UNIVERSITY of HOUSTON

EARTH AND ATMOSPHERIC SCIENCES

2018 Student Research Day & Industry Open House

Student led since 1988

Friday, April 27, 2018
8:30am - 5pm
Science & Research 1
University of Houston
Houston, Texas 77204

See abstracts at http://www.uh.edu/nsm/earth-atmospheric/news-events/research-day/

SCHEDULE OF EVENTS

All activities are located in Science & Research Building 1 (SR1)

8:30 am	**Registration Opens** *(SR1 1st floor lobby)*
9:00 am - 12:30 pm	**Oral Presentations** *(Room 223 and Room 634)*
10:30 – 10:45	***Coffee Break*** *(SR1 2nd Floor lobby)*
12:30 pm - 1:00 pm	**Lunch** *(SR1 2nd floor lobby)*
1:15 pm - 3:30 pm	**Student Poster Session and Lab Tours** (*SR1, Corridors of 1st, 2nd, and 3rd floors).*
3:30 pm - 4:00 pm	**Hyperspectral Imaging Demo** (*Outside of SR1 near Cullen Entrance)*
4:00 pm - 5:00 pm	**Awards Ceremony – Presented by Dr. Sean Guidry, V.P. Esso Internat. Explor., UH alum-2001)** (*SR1 Rm. 117)*
5:00 pm	**Group Photo** *(Front of SR1, Facing Cullen Blvd.)*
5:30 pm	**Annual EAS Faculty-Student-Alumni-Industry Happy Hour** *McGonigel's Mucky Duck, 2425 Norfolk, Houston, TX 77098.*

2018 Student Research Day & Industry Open House

Student organized and run since 1988

GRADUATE STUDENT COMMITTEE

Dustin Villarreal (Committee Chair)

Delaney Robinson (Committee Co-Chair)

Andrea Paris

Joshua Flores

Monica Guerrero

McKensie Kilgore

Diana Krupnik

Xiang (Claudia) Ling

Crystal Saadeh

Lucia Torrado

FACULTY RESEARCH DAY ADVISOR

Dr. Regina Capuano

STAFF ADVISORS

Marsha Braxton

Kirene Ramesar

Jay Krishnan

Karen Maldonado

Special thanks to all our volunteers!!

RESEARCH TALKS (SESSION 1): SR1, ROOM 223

Time	Speaker	Title
9:00	XIANG LING	STATISTICAL TOOLS FOR ISOTOPIC BIG DATA: ANALYSIS OF MID-ATLANTIC RIDGE BASALTS
9:15	LUCIA TORRADO	SEISMIC CHARACTERIZATION OF THE LATE CRETACEOUS SUBMARINE FANS SYSTEM IN THE DEEP-WATER FOZ DO AMAZONAS BASIN, NORTHERN BRAZIL: AN ANALOG FOR LATE CRETACEOUS FAN PLAYS ON ATLANTIC PASSIVE MARGINS
9:30	AVRADIP GHOSH	GREEN'S FUNCTION OF THE WAVE EQUATION FOR A FRACTURED DISSIPATIVE HTI MEDIUM TAKING THE VISCOELASTICITY OF THE SYSTEM INTO ACCOUNT
9:45	XIAOYUN PENG	FRACTURE CHARACTERIZATION USING MULTICOMPONENT ELASTIC WAVES
10:00	AARON MARK STUDWELL	SPATIOTEMPORAL VARIATIONS OF SATURN'S ZONAL WINDS BASED ON CASSINI LONG-TERM (2004-2017) MULTI-INSTRUMENT OBSERVATIONS
10:15	ERIC LUNN	3D FREE-AIR GRAVITY MODELING OF THE BARREIRINHAS AND CEARA BASINS, NORTHEASTERN BRAZIL
10:30	COFFEE BREAK	
10:45	JOSHUA FLORES	TRIPLE JUNCTIONS, BONINITES, AND A NEW MICROPLATE AT THE SOUTHERN TERMINATION OF THE MARIANA ARC
11:00	MANUEL PAEZ-REYES	CONTROLS ON ORGANIC MATTER PRODUCTION AND ACCUMULATION DURING OCEANIC ANOXIC EVENT 2 IN THE CRETACEOUS LA LUNA FORMATION, NORTHWESTERN SOUTH AMERICA
11:15	YUAN TIAN	SEISMIC PROBING OF AN ASTEROID USING ONE SOURCE AND ONE RECEIVER

RESEARCH TALKS (SESSION 1): SR1, ROOM 223 (CONT.)

Time	Speaker	Title
11:30	YI-AN LIN	IMAGED AND PREDICTED MANTLE STRUCTURE OF THE SUBDUCTED IZANAGI-PACIFIC RIDGE UNDER EAST ASIA
11:45	SHELBY N. JOHNSTON	TESTING MODELS OF EROSION IN THE HIMALAYAS
12:00	MUHAMMAD NAWAZ BUGTI	EXTRACTING FAULT AND REGIONAL SALT FLOW INFORMATION FROM A HIGH-RESOLUTION, BATHYMETRIC MAP OF THE SLOPE AND ABYSSAL PLAIN OF THE US GULF OF MEXICO
12:15	JACK KENNING	ROLE OF EOCENE-OLIGOCENE MASS TRANSPORT DEPOSITS FOR CONTROLLING ALONG-STRIKE VARIATIONS IN THICKNESS, STRUCTURAL GEOMETRY, AND HYDROCARBON SEALING, MEXICAN RIDGES FOLD-THRUST BELT, WESTERN GULF OF MEXICO

