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## What's New

### CBTH is moving to the University of Houston

The big news for CBTH in this final year of Phase II is the move from the University of Texas at Austin to the University of Houston. Paul Mann accepted and started his professor position at the University of Houston on June 1, 2011. We have invoiced all of our current sponsors for CBTH Phase III, the continuation of the project, at the University of Houston and would greatly appreciate your continued support for the start of Phase III on September 1, 2011. Since Paul Mann's departure from UT on June 1, UT has agreed to transfer some of the residual Phase II funds to UH, which is helping us get the project re-started at UH. Other than the physical move, Phase III will be conducted in a very similar way to how we conducted Phases I and II at UT. We will continue our close collaborations with Alejandro Escalona and other researchers and students at the University of Stavanger in Norway, who are also funded through your sponsorship payments. We hope to formalize and expand the exchange of CBTH researchers and students between Stavanger and Houston, which, as it turns out, have been "sister cities" since 1980.

There will be no continuing CBTH activities at UT with the exception of our continuing collaborations with Dr. Ian Norton on plate reconstructions and our supervision of two CBTH graduate students who are finishing up or transitioning. Tricia Alvarez is very

close to graduating with her PhD in December, 2012 and has opted to remain to graduate from UT. She has relocated her office to the Bureau of Economic Geology, and she is planning to spend some time at UH to write her dissertation with Paul nearby. Rocio Bernal will remain at UT for one more semester in the Department of Geological Sciences, then transfer to UH in January, 2012. We will also bid farewell to our three hardworking UT undergrad research assistants who have worked with the CBTH project and have been a tremendous help in our relocation to UH: Harris Ardis, Lauren Becker, and Bryan Ott. Bryan will be applying to the MS program at UH to continue his work with Paul Mann on Papua New Guinea. Lauren and Harris have one more year to complete their BS degrees in Geology.

### Changes to CBTH website

We have transferred the CBTH web site from UT to UH. As our support staff will remain at UT through the end of the project on August 31, 2011, sponsors can still access the UT site for data transfers. However, on September 1, 2011, all access to the UT site will end and sponsors will need to obtain new login information for the UH site found at:

<http://www.cbth.uh.edu/>

If you have any questions or problems with the web site or passwords for the new UH site, please contact us at [cbth@ig.utexas.edu](mailto:cbth@ig.utexas.edu) or [cbth@uh.edu](mailto:cbth@uh.edu) after September 1, 2011.

### Changes to CBTH personnel

Unfortunately, we will be losing one of our UTIG GIS specialists, Ruth Costley, who had just relocated from Missouri to Austin in 2009 and wishes to remain living in Austin. Jeff Storms continues his role as GIS specialist with the project on a contractual basis,

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while remaining in Austin. He will help to transition the project to UH.

We also bid farewell to two CBTH MS graduates. Anthony Rodriguez completed his MS degree on the Mexican part of the Gulf of Mexico and is now working with Chevron in Houston. Henry Campos completed his MS on the Llanos basin of Colombia and will start with Shell in Houston in August. Their MS theses are available through the CBTH website, and we are polishing manuscripts of their MS results to be submitted to journals. The Norway group will lose their postdoctoral student, Wenxiu Yang, who has found a job in Norway in the oil industry. Look for her paper on the Guyana margin coming out in AAPG Bulletin.

Some new faces in the project at UH include Javier Sanchez, who just completed an excellent UT MS on the structure of the Middle Magdalena Valley with Brian Horton, will expand this study into the Cesar-Racheria area as a PhD study at UH; Luis Pachon, who is arriving from Colombia, to continue a regional subsurface study of the Putamayo foreland basin which he has worked on for several years at a company in Colombia. Rocio Bernal will continue her PhD study of the Lower Magdalena. The three studies of Rocio, Javier, and Luis will be combined into a major regional synthesis of Colombian basin. We greatly appreciate the summer internships provided to the CBTH students by Shell and Repsol that has contributed to this effort.

