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# What's New with the CBTH Project in Houston, Texas and Stavanger, Norway

#### Anadarko joins CBTH

We welcome our newest sponsor, Anadarko, and had a productive visit to the Colombia group at their offices in the Woodlands on February 7, 2018.



Alejandro Escalona (2nd from left) and colleagues at UiS accept the award for Best Graduate Program.

### UiS program ranks #1 for second year in a row

The UiS MSc in petroleum geosciences program in Norway, established by CBTH founder and Co-P.I.Professor Alejandro Escalona in 2010, has been ranked for a second year in a row (2016 and 2017) as the best geology graduate program in Norway in a "student barometer survey". In 2017, the University of Stavanger gave the prize of the best academic environment to the same program. Alejandro received his PhD from the University of Texas at Austin in 2003 and was a CBTH postdoctoral researcher at UT from 2004 to 2006. **Click here** for more information.

### **CBTH Luncheon at AAPG 2018**

The CBTH Project will host its annual luncheon at this year's AAPG meeting in Salt Lake City on Monday, May 21st at noon at BRIO Tuscan Grille, just a short walk from the convention center. For more information on the luncheon, presentations at this year's meeting, and how to RSVP, please **click here**.



### What's New



### UiS researchers complete field work in Cuba and Jamaica

From January 7th to 20th, Guro Skarstein (MS student), Assistant Professor Sverre Ohm and Professor Alejandro Escalona performed field work in Cuba and Jamaica for geochemical sampling of hydrocarbons. In Cuba, the CBTH group collaborated with CEINPET (Research Institute of CUPET) where they sampled oils and asphaltites from central western Cuba. In addition, CEINPET provided samples from natural seeps from the islands of southwestern Cuba. In Jamaica, the CBTH group collaborated with the Petroleum Corporation of Jamaica, where gas and oil samples from seepage and cores, and Eocene source rocks were collected in the western and central parts of the island. In addition, several oils from fields in onland Venezuela and Suriname were kindly provided by PDVSA and Staatsolie which will be used as reference samples for the continental margin of South America. All samples have been sent for analysis and initial results should be ready to present at the next sponsor meeting in September 2018.

### PhD graduate Kyle Reuber wins Jules Braunstein Memorial Award from AAPG

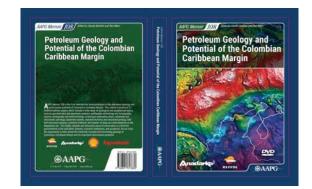
Kyle Reuber (PhD, May 2017) received the 2018 Jules Braunstein Memorial Award from the American Association of Petroleum Geologists (AAPG) for a poster he co-authored at the 2017 AAPG annual meeting in Houston on rifting in the South Atlantic. **Click here** to read more. Other talks and posters by UH at the AAPG meeting are summarized **here**. At the same AAPG meeting, Kyle also received a Top 10 Oral presentation award for his talk on rifting processes in the South Atlantic. Both topics were covered in greater detail in his PhD dissertation completed in May 2017. Dr. Reuber is now working fulltime at ION Geophysical.



### What's New

### Paul Mann wins Robert H. Dott, Sr. Memorial Award from AAPG

CBTH Co-Principal Investigator Paul Mann received the 2018 Robert H. Dott, Sr. Memorial Award from the American Association of Petroleum Geologists (AAPG) for a volume he co-edited with Dr. Claudio Bartolini on the petroleum geology of the offshore and onland areas of Colombia. **Click here** for more information.



### PhD student Pin Lin wins 2nd place at GCAGS

Congrats to Pin Lin for winning the second place, Gordon I. Atwater poster award at the annual meeting of the Gulf Coast Association of Geological Societies (GCAGS) held in San Antonio, Texas (Nov. 1-3, 2017). Lin's poster, entitled "Comparison of regional tectonic subsidence variations in the eastern Gulf of Mexico produced during two-stage, Mesozoic basin opening," presented a two-panel summary of one chapter of her Ph.D. dissertation that included her interpretation of seismic reflection and well data subsidence to predict the orientations and locations of deeply buried rifts. The study is timely due to the possible opening of this region for oil exploration. Her dissertation supervisor and co-author, Dr. Paul Mann, will receive a plaque on her behalf at the Opening Session and Awards Ceremony of the 2018 GCAGS Convention in Shreveport, Louisiana, on September 30, 2018. Other EAS faculty and student oral and poster presentations at the 2017 GCGAS meeting are listed **here**.

