

2014 STUDENT RESEARCH DAY & ALUMNI/INDUSTRY OPEN HOUSE

Friday, April 25
9am – 5pm
Science & Research 1
University of Houston
Houston, Texas 77204



SCHEDULE OF EVENTS

All activities are located in Science & Research Building 1

BREAKFAST & REGISTRATION (SR1, 2 nd Floor Lobby)	8:00
ORAL PRESENTATIONS	9:00 - 12:15
Session A (SR1, Room 223)	pg. 2
Session B (SR1, Room 130)	pg. 3
LUNCH (SR1, 2 nd Floor Lobby).....	12:15-1:30
STUDENT POSTER SESSION (SR1, Corridors).....	1:30-3:30
* Award Winning Posters (1 st Floor).....	pg. 4
Undergraduate Students (1 st Floor).....	pg. 5
Graduate Students: PhD (2 nd Floor)	pg. 6
Graduate Students: MS (3 rd Floor)	pg. 8
EAS LAB OPEN HOUSES	1:30-3:30
(SR1, 1 st -3 rd Floor)	pg. 14
AWARD CEREMONY (SR1, Room 116)	3:30
GROUP PHOTO (in front of SR1).....	4:30
EAS FACULTY-STUDENT-ALUMNI-INDUSTRY HAPPY HOUR	5:00-8:00
McGonigal's Mucky Duck (2425 Norfolk, Houston, TX 77098)	
All are invited	

*Conference Award Winning Posters
are not part of the judging competition.

UH RESEARCH DAY & ALUMNI/INDUSTRY DAY ORGANIZING COMMITTEE:

GRADUATE STUDENT COMMITTEE

Rebecca Neill (Committee Chair)

Joan Blanco Matt Cannon Yanet Cuddus
Laura Judd Eray Kocel Yiduo Liu
Patrick Loureiro

FACULTY & STAFF ADVISORS

Dr. Paul Mann
Dr. Regina Capuano
Hannah Walker

EVENT PHOTOGRAPHER: Jiannan Wang

Special thanks to all our judges!

FACULTY

Jinny Sisson	Stuart Hall
Wendy Nelson	Yunsoo Choi
Xun Jiang	Qi Fu
Joel Saylor	Guoguan Wang
Bernhard Rappenglueck	

INDUSTRY

Debleena Banerji, Shell	Mark Gordon, Shell
Kush Tandon, Bluware, Inc.	Veronica Castillo, Repsol
Ana Krueger, HRT	Mark Richardson, ExxonMobil
Heather McGarity, Murphy Oil	

Meet the judges on page 10

RESEARCH TALKS: SESSION A

SR1, Room 223

Judges:		Joel Saylor, Stuart Hall, Yunsoo Choi
Time	Speaker	Title
9:00	Matt Cannon	Internal Deformation of the Himalayan Thrust Wedge Revealed by Regional Mapping and Stream Channel Analysis
9:15	Dan Coleff	Geomechanical and acoustic properties measurements on reconsolidated mudrock constituents at reservoir stresses
9:30	Shawn Wright	Absolute dating of source rocks using rhenium and osmium isotopes
9:45	Xin Lan	Atmospheric mercury measurements in the Barnett shale area, Texas: Implications for oil and gas emissions
10:00	Yuribia Munoz	Analysis of sedimentation rates in the Antarctic Peninsula throughout the Holocene: Comparing results from millennial and centennial timescales
10:15	Jiangbo Yu	Is there deep-seated subsidence in the Houston-Galveston area?
10:30	COFFEE BREAK	
10:45	Marie De Los Santos	The Lobo Formation of southern New Mexico: A Laramide syn-tectonic deposit
11:00	Xuan Qin	Modeling organic-rich shale with different maturity levels
11:15	Crystal Saadeh	A reconstruction of climate change and orbital cyclicity using stable isotopic analysis from the Shada Basin, southwestern Tibetan Plateau
11:30	Harold Trammell	Atmospheric variations of Jupiter and Saturn
11:45	Ryan Jeffcoat	In situ microanalytical analysis of CAIs in meteorites: Constraints on models of early solar system evolution
12:00	Proma Battacharya	Paleo-channel reconstruction and grain size variability in Ferron Sandstone, Hanksville, Utah