UH is currently constructing a new CBTH workstation lab, which will have an 18 seat capacity with state of the art hardware and software. During the yearend meeting on September 9, we will show the sponsors the new facility. With your support we hope to expand the number of graduate research assistantships we can provide students. As the CBTH area has enlarged, we hope to initiate student projects on Guyana, Suriname, Brazil, Honduras, Jamaica, Nicaragua and Mexico.

## CBTH student award winners at AAPG

We would like to congratulate Henry Campos and Rocio Bernal who won the first place and third place student poster awards, respectively, at the AAPG annual meeting in Houston in April, 2011. Henry's presentation was a summary of his MS research on the Llanos basin of Colombia and Rocio's presentation was a progress report on her PhD work in the Lower Magdalena basin of Colombia. Only 15 students were selected for the competition out of about 100 student applicants so theirs was a major achievement to not only be selected for the competition, but then to win first and third places. AAPG has posted a video of the student award ceremony at:

<http://www.youtube.com/watch?v=slXsgXbfVt8>

## CBTH links to sponsoring companies

As sponsors, please visit us at the UH or University of Stavanger campuses. We will in turn be calling on you to come and share your expertise with us both informally and in the classroom. We will also be able to place our students in your company both as summer interns and permanent hires. Our two year old, CBTH "targeted intern program" seeks to place students with companies that have shared interests and allow them to work on their thesis research as part of the internship. This program has proven to be valuable with exchanging information and ideas between the CBTH project and our sponsors. We would also like to promote exchanges and internships between our Stavanger CBTH students and companies based in Houston and between the UH students and companies based in Stavanger. Henry Campos experienced a very productive visit with the Norway group in early 2011 that proved very beneficial for his modeling of the Llanos foreland basin.



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## Products to expect from Phase I and II of the CBTH study

Despite all of the changes over the past several months, the US and Norway based CBTH groups have been diligently working towards completing the Phase II, Year 3 atlas which will be reported on at the September 9 meeting at the University of Houston. We have a full agenda for this intensive, one-day meeting as outlined below and hope you can all attend to see the results of Phases I and II. As in past years, the annual CBTH product distribution will include a hard copy atlas, a digital version, and an updated GIS database for the study area. At the meeting we will also provide an overview of upcoming activities for Phase III and introduce all personnel involved in Phase III.

## Information for yearend meeting to be held at the University of Houston campus, Friday, September 9, 2011

We will use the newly constructed 50-seat capacity lecture room in CEMO Hall adjacent to the UH Business school. The attached UH campus map shows the exact location of the lecture hall and locations for visitor parking. The meeting will convene at 8 am and will end at 5 pm. We will provide a light breakfast, coffee, and boxed lunches. We can accommodate several representatives from your company but would appreciate if you RSVP their names of your entire group by August 15, 2011 to [cbth@ig.utexas.edu](mailto:cbth@ig.utexas.edu).

## Agenda for CBTH yearend meeting on Friday, September 9, 2011, CEMO Hall, University of Houston campus

**Agenda for CBTH yearend meeting on Friday, September 9, 2011, CEMO Hall, University of Houston campus (8 am to 4:30 pm)**

### Session 1: Year 3 CBTH products, GIS database, plate reconstructions and paleogeography

8 am to 8:15: Paul Mann: Welcome, introductions, Phase I, II, and III overview, update on move of CBTH project to Univ. of Houston

8:15 to 8:30: Jeff Storms: Atlas and final products Phases I and II

8:30 to 8:50: Lisa Bingham: GIS and fuzzy logic using CBTH data as a test case

8:50 to 9:20: Ian Norton and Alejandro Escalona:

Update on CBTH plate reconstructions and paleogeographic maps

9:20-9:30 Questions and group discussion on session 1 talks

### Session 2: Mexican sector of Gulf of Mexico and northwestern Caribbean

9:30 to 9:45: Anthony Rodriguez: Offshore regional synthesis of the Mexican GOM

9:45 to 10:05 Alejandro Escalona and Wenxiu Yang: Offshore regional synthesis of the southeastern GOM and northwestern Caribbean

