

CARIBBEAN BASINS, TECTONICS AND HYDROCARBONS, PHASE II

Institute for Geophysics
The University of Texas at Austin

<http://www.ig.utexas.edu/research/projects/cbth/>

11 May 2009

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Vol. 4. No. 3

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Areas of research focus for CBTH Phase II (2008-2011)

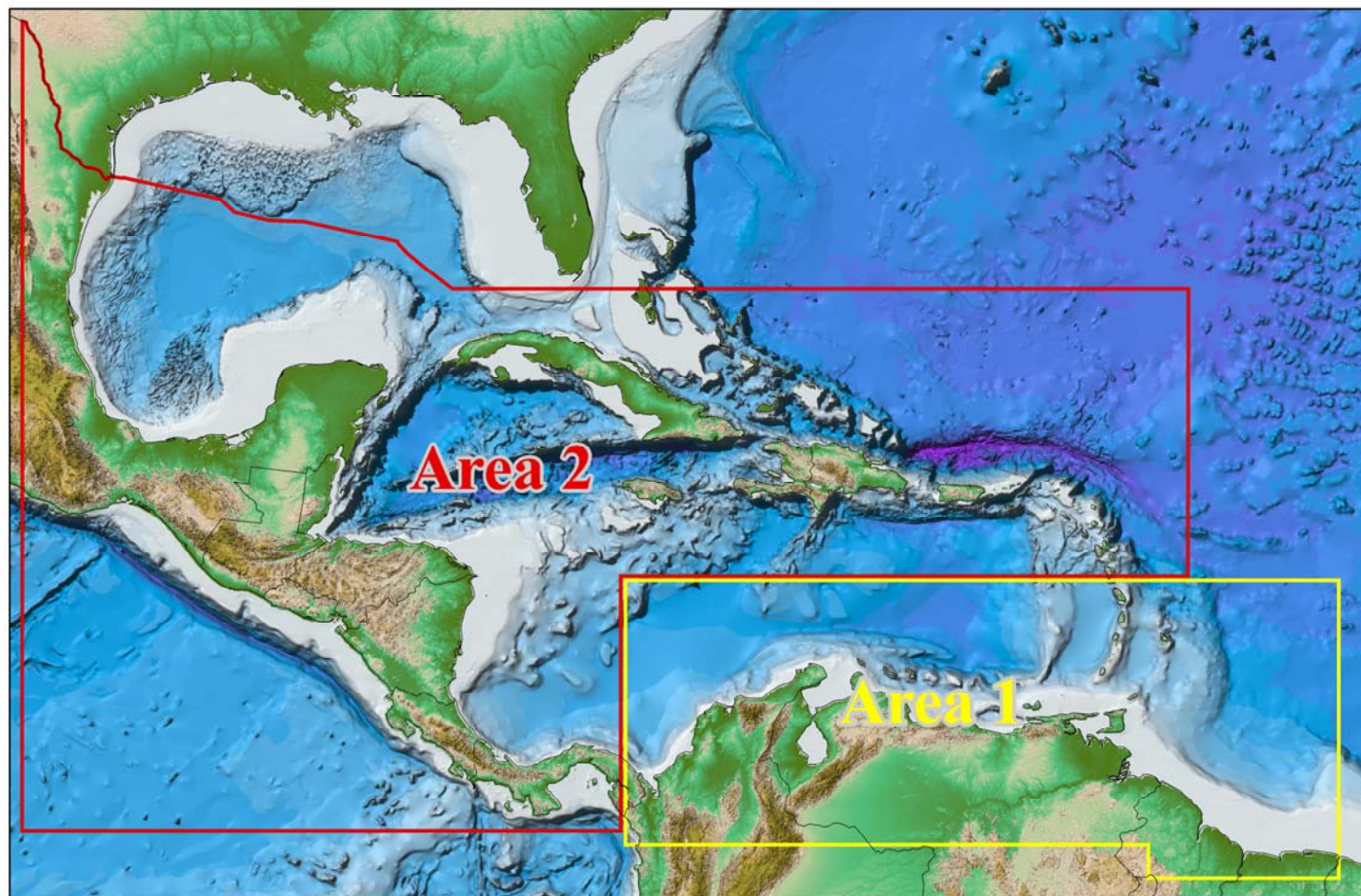


Figure 1. Areas 1 and 2 of the CBTH Phase II consortium.

The Caribbean Basins, Tectonics and Hydrocarbons (CBTH) consortium now includes a large region of the Caribbean, western Gulf of Mexico, and northern South America (areas 1 and 2 in the map). Phase I of CBTH focused only on Area 1 in northern South America.

Our Phase II study has expanded in scope and depth to have a better understanding of the wide range of complex geologic and tectonic processes that extend from the Caribbean subduction margin of northwestern Colombia to the passive margin of Suriname and Guyana (Figure 2). Understanding these processes is fundamental to hydrocarbon exploration.

