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Welcome

Hello Attendees!

Welcome to The University of Arizona Department of Geoscience’s 46th annual GeoDaze Symposium! GeoDaze is an entirely student-run research symposium that has become a hallmark at the University of Arizona for its presentation of high-quality research from undergraduate and graduate students. Each year, GeoDaze is made possible by generous donations from individuals and corporate sponsors. We thank you for your continued support. GeoDaze enables all students to present their research to an enthusiastic audience of faculty, industry professionals, peers, and the general public. It not only disseminates cutting-edge research to the community, but also provides students with practical presentation and communication experience. GeoDaze collaborates with five other departments in the School of Earth and Environmental Sciences (SEES) to bring you EarthWeek, a celebration of scientific research to promote interdisciplinary discussion, collaboration, and exposure for all of the participating departments who study the Earth. A full schedule of EarthWeek events is included on page 6 of this program, and we encourage you to take advantage of all that EarthWeek has to offer.

This year, GeoDaze is proud to present 30 oral and 20 poster presentations from Geosciences graduate and undergraduate students. The diversity of these presentations spans both geographic regions and research interests and includes research in economic geology, tectonics, geochemistry, geophysics, paleoclimate, and climate dynamics. This year, GeoDaze is proud to host Dr. Isabel Montañez, Chancellor’s Leadership Professor at University of California, Davis, and current President of the Geological Society of America. Dr. Montañez’s research probes the climate processes that have been preserved in the rock record, using geochemistry and sedimentary geology. We invite you to attend Dr. Montañez’s Keynote talk entitled “Deep-time insights into Earth’s future” at 2:30 PM on Friday, April 13th in the South Ballroom.

In accordance with tradition, many exciting extra events will take place during GeoDaze. Our panel of faculty judges and sponsors will present awards for the best talks and posters in each session as well as the overall best talk at 3:30 PM on Friday. All GeoDaze attendees are invited to attend the GeoDaze party, featuring our very own Rayleigh Taylor Instability (RTI) Band and the annual slide show, hosted by Professors Susan Beck and George Zandt on Friday evening beginning at 6 PM. The 2018 GeoDaze symposium will conclude with a field-trip to the USDA-ARS Walnut Gulch Experimental Watershed lead by Professor Jon Pelletier and collaborator Dr. Mark Kautz, 8:00 AM–5:00 PM, Saturday, April 14th.

We would like to thank all of those who helped support and organize GeoDaze this year. Your tireless efforts ensure the continued success of GeoDaze!

Brendan Fenerty & Katherine Guns

Co-Chairs, 2018 GeoDaze Symposium
Committees

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A complete version of the GeoDaze 2018 Program with Abstracts is available online:

http://earth.geo.arizona.edu/18/index.html
GeoDaze Keynote Address

"Deep-Time insight into Earth's future"

Dr. Isabel P. Montañez
Chancellor’s Leadership Professor,
University of California, Davis
President of the Geological Society of America.

Student Union Memorial Center South Ballroom, Friday, April 13th 2018, 2:30–3:30 pm

EarthWeek Plenary Speaker

“The Past and Future of the American Monsoon”

Dr. Jessica Tierney

Associate Professor, Geosciences
The University of Arizona

Student Union Memorial Center North Ballroom, Wednesday, April 11th 2018, 3:30-4:30 pm
GeoDaze Thursday, April 12th, 2018

Oral Presentations (morning sessions)
Student Union Memorial Center SOUTH BALLROOM

8:15-8:30 Welcoming Remarks

Session I: Geochemistry
Session Chairs: Hannah Herrick and Cherie Achilles

8:30-8:45 U-PB GEOCHRONOLOGY AND HF ISOTOPE GEOCHEMISTRY OF THE TURTLEBACK COMPLEX AND EAST SOUND GROUP, SAN JUAN ISLANDS, NORTHWEST WASHINGTON
Kojo Plange

8:45-9:00 FORMATION VERSUS COOLING: HOW SINGLE-CRYSTAL HEMATITE (U–TH)/HE DATE–GRAIN SIZE RELATIONSHIPS CAN INFORM DATA INTERPRETATION
Jordan Jensen