**10:05 to 10:20 am: Coffee break**

### Session 3: Nicaraguan Rise and Colombian basin

10:20 to 10:35: Pete Emmet: Update on CBTH offshore study of the Nicaraguan Rise

10:35 to 10:50: Carlos Vargas: Offshore Colombian basin source rocks

10:50-11:00 Questions and group discussion on session 3 talks

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**Session 4: Northwestern South American basins, Colombia to Leeward Antilles, part I**

11:00 to 11:15: Alejandro Escalona and Nestor Cardozo: Reconstructed 3D flexure of northern South American basins

11:15 to 30: Rocio Bernal: Subsurface study of the Lower Magdalena basin of Colombia

11:30 to 11:45 am: Javier Sanchez: Regional structural and stratigraphic study of Middle Magdalena and Cesar-Rancheria basins of Colombia

11:45 to 12:00: Henry Campos: Study of the northern Llanos foreland basin of Colombia

12:00-12:15 Questions and group discussion on session 4 talks

**12:15 to 1:30 pm: Boxed lunches**

**Session 5: Northwestern South American basins: Colombia to Leeward Antilles, part II**

1:30 to 1:40: Lucia Torrado: Study of the northern Llanos foreland basin using 3D seismic data

1:40 to 1:55: Catalina Moreno (to be presented by Escalona): Subsurface study of the southwestern Llanos foreland basin, Colombia

1:55 to 2:10 Luis Pachon: Subsurface study of the Putamayo foreland basin, Colombia

2:10-2:30: Alejandro Escalona and Wenxiu Yang: Basin modeling along the Leeward Antilles island arc

2:30-2:40: Questions and group discussion on session 5 talks

**2.40 to 2.55: Coffee break**

**Session 6: Northeastern South American basins: Trinidad to Guyana**

2:55 to 3:15: Tricia Alvarez: Regional subsurface study of eastern offshore Trinidad and Barbados accretionary prism

3:15-3:25: Brendan Figuera (to be presented by Escalona): Subsurface study of the southern Gulf of

Paria, Trinidad

3:25-3:40: Alejandro Escalona and Wenxiu Yang: Basin modeling in the Guyana basin

3:40-3:50 Questions and group discussion on session 6 talks

**Friday pm session 7: Wrapup discussion**

3:50 to 4:30: General discussion of goals of Phase III, ideas for collaborations, internships, data sharing.

**Meeting ends at 4:30 pm**

**Tour of CBTH subsurface lab at the Univ of Houston: 4:30-4:45 pm**

**Hotel reservations for those coming from outside of Houston for the September 9 meeting**

For those representatives not from Houston, we recommend you stay at the Hilton Hotel conveniently located on the University of Houston campus and a short walk to CEMO Hall. We have reserved a block of rooms for the meeting but you would need to confirm and pay for your own rooms.

[http://www1.hilton.com/en\\_US/hi/hotel/HOUUHHF-Hilton-University-of-Houston-Texas/index.do](http://www1.hilton.com/en_US/hi/hotel/HOUUHHF-Hilton-University-of-Houston-Texas/index.do)

**Look for CBTH at meetings in the fall and spring 2011-2012**

At the upcoming SEG meeting in September 18-23, 2011. Paul Mann will give an invited talk on hydrocarbon potential of the CBTH study area.

<http://www.seg.org/events/annual-meeting/sanantonio2011/am2011overview>

We will also be at the GCAGS meeting in Vera Cruz, Mexico, October 16-19, 2011, talking on the results or the Anthony Rodriguez MS study of the Mexican



part of the Gulf of Mexico. We also hope to build collaborations between CBTH and various industry and academic groups in Mexico who are working on the GOM.

<http://www.gcags2011.com/>

Paul Mann will be attending the Fall AGU meeting in December, 2011, to give invited talks on the Nicaraguan Rise and the Haiti earthquake area.

