Sponsors 3
Welcome 4
Committees 5
  Department of Geosciences Information 5
GeoDaze Keynote Address 6
Thursday, March 28th 7
  Oral Presentations 7
    Session I: Climate and Paleoclimate 7
    Session II: Economic Geology 7
Friday, March 29th 8
  Oral Presentations 9
    Session III: Tectonics and Geochemistry 9
    Session IV: Geophysics 9
Saturday, March 30th 11
  GeoDaze Field Trip to Biosphere 2 11
Poster Presentations 12
Maps and Directions 15
GeoDaze 2019 was made possible by generous donations from…

Mr. & Mrs. Beaudoin  
Dr. Thomas H. Biggs  
Edward A. Cross III  
Dr. Karl W. Flessa  
Dr. C. Vance Haynes Jr.  
James & Diane Hays  
William C. Hirt  
Mr. and Mrs. G. Huckleberry  
Drs. Adam & Alicia Hudson  
Jenney Family Trust  
Richard D. Jones  
Kiven Family Charitable Fund  
Mr. & Mrs. Scott W. Lewis  
Chao Li  
John R. Matis  
Dr. & Mrs. Edgar J. McCullough  
Dr. Mary O’Rourke  
Mr. & Mrs. Robert H. Peterson  
Dr. Sara Peyton & Mr. Richard Bottjer  
Dr. & Mrs. William J. Purves  
Miles Shaw & Mary Niarchos  
Douglas B. Silver  
Dr. Mark & Mrs. Kristen Tinker  
Peter L. Kresan
Welcome

Hello Attendees!

Welcome to The University of Arizona Department of Geosciences’ 47th 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.

This year, GeoDaze is proud to present 24 oral and 37 poster presentations from Geosciences graduate and undergraduate students. The diversity of these presentations spans many geographic regions and research interests. We are also excited to bring you Friday’s Keynote talk by Dr. Jane Willenbring, Associate Professor at the Scripps Institution of Oceanography.

Many additional exciting events will take place during GeoDaze. The Southern Arizona Chapter of the Association for Women Geoscientists has organized a breakfast discussion entitled “Growing up in Science,” led by Dr. Willenbring on Friday morning. Our panel of faculty judges and sponsors will present awards for the best talks and posters after the Keynote talk on Friday. Following the awards, all GeoDaze attendees are invited to attend the GeoDaze banquet at the home of the Drs. Jess and Paul Kapp. The 2019 GeoDaze symposium will conclude with a field-trip to the University of Arizona’s Biosphere 2, with a special lecture by Professor Diane Thompson on Saturday, March 30th.

We want to thank everyone who helped support and organize GeoDaze this year. Your tireless efforts ensure the continued success of GeoDaze!

Lisa Knowles, Pablo Martinez Sosa, and Grace Windler
Co-Chairs, 2019 GeoDaze Symposium
Committees

Co-Chairs             Lisa Knowles, Pablo Martinez Sosa, & Grace Windler
Audio/Video                                       Rob Hayes and Kenneth Gourley
Publications                                       Lydia Bailey and Carissa Raymond
Treasurer                                                                           Clint Koch
Slideshow                                                      Alice Chapman
Refreshments                          Alexander Prescott and Lauren Reeher
Webmaster                                                                  Haiyang Kehoe
Awards                                Derek Hoffman and Tshering Lama Sherpa
Correspondence                                 Carissa Raymond and Rob Hayes
Registration                                        Daniel Portner and Emilia Caylor
Fundraising                                                                  Emily Rodriguez
Field Trip                                                           Dervla Meegan Kumar
Head Talk Judge                          Dr. Andy Cohen
Head Poster Judges                        Dr. Jess Kapp and Dr. Kurt Sundell

Department of Geosciences Information

Department of Geosciences                              Phone: 520-621-6000
The University of Arizona                                Fax: 520-621-2672
Gould-Simpson Building
1040 E. 4th Street
Tucson, AZ 85721
The keynote speaker for GeoDaze is Dr. Jane Willenbring. Her research focuses on the evolution of the Earth’s surface—especially how landscapes are affected by tectonics, climate change, and life. She obtained her Bachelor of Science degree from North Dakota State University, her Master’s from Boston University, and her Ph.D. from Dalhousie University in Nova Scotia, Canada.

