Welcome

Committee

Department of Geosciences Information

GeoDaze Keynote Address

EarthWeek Plenary Speaker

GeoDaze Thursday, March 30th, 2017

Oral Presentations (morning sessions)

Economic Geology

Geochemistry

Climate

Poster Presentations

Oral Presentations (afternoon sessions)

Geophysics

GeoDaze Friday, March 31st, 2017

Oral Presentations

Paleoclimate

Mineralogy

Tectonics

GeoDaze Field Trip, Saturday, April 1st

Maps and directions
GeoDaze 2017 was made possible by generous donations from

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Welcome

We are pleased to welcome you to the 45th annual GeoDaze! GeoDaze is a research symposium organized by volunteers from the Department of Geosciences that features groundbreaking research from undergraduate and graduate students. Each year, GeoDaze is made possible by generous donations from individuals and corporate sponsors. We sincerely appreciate your continued support!

GeoDaze allows students to present their research to an enthusiastic audience of faculty, industry professionals, peers, and the general public. For the third year, GeoDaze is collaborating with the other departments in the School of Earth and Environmental Sciences to bring you EarthWeek. Inclusion within this celebration of scientific research promotes interdisciplinary discussion, collaboration, and exposure for all of the participating departments. A full schedule of EarthWeek events can be found at http://sees.arizona.edu/earthweek-2017. We encourage you to take advantage of all that EarthWeek has to offer.

This year GeoDaze is proud to present 31 oral and 23 poster presentations from Geosciences graduate and undergraduate students. The diversity of these presentations is reflective of the Department of Geosciences’ drive to integrate earth science research “from core to clouds”. They include research in economic geology, tectonics, geochemistry, geophysics, geomorphology, geoarcheology, paleoclimate, climate dynamics, mineralogy, geochronology, paleoecology, paleontology, and thermochemistry. In addition, Simone Runyon has been selected to represent the Department of Geosciences in the EarthWeek Plenary Session with her talk, “Bottoms up: Deep alteration exposed in dismembered porphyry copper systems of Arizona”, alongside representatives from the other SEES departments. The plenary talks are held in the North Ballroom from 2:00-3:30 pm, Wednesday, March 29.

GeoDaze is proud to host Dr. Linda Rowan from UNAVCO as our keynote speaker. Dr. Rowan is the Director of External Affairs at UNAVCO, where she helps to advance geodetic-based research and data sharing for societal benefit and to better communicate the broader impacts of research and development to the public at large. We invite you to attend Dr. Rowan’s presentation entitled “How to communicate the value of the geosciences to the public and policymakers” at 2:00 PM on Friday, March 31st in the North Ballroom.

In accordance with tradition, many exciting “extracurricular” events will take place during GeoDaze. Our panel of faculty judges will present awards to the best talks and posters in each session as well as the overall runner up and best talks. All attendees of GeoDaze are invited to attend the GeoDaze party. Rumor has it that beer will be flowing and the sunset will be beautiful at the home of Dr. Jon Pelletier. Following dinner, the GeoDaze slide show will surely embarrass and entertain. Be sure to save some energy for the GeoDaze field trip on Saturday. This year the trip will focus on the structural geology of the Loma Alta area on the southeastern flank of Tanque Verde mountain in the Catalina-Rincon metamorphic core complex.

We would like to thank all of those that helped with organizing GeoDaze this year. Without your tireless efforts GeoDaze could not be the success it is!

Kate Metcalf and Carson Richardson

Co-Chairs, 2017 GeoDaze Symposium
Committee

Co-chairs: Kate Metcalf and Carson Richardson

Audio/Video: Jonathan King and Garrison Loope

Publications: Luke Parsons and Paul Goddard

Treasurer: Clint Koch

Slideshow: Jason Burwell

Field Trip: John He and Simon Stickroth

Refreshments: Anne Billingsley and Elizabeth Patterson

Webmaster: Jay Chapman

Awards: Nicollette Buckle and Stephanie Kukolich

Correspondence: Simone Runyon and Katherine Guns

Registration: Derek Hoffman and Daniel Portner

Fundraising: Andrea Stevens

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Department of Geosciences, The University of Arizona

Gould-Simpson Building

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Event Locations and Schedule

View a complete version of the GeoDaze 2017 Program with Abstracts:

http://earth.geo.arizona.edu/17/index.html

GeoDaze Keynote Address

“How to Communicate the Value of Geosciences to the Public and Policymakers”

Linda Rowan

Student Union Memorial Center North Ballroom, Friday, March 31st 2017, 2:00-3:00 pm

EarthWeek Plenary Speaker

“The Colorado River, Climate Change and Drought”