Most of the UH group will be attending the April 22-25, 2012, AAPG annual meeting in Long Beach where we hope to have several presentations on various studies of Phase III. We will also host our annual luncheon for sponsors that will include a midyear update on the progress of Phase III.

<http://www.aapg.org/longbeach2012/>

Alejandro Escalona and the CBTH Norway group will be presenting CBTH results at the 2012 EAGE meeting held in Copenhagen from June 4-7, 2012.

<http://www.eage.org/events/index.php?eventid=520&Opendivs=s3>

## Company Contacts

The following people have volunteered to serve as our main contacts for CBTH. All data generated by CBTH is provided to the sponsoring companies through these individuals. Please let us know if your company representative changes during this study. We greatly appreciate all the extra efforts by the contacts for the CBTH project!

### BHP Billiton Petroleum, Inc.

David Risch  
Houston, Texas



### British Gas T&T Limited

Stephen Babb  
Port-of-Spain, Trinidad



### Chevron

Richard Parrish  
Houston, Texas



### Ecopetrol

Roberto Hernandez  
Bogota, Colombia



### ExxonMobil Exploration Company

Pete Rumelhart  
Houston, Texas



### Government of Curacao

Clark Gomes  
Curacao

### Hess

Peter Mullin  
Houston, Texas



### Newfield Exploration

Bruno Maldonado  
Houston, Texas



### Noble Energy, Inc.

Robb Bunge



### Petrobrás

Alice Aragão

Rio de Janeiro, Brazil



### PDVSA

Alberto Ramos

Puerto la Cruz, Venezuela



### Repsol

Dewi Jones

The Woodlands, Texas



### Shell

Fernando Sanchez-Ferrer

Houston, Texas



### Statoil

David Hunt

Oslo, Norway



### Total

Patrick Salmon

Paris, France



## CBTH Software Support

CBTH strives to use software programs comparable to that used by our sponsors. Students working on the project extensively use these software programs in their thesis and dissertation studies. Some are provided at no cost to our project because of our academic affiliation; others are paid for by CBTH funds contributed by our sponsors.

### LandMark

Bill Agee

Landmark Graphics



Landmark Graphics is kindly providing our interpretative software.

### IVS3D

Bill McKernan



We are also using an exciting 3D visualization package called Fledermaus from IVS3D.

### Zetaware Genesis

Zhiyong He



Zetaware has generously provided CBTH with two copies of Genesis which is their basin modeling package.

### PaleoGIS

Arwen Vaughan



Dr. Ian Norton is working with Alejandro on an improved Caribbean plate model using the PaleoGIS software that allows integration of our other GIS-based data into the reconstructions. The advantage to sponsors is being able to see what data has been used to constrain reconstructions.



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## Chesapeake Technology

For a list of distributors, visit:



<http://www.chesapeaketech.com/distr-list.html>

CBTH has purchased the ImageToSEGY software from Chesapeake technology which allows conversion of analog paper seismic records to SEGY format. We have several projects that have successfully used Chesapeake to convert paper data to digital and thereby expand our database in frontier areas like Guyana, Suriname (cf. Yang et al., AAPG), and the Nicaraguan Rise (cf. Emmet and Mann, AAPG). All these converted data are made available to CBTH sponsors in Landmark format.

## Midland Valley

Sarah Davenport



Midland Valley is the producer of 2D move, 3D move, and 4D move software. The UTIG group attended a training course by Midland Valley on this structural restoration software on April 22, 2010. Midland Valley has provided UT 10 licenses and would like to help foster the use of the software at UT. CBTH projects will start incorporating this software into their workflow.

## Current Activities of CBTH

**Paul Mann, principal investigator, UTIG:** Paul has been busy this year supervising 3 PhD students and 3 MS students, all engaged in work for the CBTH project (cf. AAPG titles for a summary of the various studies). He accepted the position of Professor at the Department of Earth and Atmospheric Science at the University of Houston. He began his new position at the University of Houston on June 1, 2011.