Dr. Willenbring was an Assistant Professor at the University of Pennsylvania from 2010 to 2016. She became an Associate Professor at University of California San Diego’s Scripps Institution of Oceanography and is currently there today. Dr. Willenbring is at the forefront of her field, with several prestigious awards and honors, including the Antarctic Service Medal and NSF’s Career Award, and is currently a GSA Fellow.
GeoDaze Thursday, March 28th, 2019

Registration in North Ballroom Lobby All Day

**8:30-8:45 Welcoming Remarks**
North Ballroom

**8:45-10:15 Oral Session I: Climate and Paleoclimate**
North Ballroom
*Session Chair: Dervla Meegan Kumar*

- **8:45-9:00** [Pablo Martinez Sosa](#) - “Linking brGDGT response and microbial community changes to environmental perturbations under laboratory conditions”
- **9:00-9:15** [Emma Reed](#) - “Western Pacific climate variability inferred from Marshall Islands coral geochemistry”
- **9:30-9:45** [Carissa Raymond](#) - “Rainfall intensity-duration thresholds for post-wildfire debris flows in Arizona”
- **9:45-10:00** [Clare DeCelles](#) - “The geological climbing guide to the Homestead”
- **10:00-10:15** [Jonathan King](#) - “Paleo data assimilation of temperature sensitive tree ring records.”

**10:15-10:30** Morning Break

**10:30-12:00 Oral Session II: Economic Geology**
North Ballroom
*Session Chair: Chris Clinkscales*

- **10:30-10:45** [Michael Kassela](#) - “Austin pluton and Reese River mining district, Lander County, Nevada: Magmatism,
alteration, ore formation, and post-ore
dismemberment and tilting”

10:45-11:00 Claire Getz - “Interactions between magmatic intrusions and basinal fluids, Paradox Basin, Utah”

11:00-11:15 Ryan Brock - “High resolution magnetic field data provides new insights on complex structure and mineralization at the San Xavier Underground Mining Laboratory”

11:15-11:30 Alex Whitehead - “Comparative study of sandstone-hosted copper mineralization, Paradox Basin, Utah and Colorado”

11:30-11:45 Paulo Coutinho - “Effects of hydrothermal alteration on the geomechanics of degradation at the Bagdad Mine, Arizona”

11:45-12:00 Roy Greig - “Contrasting igneous-related hydrothermal systems of the Laramide porphyry Cu province: Tucson Mountains, Arizona”

12:00-1:30 Lunch Break

1:30-4:00 Poster Session
Rincon Room/North Ballroom
See Page 12 for poster details

GeoDaze Friday, March 29th, 2019

Registration in North Ballroom Lobby All Day

8:00-9:00 AWG Breakfast with Dr. Jane Willenbring
Lobby of Gould-Simpson Building
9:00-10:45  **Oral Session III: Tectonics and Geochemistry**  
North Ballroom  
Session Chair: Roy Greig

9:00-9:15  **Anahi Carrera** - “Origin of zircons in metasedimentary rocks of the Southern Coast Mountains Batholith”

9:15-9:30  **Lydia Bailey** - “Bleaching of red-beds by hydrocarbons: the fate of iron and timing of mobilization”

9:30-9:45  **Scott Meek** - “Comparative analysis of alluvial fan stratigraphic architectural styles”

9:45-10:00  **Joshua Smith** - “U-Pb geochronology of late-Cretaceous Southeastern Arizona igneous rocks constrains age of deposition of the Fort Crittenden formation and related magmatism”

10:00-10:15  **Sebastian Jimenez** - “Hydrogen stable isotope geochemistry from hydration waters in volcanic glass from the Southern Afar Rift, Ethiopia”

10:15-10:30  **Emilia Caylor** - “Age and deposition of the Fort Crittenden formation: A window into Laramide tectonic history in Southern Arizona”

10:30-10:45  **Walter Afonso** - “The exhumation of the Gros Ventre Range and implications for Laramide tectonics, Northwest Wyoming”

10:45-11:00  **Morning Break**

11:00-12:30  **Oral Session IV: Geophysics**  
North Ballroom  
Session Chair: Jonathan King