9:00-9:15 ISOTOPE GEOCHEMISTRY OF ZIRCON CRYSTALS FROM EOCENE-OLIGOCENE VOLCANICLASTIC ROCKS OF THE PAMIR PLATEAU
John He

9:15-9:30 U-PB AND HF ISOTOPIC ANALYSIS OF DETRITAL ZIRCONS FROM PALEOZOIC AND CRETAEOUS STRATA OF SOUTHERN VANCOUVER ISLAND, B.C.
Daniel Alberts

9:30-9:45 APPLYING STRONTIUM ISOTOPE GEOPROVENANCE TO ANTHROPOGENIC CHARCOAL
Hannah M Herrick

9:45-10:00 ANALYSIS, CORRELATION, AND IMPLICATIONS OF A WELL–PRESERVED QUATERNARY TEPHRA HORIZON, BANKS PENINSULA, NEW ZEALAND
Anna Katharina Schuh

10:00-10:15 MELTING UNDER PLATEAUS: A PETROLOGIC AND GEOCHEMICAL STUDY OF PLIOGENE VOLCANIC ROCKS WEST OF LAKE TITICACA
James Campbell

10:15-10:30 U-PB ZIRCON GEOCHRONOLOGY OF UPPER AND LOWER PLATE ROCKS IN SAGUARO NATIONAL PARK EAST
Clay Kelty

10:30-10:45 BREAK
**Session II: Tectonics**

*Session Chair: Emily Rodriguez*

**10:45-11:00** SUPERIMPOSED EPISODES OF CENOZOIC EXTENSIONAL DEFORMATION IN THE GOSHUTE MOUNTAINS AND TOANO RANGE, ELKO COUNTY, NEVADA

  Carson A. Richardson

**11:00-11:15** STRUCTURAL STYLE AND TIMING OF BASEMENT-CORED UPLIFTS IN THE TAIHANG-LULIANGSHAN FOLD-BELT, NORTH CHINA

  Christopher Clinkscales

**11:15-11:30** LARAMIDE SHORTENING IN THE NORTHERN GALIRO MOUNTAINS, SOUTHEASTERN ARIZONA

  Daniel Favorito

**11:30-11:45** MAGMATIC EVOLUTION OF THE LARAMIDE ARC & PORPHYRY Cu PROVINCE, SW NORTH AMERICA

  Roy Greig

**11:45-12:00** SURFACE UPLIFT OF THE CENTRAL ANDES IN NORTHERN CHILE

  Sebastian Jimenez

**12:00-12:15** AGE AND DEPOSITION OF THE FORT CRITTENDEN FORMATION: A WINDOW INTO LARAMIDE TECTONIC HISTORY IN SOUTHERN ARIZONA

  Emilia Caylor

**12:15-12:30** CENOZOIC DEFORMATION IN THE PUNA PLATEAU BETWEEN 22 – 24 °S, CENTRAL ANDES

  Susana Henriquez

**12:30-1:30** LUNCH BREAK

**Poster Session**

1:30-4:00 PM Student Union Memorial Center *SANTA RITA ROOM*

**G01:** NEOTECTONIC AND (U-TH)/HE APATITE THERMOCHRONOLOGIC INVESTIGATION OF THE ALTAI MOUNTAINS, NORTHWESTERN CHINA

  Matthew Banaszynski

**G02:** SEDIMENTARY AND TECTONIC INTERPRETATION OF MEGASEQUENCES OF THE COLOMBIAN BASIN

  Daniel Basabe

**G04:** ALTERATION MINERALOGY AND COMPOSITION OF PARADOX BASIN ROCKS

  Callyn Couture

**G05:** SEISMICITY OF THE SANTA RITA FAULT
G06: INFERRING PAST FIRE FREQUENCY AND ENVIRONMENTAL CONDITIONS IN EAST AFRICA BASED ON CHARCOAL ABUNDANCE FROM THE HSPDP LAKE MAGADI CORE
Ashlee Cowles