**Alejandro Escalona, co-principal investigator, University of Stavanger, Norway:** Alejandro is currently supervising 2 students engaged in work for the

CBTH project and Dr. Wenxiu Yang, a CBTH-funded post-doctoral fellow at UiS. He will continue to work with Dr. Ian Norton on the revised PaleoGIS plate model for the Caribbean.

**Dr. Ian Norton, CBTH consultant, UTIG and University of Stavanger:** Ian's expertise with PaleoGIS has been a great asset to CBTH in revising the Caribbean plate model. He also assists us with his wealth of knowledge on many topics including gravity, magnetic, and subsidence analysis. Ian is also working on collecting new seismic refraction data from the Gulf of Mexico and refining reconstructions in that area.

**Dr. Pete Emmet, CBTH consultant, UTIG:** Pete has assembled and interpreted most of the vintage industry and well data from the Nicaraguan Rise, an area he has maintained an interest in since completing an MS thesis on Honduras at UT in 1982. Pete and Paul have also been collaborating with PGS on more recent data collected on the Nicaraguan Rise.

**Wenxiu Yang, post-doctoral fellow, University of Stavanger, Norway:** Wenxiu joined the Stavanger group in 2009 as a two year postdoctoral fellow. After acceptance of her Guyana study by AAPG Bulletin, Yang has begun interpreting seismic and well data for northeastern Caribbean and southern Gulf of Mexico. She is working on submitting papers for publication.

**Lisa Bingham, GIS specialist and project coordinator, University of Stavanger, Norway:** Lisa works part-time for CBTH in Norway, while obtaining an MSc degree in Geographical Information Management and Applications program at Utrecht University in The Netherlands. She finished her degree on June 30, 2011. Her master's thesis is titled "GIS-based analysis for petroleum exploration using fuzzy logic multi-criteria evaluation and sensitivity analysis" which will be available to sponsors upon its completion. Her 2010 EAGE poster presentation was submitted to EAGE First Break and has been accepted pending revisions; the paper, "Creating a Unified Geologic Database: The Need for a Global Standard," will be made available to sponsors when it is

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published. Her work for CBTH includes improving the database, helping with sponsor requests, and assisting with the PaleoGIS reconstructions.

**Ruth Costley, GIS specialist, UTIG:** Ruth, who holds an MS degree from the University of Redlands in GIS technology, joined the project in August, 2009. Her work for CBTH includes improving the database, assisting with sponsor requests, maintaining CBTH websites, and assisting students at UT. In the future, she will remain in Austin, Texas.

**Jeff Storms, GIS specialist, UTIG:** Jeff has worked with the CBTH project since 2007. He is a GIS specialist and graphic designer who provides support to staff and students including making Fledermaus visualizations of CBTH data. In the future, he will work at his independent film company in Austin and work as a consultant for CBTH.

**Tricia Alvarez, PhD candidate, UTIG:** Tricia plans to complete her PhD degree at UT by 2013. Her dissertation topic is the structure and stratigraphy of the deep and ultra-deepwater offshore area of eastern Trinidad. She will continue working for the CBTH project under the direction of Drs. Lesli Wood (UT) and Paul Mann.

**Rocio del Pilar Bernal Olaya, PhD candidate, UTIG:** Rocio started her MS project on the Lower Magdalena basin and subsurface Romeral fault zone in August of 2009. She has since decided to expand her research into a PhD project which she intends to finish in August 2014 from UT. Her poster at this year's AAPG conference received the third place prize for the annual AAPG student poster competition. She will continue to work on the CBTH project under the direction of Drs. Brian Horton (UT) and Paul Mann.

**Anthony Rodriguez, MS candidate, UTIG:** Anthony also started an MS project in August 2009, in a new area for CBTH, the Mexican sector of the Gulf of Mexico. This study is jointly supervised by CBTH and the GBDS project of Bill Galloway and Patty Ganey-Curry. Anthony is currently completing his thesis and is

set to graduate this summer. He has accepted a position at Chevron as a Geologist.