RESEARCH TALKS (SESSION 2): SR1, ROOM 634

Time	Speaker	Title
9:00	DELANEY ROBINSON	DEVELOPMENT OF SEDIMENT FABRICS INDICATIVE OF DEFORMATION PROCESSES IN GLACIAL DEPOSITS
9:15	TSUNG JUI WU	GEOCHEMICAL CONSTRAINTS ON PACIFIC-IZANAGI RIDGE SUBDUCTION ALONG THE NE ASIAN MARGIN FROM THE MAGMATIC RECORD OF JAPAN, SIKHOTE-ALIN AND SAKHALIN
9:30	ZHONGMIN TAO	SHEAR WAVE VELOCITY STRUCTURE BENEATH EASTERN NORTH AMERICA FROM RAYLEIGH WAVE TOMOGRAPHY
9:45	ANDREW STEIER	JURASSIC-CRETACEOUS STRATIGRAPHIC AND STRUCTURAL EVOLUTION OF THE NORTHERN YUCATAN MARGIN, GULF OF MEXICO BASIN
10:00	PONGTHEP THONGSANG	IMAGING IMPROVEMENT IN ANGLE-DOMAIN COMMON-IMAGE-GATHERS BY A LOCAL STACK UTILIZING SEGMENTATION METHOD
10:15	XIN ZHOU	BEACH AND DUNE MORPHOLOGY CHANGES INDUCED BY HURRICANE HARVEY FROM REPEAT LIDAR SURVEYS IN THE FREEPORT, TX
10:30	COFFEE BREAK	
10:45	MCKENSIE KILGORE	WATER IN THE LITHOSPHERIC MANTLE WEDGE BENEATH THE NORTHERN CANADIAN CORDILLERA (ALLIGATOR LAKE)
11:00	SING-CHUN WANG	TRANSPORT OF CENTRAL AMERICAN FIRE EMISSIONS TO THE U.S. GULF COAST: CLIMATOLOGICAL PATHWAYS AND IMPACTS ON OZONE AND PM2.5
11:15	MARCUS P. ZINECKER	EVIDENCE FROM STRUCTURAL RECONSTRUCTION AND SUBSIDENCE FOR TWO PHASES OF TRIASSIC-JURASSIC RIFTING IN THE SOUTHEASTERN GULF OF MEXICO

RESEARCH TALKS (SESSION 2): SR1, ROOM 634 (CONT.)

Time	Speaker	Title
11:30	NAN SUN	OSMIUM ISOTOPES, PLATINUM-GROUP ELEMENTS (PGE) AND RHENIUM IN SEDIMENTS ACROSS THE YOUNGER DRYAS(YD) BOUNDARY FROM HALL'S CAVE, TEXAS
11:45	JINGJING ZONG	ELASTIC PROPERTIES OF ROCK SALT
12:00	EZZEDEEN ALFATAIERGE	FIBER OPTIC MOTION SENSING: A COMPARISON OF DAS, FBG, AND GEOPHONE SENSORS
12:15	ZHILI WEI	FACIES CHARACTERIZATION USING CONVOLUTIONAL NEURAL NETWORK BY PADDING THE ORIGINAL DATASET

UNIVERSITY of HOUSTON

EARTH AND ATMOSPHERIC SCIENCES



Stream Table Demonstration

Come try simulating fluvial processes on our new stream table, available in 2nd floor foyer of SR1 during the afternoon poster session.

New to EAS: The EAS department was recently given funds to improve the Geosciences Learning Center! Upgrades include an augmented reality sandbox, a stream table to simulate fluvial processes, a new geophysics computer workstation, updated computers, a complete Ward's Science collection of rocks with matching thin sections, additional petrographic microscopes, new furniture, and more. Go take a look at the all the improvements during the lab tour time!

ADVANCED Ph.D. STUDENT POSTERS

SR1, 1st Floor Corridor

Presenter	Title	No.
OLABOSIPO O. OSIBANJO	INVESTIGATING THE INFLUENCE OF PLANETARY BOUNDARY LAYER EVOLUTION AND METEOROLOGY ON AIR QUALITY IN MEXICO CITY	1
LEI SUN	INTEGRATED HYPERSPECTRAL AND GEOCHEMICAL STUDY OF SEDIMENT-HOSTED DISSEMINATED GOLD AT GOLDSTRIKE DISTRICT, UTAH	2
YIPENG LI	METAMORPHIC P-T-T PATHS RECORD LOWER CRUSTAL REWORKING OF THE MUZTAGHATA DOME, NORTHEASTERN PAMIR	3
THORAM SRIHARSHA	HURRICANE HARVEY INDUCED MORPHOLOGICAL CHANGES AND SEDIMENTATION PATTERNS IN BOLIVAR ROADS	4
SURESH DANDE	NUMERICAL MODELING OF SEISMIC WAVE SCATTERING IN PROPPED ROCK	5
YI-WEI CHEN	BUILDING AN ANDES PLATE TECTONIC RECONSTRUCTION USING UNFOLDED SLABS FROM SEISMIC TOMOGRAPHY: IMPLICATIONS FOR FLAT SLAB TECTONICS	6
XIONG LIN	EVALUATION OF A DIRECT GEOREFERENCING TLS SURVEY METHOD FOR BEACH AND DUNE MAPPING: A CASE STUDY AT FREEPORT, TEXAS	7
JIAXUAN LI	IN SITU SEISMIC ANISOTROPY AROUND DEEP EARTHQUAKES IN JAPAN SUBDUCTION SLABS USING JAPAN NIED MOMENT TENSORS	8

ADVANCED Ph.D. STUDENT POSTERS (CONT.)

SR1, 1st Floor Corridor

Presenter	Title	No
JOHN WESLEY NEESE	TMZ/TEZ VECTOR POTENTIALS DUE TO AN ARBITRARILY ORIENTED DIPOLE IN 3-D SPACE IN THE PRESENCE OF AN INFINITE DIELECTRIC CYLINDER	9
TITHI GHOSH	MELTING HISTORY OF NORTHERN MARIANA TRENCH PERIDOTITE IN RESPONSE TO PACIFIC PLATE SUBDUCTION	10
WANDA CRUPA	SURFACE DEFORMATION ANALYSIS IN THE HOUSTON AREA	11