11:00-11:15  **Clinton Koch** - “Crustal structure of the Ecuadorian forearc from the joint inversion of receiver functions and ambient noise dispersion data”
11:15-11:30 Audrey Dunham - “Seismic investigation of the Central Oregon forearc through the deployment of nodal seismometers”

11:30-11:45 Haiyang Kehoe - “Complex rupture properties of the 2018 Mw 6.9 Hawai‘i earthquake as imaged by a genetic algorithm-based back-projection technique”

11:45-12:00 David Moussa - “A back-projection analysis of the seismicity beneath the Indian Heaven Volcanic Field, Washington State, USA”

12:00-12:15 Emily Rodriguez - “The mantle structure beneath South America as revealed by teleseismic S-wave tomography”

12:15-12:30 Katherine Guns - “What happens after the earthquake ends? Exploring post-seismic crustal deformation through GPS observations in southern California”

12:30-2:30 Lunch Break

2:30-3:30 Keynote Lecture by Dr. Jane Willenbring: “Not Feeling the Buzz: Tectonics—Not Climate—Limits Heights of Mountains”
North Ballroom

3:30-4:15 Awards Ceremony for Best Talks and Posters
North Ballroom

6:00-10:00 GeoDaze Banquet & Slideshow
Address and map on page 17
GeoDaze Field Trip to Biosphere 2  
Saturday, March 30th

The 2019 GeoDaze field trip will be held at the Biosphere 2 (B2), located only an hour north of Tucson in Oracle, AZ. Despite its proximity to the city, B2 is nestled in the foothills of the Santa Catalinas and surrounded by open desert vistas that provide a scenic setting for this year's trip. B2 was built in the late 1980's as the first fully self-sufficient biosphere but acquired by the University of Arizona in 2007 and transformed into an advanced interdisciplinary research facility.

Dr. Diane Thompson, Assistant Professor in the Department of Geosciences at UA and Director of Marine Research at B2 will accompany the trip and discuss her plans to revitalize the ocean mesocosm for novel coral reef research.

This year, all components of the field trip (GeoDaze-provided transportation and tour) will be 100% accessible for those with disabilities.

**TRANSPORTATION:** GeoDaze is offering transportation to B2! Be at the Gould-Simpson loading dock by 8:30 AM for a departure by 9:00 AM sharp. We will return to the loading dock between 2:00 - 3:00 PM.

**LUNCH:** This year, GeoDaze will provide Jimmy John’s lunch boxes to alumni (and their guests) at no cost, and to all others for a small charge of $5. Stop by the registration table before 4 pm on Friday to order your lunch for the field trip!
Poster Presentations

**G1: Ruba Affifi** - “The paleogeographic evolution of the Afar Rift System in Ethiopia”

**G2: Wadha Aldossari** - Undergrad - “Macrocharcoal analysis of the HSPDP drill core MAG-2A from the Lake Magadi, Kenya”

**G3: Murtadha Al Malallah** - “Charcoal analysis of Holocene sediment cores from the Nitiri Ridge, southern basin of Lake Tanganyika”

**G4: Jennifer Borst** - “Reconstruction of new Tyrannosauroid species”

**G5: Alice Chapman** - “Reconstructing Pacific trade-wind variability from coral Mn/Ca records”

**G6: Daniel Collins** - “Interns and inclusion: Students in the Southern Arizona earth science workforce”

**G7: Daniel Collins** - “U/Pb geochronological analysis of leucogranite zircons from the Dadeldhura Klippe, western Nepal”

**G8: Terrance Delisser** - “Constraining the folding associated with paleo-earthquakes on the White Wolf blind-thrust fault, southern San Joaquin Valley, California”

**G9: Elsa Domingos** - “Revisiting the lithospheric structure beneath the Rio Grande Rift”

**G10: Daniel Favorito** - “Laramide shortening and its relationship to porphyry copper systems in the northern San Pedro Valley, southeastern Arizona”

**G11: Matthew Ford** - “What should the Colorado River estuary look like? Answers from the National Estuarine Research Reserve System”