Jonathan Overpeck

Student Union Memorial Center North Ballroom, Wednesday, March 29th 2017, 3:30-4:30 pm
Oral Presentations (morning sessions)
Student Union Memorial Center NORTH BALLROOM

8:30-8:45 Welcome and Coffee

Economic Geology

Session leader: Hanna Brooks

8:45-9:00 CHARACTERIZATION OF HYDROTHERMAL ALTERATION IN THE TUCSON MOUNTAINS USING MULTISPECTRAL ASTER DATA
Wyatt Bain

9:00-9:15 GEOLOGIC STUDY OF THE GOLD HILL DISTRICT, TOOELE COUNTY, UTAH
Jason Burwell

9:15-9:30 AJO MINING DISTRICT, ARIZONA: LARAMIDE PORPHYRY COPPER MINERALIZATION AND MID-CENOZOIC SODIC-CALCIC ALTERATION
Simone Runyon

9:30-9:45 BREAK

Geochemistry

Session leader: Jason Burwell

9:45-10:00 FLUID EVOLUTION IN THE SAGINAW HILL HYDROTHERMAL SYSTEM
Wyatt Bain

10:00-10:15 FORMATION CONDITIONS OF THE CASTING COPPER SKARN, NV, BASED ON SPECTROSCOPIC ANALYSIS AND ELASTIC MODELLING OF MINERAL INCLUSIONS
Drew Barkoff

10:15-10:30 MODELING THE SOLUBILITIES OF MINERALS IN SALINE AQUEOUS FLUIDS
Hanna Brooks

10:30-11:45 FORMATION AGE AND CONDITIONS OF NEOPROTEROZOIC BASEMENT-HOSTED TAVA SANDSTONE INJECTITE BY COMBINED (U-Th)/He DATING AND FLUID-INCLUSION STUDIES OF HEMATITE
Jordan Jensen

10:45-11:00 THALLIUM: A GEOCHEMICAL TOOL WITHIN ORE-FORMING SYSTEMS
Shelby Rader
11:00-11:15 BREAK

Climate
Session leader: Luke Parsons

11:15-11:30
DECOMPOSITION OF THE ATLANTIC MERIDIONAL OVERTURNING CIRCULATION TRANSPORTS IN CMIP5 MODELS AND THE RAPID/MOCHA ARRAY
Rebecca Beadling

11:30-11:45
FIDELITY OF Li/Mg AND Ba/Ca IN RECONSTRUCTING SST AND UPWELLING IN THE EASTERN EQUATORIAL PACIFIC
Anson Cheung

11:45-12:00
RESPONSE OF EAST AFRICAN CLIMATE TO GLOBAL FORCINGS IN A FAMILY OF EARTH SYSTEM MODELS
Zachary Naiman

12:00-1:30 LUNCH BREAK

Poster Presentations
1:30-3:30 Student Union Memorial Center SOUTH BALLROOM

Climate and Paleoclimate
G01: STRATIGRAPHIC INVESTIGATION OF THE EARLY AGRICULTURAL PERIOD IRRIGATION CANALS AT LA PLAYA, SONORA, MEXICO
Rachel Cajigas

G02: FALLING WATER, LIFTING WATER: ENERGY BALANCE OF THE COLORADO RIVER WATER
Jesse Clah

G03: INFERRING PAST CLIMATE IN EAST AFRICA BASED ON CHARCOAL QUANTITIES FROM HSPDP LAKE MAGADI CORE
Brant Davis

G04: IMPACTS OF EXCESS DISCHARGE FROM HILLSLOPE DEFORESTATION ON SHELL BED POPULATIONS IN LAKE TANGANYIKA
Anna Gravina

G05: A SPELEOTHEM TRACE ELEMENT RECORD TO TRACK MULTIDEcadAL DROUGHT IN THE SOUTHWESTERN US
Jonathan King

G06: THE EFFECT OF AGE ON THE STABLE ISOTOPIC COMPOSITION OF FRESHWATER BIVALVE GROWTH INCREMENTS
Stephanie Kukolich

G07: A MICRO AND MESOCOSM APPROACH TO UNDERSTANDING THE RESPONSE OF brGDGTs TO ENVIRONMENTAL PERTURBATION
Pablo Martinez Sosa
G08: CLIMATE VARIABILITY IN THE LAST 200 YEARS IN NORTHERN AUSTRALIA USING CORAL-BASED RECONSTRUCTION OF RAINFALL AND SST
Elizabeth Patterson

G09: OSTRACODE TAPHONOMY FROM MODERN SHELL BEDS IN LAKE TANGANYIKA, EAST AFRICA AND ITS RELATIONSHIP TO SURROUNDING DEFORESTATION AND CLIMATE CHANGE
Ramanathan Somasundaram