M.S. and EARLY Ph.D. STUDENT POSTERS

SR1, 2nd Floor Corridor

Presenter	Title	No.
JANET KONG	BURIED GLACIAL GEOMORPHIC FEATURES ON SURFACES USING 3-D SEISMIC DATA IN THE SOUTHWESTERN BARENTS SEA, ARCTIC NORWAY	12
YANNIC LOPS	PREDICTING DAILY POLLEN CONCENTRATIONS OVER HOUSTON USING NEURAL NETWORK SYSTEMS	13
XINYAN LI	CONVERGENCE ACCELERATION OF 2D MULTIPLE SCATTERING SERIES USING SHANKS TRANSFORMATION	14
YING ZHANG	IMAGING THE CRUSTAL STRUCTURE IN ALASKA	15
MARIE-NELSY KOUASSI	REGIONAL COMPARISON OF DETRITAL ZIRCON POPULATIONS IN PRE-RIFT PALEOZOIC AND SYN-RIFT MESOZOIC ROCKS FROM THE GULF OF MEXICO TO NORTHERN SOUTH AMERICA	16
JIA JUNG	CHEMICAL DATA ASSIMILATION OF GEOSTATIONARY AEROSOL OPTICAL DEPTH AND PM SURFACE OBSERVATIONS ON REGIONAL AEROSOL MODELING OVER THE KOREAN PENINSULA DURING KORUS-AQ CAMPAIGN	17
DAVID Z. LI	HIGH-RESOLUTION REFLECTION IMAGING OF FRACTURES AROUND A WELLBORE USING CROSS-DIPOLE SHEAR SOURCE	18
STEPHANIE E. SUAREZ	IS THE TISSINT STREWN-FIELD HETEROGENEOUS? LU-HF, SM-ND AND RB-SR EVIDENCE	19
ALQAMAH SAYEED	24-HOUR OZONE PREDICTION USING ARTIFICIAL INTELLIGENCE (CNN-DNN) FOR HOUSTON	20
JEFFREY HENSLEY	DIFFERENTIATING SEDIMENT SOURCES DURING PALEOGENE EVOLUTION OF THE ALTIPLANO BASIN, SOUTHERN PERU	21
JESSICA CHEW	EARTH INNER CORE ANISOTROPY AS OBSERVED BY PKIKP AND PKIIKP REFLECTED WAVES	22

M.S. and EARLY Ph.D. STUDENT POSTERS (CONT.)

SR1, 2nd Floor Corridor

Presenter	Title	No.
CRYSTAL SAADEH	ORBITAL FORCING OF LATE MIOCENE-PLEISTOCENE ENVIRONMENTAL CHANGE IN THE ZHADA BASIN, SOUTHWESTERN TIBETAN PLATEAU	23
KASEY MAHANEY	THE IMPACT OF REFLECTIVE IMPERIOUS SURFACES IN THE GREATER HOUSTON AREA	24

UNDERGRADUATE STUDENT POSTERS

SR1, 3rd Floor Corridor

Presenter	Title	No.
AMANDA PASCALI	A SEARCH FOR CONTROLS ON THE DISTRIBUTION OF NATURAL, SUBMARINE OIL SEEPS IN THE GULF OF MEXICO	25
KENDALL D. HATFIELD	PETROCHRONOLOGICAL DISCRIMINATION OF WESTERN INTERIOR CAMBRIAN ZIRCONS AND IMPLICATIONS FOR ANCESTRAL ROCKY MOUNTAIN SEDIMENT PROVENANCE	26
MOHAMMAD ALMATROOD	COMPILATION OF RADIOMETRIC AGE DATES FROM THE GREAT ARC OF THE CARIBBEAN: EVIDENCE FOR AN IN SITU OR PACIFIC-DERIVED CARIBBEAN PLATE?	27
JULIAN B. CHENNIN	FAULT DEVELOPMENT IN THE MADISON VALLEY: IMPLICATIONS FOR FAULT SYSTEM BEHAVIOR AND PASSAGE OF THE YELLOWSTONE HOTSPOT	28
OMAR ZAVALA	COMPARISON OF SPREADING RATE VARIATIONS IN THE SOUTH ATLANTIC OCEAN WITH SUBSIDENCE HISTORYS OF OFFSHORE WELLS AND APATITE FISSION TRACK COOLING AGES FROM THE SOUTH AMERICAN AND AFRICAN CONJUGATE MARGINS	29
PAYTON L. MCCAIN	NEW DEPOSITIONAL CHRONOLOGY AND SEDIMENT SOURCE CHARACTERIZATION FOR THE CENOZOIC MUÑANI FORMATION IN THE NORTHERN ALTIPLANO, SOUTHERN PERU	30
MARIO R. BALLINAS	LATE MIOCENE – EARLY PLEISTOCENE CLIMATE CHANGE IN THE ZHADA BASIN, SOUTHWESTERN TIBETAN PLATEAU	31
EMILY STIBBE	COMMUNITY FAULT MAP FOR THE CARIBBEAN PLATE	32
DIANA AQIL	LOWER CRUST FROM BENEATH THE ARCTIC ICE	33
STANLEY NJOKU	ACTA MINERALOGICA HOUSTONICA STUDENT-RUN JOURNAL	34
NOAH J. KARSKY	GRAIN-SIZE CONTROLS ON SEDIMENT PROVENANCE RECORDS USING DETRITAL ZIRCON GEOCHRONOLOGY FROM THE PUNO GROUP, SOUTHERN PERU	35
LIAM N. LAUCKNER	PRELIMINARY INSIGHTS INTO THE 187OS/188OS RECORD OF THE MID-CENOMANIAN EVENT	36

EAS Lab Tours

Center for Petroleum Geochemistry (CPG)

Location: SR1, Room 103 and 105

Function: CPG lab has a variety of instruments from simple TOC analyzers; RockEval II-Plus and RockEval-6 source rock analyzers; oil and gas extraction and characterization capabilities; a highly advanced suite of molecular and stable-isotope geochemistry tools including natural-gas analyzers, GC/MS; GC/MS/MS; micropyrolysis/GC/MS; GC/IRMS; EA/IRMS analyzers, and diverse organic petrography capabilities. Visit our website for a comprehensive list of analytical capabilities. This suite of capabilities distinguishes us as the most well-equipped academic petroleum-geochemistry lab in the country.