RESEARCH TALKS: SESSION B

SR1, Room 130

Judges:		Qi Fu, Guoguan Wang, Bernhard Rappenglueck
Time	Speaker	Title
9:00	Jiannan Wang	Marine guided-waves: Applications and filtering using physical modeling data
9:15	Eren Dongel	Sequence stratigraphy and well log interpretation of the Bakken Formation, North Dakota
9:30	Oyem Arnold	Layer thickness estimation from the frequency spectrum of seismic reflection data
9:45	Joey Rodriguez	Wildfire Emissions from the 2006 El Nino and its implications for interannual variability
10:00	Sercan Pisen	Reservoir characterization via Amplitude Versus Offset (AVO) analysis and impedance inversion, Thrace Basin, northwestern Turkey
10:15	Lijun Diao	Underpredicted anthropogenic isoprene emissions in Houston during 2013 DISCOVER-AQ Houston Campaign
10:30	COFFEE BREAK	
10:45	Johnny Seales	3D numerical investigation of oceanic core complex formation
11:00	Laura Judd	The effects of Nox and VOCs on ozone production during DISCOVER-AQ Houston 2013
11:15	Jen Campo	Glacial geomorphology of the eastern Antarctic Peninsula
11:30	Alex Kotsakis	The meteorological influences on ozone production during DISCOVER-AQ 2013
11:45	Zhao Li	Source mechanism inversion in an anisotropic physical model
12:00	Eray Kocel	Near-surface geophysical investigation of the 2010 Haiti earthquake epicentral area Léogâne, Haiti.

AWARD WINNING POSTERS *

SR1, 1st Floor

2014 AAPG ACE, Houston, TX	
Bryan Ott (3 rd Place)	Structural and gravity transects of the Colon Mountains- Nicaraguan rise orogenic belt of Honduras and offshore Nicaragua/ Jamaica
Javier Sanchez (4 th Place)	Regional transect across the western Caribbean: Structural styles and plate reconstructions of late Cretaceous to Cenozoic tectonic events
2014 Gulf Coast Societies-SEPM, Houston, TX	
Dan Colleff (1 st Place)	Geomechanical and acoustic properties measurements on reconsolidated mudrock constituents at reservoir stresses
Karilys Castillo (3 rd Place)	Paleogeography of the Cenozoic passive margin of northeastern South America in eastern Venezuela and Trinidad from seismic data and well information
Bryan Ott (3 rd Place)	Role of the offshore Pedro Banks left-lateral strike-slip fault zone in the plate tectonic evolution of the northern Caribbean plate boundary
M. Santos (H. Mention)	The Lobo formation of southern New Mexico: A Laramide syn-tectonic deposit
Kurt Sundell (H. Mention)	Cenozoic basin evolution and uplift history of the central Andean plateau, southern Peru
Jiangbo Yu (H. Mention)	Is there deep-seated subsidence in the Houston-Galveston area?
2013 Sheriff Lecture, GSH and UH, Houston, TX	
Azie Aziz (1 st Place)	Imaging buried culverts using ground penetrating radar (GPR) with different frequency antennae
Long Huang (2 nd Place)	Fluid substitution analysis of a fractured medium: An ultrasonic experimental study
M. Santos (3 rd Place)	The Lobo formation of southern New Mexico: A Laramide syn-tectonic deposit
2013 AAPG ACE, Pittsburgh, PA	
Bryan Ott (1 st Place)	Crustal provinces of the Nicaraguan Rise as a control on source rock distribution and maturity
Luis Carvajal (2 nd Place)	Petroleum prospectivity of the southwestern Nicaraguan Rise (Colombian Caribbean) based on regional integration of seismic and well data
Lucia Torrado (3 rd Place)	Fluvial geomorphology changes linked to tectonic effects during the Late Eocene-Oligocene in the Northern Llanos foreland basin of Colombia

*Conference Award Winning Posters are not part of the judging competition.