### CBTH researcher Lisa Watson completes PhD

Congrats to Lisa Watson for completing her PhD dissertation at the University of Utrecht, titled, "Spatial-based assessment at continental to global scale: Case studies in petroleum exploration and ecosystem services." Lisa started working with the CBTH project in 2003 as a sophomore geology major at the University of Texas. Following her graduation she moved to Norway in 2009 where she continued working with the CBTH project at the University of Stavanger. Lisa previously completed her MS at the University of Utrecht in 2011. She is now an associate professor in GIS studies at the University of Stavanger and continues to work with the CBTH project and attend the yearend meetings at the University of Houston.

### CBTH Annual Sponsors Meeting scheduled for September 21, 2018

The CBTH Annual Sponsors Meeting is scheduled for Friday, September 21, 2018 at the University of Houston in Cemo Hall, as in previous years. The list of CBTH presentations and agenda for the meeting will be posted in the forthcoming months. Please visit our website for more details as they become available.



### **Graduating Students**

2017 has been one of the most productive years of the project since 2005, with 5 PhD gradutes, 1 MS graduate, and 4 BS honors graduates: Lisa Watson (Univ. Utrecht PhD, now asociate professor at UiS), Kyle Reuber (UH PhD, now at ION Geophysical); Luis Carlos Carvajal (UH PhD, UH, now at Total), Patrick Loureiro (UH PhD, now at Hess), David Lankford-Bravo (UH BS Honors, now at UT El Paso PhD program), Rasheed Ajala (UH BS Honors, now at LSU PhD program), Marie Kouassi (UH BS senior report, now at UH PhD program with CBTH), Sabrina Martinez (UH BS, now at Tulane MS program), Lili Zhang (UH BS Honors), and Andres Cedeño (UIS MS).



**JOAN MARIE BLANCO** is a PhD graduate who joined the CBTH project in 2013 after receiving her BS in Geophysical Engineering and her MSc in Earth Sciences from Universidad Simón Bolívar in Caracas, Venezuela. Her CBTH PhD topic which included three chapters is entitled: Integrated, basin-to-reservoir scale, geologic and geophysical studies of a carbonate-hosted, hydrocarbon reservoir of the La Vela basin, northwestern Venezuela. Dr. Veronica Castillo of Repsol served on her PhD committee.

**ANDRES FELIPE CEDEÑO MOTTA** completed his MS study at UiS in July 2017. His thesis is titled "Geochemical analysis of oil from Barbados and basin modeling of Paleozoic units in the southern Llanos Basin, Colombia." He is currently a research assistant for the LoCrA and CBTH consortia projects supporting geochemical studies.



# Upcoming Graduations, jobs, and summer internships

**LUIS CARLOS CARVAJAL**, who completed his PhD with CBTH in May 2017, completed his postdoctoral work with the CBTH Project in October 2017.

**RENN CHANG** is an intern MS student from Rice who recently worked with CBTH on a report on gravity modeling of the Hispaniola area. She is now back at Rice and will graduate in May 2018.

**SHENELLE GOMEZ** is completing her PhD on the structure and stratigraphy of the Barbados-Trinidad area in the summer of 2018 and will start her job with Shell in Houston. She completed a 2017 summer internship with Shell.



# Upcoming Graduations, jobs, and summer internships (cont.):

**STEVE LESLIE** will complete his PhD on the structure of the Colombian offshore margin in fall 2018 and continue working with WTD Resources.

**JACK KENNING** is working on the structural evolution of the Mexican Ridges fold-thrust belt in the western Gulf of Mexico and will be a 2018 summer intern with ConocoPhillips in Houston.

**PIN LIN** will complete her PhD on the conjugate margins of Florida and Yucatan in summer 2018 and start her job with China National Offshore Oil Corp (CNOOC) in Beijing.

**ERIC LUNN** is completing his MS on the crustal structure of the Ceara-Barreirhinas basin in May 2018 and will start an internship with Shell in Houston working on the Neuquen basin of Argentina.

**ANDREW STEIER** is completing his MS on the Yucatan-NE GOM conjugate margin and prospectivity of the Norphlet Formation in May 2018 and has begun a six month internship with Total working on the GOM. Ted Godo of Murphy Oil is serving on his MS committee.