Faculty host: Dr. Adry Bissada, Dr. Tom Malloy

Student host: Mei Mei (PhD)

Research staff: Tao Sun, Jingqiang Tan, Mike Darnell, Ewa Szymczyk, Maria Gutierez, Bryan Gunawan

Website: http://cpg.uh.edu/

Rock Physics Lab (RPL)

Location: SR1, Room 104-108, B-8

Function: We conduct world class research on Seismic Rock Physics, include mainly: 1. Seismic properties of hydrocarbon fluids at in-situ conditions; 2. Seismic properties of rocks from conventional reservoirs (sands, sandstone, tight gas sands and carbonates); 3. All kinds of rocks and fluids from unconventional reservoirs: oil shale, shale gas, shale oil, coal, gas hydrate and heavy oil sands; 4. Rock parameters, seismic velocities, modulus, include LF measurement, rock mechanics; 5. Experimental and theoretical investigation on poro-elasticity (include digital rock modeling), velocity dispersion, and wave attenuation, elastic anisotropy, fractured reservoir, static and dynamic elasticity; 6. Seismic attributes as direct hydrocarbon indicator (DHI), reservoir delineation, 4-D seismic monitoring, manage unconventional reservoirs; 7. Training graduate students.

Faculty host: Dr. De-Hua Han

Student host: Qin Xuan (PhD)

Website: http://www.rpl.uh.edu/

GeoRS (Geological Remote Sensing) Lab

Location: SR1 Room 234

Function: The Geospatial Analysis and Remote Sensing (GeoRS) group combines field hyperspectral and LiDAR imaging and GPR surveying with traditional geologic mapping and for the precise 3D imaging of outcrops. Applications range from mapping the distribution of river channels, developing 3D fluid flow models, understanding rock alterations and sulphide mineralization, and reservoir analog studies. The GeoRS lab includes various hardware and software.

Faculty host: Dr. Shuhab Khan

Website: http://www.uh.edu/~sdkhan/

EAS Lab Tours

HoustonNet, GPS and Lidar Lab: Research and Development

Location: SR1, Room 128

Function: The Houston GPS Network (HoustonNet) laboratory is a research driven and project focused working and teaching lab. The lab supports the logistical management and use of highly precise earth focused geospatial collection equipment, such as cutting edge GPS and Light Detection and Ranging (Lidar) technologies. The lab also consists of workspace, industrial tools and equipment that are applied to the engineering and construction of site specific equipment. Such equipment is necessary to install permanent and temporary GPS stations, shallow earth drilling systems, GPS derived groundwater measuring stations and other platforms that facilitate in the data collection process. In order to better monitor land subsidence and fault movement, the lab has installed 66 continuously operating references stations (CORS) within the greater Houston area since 2012. This network is referred to as the HoustonNet and the data are publically available using the data archive interface at www.unavco.org/data/data.html. The lab's Lidar focused studies involve the impact of coastal erosion in Freeport, TX, and the monitoring of the landslides located in CO, TX (the Slumgullion landslide), and in China.

Faculty host: Dr. Guoquan Wang (Bob)

Website: http://www.uh.edu/nsm/earth-atmospheric/people/faculty/guoquan-wang/

Lab Research Staff and Students: Lin Xiong, Hanlin Liu, Xin Zhou, Xingxiang Zhu, Jennifer Welch, Vasilios Tsibanos, Veronica Guzman, Linquiang Yang, Eleanor (Xio Xio) Dietz, Jieying Ding, Wen Guo, Emily England and Timothy (Jak) Kearns

Sedimentology Lab

Location: SR1 Room 303

Function: Work in this lab is focused on characterizing unlithified sediments and dating of samples. Sediment size is measured through laser particle size analysis (LPSA). Particle shape is measured through automated processing of photomicrographs. Recent sedimentary deposits are dated using gamma-ray spectrometry, which has been set up for very small sample sizes.

Faculty host: Dr. Julia Smith Wellner

Student hosts: Yuribia Muñoz and Delaney Robinson

Experimental Organic Geochemistry Laboratory (EOGL)

Location: SR1, Room 307

Function: Through laboratory experiments under controlled conditions, reactions involving organic compounds that occur in real geological environments can be observed in this laboratory.

The ultimate goal of the projects carried out in the lab is to enhance our knowledge on reactions and evolution of organic compounds on Earth and other planetary bodies. This lab also provides a platform for graduate and undergraduate students to engage themselves in learning basic scientific methods and expand their interdisciplinary knowledge in organic geochemistry.

Faculty host: Dr. Qi Fu

Student host: Xueze Chen (Ph.D. student)

Website: http://easd.geosc.uh.edu/eogl

EAS Lab Tours

Atmospheric Chemistry Lab (ICAS LAB)

Location: SR1 Room 430

Function: My lab is a component of the Institute for Climate and Atmospheric Science. I study atmospheric mercury in Houston, which has elevated levels and time periods of extremely high values. I have instrumentation atop Moody Tower on the UH campus and at the UH Coastal Center. This is a $1M laboratory, which we utilize to sample emissions sources and study photochemistry in Houston. I also have a program in Houston/Fort Worth examining fugitive emissions of CO2 and CH4 from gas and oil extraction, distribution and storage. We also have a unique ability to measure δ18 in CH4 to distinguish contributions from different sources.

Faculty host: Dr. Robert Talbot

Student hosts: Shuting Yang

Website: http://icas.uh.edu/

The Air Quality Forecasting Group

Location: SR-1, 426-F

Function: We focus broadly on air quality modeling activities, focusing on how to improve model performance by aircraft/satellite data assimilation and inverse modeling to constrain model physics, evaluating the air quality impacts of upset events, adding new physics into existing air quality models and evaluating the impacts of wildfires. We also work on big data analytics, using machine-learning techniques to fill in missing air quality data, and analyzing historical air quality data using artificial intelligence to forecast air pollution. Recently, we have also created an energy policy sub-group, which focuses on the air quality and health benefits of electrification and cleaner vehicles, understanding the effects of wind patterns on turbine power output, and assessing the economics of alternate fuel vehicles in Texas.

Faculty host: Dr. Yunsoo Choi

Website: http://spock.geosc.uh.edu/

Caribbean Basins, Tectonics, and Hydrocarbons (CBTH)

Location: SR1 Room 427

Function: Founded in 2005, CBTH is a 8-company consortium and one of the largest industry consortia at UH with the goal of promoting edge academic research and facilitating oil exploration in the geographic and oil-rich region of the Gulf of Mexico, Caribbean, northern South America, and equatorial Atlantic margins in South America and Africa. Room 427 work area provides workstation, server, software, GIS databasing, and printing capabilities to 10 UH MS and PhD graduate research assistants, and 4 UH undergraduate research assistants supported as RAs by the project.