**G12: Matthew J. Gabriel** - “Hyperspectral remote sensing characterization of minerals”

**G13: Gilbert Gaxiola** - “Systematic Mapping of the Joints in the Catalina Mountains”
G14: Kenneth Gourley - “The influence of mantle structure on dynamic topography in southern Africa”

G15: Alan Gregorski and Aaron Alke - “Catalina detachment fault, Javelina subdetachment fault, and fault-rock relations along the southwest toe of Tanque Verde Ridge, Rincon Mountains”

G16: Tony Guajardo - “Revisiting the structure of the Colorado Plateau Rio Grande Rift seismic transect experiment seismic data”

G17: Tony Guajardo - “Tilt and compliance corrections on ocean bottom seismometer data in the eastern North American margin”

G18: Erika Jaski - “Examining seismicity of the Teton Fault using nodal seismometers”

G19: Tumaini Kamulali - “Paleoecological analysis of Holocene sediment cores from the Nitiri High, southern basin of Lake Tanganyika”

G20: Kara Kelley - “A juvenile Hadrosaur from the upper Cretaceous (lower Campanian) Allison Member, Menfee Formation, New Mexico”

G21: Jennifer Kielhofer - “The ‘soil stringer’ mystery: using micromorphology to study deglacial subarctic soils in central Alaska (c. 15,000 to 11,000 cal BP)”

G22: Anthony Krupa - “Constraining uplift of the Tibetan Plateau”

G23: Dervla Meegan Kumar - “Insights to the paleodynamics of the North American monsoon from vertical temperature gradients and leaf wax δD in the northern Gulf of California”

G24: Iaos Lizarazu and Jacob Kent Ridlinghafer - “Quantifying the effects of wildfire regime and landscape position on soil properties in the Pinaleño Mountains”

G25: Richard Marcelain - “Can the tropical easterly jet be used to predict droughts in the west African Sahel?”

G26: Mark Mellott - “Ostracod paleoenvironmental analysis of the northern Awash drilling area, Ethiopia”
G27: Sirawitch Nantanoi - “Ostracod taphonomy and abundances on undisturbed shell beds of southern Lake Tanganyika, Africa, with implications for human impacts on nearshore ecosystems”

G28: Leah Ortega - “Examining biomarkers in OAE2 sedimentary rocks”

G29: Daniel Alejandro Perea Trejo - “Submarine volcanic rocks in the Mesa Central, Zacatecas, Mexico”

G30: Hamzah Sait - “Reconstruction of paleodrainage patterns in western Arabia and eastern Egypt during the development of the Red Sea Rift”

G31: Shane Scoggin - “(U-Th)/He and 4He/3He thermochronology of secondary oxides in faults and fractures: A regional perspective from southeast Arizona”

G32: Tshering Lama Sherpa - “Exhumation history of Bhumichula Plateau, western Nepal”

G33: Ryan Sigat - “Simulation and modeling of the geochemistry of oil migration through oxidized metalliferous sandstone”

G34: Maria Snyder - “Climate and oceanographic change at Arno Atoll, Republic of the Marshall Islands, over the past millennium”

G35: Yajie Tian - “Provenance of upper Triassic sandstone from Sichuan Basin, Southwest China”

G36: Alexandra Wallenberg - “Detrital zircon geochronology of the Devonian Dutch Creek sandstone in the southern Illinois Basin”
Maps and directions

Student Union Memorial Center (Black Circle)

Gould-Simpson Building (Black Rectangle)
GeoDaze Banquet, Friday March 29th, 6:00 to 10:00 pm

This year’s GeoDaze party is being held at the Kapp household, located at:

Jess & Paul Kapp
4420 E Cerrada del Charro
Tucson, AZ 85718

Directions:
+Head away from campus going east on E. Speedway Blvd.
+Turn left on N Alvernon Way
+FOLLOW N Alvernon Way past the Rillito River (about 3 miles)
+Turn right on E River Rd
+Turn left on N Pontatoc Rd
+Turn right on N Valley View Rd
+Turn right on E Cerrada del Charro
+There is a long driveway to the house that will have to be accessed by foot, signs will mark the way
+Carpooling is appreciated, but parking can be found along E Cerrada del Charro and E Cerrada del Cazador