UNDERGRADUATE STUDENTS

SR1, 1st Floor Corridor

Judges	Debleena Banerji, Shell Jinny Sisson, UH Kush Tandon, Bluware, Inc.	
Presenter	Title	No.
Batbayar, Kherlen	Changes in Late Cretaceous-Quaternary Caribbean plate motion directions inferred from paleostress measurements from striated fault planes	1
Borgman, Barry	Processing and analysis of 2D seismic data acquired on a glacial bench in Red Lodge, MT	2
Casso, Monica	Kabul basin, Afghanistan: A pull-apart basin marking the northeastern end of the 850-km-long Chaman left-lateral strike-slip fault and its linkage to the sub-parallel Herat strike-slip fault zone	3
Dowla, Naila	Quantitative restoration in the Gulf of Corinth, Central Greece, over 1 million years	4
Erickson, Stephanie	FTIR Analysis of Ethiopian xenoliths: water abundance evidence for an unaltered, ancient mantle source	5
Haynie, Kirstie	Shallow subsurface detection of buried, weathered hydrocarbons using integrated geophysical techniques	6
Krupnik, Diana	Hydrocarbon microseepage and geobotanical anomalies	7
Meado, Andrea	Mantle melting relationships recorded by abyssal peridotite trace element abundances	8
Sammons, Sterling	Mapping Chaman Fault in Southern Pakistan	9

GRADUATE STUDENTS: PhD

SR1, 2nd Floor Corridor

Judges	Mark Gordon , Shell Veronica Castillo , Repsol Mark Richardson , ExxonMobil Xun Jiang , UH	
Presenter	Title	No.
Abir, Ismail	Could normal fault basement ramps control salt movement in Northern Pakistan?	1
Arnold, Oyem	Application of constrained least squares spectral analysis	2
Aziz, Azizuddin	GPR modeling and imaging of burials at the historic Mueschke Cemetary, Texas	3
Barnard, Alex	Identification and analysis of subsea gas emission sites using multibeam sonar data from the Barbados Accretionary Complex	4
Biber, Kivanc	3-D geologic outcrops with laser scanning, photogrammetry and hyperspectral imaging: recent developments and applications	5
Blanco, Joan	Petroleum prospectivity of the La Vela area north of the inverted Falcon Basin, Venezuela	6
Bradley, Deborah	Chemical zonation of garnet in lawsonite eclogite from south of the Monagua Fault Zone, Guatemala: evidence for a complex growth history	7
Caicedo, Vanessa	Study of Houston's Planetary Boundary Layer using LIDAR measurements	8
Luis Carlos Carvajal	Crustal configuration and sediment deposition of the Southwestern Nicaraguan Rise based on potential fields, seismic interpretation and well correlation	9
Chen, Xinyang	Petrologic and geochemical constraints on the origin of authigenic euhedral quartz crystals in the Edwards Formation, Central Texas	10
Cuchiara, Gustavo	Intercomparison of planetary boundary layer parameterizations in the WRF Model for a case study in Houston, Texas	11