Faculty host: Dr. Paul Mann, Project director

Student hosts: Amanda Pascali, Omar Zavala, Mohammad Almatrood, Emily Stibbe

Website: http://cbth.uh.edu/index.php/

Awards for CBTH researchers (2005-18): http://cbth.uh.edu/awards.php

Publications of CBTH project (2005-18): http://cbth.uh.edu/contributions.php

EAS Lab Tours

The Geoscience Learning Center (GLC)

Location: Fleming Room 136

Function: The GLC provides a second approach for students to study of geosciences, outside of classroom-led instruction. The study of geosciences can cover a vast amount of material and the time spent in formal classes is limited. The GLC provides students opportunities for hands-on examination of minerals and rocks, interactive computer programs, and one-on-one or small-group tutorials. The GLC staff also conducts a number of on-campus field trips, guides students on tours of the Houston Museum of Natural Science, and coordinates field trips to Central Texas and Galveston.

Faculty hosts: Dr. Jinny Sisson and Dr. Daniel Hauptvogel

ICP Analytical Laboratory and Agilent Facility Center

Location: SR1, Room 332 and 334

Function: The ICP (Inductively Coupled Plasma) Research Laboratory and Agilent Facility Center specializes in characterizing the chemical and isotopic compositions of materials, including the ability to provide in-situ micron scale analyses of solid samples with the state-of-art CETAC LSX-213 Laser Ablation System. This Lab is capable to analyze all types of geological materials including rocks, minerals, natural fluids and organic materials including crude oil with high precision. We routinely analyze trace element with concentrations less than 0.1% g/g down to sub-ppb (ng/g) levels.

Faculty host: Dr. John F. Casey

Student host: Erik Slotsve (Ph.D. student)

Website: http://icplab.geosc.uh.edu/

MC-ICP-MS Geo-Cosmochemistry Lab

Location: SR1 Room 317

Function: Isotopic and trace element analysis of terrestrial and extraterrestrial rocks and minerals for radiometric dating and petrological evolution studies, including petroleum reservoir rock characterization.

Faculty hosts: Dr. Tom Lapen, Minako Righter

Website: https://mynsm.uh.edu/groups/mcicpms/

PGE Geochemistry Lab

Location: SR1 Room 317

Function: Re–Os isotope and PGE analysis of shale and oil for absolute dating and source tracing.

Faculty host: Dr. Alan Brandon

MEET THE COMMITTEE BEHIND STUDENT RESEARCH DAY

Faculty advisor for Student Research Day – Dr. Regina Capuano is an Associate Professor of Geosciences at the University of Houston. She completed her PhD in Geology at the University of Arizona in 1988.

Committee Chair – Dustin Villarreal received his B.S. in Geology from the University of Houston in 2012 and is currently a PhD candidate in Geology under advisor Dr. Alexander Robinson. His research focus is understanding the origin, development, and deformation history of the upper continental crust in both convergent and divergent tectonic settings. His PhD project seeks to understand the Mesozoic history of the Pamir mountains. After graduating, he hopes to apply his geologic interest in understanding basin evolution for oil and gas production.

Committee Co-Chair- Delaney Robinson graduated from the University of Arizona in 2015 with a B.S. in Geology and minor in French. She is currently a third-year Ph.D. candidate in Geology at the University of Houston advised by Dr. Julia Wellner. Her research includes sediment transport history and sediment deformation mechanisms on high latitude continental margins.

Joshua Flores completed a BS in Geology form Brigham Young University in 2013 and then worked with EGI at the University of Utah as a research assistant before beginning his PhD in Geology at the University of Houston. His research focuses on plate triple junctions and their roles in boninite petrogenesis under the direction of John Casey.

MEET THE COMMITTEE BEHIND STUDENT RESEARCH DAY

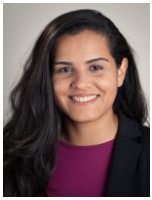
Monica Guerrero is pursuing her B.S in Geology and is currently the public relations officer for UH's Society of Exploration Geophysicists (SEG) student chapter. Her geologic interest is in understanding basin evolution via sedimentology and stratigraphy in relation to petroleum systems. Post-graduation, she plans to utilize her geologic interest to pursue a career in the oil and gas industry along with the continuation of obtaining her private pilot's license.

McKensie Kilgore received her B.S. in Geology in 2012 from Washington State University. She then worked in industry for one year as a logging geologist for Horizon Well Logging in the Mississippi Lime formation. Currently, McKensie is a fourth-year Ph.D. candidate in Geology at the University of Houston. Her research focuses on understanding the concentration and behavior of water in nominally anhydrous minerals in the lithospheric mantle beneath cratons and in subduction zone settings.

Diana Krupnik completed her BS degree in Biology with a minor in Chemistry in 2012 and subsequently finished a degree in Geology in 2014 at the University of Houston. During her Bachelors, she completed a senior thesis in the field of remote sensing for vegetation studies. Currently, she is working on a PhD in Geology, with a research focus in ground-based remote sensing used for detailed outcrop studies.

Xiang (Claudia) Ling received her B.S (2011), with honors, and M.S. (2013) in Petroleum Geology from China University of Geosciences in Beijing. During her master's, she worked on shale-gas accumulation conditions of the Jurassic in northern margin of Qaidam basin, China. Claudia is currently pursuing a Ph.D. in Geology at the University of Houston. Her research focuses on interdisciplinary studies of petrological and statistical modeling, and machine learning (ML) to understand mantle heterogeneity. Claudia was also the former President of the Zen Circle at UH.