**ROCIO NAVAS**, an MS student at UiS, is working in the Gulf of Venezuela, integrating the La Perla field area with the western part of the Gulf and the Falcon basin in order to better understand the tectonic stratigraphic evolution of the area and the impact on Venezuela petroleum systems. She is expected to graduate in June 2018.

### CBTH-supported undergraduates from UH:

**RASHEED AJALA** graduated with honors in May 2017 and is now a PhD student at LSU working with Dr. Patricia Persaud, a former UH undergrad. His topic is the crustal structure of southern California.

**DAVID LANKFORD-BRAVO** graduated with honors in May 2017, and is now in the PhD program at UTEP working with Drs. Katherine Giles and Rip Langford; his field area is the Paradox basin of Utah.

**SABRINA MARTINEZ** graduated in May 2017 and is now studying tectonic geomorphology of west Texas at Tulane University with Dr. Nicole Gasparini.

**EMILY STIBBE** is completing her senior honors thesis on the conjugate margins of eastern North America and northwest Africa and will graduate in May 2018.

**OMAR ZAVALA** is completing his senior thesis on the conjugate margins of northeastern South America and west Africa and will graduate in May 2018.



## Visiting Scientists at UiS

**FERNANDO MAZUERA** is a PhD candidate from the Universidad Central de Venezuela and FUNVISIS who is collaborating with CBTH at the University of Stavanger on refraction studies from western Venezuela. This study will increase our knowledge on the lithospheric structure and basin geometries of NW South America.



# New Graduate Students at UH



**MARIE KOUASSI** is a UH geophysics and geology BS graduate who joined the CBTH project in 2016. Marie completed her undergraduate senior report on using a regional compilation of detrital zircon information from the Gulf of Mexico and the Caribbean as a constraint on Mesozoic, pre-rift continental reconstructions. After graduating in May 2017, she began working for the CBTH Project as a Research Assistant and has recently started her PhD project on processing and interpreting deep-penetration seismic lines from the US GOM provided by Dynamic Data Services.

**MARCUS ZINECKER** obtained his BS degrees in geology and geophysics from the University of Houston in 2014, where he graduated Cum Laude and with University Honors. In fall 2017, he began his MS degree at the University of Houston, and joined the CBTH team in spring 2018. He assists in maintaining the reference database for CBTH, and his thesis involves the regional scale hydrocarbon potential of the Atlantic conjugate margins. Marcus is a team member on the 2018 University of Houston AAPG Imperial Barrel Award (IBA) competition team.



# New Graduate Students at UiS



**GURO SKARSTEIN** is an M.Sc. student at UiS who is working on geochemical studies of the samples recently collected by CBTH researchers in Cuba and Jamaica, which will contribute to the regional study initiated at UiS on geochemistry of source rocks and their potential in the Caribbean.



### **Recent Meetings**

### AGU Fall Meeting 2017

The CBTH Project presented 5 presentations at the Fall AGU meeting in New Orleans on December 11-15, 2017. For a list of CBTH presentations at the meeting, **click here**. For all 72 UH EAS posters and talks at the AGU meeting, **click here**.

### EAS-HGS Sheriff Lecture 2017

CBTH PhD students Shenelle Gomez and Lucia Torrado recently presented at the UH EAS-HGS Sheriff Lecture on Nov. 27, 2017. **Click here** and **here** to view videos of Shenelle and Lucia explaining their posters to AAPG President Charles Sternbach.

### GCAGS 2017

The Gulf Coast Association of Geological Societies (GCAGS) held its annual meeting on November 1-3, 2017 in San Antonio, Texas. A complete list of CBTH presentations is available on our website by **clicking here**.

### 16th African E&P Conference hosted by PESGB

The Petroleum Exploration Society of Great Britain (PESGB) hosted its annual conference on August 31-September 1, 2017 in London. For more information, **click here**.

### **CBTH Annual Sponsors Meeting**

The CBTH annual sponsors meeting was hosted on October 6, 2017 in Cemo Hall on the UH campus. Thanks to all of our sponsors and colleagues who attend and made this year's meeting a success. For more information on presentations at this meeting, **click here** to visit our website.



CBTH sponsors, students, and researchers at the 2017 CBTH Annual Sponsor Meeting.



# **Upcoming Meetings**

### **UH-EAS Student Research Day 2018**

The UH Earth and Atmospheric Sciences Department will host its annual Student Research Day on Friday, April 27, 2018. A list of CBTH presentations at this meeting will be posted on our website as soon as it is available.