G07: INVESTIGATION OF SEISMICITY AND VELOCITY STRUCTURE OF THE FOREARC OF THE CASCADE SUBDUCTION ZONE IN CENTRAL OREGON
Audrey Dunham

G08: USING STABLE ISOTOPES OF PLANT LEAF WAXES FROM SONORAN DESERT NATIVES TO UNDERSTAND PLANT GROWTH, FORM, AND PROCESS OF ACCESSING WATER ON AN ANNUAL SCALE
Mikayla Gerdes

G09: FLUID DEVELOPMENT ALONG THE CATALINA-RINCON DETACHMENT FAULT AT X9 RANCH
Tanner Grose

G10: GENETIC ALGORITHM OPTIMIZATION APPLIED TO BACK-PROJECTION SUB-ARRAY SELECTION
Haiyang L. Kehoe

G11: LATE PLIOcene PALEOENVIRONMENTAL CONDITIONS IN NORTHEASTERN ETHIOPIA AS INFERRed FROM ISOTOPIC ANALYSES OF BULK ORGANIC MATTER FROM THE NORTHERN AWASH HSPDP SEDIMENT CORES.
Jon Logan

G12: STRUCTURAL ANALYSIS OF BLOCK 3 IN LOWER CONGO BASIN, ANGOLA, USING A SIMULTANEOUSLY INTEGRATION OF 3D SEISMIC REFLECTION DATA, VSP, AND WELL DATA
Nelson Graciano Antonio Mateta

G13: A BACK-PROJECTION ANALYSIS OF THE SEISMICITY BENEATH THE INDIAN HEAVEN VOLCANIC FIELD, WASHINGTON STATE, USA
David Moussa

G14: BULK CARBON AND NITROGEN ISOTOPIC ANALYSIS OF THE EARLY PLEISTOCENE WEST TURKANA HSPDP DRILL CORE FROM NORTHERN KENYA
Lizbeth Murillo

G15: COUPLING THE RELATIONSHIP BETWEEN MANAGEMENT AND IRRIGATION DYNAMICS IN THE LOWER COLORADO RIVER BASIN
Cynthia L. Norton

G16: UPPER AND LOWER, UNPLUGGED AND PLUGGED: NATURAL AND REGULATED FLOW REGIMES IN THE COLORADO RIVER BASIN
Matt Olson & Karl Flessa

G18: GEOPATHWAYS – A UNIVERSITY OF ARIZONA – PIMA COMMUNITY COLLEGE PARTNERSHIP AND INTERNSHIP PROGRAM FOR TRANSFER STUDENTS. YEAR 2
Sarah Patterson
GeoDaze Friday, April 13th, 2018

Oral Presentations
Student Union Memorial Center SOUTH BALLROOM

Session III: Geophysics
Session Chair: Haiyang Kehoe

8:15-8:30  DRIP-STORMS: SHALLOW SUBDUCTION AND THE DESTRUCTION OF THE CONTINENTAL MANTLE LITHOSPHERE
          Jay Chapman

8:30-8:45  AN ANALYSIS OF THE DIFFERENCES BETWEEN GRACE AND GPS ESTIMATES OF DISPLACEMENT DUE TO TERRESTRIAL WATER STORAGE
          Lisa Jose

8:45-9:00  MODELING THE EFFECTS OF SLAB HOLES ON MANTLE FLOW AND THE OVERRIDING PLATE
          Daniel Evan Portner

9:00-9:15  RECEIVER FUNCTION ANALYSIS OF THE ECUADORIAN OROGENIC SYSTEM
          Clinton Koch

9:15-9:30  ASSESSING UNCERTAINTIES IN TOMOGRAPHY: A BOOTSTRAPPING APPROACH APPLIED TO CENTRAL SOUTH AMERICA
          Emily Rodriguez

9:30-9:45  BREAK

Session IV: Climate Part I
Session Chair: Gloria Jimenez
9:45-10:00  PALEOCLIMATE RECONSTRUCTIONS OF THE NORTHEASTERN UNITED STATES USING ATLANTIC WHITE CEDAR TREE-RINGS  
Jessie Pearl