MEET THE COMMITTEE BEHIND STUDENT RESEARCH DAY



Andrea Paris graduated in 2014 from Universidad Simon Bolivar in Caracas, Venezuela with a Bachelor's in Geophysics. She also completed a year of abroad studies in Geophysics and Geology as an international student at Universidad Politecnica de Madrid in Spain. Andrea is currently pursuing a Ph.D. in Geophysics at the University of Houston (UH) where she is a Geophysical Research Student at Allied Geophysical Laboratories. Her research interests include seismic data interpretation, AVO Analysis as well as Seismic Inversion and her primary research is focused on rock properties, seismic modeling, and multicomponent seismic analysis of the Bakken Shale. Andrea was also the former Vice President of the UH SEG Student Chapter and is a recipient of the Permian Basin Geophysical Society Scholarship.

Crystal M. Saadeh received a B.S. in Geology from the University of Houston in 2014. Crystal is now in the M.S. program at UH working with Dr. Joel E. Saylor on providing the first long-term (late Miocene-early Pleistocene), high-resolution stable isotopic (O and C) record of paleoenvironmental change in the southwestern Tibetan Plateau. Crystal is particularly passionate about applying statistical analysis to better understand the role of orbital forcing on climate change.

Lucia Torrado completed her BS degree in Geology in 2008 from the National University of Colombia, and her MS degree in Geology in 2012 from the University of Houston. She worked as a seismic interpreter with Hocol and PGS between 2008 and 2010 in Colombia and the Caribbean. Her current PhD research includes seismic-sequence stratigraphy studies in shallow and deep-water settings, reservoir characterization and tectono-stratigraphic controls on petroleum system elements of the Nicaraguan Rise, western Caribbean Sea, and the Foz do Amazonas Basin in northern Brazil.

MEET THE AWARD PRESENTER

Dr. Sean Guidry is the Vice President of Esso International Exploration Limited. Dr. Guidry will present the awards at the ceremony. He is an alumnus of the Department of Earth and Atmospheric Sciences completing all three degrees at UH: B.S. 1994, M.S. 1996, Ph.D. 2001.

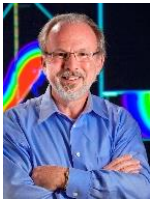
MEET THE INDUSTRY JUDGES

Mr. Gary Guthrie has thirty five years in industry, recently retired from Marathon Oil. He has deep experience in basin analysis, contractional structure, and the Gulf of Mexico. Mr. Guthrie holds a BS and MSc from University of Montana and Montana State University.

Dr. Kellen Gunderson completed a B.S. in Geology at the Brigham Young University, M.S. in Earth and Environmental Sciences from Lehigh University, and Ph.D. in Earth and Environmental Sciences from Lehigh University. Currently, he is a structural geologist at Chevron Energy Technology Company. His research interests are Structural evolution of deep water fold and thrust belts, structure and geomechanics of unconventional reservoirs, structural interpretation uncertainty, & applications of machine learning to exploration geology.

Dr. Andrew Madof is a stratigrapher with over 10 years of experience in seismic interpretation, subsurface mapping, attribute analysis, and geophysics. He is currently a senior seismic stratigrapher in the Seismic Stratigraphic Interpretation group, a team created by Henry Posamentier, in the Energy Technology Company at Chevron, in Houston TX. Andrew's expertise is in both clastic and carbonate settings, specifically in nonmarine, shallow marine, and deep water environments. He has worked on research, exploration, and reservoir management projects in North America, South America, Europe, Africa, and Asia. Andrew's primary interests are in the tectonic controls on accommodation, in the integration of geology, geophysics, and petrophysics, and in the identification and quantification of gas hydrates on seismic data. Prior to joining to Chevron in 2010, Andrew completed a PhD at Columbia University under Nicholas Christie-Blick, where his dissertation focused on the tectonic controls on clastic deposition.

MEET THE INDUSTRY JUDGES



Peter M. Duncan is President and CEO of MicroSeismic, Inc. a Houston based oil field service company specializing in hydraulic fracture stimulation, surveillance, and evaluation. He holds a Ph.D. in Geophysics from the University of Toronto. His early career as an exploration geophysicist was with Shell Canada and then Digicon Geophysical, first in Calgary then in Houston. In 1992 he was one of 3 founders of 3DX Technologies Inc., a publicly traded independent oil and gas exploration company. Duncan was 03-04 President of SEG; the Fall 2008 SEG/AAPG Distinguished Lecturer speaking on Passive Seismic at 45 venues around the world; and an Honorary Member of SEG, the Canadian Society of Exploration Geophysicists (CSEG), the Geophysical Society of Houston (GSH) and the European Association of Geoscientists and Engineers (EAGE). He received the Enterprise Champion Award from the Houston Business Journal in 2010, the World Oil Innovative Thinker Award in 2011, and was the 2013 EY National Energy Entrepreneur of the Year. In 2014 he received the Virgil Kauffman Gold Medal from SEG.

Dr. Keith Mahon is a Distinguished Geological Advisor and Manager of the Petroleum Systems Group in Geoscience Technology at Anadarko. He received his B.S. and M.S. degrees in geological science from SUNY at Albany and his Ph.D. in geochemistry from UCLA. He has over 30 years of experience modeling sedimentary basins in the oil and gas industry and simulating missile systems in the aerospace industry. During his 12 years at Anadarko, he has taught numerous classes on Basin and Petroleum Systems Modeling, founded and directed the Petroleum System Applied Mentorship (PSAM) program, steered multiple geoscience consortia and joint industry projected, and been responsible for reviewing petroleum systems analysis and developing petroleum systems models in locations around the world.

Dr. Lawrence Febo graduated from The Ohio State University (OSU) in 1999 with a BS in Geology and then graduated with an MS in 2003. He got his Ph.D. from Louisiana State University in 2007. He specializes in Biostratigraphy, which is the age determination and correlation of rocks based on their fossil contents. In addition to serving as a biostratigrapher at Chevron, he also manages R&D projects focused on quantitative techniques in integrated chronostratigraphy. Prior to Chevron, he worked at BP for 5.5 years.

MEET THE INDUSTRY JUDGES

Dr. Mark Richardson is a career geoscientist with 40+ years of global geoscience experience. Mark has held numerous technical and leadership positions in petroleum research and exploration at ExxonMobil. Currently, he is a Senior Geoscience Advisor for Asia-Pacific New Opportunity Generation. Mark has served as a Regional, National, and International Judge and Course Instructor for the Imperial Barrel Award and has the honor of advising the University of Houston Geology Teams who have competed in the competition over the past 5 years.