### AAPG 2018

CBTH graduate students Pin Lin, Jack Kenning, Beatriz Serrano-Suarez, and Andrew Steier will be presenting at the AAPG Annual Convention in Salt Lake City, Utah on May 20-23, 2018. **Click here** for details on presentations and the CBTH sponsor luncheon at AAPG.



### EAGE 2018

CBTH students and researchers at UiS have submitted abstracts to the 80th European Association of Geoscientists and Engineers (EAGE) Conference & Exhibition will be held on June 11-14, 2018 in Copenhagen, Denmark. Please visit our website for more information as it becomes available.

### AAPG Hedberg Conference on Geology of Middle America

The AAPG Hedberg Conference on Geology of Middle America - The Gulf of Mexico, Yucatan, Caribbean, Grenada and Tobago basins, and their Margins - will be held on July 2-5, 2018 in Siguenza, Spain. The event is convened by Jorge Comet, CEPSA, Keith James, Consultant, and Jose Luis Granja Bruna, Univ. Madrid. For more information, **click here**.

### GCAGS 2018

The 68th Annual Convention of the Gulf Coast Association of Geological Societies (GCAGS) and the Gulf Coast Section of the Society of Economic Paleontologists and Mineralogists (GCSSEPM) will be held on Sept. 30 – Oct 2, 2018 at the Shreveport Convention Center in Shreveport, Louisiana. A list of CBTH presentations at this meeting will be posted on our website as soon as it is available. For more information, visit https://gcags2018.org/



### **Recent Publications**

### 2017 student thesis studies supported by the CBTH project (10)

- Ajala R., 2017, Gravity-based study of flexure and crustal structure at the Niger and Mississippi deltas: BS senior honors thesis, University of Houston, 37 p.
- Blanco, J.M., 2017, Integrated, basin-to-reservoir scale, geologic and geophysical studies of a carbonate-hosted, hydrocarbon reservoir of the La Vela basin, northwestern Venezuela: PhD dissertation, University of Houston, 180 p.
- Carvajal, L.C., 2017, Hydrocarbon prospectivity of the Nicaraguan Rise and Colombia basin, Western Caribbean Sea: PhD dissertation, University of Houston, 387 p.
- Cedeño, A.F., 2017, Geochemical analysis of oil from Barbados and basin modeling of Paleozoic units in the southern Llanos Basin, Colombia: MS thesis, University of Stavanger, 137 p.
- Lankford-Bravo, D., 2017, Effect of the changing strike of the step-up fault marking the continent-ocean boundary on the structure of the overlying fold belts in the northwestern Gulf of Mexico: BS senior honors thesis, University of Houston, 41 p.
- Loureiro, P., 2017, Early Cretaceous tectonostratigraphic evolution of rift and sag basins of the Campos and Santos basins, southeastern Brazil, using potential fields, seismic reflection, and well data: PhD dissertation, University of Houston, 158 p.
- Kouassi, M., 2017, Paleozoic and Mesozoic evolution of the central Pangea region prior to the opening of the Gulf of Mexico: Evidence from compilation of U-Pb detrital zircons ages: BS senior report, University of Houston, 48 p.
- Reuber, K., 2017, Crustal structure and Mesozoic tectonic evolution of conjugate volcanic passive margins of the south-central and South Atlantic Oceans: PhD dissertation, University of Houston, 207 p.
- Watson, L., 2017, Spatial-based assessment at continental to global scale case studies in petroleum exploration and ecosystem services: PhD dissertation, University of Utrecht, 197 p.
- Zhang, L., 2017, Tithonian to recent, post-rift cooling and subsidence history of the southeastern margin of Brazil and correlation to Late Cretaceous-Cenozoic phases of the Andean orogeny: BS senior honors thesis, University of Houston, 46 p.