G10: CHARCOAL RECORDS OF PAST FIRE FREQUENCY FROM THE HSPDP DRILL CORE MAG-1A, LAKE MAGADI, KENYA
Chenyu Wang

G11: MOLECULAR PROXY RECORDS OF THE EFFECT OF SHELF EXPOSURE ON INDO-PACIFIC WARM POOL CLIMATE FOR THE PAST 450,000 YEARS
Grace Windler

Economic Geology
G12: REGIONAL ALTERATION AND MAGNETIC SUSCEPTIBILITY IN CHILE
Luke Berry

G13: CHARACTERIZATION OF THE ELEMENTS IN FRESH-ALTERED PAIRS OF ROCKS NOER THE CANDELARIA, CHILE IOCG DEPOSIT
Nicholas Hillemeyer

G14: CHARACTERIZATION OF HYDROTHERMAL ALTERATION IN THE TUCSON MOUNTAINS USING MULTISPECTRAL ASTER DATA
Natalie Speaks

G15: FLUID EVOLUTION IN THE SAGINAW HILL HYDROTHERMAL SYSTEM
Luke Berry

G16: CLAY MINERALOGY AND ALTERATION AT SAGINAW HILL
Katherine Graves

Geochemistry
G17: PRESSURE ESTIMATES OF QUARTZ INCLUSIONS IN GARNET WITHIN THE WILDERNESS GRANITE
Kaylee Kinter

G18: 40AR – 39AR DATING OF APOLLO IMPACT MELTS – SEARCHING FOR IMBRIUM
Laura Seifert

G19: PRESSURE ESTIMATES OF APATITE INCLUSIONS IN GARNET WITHIN THE WILDERNESS GRANITE, CATALINA CORE COMPLEX, TUCSON
Maria Snyder

Structural Geology and Tectonics
G20: EXHUMATION HISTORY OF SOUTHERN TIBET THROUGH LOW-TEMPERATURE THERMOCHRONOLOGY
Anahi Carrera

G21: INVESTIGATING POSSIBLE STRAIN DRAIN ALONG THE SOUTHERN SAN ANDREAS FAULT, JOSHUA TREE NATIONAL PARK, CA
Katherine Guns

G22: THE Miocene SANTA MARIA CONGLOMERATE, ACONCAGUA REGION, CENTRAL SOUTHERN ANDES: INSIGHTS INTO DEPOSITIONAL AND TECTONIC PROCESSES DURING MOUNTAIN BUILDING
Arthur Osakwe

G23: WATER STORAGE AND MANTLE PLUME CONTRIBUTIONS TO VERTICAL PLATE MOTION IN SOUTH AFRICA
Lauren Ward
Oral Presentations (afternoon sessions)
Student Union Memorial Center NORTH BALLROOM

Geophysics

Session leader: Chris Clinkscales

3:45-4:00  INVESTIGATING CRUSTAL DEFORMATION DUE TO WATER DISTRIBUTION USING GRACE AND GPS DATA IN THE AMAZON BASIN
Lisa Jose

4:00-4:15  ALONG-STRIKE VARIATIONS IN THE CONTINENTAL MOHO AMPLITUDE BENEATH THE CENTRAL ANDES
Clint Koch

4:15-4:30  AN EARTHQUAKE TRIANGLE: THE SORDID BACKSTORY BEHIND THE 27 FEBRUARY 2010 Mw 6.1 SALTA EARTHQUAKE
Phillip McFarland

4:30-4:45  EVOLUTION OF THE SOUTHERN GUINEA PLATEAU: INSIGHTS FROM EXPLORATION GEOPHYSICS
Jared Olyphant

4:45-5:00  SUBDUCTION IN THE EASTERN MEDITERRANEAN: INSIGHTS FROM NEW TELESEISMIC P-WAVE TOMOGRAPHY
Daniel Portner

GeoDaze Friday, March 31st, 2017

Oral Presentations
Student Union Memorial Center NORTH BALLROOM

Paleoclimate

Session leader: Connor Nolan

8:30-8:45  PLIO-PLEISTOCENE CLIMATE VARIABILITY OF EAST AFRICA AS SEEN IN AN HSPDP DRILL CORE FROM TUGEN HILLS, KENYA, AND POSSIBLE IMPLICATIONS FOR HOMININ EVOLUTION
Anne Billingsley
8:45-9:00  PHYTOLITHS AND CHARCOAL SHOW NO MAJOR CHANGE IN EAST AFRICAN FLORA AFTER THE 75 KA TOBA SUPERERUPTION  Chad Yost
9:00-9:15  LAKE AYAUCHI: A 400 YEAR RECORD OF AMAZONIAN HYDROLOGY  Nicollette Buckle
9:15-9:30  TEMPERATURE, FIRE HISTORY, AND VEGETATION CHANGE OVER THE LAST 550 YEARS AT NORTH BULLBERRY LAKE, UTAH  Matthew King
9:30-9:45  PALEOCLIMATE RECONSTRUCTIONS FROM THE NORTHEASTERN UNITED STATES USING TREE-RINGS  Jessie Pearl

