

PROCEEDINGS OF THE TWENTY-EIGHTH ANNUAL KECK RESEARCH SYMPOSIUM IN GEOLOGY

April 2015
Union College, Schenectady, NY

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**KECK GEOLOGY CONSORTIUM
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Washington & Lee University, Wesleyan University, Whitman College, Williams College**

2014-2015 PROJECTS

RESILIENCE OF ENDANGERED ACROPORA SP. CORALS IN BELIZE. WHY IS CORAL GARDENS REEF THRIVING?:

Faculty: LISA GREER, Washington & Lee University, HALARD LESCINSKY, Otterbein University, KARL WIRTH, Macalester College

Students: ZEBULON MARTIN, Otterbein University, JAMES BUSCH, Washington & Lee University, SHANNON DILLON, Colgate University, SARAH HOLMES, Beloit College, GABRIELA GARCIA, Oberlin College, SARAH BENDER, The College of Wooster, ERIN PEELING, Pennsylvania State University, GREGORY MAK, Trinity University, THOMAS HEROLD, The College of Wooster, ADELE IRWIN, Washington & Lee University, ILLIAN DECORTE, Macalester College

TECTONIC EVOLUTION OF THE CHUGACH-PRINCE WILLIAM TERRANE, SOUTH CENTRAL ALASKA:

Faculty: CAM DAVIDSON, Carleton College, JOHN GARVER Union College

Students: KAITLYN SUAREZ, Union College, WILLIAM GRIMM, Carleton College, RANIER LEMPERT, Amherst College, ELAINE YOUNG, Ohio Wesleyan University, FRANK MOLINEK, Carleton College, EILEEN ALEJOS, Union College

EXPLORING THE PROTEROZOIC BIG SKY OROGENY IN SW MONTANA: METASUPRACRUSTAL ROCKS OF THE RUBY RANGE

Faculty: TEKLA HARMS, Amherst College, JULIE BALDWIN, University of Montana

Students: BRIANNA BERG, University of Montana, AMAR MUKUNDA, Amherst College, REBECCA BLAND, Mt. Holyoke College, JACOB HUGHES, Western Kentucky University, LUIS RODRIGUEZ, Universidad de Puerto Rico-Mayaguez, MARIAH ARMENTA, University of Arizona, CLEMENTINE HAMELIN, Smith College

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GEOMORPHOLOGIC AND PALEOENVIRONMENTAL CHANGE IN GLACIER NATIONAL PARK, MONTANA:

Faculty: KELLY MACGREGOR, Macalester College, AMY MYRBO, LabCore, University of Minnesota

Students: ERIC STEPHENS, Macalester College, KARLY CLIPPINGER, Beloit College, ASHLEIGH, COVARRUBIAS, California State University-San Bernardino, GRAYSON CARLILE, Whitman College, MADISON ANDRES, Colorado College, EMILY DIENER, Macalester College

ANTARCTIC PLIOCENE AND LOWER PLEISTOCENE (GELASIAN) PALEOCLIMATE RECONSTRUCTED FROM OCEAN DRILLING PROGRAM WEDDELL SEA CORES:

Faculty: SUZANNE O'CONNELL, Wesleyan University

Students: JAMES HALL, Wesleyan University, CASSANDRE STIRPE, Vassar College, HALI ENGLERT, Macalester College

HOLOCENE CLIMATIC CHANGE AND ACTIVE TECTONICS IN THE PERUVIAN ANDES: IMPACTS ON GLACIERS AND LAKES:

Faculty: DON RODBELL & DAVID GILLIKIN, Union College

Students: NICHOLAS WEIDHAAS, Union College, ALIA PAYNE, Macalester College, JULIE DANIELS, Northern Illinois University

GEOLOGICAL HAZARDS, CLIMATE CHANGE, AND HUMAN/ECOSYSTEMS RESILIENCE IN THE ISLANDS OF THE FOUR MOUNTAINS, ALASKA

Faculty: KIRSTEN NICOLAYSEN, Whitman College

Students: LYDIA LOOPESKO, Whitman College, ANNE FULTON, Pomona College, THOMAS BARTLETT, Colgate University

CALIBRATING NATURAL BASALTIC LAVA FLOWS WITH LARGE-SCALE LAVA EXPERIMENTS:

Faculty: JEFF KARSON, Syracuse University, RICK HAZLETT, Pomona College

Students: MARY BROMFIELD, Syracuse University, NICHOLAS BROWNE, Pomona College, NELL DAVIS, Williams College, KELSA WARNER, The University of the South, CHRISTOPHER PELLAND, Lafayette College, WILLA ROWEN, Oberlin College

FIRE AND CATASTROPHIC FLOODING, FOURMILE CATCHMENT, FRONT RANGE, COLORADO:

Faculty: DAVID DETHIER, Williams College, WILLIAM B. OUMET, University of Connecticut, WILLIAM KASTE, The College of William and Mary

Students: GREGORY HARRIS, University of Connecticut, EDWARD ABRAHAMS, The College of William & Mary, CHARLES KAUFMAN, Carleton College, VICTOR MAJOR, Williams College, RACHEL SAMUELS, Washington & Lee University, MANEH KOTIKIAN, Mt. Holyoke College

SOPHOMORE PROJECT: AQUATIC BIOGEOCHEMISTRY: TRACKING POLLUTION IN RIVER SYSTEMS

Faculty: ANOUK VERHEYDEN-GILLIKIN, Union College

Students: CELINA BRIEVA, Mt. Holyoke College, SARA GUTIERREZ, University of California-Berkeley, ALESIA HUNTER, Beloit College, ANNY KELLY SAINVIL, Smith College, LARENZ STOREY, Union College, ANGEL TATE, Oberlin College

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Keck Geology Consortium: Projects 2014-2015
Short Contributions— Belize Reef Project

MULTI-LEVEL CHARACTERIZATION OF ACROPORID CORAL POPULATIONS AT CORAL GARDENS, BELIZE: A REFUGIA IDENTIFIED

LISA GREER, Washington & Lee University, HALARD LESCINSKY, Otterbein University, KARL WIRTH, Macalester College

ARE THREESpot DAMSELFISH HELPING OR HURTING THE POSSIBLE RESURGENCE OF ACROPORA CORALS?

ZEBULON MARTIN, Otterbein University
Research Advisor: Dr. Halard Lescinsky, Otterbein University

GEOEYE-1 IMAGERY CLASSIFICATION: AN ACCURATE METHOD FOR IDENTIFYING POPULATIONS OF *ACROPORA* SPP. CORALS PRIOR TO A FIELD STUDY

JAMES BUSCH, Washington & Lee University
Research Advisor: Lisa Greer, Washington & Lee University

MORPHOMETRIC AND TAPHONOMIC ANALYSIS OF *ACROPORA PROLIFERA* AT CORAL GARDENS, BELIZE

SHANNON DILLON, Colgate University
Research Advisor: Constance M. Soja, Colgate University

***ACROPORA CERVICORNIS* RUBBLE AND FOSSIL FRAMEWORK AT CORAL GARDENS, BELIZE: INVESTIGATING ENVIRONMENTAL CONDITIONS AND SAMPLING STRATEGIES USING STABLE ISOTOPE GEOCHEMISTRY**

SARAH HOLMES, Beloit College
Research Advisor: Carl Mendelson, Beloit College

QUANTIFYING THE MICRO- AND MACRO- BORING COMMUNITIES IN CORAL GARDENS, BELIZE

GABRIELA GARCIA, Oberlin College
Research Advisor: Dennis K. Hubbard, Oberlin College

GRAZER DYNAMICS ON AN ACROPORID PATCH REEF SYSTEM AND THEIR IMPLICATIONS FOR THE CARBONATE BUDGET AT CORAL GARDENS, BELIZE

SARAH K. BENDER, The College of Wooster
Research Advisor: Mark Wilson, The College of Wooster

***ACROPORA CERVICORNIS* CARBONATE PRODUCTION AT CORAL GARDENS, BELIZE: PREDICTING FUTURE REEF STABILITY**

ERIN PEELING, The Pennsylvania State University
Research Advisor: Tim Bralower, The Pennsylvania State University

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USING SEDIMENTS AND SUBSTRATES TO INTERPRET REGIONAL HYDRODYNAMICS AND ECOLOGY OF CORAL GARDENS, BELIZE

GREGORY MAK, Trinity University

Research Advisor: Daniel J. Lehrmann, Trinity University

GROWTH PATTERNS OF ACROPORA CERVICORNIS AFFECTED BY CURRENTS AT CORAL GARDENS, BELIZE

THOMAS R. HEROLD, The College of Wooster

Research Advisor: Shelley Judge, The College of Wooster

INVESTIGATIONS OF RESILIENT ACROPORA COMMUNITIES IN BELIZE: RELATIVE AGING AND INTRASPECIFIC DIVERSITY CALCULATIONS OF SPECIES USING MICROSATELLITE MARKERS AND SOMATIC MUTATIONS

ADELE IRWIN, Washington and Lee University

Research Advisor: Lisa Greer, Washington & Lee University

RECORD OF ENVIRONMENTAL CHANGE IN CARRIBEAN CORAL REEFS: SCLEROCHRONOLOGY AND GEOCHEMISTRY OF *O. FAVEOLATA* AS A PALEOCLIMATE PROXY AT CORAL GARDENS AND ROCKY POINT, BELIZE.

ILIAN A. DECORTE, Macalester College

Research Advisor: Karl R. Wirth, Macalester College

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