GRADUATE STUDENTS: PhD

SR1, 2nd Floor Corridor

Presenter	Title	No.
Dave, Riddhi	Shear wave structure in the crust and upper mantle beneath the Wyoming Craton	12
Huang, Jingqui	Integrated geophysical study of faults near the Pierce Junction Salt Dome, Houston	13
Huang, Long	Fluid substitution effects on seismic anisotropy	14
Kao, Angela	Influence of Global Warming on cloud variability and precipitation	15
Kapur, Sunil	Automatic arrival picking using Super-Gaussian minimum uncertainty wavelets	16
Liu, Lei	A meteorological climatology for the past 23 years to quantify potential changes in air flow and Ozone in the Houston Area	17
Liu, Yiduo	Early-stage extension and synthetic dip panel in the Abiquiu Embayment, Northern Rio Grande Rift	18
Munoz, Yuribia	Analysis of sedimentation rates in the Antarctic Peninsula throughout the Holocene, comparing results form millennial and centennial timescales	19
Ok yay, Unal	Remote detecting of hydrocarbon microseepage-induced rock alterations in the Garza Oil Field, Texas	20
Pan, Shuai	Simulated impacts of stagnation on surface O ₃ and PM _{2.5} over southeast Texas	21
Rueber, Kyle	Are along-strike alternations of symmetrical and non-symmetrical South Atlantic Conjugate Margins controlled by volcanics vs. non-volcanic rifting processes?	22
Sanchez, Javier	Structure and basin analysis of the Honduras Borderlands and Western Nicaraguan Rise, Northwestern Caribbean	23
Sundell, Kurt	Neogene uplift of the central Andean Plateau	24
Wright, Shawn	Re-Os geochemistry and geochronology of the Permian Brushy Canyon Formation, Delaware Basin, West Texas	25
Zhang, Xin	Permeability estimation and fluid flow	26

GRADUATE STUDENTS: MS

SR1, 3rd Floor Corridor

Judges **Ana Krueger, HRT**
Heather McGarity, Murphy Oil
Wendy Nelson, UH

Presenter	Title	No.
Bartschi, Nicolas	Linking Campanian foreland deposition to Sevier hinterland source regions in Book Cliffs, Utah	1
Castillo, Karilys	Cenozoic paleogeography of the easternmost part of the Eastern Venezuelan Basin based on seismic data and well information	2
Conklin, Tucker	Evolution of a Continental Shelf Margin Mini-basin, Northern Gulf of Mexico	3
Crews, Corbin	Geologic controls on hydrocarbon production in the Bakken Petroleum System: A field level study	4
Hasan, Murad	Stages of Jurassic rifting, magmatism and salt deposition in the eastern Gulf of Mexico inferred from a grid of deep-penetration seismic reflection data tied to wells	5
Kerekgyarto, Andy	Stable and radiogenic magnesium isotope variation in Melilite mantle of Allende type B1 CAI EK 459-5-1	6
Li, Zhiyang	Evaluating along-strike variation using thin-bedded facies analysis, Upper Cretaceous Ferron Notom Delta, Utah	7
Loureiro, Patrick	Miocene to recent opening direction of the Virgin Islands basins from offshore seismic data, high resolution bathymetry, onland faulting and GPS measurements	8
Mejia, Carolina	Sequential stages of the fold-thrust belt of the Eastern Cordillera, Colombia, Inferred from a deep exploration well tied to seismic reflection data	9

GRADUATE STUDENTS: MS

SR1, 3rd Floor Corridor

Presenter	Title	No.
Privalova, Irina	Oil detection within the Middle Jurassic sediments in the southern part of Western Siberia	10
Rusakov, Pavel	A permeability prognosis within the middle Jurassic sediments in the southern part of Western Siberia based on 3D seismic and log data	11
Snyder, Casey	Remote sensing of thin-bedded reservoir analogs in an ancient delta using high-resolution, ground-based, hyperspectral and LiDAR technologies, Cretaceous Notom Delta, Utah	12
Staszyc, Alicia	Investigation of the grain size, shape and texture of the Perseverance Drift, Antarctic Peninsula: transport history and Holocene variability	13
Sun, Lei	Remote Sensing of hydrocarbon-induced rock alterations at Cement Field, Oklahoma	14
Zong, Jingjing	Salt anisotropy: ultrasonic lab experiments and travelttime ramifications	15

MEET THE JUDGES ...