**Henry Campos, MS candidate, UTIG:** Henry started his MS project in August 2009, in the Llanos foreland basin of Colombia. His poster at this year's AAPG conference is the first place winner of the annual AAPG student poster competition. Henry is currently completing his thesis and is set to graduate this summer. He has accepted a position at Shell as a Geologist.



Paul Mann, Rocio Bernal, and Henry Campos displaying AAPG student poster awards.

**Catalina Moreno, MSc candidate, UiS:** Catalina Moreno is pursuing the MSc in Petroleum Geosciences Engineering at the University of Stavanger. She is working on the southern Llanos Basin.

**Brendan Figueira, MSc candidate, UiS:** Brendan is pursuing the MSc in Petroleum Geosciences Engineering at the University of Stavanger. He is working in the western offshore Trinidad region.

**Brian Ott, future MS candidate, UH:** Bryan Ott is currently an undergraduate research assistant employed with the CBTH project. He will graduate from UT with



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a BS in Geology at the end of this summer. He will begin his studies at the University of Houston under the direction of Paul Mann in Fall 2011.

**Javier Sanchez, future PhD candidate, UH:** Javier Sanchez is currently finishing his MS degree in Geology from the University of Texas. He will begin to work with the CBTH project under the direction of Paul Mann as a PhD candidate this upcoming Fall.

## Past Meetings and Events

### American Association of Petroleum Geologists

When: April 10-13, 2011

Where: Houston, TX

The 9 presentations given at the meeting are listed below. We appreciate those of you who were able to attend our sponsor's luncheon on April 12, 2011.

<http://www.ig.utexas.edu/research/projects/cbth/SponsorsOnly/POSTERS/AAPG/aapg.htm>

Alvarez et al.	Subduction-to-Strike-Slip Transition in the Southeastern Caribbean Imaged Using Deeply Penetrating Seismic Reflection Lines and Tomography
Bernal and Mann	Lower Magdalena Basin, Colombia: A Forearc Basin Formed Above a Zone of Active, Shallow Subduction
Campos et al.	Flexurally Driven Subsidence History of the Llanos Foreland Basin Formed Above a Zone of Active, Shallow Subduction
Emmet and Mann	Nicaraguan Rise Offshore Honduras: Upper Cretaceous Source Rock May Contribute to a Proven Eocene Hydrocarbon System at Main Cape-1 in Mosquita Basin
Mann and Vargas	Role of Panama Arc-Indenter for Late Cenozoic Deformation in Colombia and Implications for Regional Distribution of Hydrocarbons

Prieto et al.	Crustal Structure, Sequence Stratigraphy and Petroleum Potential of the Western Colombian Basin Adjacent to Costa Rica and Nicaragua
Punnetta and Mann	Structural and Stratigraphic Synthesis of the Gas Trend on the Northern Shelf of Trinidad and Tobago
Rodriguez and Mann	Origin of the Mexican Ridges Passive Margin Foldbelt Based on Seismic and Well Integration from the Shelf-Slope-Deep Basin and Structural Restoration
Vargas and Mann	500-Kilometer-Long Extension of the Trans-Andean Mega-Regional Seismic Transect Across the Colombian Basin and Implications for Deepwater Hydrocarbon Exploration

### EAGE

When: May 23-26, 2011

Where: Vienna, Austria

Alejandro Escalona and Wenxiu Yang attended this meeting and presented the following presentations.

<https://www.ig.utexas.edu/research/projects/cbth/SponsorsOnly/POSTERS/Other/other.htm>

Escalona and Yang	Evaluating Petroleum systems along the leeward Antilles Island Arc, southern Caribbean
Yang and Escalona	Pseudo 3D modeling on Cretaceous source rock in Guyana basin, Northern South America

## Contact Information

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CBTH general inquires: [cbth@ig.utexas.edu](mailto:cbth@ig.utexas.edu) or

[cbth@uh.utexas.edu](mailto:cbth@uh.utexas.edu) (Sept. 1, 2011)