9:45-10:00 BREAK

Mineralogy
Session leader: John He

10:00-10:15  GROUND TRUTH MINERALOGY VS. ORBITAL OBSERVATIONS AT THE BAGNOLD DUNE FIELD, GALE CRATER, MARS  Cherie Achilles
10:15-10:30  MINERALOGY CHARACTERIZATION OF THE GEFION ASTEROID FAMILY  Alison McGraw

10:30-10:45 BREAK

Tectonics
Session leader: Phillip McFarland

10:45-11:00  THE TAJIK FOLD AND THRUST BELT: IMPLICATIONS FOR INTRACONTINENTAL SUBDUCTION  Jay Chapman
11:00-11:15  MIOCENE OROGEN-PERPENDICULAR EXTENSION AND EXHUMATION OF THE ALICHUR DOME, SOUTH PAMIR, TAJIKISTAN  James Worthington
11:15-11:30  CENOZOIC MAGMATISM IN THE PAMIR: A GEOCHEMICAL INVESTIGATION OF SYN-COLLISIONAL INTRUSIVE ROCKS  Shane Scoggin
11:30-11:45  TRACKING THE GROWTH OF THE HIMALAYAN FOLD-THRUST BELT IN THE EARLY MIOCENE FORELAND BASIN STRATA, DUMRI FM., WESTERN NEPAL  Simon Stickroth
11:45-12:00  INTERRELATIONSHIPS OF CATACLASITE, MYLONITE, LEUCOCRATIC BODIES AND THE CATALINA DETACHMENT FAULT  
Triffon Tatarian

12:00-12:15  WINDOW INTO THE SOUL OF SUBDUCTION: COLOMBIAN CENTRAL CORDILLERA CRUSTAL XENOLITH OVERVIEW  
Lucia Profeta

Susana Henriquez

12:30-12:45  RECONSTRUCTING THE TECTONIC HISTORY OF THE SIERRAS PAMPEANAS THROUGH LOW TEMPERATURE THERMOCHRONOLOGY: A CASE STUDY IN SIERRA VELASCO  
Andrea Stevens

12:45-2:00  LUNCH BREAK

2:00-3:00  Geodaze Keynote Address: How to communicate the value of the geosciences to the public and policymakers. Linda Rowan

3:00-4:00  Geodaze 2017 Awards Ceremony

6:00-10:00  Geodaze Dinner Party & Slideshow (Address and map on page 16)
This year’s GeoDaze Field Trip will be led by George Davis, Paul Kapp, and by students enrolled in their Rincons Research Project. The destination and object of study is the Loma Alta area on the southeastern flank of Tanque Verde Mountain. Within the Loma Alta study area there is a nice ‘layout’ of metamorphic core complex geology, including upper plate sedimentary cover rocks, the Catalina detachment fault, subdetachment faults, and several flavors of mylonite and ultramylonite. Areas of bare-rock exposure can handle a large number of field-trip participants and permit close examination and discussion of the interplay of brittle, quasi-brittle, and quasi-plastic rocks and structures. For those of us engaged currently in the mapping and analysis of the geology of Loma Alta, this GeoDaze Field Trip offers the opportunity to test our ideas and gain valuable input.

The trip will depart at 8:30 AM from the Gould Simpson loading dock and return at 4:00 PM.
Maps and directions

Student Union Memorial Center (Black Circle)

Gould-Simpson Building (Black Rectangle)
MAP OF STUDENT UNION: LEVEL 3

ALL TALKS WILL BE LOCATED IN THE NORTH GRAND BALLROOM

ALL POSTERS WILL BE LOCATED IN THE SOUTH GRAND BALLROOM
Directions

1. Head north on Park Ave (or any other major N-S street in the area) until its junction with Grant Road.
2. Turn right (east) on Grant Road and follow it until its junction with E Tanque Verde Road.
3. Turn left onto E Tanque Verde Road and follow it to the east over the Tanque Verde Creek Wash, until its junction with N Bear Canyon Road.
4. Turn left (north) onto N Bear Canyon Road and follow it north for approximately 1.7 miles, until its junction with E Kayenta Drive.
5. Turn right (east) onto E Kayenta Drive.
6. Take the first left onto N Bidahochi Drive. Find a parking spot along N Bidahochi Drive.

On-street parking is allowed in this neighborhood, but please be courteous!