ORAL PRESENTATIONS



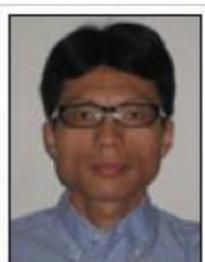
Joel Saylor

is currently at the University of Houston where he is Assistant Professor of Sedimentology, Stable Isotopes, Magnetostratigraphy and Basin Analysis. He received his PhD from University of Arizona in 2008 in Geosciences.



Stuart Hall

is currently at the University of Houston where he is Professor of Geophysics, Potential Fields. He received his PhD from University of Newcastle upon Tyne in 1976 in Geophysics.



Qi Fu

is currently at the University of Houston where he is Assistant Professor of Organic Geochemistry, Astrobiology, Isotope Geochemistry. He received his PhD from University of Minnesota in 2006 in Geology.



Yunsoo Choi

is currently at the University of Houston where he is Assistant Professor of Atmospheric Chemistry, Atmospheric Modeling, and Remote Sensing. He received his PhD from Georgia Institute of Technology in 2007 in Atmospheric Chemistry and Remote Sensing.



Guoguan Wang

is currently at the University of Houston where he is Assistant Professor of Geophysics, Geodesy and Geosensing Systems Engineering. He received his PhD from Institute of Geology in Beijing China in 2001 in Solid Earth Geophysics. He also serves as a PI for NCALM (National Center for Airborne Laser Mapping).

MEET THE JUDGES ...

ORAL PRESENTATIONS (continued)



Bernhard Rappenglueck

is currently at the University of Houston where he is Associate Professor of Atmospheric Chemistry, Meteorology. He received his PhD from University of Munich in 1996 in Physics.

STUDENT POSTER SESSION

Undergraduate session:



Debleena Banerji

is currently a senior exploration geologist at Shell in Houston, Texas. She received her PhD from the University on Houston in 2004 on a study of oceanic crust formation at ultraslow spreading ridges.



Kush Tandon

is currently a geophysicist and senior software engineer at Bluware, Inc., and a consultant with Shell Global Solutions (US), Inc., in Houston, Texas. He received a MS in geology from Cornell and a PhD from LSU in 1998 on modeling of basin formation and lithospheric bending during continental collision.



Jinny Sisson

is currently at the University of Houston where she is Research Associate Professor of Geology, Director of Summer Field Geology, and Co-director of the Geoscience Learning Center. She received her PhD from Princeton University in 1981 on metamorphic belts in British Columbia.

MEET THE JUDGES ...

Graduate (MS) session:



Ana Krueger

is currently a geologist at HRT Oil & Gas. She received her MS from the Observatorio Nacional in Brazil and her PhD in 2012 from the University of Houston on a study of the passive margin of northern Brazil.



Heather McGarity

is currently a geologist at Murphy Oil. She received her MS from the University of Houston in 2013 on a facies analysis of the Eagle Ford shale in Texas.



Wendy Nelson

is currently a research assistant professor at the University of Houston. She received her PhD from Pennsylvania State University in 2009 on a study of plume dynamics and petrology of the East African rift system.

MEET THE JUDGES ...

Graduate (PhD) session:



Maria Veronica Castillo is currently a Senior Geophysicist at Repsol. She completed her PhD in 2001 on the Maracaibo basin in Venezuela at the University of Texas at Austin.



Mark Gordon is currently a staff structural geologist at Shell Exploration Production Company. He completed his PhD at the University of Texas at Austin in 1991 on structural and tectonic studies in Honduras.



Mark Richardson is currently supervisor of South American exploration at ExxonMobil Exploration Company. He completed his PhD in marine geology and geophysics in 1988 at the University of Rhode Island. He serves as the industry advisor to the University of Houston Imperial Barrel Award team.



Xun Jiang is an associate professor of atmospheric sciences at the University of Houston. She completed her MS at the University of Peking and her PhD in environmental science and engineering at California Institute of Technology in 2006.