Jerome Kendall completed a BS degree at University of Wisconsin in 1979, and an MS at the University of Southern California 1981. He has worked at ExxonMobil for 35 years, and is currently an adjunct professor at the University of New Mexico. His research is in Petroleum Tectonics of fold and thrust belts, as well as using petroleum systems analysis to track the four dimensional evolution of convergent orogenic systems.

Robert Tscherny is a geologist and basin modeler at ConocoPhillips Unconventional growth exploration team. He received his Diploma in geology from the University of Bochum and his Doctorate from the RWTH Aachen (Germany). Since 2000 Robert has been a basin and petroleum systems modeler with tenures at IES, Chevron, and since 2013 ConocoPhillips. He has been engaged in both research and technical service and has worked in approximately 30 basins on 6 continents. His focus is on basin analyses, geomechanics, pore pressure prediction, geochemistry, fluid flow modeling, sequential restorations, and hydrocarbon charge risk.

Dr. Eugene Szymanski has worked for Chevron for the past eight years as a geo-/thermochronology research specialist who applies these techniques to HC exploration, basin modeling, chronostratigraphy, and source-to-sink applications.
From 2010 to 2014, he was involved in Deepwater Exploration & Projects in the Gulf of Mexico. From 2014 to present, he was part of the Basin Framework Team in the ETC Earth Science Department.

MEET THE INDUSTRY JUDGES

Dr. Kush Tandon currently works as a Bluware Inc.'s senior consultant with Shell on research and development for their internal seismic processing system, SIPMAP on 4D time-lapse and other signal processing techniques.

Kush Tandon completed his doctorate at Louisiana State University working with Juan Lorenzo in 1998. He worked on causes of continental extension in collisional margins (Timor-Tanimbar-Aru Trough and Alboran Sea) using various geophysical techniques such as, computer modeling of the mechanical behavior of the earth's outer veneer, gravity modeling, reflection seismology, and participating in the Ocean Drilling Program (ODP) Leg 161, Western Mediterranean (Alboran Sea).

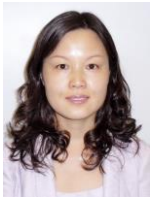
Dr Liz Baker has a background in structural geology seeded early on during studies at Royal School of Mines at Imperial College. After a short period as a geophysicist with Westerngeco, Dr Baker returned to academia and completed a PhD at Royal Holloway University of London. Her research centered on understanding fault growth and segmentation in extensional systems and was a combination of sandbox modelling of rift basins and fieldwork in Afar, Ethiopia. Since 2009 Liz's professional career has been with Shell as an exploration geologist based out of the Houston hub, focusing on New Ventures and deep water frontier exploration on projects in Central and South America. A recent project involved challenging the accepted stratigraphy and basin evolution of Offshore Colombia by applying a 'back to basics' geological approach. Dr Baker's current role is in the Paleogene Growth team in the Gulf Of Mexico. Liz enjoys challenging dogmas and combining fundamental geoscience with new technologies. For the past several years she has taught structural styles and trap analysis on the Shell graduate program.

MEET THE INDUSTRY JUDGES

Barbara Tillotson is the Geoscience Manager for RPM Energy. She has 16 years' experience in the oil and gas industry in conventional and unconventional reservoirs/basins. Currently Barbara advises a financial investment company (KKR) in their oil and gas investments. Specifically she works with reservoir engineers to complete risk and uncertainty analysis on subsurface properties to help strategically invest capital in projects that should have a positive financial return with minimal downside risk.

Sean Connell is a clastic stratigrapher with a background in experimental and field-based stratigraphy, regional mapping, geomorphology, geochronology, and reservoir characterization. I am with Chevron ETC, working on characterization of fluvial and shallow-marine reservoirs. Before joining Chevron, he conducted soil-geomorphic and geologic studies in the Rio Grande rift for the New Mexico Bureau of Geology at NM Tech.

Dr. Steve Naruk received his PhD in 1987 from The University of Arizona, Structural Geology and Tectonics, MSc in 1983 from The University of Arizona, Structural Geology and Tectonics and a BS in 1977 from Yale University, Geology & Geophysics. From 2001-until present he has been the Principal Technical Expert and Team Leader for Structural Geology Research in Shell E&P



Dr. Ye Wang has been working as a petroleum geochemist for ConocoPhillips (2014-present) and Shell (2009-2014). Her work focuses on technology development and technical support for global unconventional/conventional exploration, appraisal and development. Dr. Wang got her Ph.D. in organic geochemistry from Stanford University in 2009. Her specialties include biomarkers and diamondoids.

MEET THE FACULTY JUDGES

Dr. Yunsoo Choi is an assistant professor of atmospheric chemistry, atmospheric modeling, and remote sensing. He received a Ph.D. in Atmospheric Chemistry in 2007 from Georgia Institute of Technology. His research interests are atmospheric chemistry, air quality modeling, and satellite remote sensing.

Dr. Xun Jiang is an Associate Professor of Atmospheric Science and the Atmospheric Science Graduate Advisor. She received a Ph.D. in Environmental Science & Engineering from the California Institute of Technology in 2006.

Dr. Yuxuan Wang is an assistant professor of atmospheric chemistry. She received her Ph.D. from Harvard University in Earth and planetary sciences in 2005.

Dr. Martin Cassidy completed an M.S. in Geology at the University of Oklahoma and a Ph.D. at the University of Houston. He spent some time working at Amoco exploration, as well as consulting for the oil and gas industry. Currently, he is a research scientist at the University of Houston

Dr. Tom Lapen is a professor of geology, isotope geochemistry, geochronology, and petrology. He received his Ph.D in geology from University of Wisconsin-Madison in 2005.

MEET THE FACULTY JUDGES

Dr. Jinny Sisson an associate professor of geology, director of summer field geology, and co-director of the Geoscience Learning Center. She received her Ph.D. from Princeton University in 1981.

