEOCHEMICAL ANALYSIS OF THE MIDDLE TO UPPER DEVONIAN ANTRIM SHALE, KROCKER 1-17 CORE, MICHIGAN BASIN
MIKAYLA C. GIEHLER, Macalester College
Project Advisor: Kelly R. Macgregor

EXPLORING THE SUITABILITY OF THE MIDDLE-LATE DEVONIAN ANTRIM SHALE, MICHIGAN BASIN, FOR ORGANIC CARBON ISOTOPIC ANALYSIS
JACK P. GUGINO, Miami University
Project Advisor: Brian S. Currie

MAGNETIC SUSCEPTIBILITY OF SEDIMENTARY STRATA IN THE LATE DEVONIAN ANTRIM FORMATION OF THE MICHIGAN BASIN
TIFFANY BARKER-EDWARDS, University of Texas at San Antonio
Project Advisors: Peter J. Voice and James J. Zambito IV

CHARACTERIZING THE SEDIMENT SOURCE OF THE ELLSWORTH FORMATION OF THE MICHIGAN BASIN USING LITHOSTRATIGRAPHY AND CHEMOSTRATIGRAPHY
ISABEL R. JOHNSON, Beloit College
Project Advisor: James J. Zambito IV

MODELING MARINE PALEOENVIRONMENTS OF THE ELLSWORTH PRODELTA DURING THE LATE DEVONIAN IN THE MICHIGAN BASIN
CONNOR J. QUIROZ, California State University, Monterey Bay
Project Advisors: Peter J. Voice and James J. Zambito IV

GEOLOGIC MAPPING OF ALPENA COUNTY, MICHIGAN
LAM T. TRUONG, California State Long Beach University
Project Advisors: Peter J. Voice and James J. Zambito IV