10:00-10:15  A NORTHERN AUSTRALIAN CORAL RECORD OF SEASONAL RAINFALL AND SEA SURFACE TEMPERATURE (1775-1986)  
Elizabeth Patterson

10:15-10:30  CA MICRO AND MESOCOSM APPROACH TO UNDERSTANDING THE RESPONSE OF BRGDGTS TO ENVIRONMENTAL PERTURBATIONS  
Pablo Martinez Sosa

10:30-10:45  DO OUR RECONSTRUCTIONS OF ENSO HAVE TOO MUCH LOW-FREQUENCY VARIABILITY?  
Garrison Loope

10:45-11:00  IMPACTS OF EXCESS SEDIMENT DISCHARGE FROM HILLSLOPE DEFORESTATION ON POPULATIONS OF OSTRACODES ON TWO PLATFORMS IN LAKE TANGANYIKA, TANZANIA (AUTHORS: GRAVINA, ANNA. COHEN, ANDREW. SOREGHAN, MICHAEL SOMASUNDARAM, RAMANATHAN. BUSH, JAMES. RYAN, EMILY)  
Anna Gravina

11:00-11:15  SCALE-DEPENDENT CONTROLS ON THE SPATIAL STRUCTURE OF DISCONTINUOUS ARID RIVERS  
Zachary Williams

11:15-11:30  BREAK

Session V: Climate Part II

Session Chair: Pablo Martinez Sosa

11:30-11:45  HISTORY OF ENSO IN THE GALAPAGOS IN THE 16TH CENTURY USING FOSSIL CORAL GEOCHEMISTRY  
Jessie McCraw

11:45-12:00  STABLE ISOTOPE RATIOS IN FRESHWATER MUSSLE SHELLS AS HIGH-RESOLUTION RECORDERS OF RIVERINE ENVIRONMENTAL VARIATION  
Stephanie Kukolich

12:00-12:15  TESTING A SPELEOTHEM TRACE-ELEMENT RECORD FOR CLIMATE SIGNALS  
Jonathan King

12:15-12:30  A PREINDUSTRIAL TO PRESENT RECORD OF SST FROM DARWIN ISLAND, GALÁPAGOS  
Gloria Jimenez

12:30-2:30  LUNCH BREAK

2:30-3:30  Geodaze Keynote Address: ‘Deep-Time insight into Earth's Future’  
Isabel Montañez
GeoDaze Field Trip, Saturday, April 14th

The 2018 GeoDaze field trip will be held at the Walnut Gulch Experimental Watershed (WGEW) and led by Professor Jon Pelletier and Dr. Mark Kautz. Since the mid-1950s, the WGEW has operated as an outdoor laboratory in support of the mission of the USDA-ARS Southwest Watershed Research Center to develop knowledge and technology to conserve water and soil in semi-arid lands. The WGEW is located within the upper San Pedro River Basin and is intensively instrumented for studying semi-arid rangeland hydrologic, ecosystem, climate, and erosion processes. Multi-decadal measurements of rainfall, runoff, and erosion comprise a world-renowned database of the hydrology and evolution of semi-arid lands and make the WGEW the leading semi-arid research watershed in the world. Collaboration with local landowners and ranchers, universities, and state, federal and international scientists and agencies has resulted in over 1,500 manuscripts and numerous computer simulation models, which contribute to developing knowledge and technology to conserve water and soil in semi-arid environments globally. Sites within the WGEW are readily accessible by vehicle. Participants, however, should be prepared for uneven terrain, thorny vegetation, and gentle slopes. Lunch will be provided for registered participants, but please bring sufficient water.

The trip will depart at 8:15 AM from the Gould-Simpson loading dock and return at 5:00 PM.
Maps and directions

Student Union Memorial Center (Black Circle)

Gould-Simpson Building (Black Rectangle)
MAP OF STUDENT UNION: LEVEL 3
GeoDaze Banquet, Friday April 13th, 6:00 to 10:00 pm

This year’s GeoDaze party is being at the Beck-Zandt household, located at