Dr. Shuhab Khan is a professor of remote sensing, GIS, and tectonics. He completed his M.S. at the University of Peshwar and his Ph.D. at U.T. Dallas. His research interests include neotectonics and earthquake hazards in the Western Himialayas, hydrocarbon-induced rock alterations, surface deformation in the Northern Gulf of Mexico, and 3D outcrop imaging using ground-based hyperspectral sensors.

Dr. Julia Wellner is an assistant professor of stratigraphy, sedimentology, and glacial processes. She received her Ph.D. from Rice University in 2001. Her research interests are Plio-Pleistocene sequence stratigraphy from 3D seismic data, Holocene climate of antarctic Ice Sheet history since the Eocene.

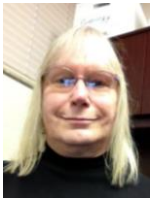
Dr. Guoquan (Bob) Wang is an associate professor of geophysics, geodesy, and geosensing systems engineering. He received his Ph.D. in solid Earth geophysics from the Institute of Geology, China Earthquake Administration, Beijing, China in 2001.

Dr. Willian Sager is a Professor of Geophysics at the University of Houston. He received his PhD in Marine Geophysics at the University of Hawaii in 1983. His research interest include Marine geophysics, High-resolution marine geophysics, and Plate tectonics, among others.

MEET THE FACULTY JUDGES

Dr. Robert Stewart is a professor of geophysics, the director, Allied Geophysical Labs, and a Hugh Roy and Lillie Cranz Cullen Distinguished University Chair in Exploration Geophysics. He received his Ph.D. in geophysics from Massachusetts Institute of Technology.

Dr. Alex Robinson got his BS in Geology in 1997 from Bates College, and his PhD from UCLA in 2005. He is currently an Associate Professor in the Department of Earth and Atmospheric Sciences at the University of Houston where he has been since 2006. Dr. Robinson's research is on the evolution of orogenic belts, focusing on the Mesozoic and Cenozoic evolution of the Pamir Mountains in the western Himalayan-Tibetan orogen.



Dr. Jennifer Lytwyn is an Instructional Assistant Professor who teaches face-to-face and online courses in Physical Geology and Earth Systems. She received her Ph.D. from the University of Houston in 1993 with research interests in geochemistry, igneous petrology, and plate tectonics

Dr. Daniel Hauptvogel is an instructional assistant professor and co-director of the Geoscience Learning Center (GLC) here at UH. During his Ph.D. at City University of New York, Dr. Hauptvogel studied Antartic ice dynamics.

MEET THE FACULTY JUDGES

Dr. Robert Talbot is a professor of Atmospheric Chemistry, director of Institute for Climate and Atmospheric Science (ICAS), and is also an adjunct Professor of Atmospheric Chemistry in the School of Atmospheric Science at Nanjing University, Nanjing, China. His interests encompass regional-to-global scale atmospheric circulations, climate change, and associated transport of trace constituents. Dr. Talbot received his Ph.D. from the University of Wisconsin – Madison in 1981.

Dr. Joel Saylor is an Assistant Professor of Sedimentology, Stable Isotopes, Magnetostratigraphy, and Basin Analysis. He received his Ph.D. in Geology from the University of Arizona in 2008. Dr. Saylor and his research group study the sedimentary record in order to understand the roles of tectonics and climate in controlling basin subsidence and filling. They are also actively involved in public education and outreach.

Dr. Aibing Li is a professor of geophysics and seismology, and the geophysics graduate advisor. She received her Ph.D. in Geophysics from Brown University in 2000.

Dr. Jiajia Sun is an Assistant Professor of Geophysics at the University of Houston. He completed a PhD in Geophysics with a minor in Mathematical and Computer Sciences at the Colorado School of Mines, and a B.S. in Geophysics at the China University of Geosciences. His research interests include inversion of geophysical datasets, machine learning applied to geophysical problems, and sparse signal processing.

Dr. Don Van Niuwenhuise is the director of Petroleum Geoscience programs and a Research Associate Professor of Petroleum Geology, Sequence Stratigraphy, Biostratigraphy, and Sedimentology. He received his M.S. in Geology from the University of Houston and his Ph.D. in Geology from the University of South Carolina.

MEET THE FACULTY JUDGES

Dr. John F. Casey is a Professor in the Geology Department at the University of Houston in the Earth and Atmospheric Sciences Department. He serves as the Director of the ICP lab, a University core facility. He has worked in the field of plate tectonics and trace element and isotopic geochemistry, focusing on mid-ceean ridges, ophiolites and various orogenic belts. He is the author of more than 100 peer-reviewed articles and a GSA Fellow.

Dr. Jonny Wu is an Assistant Professor in Structural Geology, Tectonics, and Mantle Structure. He received his Ph.D. in Geology at the Royal Holloway University of London. His research interests are in structural Geology and tectonics, including Asia tectonics, global plate tectonic modeling, and 4D structural reconstructions using sandbox analog models. His most recent research includes plate tectonic reconstructions of the proto-South China Sea, the Andes, and NE Asia.

Dr. Evgeni Chesnokov is a professor of theoretical and applied geophysics. He received his Ph.D. in 1974 in geophysics from Moscow State University. His research interests include investigations of the effective physical characteristics and wave propagation in a random porous fractured media.

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Thanks to all who took time to make SRD great!

Who we are

The Department of Earth and Atmospheric Sciences at the University of Houston has a wide range of research programs central to the earth sciences. These include sedimentology, carbonate petrology, sequence stratigraphy, micropaleontology, structural geology, tectonics, geodynamics, marine geology, petroleum systems and geochemistry, inorganic geochemistry, isotope geochemistry, igneous petrology, thermochronology, GIS, remote sensing, seismology, applied geophysics, applied rock physics, whole earth geophysics, potential fields, hydrology, atmospheric sciences, air quality, climatology, and air pollution sciences.

The Department offers M.S., and Ph.D. degrees in Geology, Geophysics and Atmospheric Sciences, a B.S. in Geology, Geophysics and Environmental Sciences, and a B.A. in Earth Sciences. Fieldwork is a major component of all degree programs. The Department also offers Professional M.S. programs in Petroleum Geology and Petroleum Geophysics that are offered at convenient hours for professional geoscientists working in industry or aspiring for a professional position within the petroleum industry.

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