## **Upcoming Publications**

- Carvajal, L.C. and Mann, P., 2018, Western Caribbean intraplate deformation, 2: Defining a continuous and active microplate boundary along the San Andres rift and Hess escarpment, in P. Mann, ed., Geologic and geophysical synthesis of the Nicaraguan Rise and western Caribbean: A framework for understanding its petroleum potential: AAPG Bulletin Special Issue, in press.
- Gomez, S., Mann, P., and Bird, D., 2018, Deep crustal structure and tectonic origin of the Tobago-Barbados ridge, Lesser Antilles arc: Interpretation, in press.
- Lin, P., Bird, D., and Mann, P., 2018, Structure of eastern Gulf of Mexico extinct spreading ridge and adjacent Jurassic oceanic crust: revised and resubmitted to Marine Geophysical Researches.
- Sanchez, J., Mann, P., Carvajal, L.C., Bernal, R., 2018, A 1600-km-long structural-geophysical transect across the western Caribbean to illustrate its structural styles, fault kinematics, plate tectonic history, and petroleum potential, in P. Mann, ed., Geologic and geophysical synthesis of the Nicaraguan Rise and western Caribbean: A framework for understanding its petroleum potential: AAPG Bulletin Special Issue, in press.
- Torrado, L., Carvajal, L.C., Sanchez, J., Mann, P., 2018, Cretaceous-Cenozoic paleogeographic controls on major source rocks, reservoirs, seals, and traps of the western Nicaraguan Rise (offshore Honduras and Nicaragua), in P. Mann, ed., Geologic and geophysical synthesis of the Nicaraguan Rise and western Caribbean: A framework for understanding its petroleum potential: AAPG Bulletin Special Issue, accepted and in revision.



### Awards

2017 has been the year of the most AAPG awards since the project started in 2005 to members of the CBTH group including: AAPG Imperial Barrel world champions (CBTH members were Eric Lunn (captain) and Andrew Steier), AAPG Robert D. Dott publication award (Paul Mann), AAPG Best Student Poster Award (Lucia Torrado), AAPG Top 10 Oral Presentation (Kyle Reuber), and AAPG Jules Braunstein Poster Presentation (Kyle Reuber).

2017 - Pin Lin, PhD candidate, 2nd place Gordon I. Atwater poster award, Annual Gulf Coast Assoc. Geological Societies

2017 - Kyle Reuber, PhD candidate, Top 10 oral presentation, 2017 AAPG annual meeting

2017 - Shenelle Gomez, PhD candidate, 1st place, Sheriff student poster competition (graduate student catego-ry)

2017 - Kyle Reuber (with poster presentation co-authors), AAPG Jules Braunstein Memorial Award for best poster session presentation at the AAPG annual meeting.

2017 - Paul Mann (with co-editor Claudio Bartolini), AAPG Robert H. Dott, Sr., Memorial Award for AAPG Memoir 108: "Petroleum Geology and Potential of the Colombian Caribbean Margin" published in 2015.

2017 - Beatrice Serrano-Suarez, 3rd Place Poster Presentation, MS/PhD First Year Category, UH Student Research Day

2017 - Eric Lunn, Scholarship for Outstanding Graduate Work in Geology, EAS Department Excellence Fund

2017 - Lucia Torrado, PhD Candidate: 1st Place, AAPG 2017 Annual Meeting Student Poster Competition

2017 - Eric Lunn, PhD candidate and Team Captain, Andrew Steier, team member, UH Imperial Barrel Award Team (team co-advisor: Paul Mann): 1st Place; Gulf Coast Imperial Barrel Award Regional Competition

2017 - Emily Stibbe, undergraduate, Honorable mention student poster competition, Industry-Rice Earth Science Symposia (IRESS), Rice University



### Thanks to our sponsors!

As we continue with Phase V of the CBTH project, we would like to thank our active and inactive company sponsors for their support in providing data, software, funding, and knowledge to further student research in Caribbean geology. Your support has provided many opportunities for CBTH students to pursue research projects in the region and your efforts are truly appreciated.

#### Active Sponsors for Phase V Anadarko Statoil HESS **E**xonMobil Spectrum Spectrum PETROBRAS Previous Sponsors (2005 - present) NEWFIELD 12 noble energy Petrol PremierOil Netherlands Antilles REPJOL Chevron (\ MURPHY ISMAN Pacific Curação TULLOW :2/ Reliance RWE bhpbilliton Apache Eni **BG GROUP** Data Sharing Spectrum Statoil DYNAMIC PETROL 2 PETROLEUN ANH P CORPORATIO TALISMAN bhpbilliton drillinginfo PDVSA 00 AFRICA FORTESA **TGS Technical Support** Chesapeake HALLIBURTON ● IVS 3D Schlumberger Rothwell willand RaleoGIS RESTREPY Neuralog ZetaWare, Inc.