LAB OPEN HOUSES

SR1, Basement Floor

AGL Physical Modeling Lab

Location: SR1, Rm 60

Function: AGL operates two fully equipped ultrasonic modeling tanks with acoustic and elastic measurement capability in this lab. One of the tanks is used to simulate land seismic acquisition, while the other one is used to simulate marine surveys. These systems accept multiple channels simultaneously and run on a robotic system. In addition, we have a bench top system which is used for precise study of specific models.

Host: Anoop William

Student hosts: Long Huang (PhD), Jiannan Wang (PhD), Jingjing Zong (MS)

Website: <http://www.agl.uh.edu>

SR1, 1st Floor

AGL Instrumentation Lab

Location: SR1, Rm 138

Function: AGL has the capability to conduct seismic, VSP, well logging, GPR, magnetic, gravity and GPS studies in the field. This lab is the hosting area for some of this equipment.

In addition, we also maintain our own mini-vibe. During research day, this will be parked near the south main entrance to SR1.

Host: Li Chang

Student hosts: Eray Kocel (PhD) , Azie Aziz (PhD), Alexandre Silva (PhD)

Website: <http://www.agl.uh.edu>

Center for Petroleum Geochemistry

Location: SR1, Rm 103

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

Host: Adry Bissada, Director of CPG

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

LAB OPEN HOUSES

SR1, 2nd Floor

GeoRS (Remote Sensing) Lab

Location: SR1 Room 234

Function: GPR, EM, Hyperspectral Cameras

Faculty host: Dr. Shuhab Khan

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

SR1, 3rd Floor

Atmospheric Chemistry Lab (ICAS LAB located on 4th Floor)

Atmospheric Chemistry with special emphasis on Atmospheric Mercury and Greenhouse Gases.

Location: MC-ICP-MS Geo- Cosmochemistry (SR1 Room 317)

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. My group also shares the atmospheric science mobile laboratory with Dr. Lefer's group. 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 $\delta^{13}\text{C}$ in CH₄ to distinguish contributions from different sources.

Faculty host: Dr. Robert Talbot, Director of ICAS

Student hosts: Xin Lan (PhD), Azucena Torres (MS), Lei Liu (PhD)

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

MC-ICP-MS Geo- Cosmochemistry Lab

The MC-ICP-MS Geo- Cosmochemistry lab will be open for the research day open house.

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.

Host: Rasmus Andreasen (SR1 Room 330)

LAB OPEN HOUSES

SR1, 3rd Floor

PGE Geochemistry Lab

Location: MC-ICP-MS Geo- Cosmochemistry (SR1 Room 317)

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

Faculty host: Alan Brandon, Associate Professor

Student hosts: Shawn Wright (PhD)

Website: <http://www.tims.uh.edu/>

SR1, 4th Floor

Caribbean Basins, Tectonics, and Hydrocarbons (CBTH)

Location: SR1, room 427

Function: CBTH is a 21-company consortium and one of the largest industry consortia at UH with the goal of cutting 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. The room 427 work area provides workstation, server, software, GIS databasing, and printing capabilities to 12 UH MS and PhD graduate research assistants, 7 UH undergraduate research assistants supported as RAs by the project, and five members of the UH Imperial Barrel Award team who are part of a UH graduate level course in the spring semester.

Faculty host: Dr. Paul Mann, Director of CBTH

Student hosts: Naila Dowla (BS), Patrick Loureiro (MS), Carolina Mejia (MS), Joan Blanco (PhD), Luis Carlos Carvajal (MS), Lucia Torrado (MS).

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

Additional Research Labs & Programs

www.geosc.uh.edu/research-institutes-programs/index.php

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, climate change, and air pollution sciences.

The Department offers B.S., M.S., and Ph.D. degrees in Geology, Geophysics and Atmospheric Sciences, a B.S. in 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

Contact Us

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