CBTH has continued this study in Phase II. We have been actively interpreting data from Colombia and Guyana. Student research is covering the Orinoco Delta of eastern Venezuela and the Columbus basin of Trinidad. Our studies are also moving further north into Area 2 (Figure 1) which include the Nicaraguan Rise and the Mexican sector of the Gulf of Mexico.

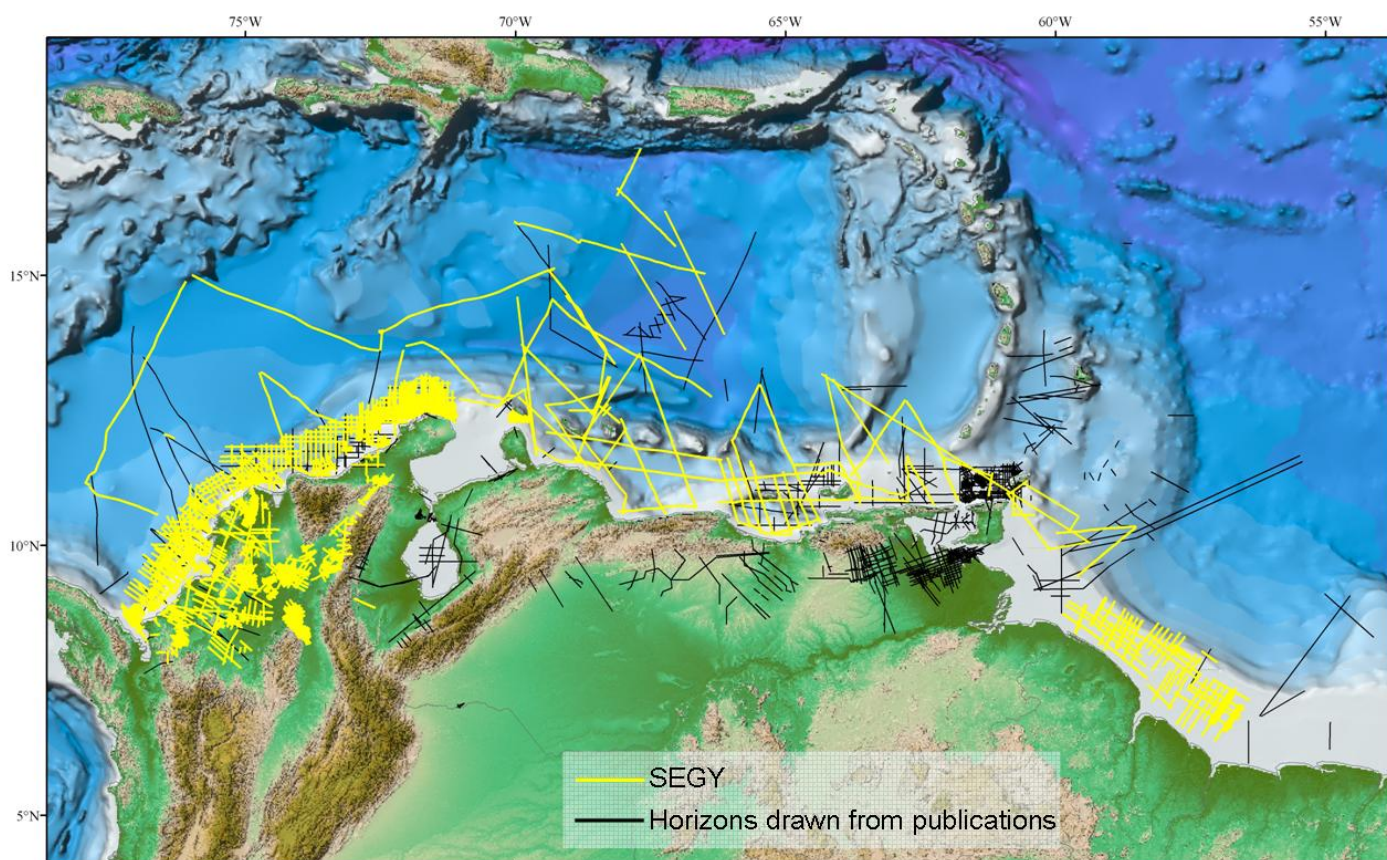


Figure 2. Map showing seismic data being used for subsurface mapping.

Current UT graduate student projects being supervised by CBTH



Gustavo Taboada

Gustavo Taboada is a graduate student from Venezuela working on a Master of Science degree which will be completed in August 2009. Gustavo's thesis topic is "Tectonostratigraphic evolution of the northeastern Maturin foreland basin, Venezuela." Gustavo is supported by a fellowship and data from the national company of Venezuela, Petroleos de Venezuela, S.A (PDVSA). He will be presenting his thesis results at the AAPG annual convention in June, and his final geologic interpretations will be included in the CBTH 2009 atlas and GIS database.

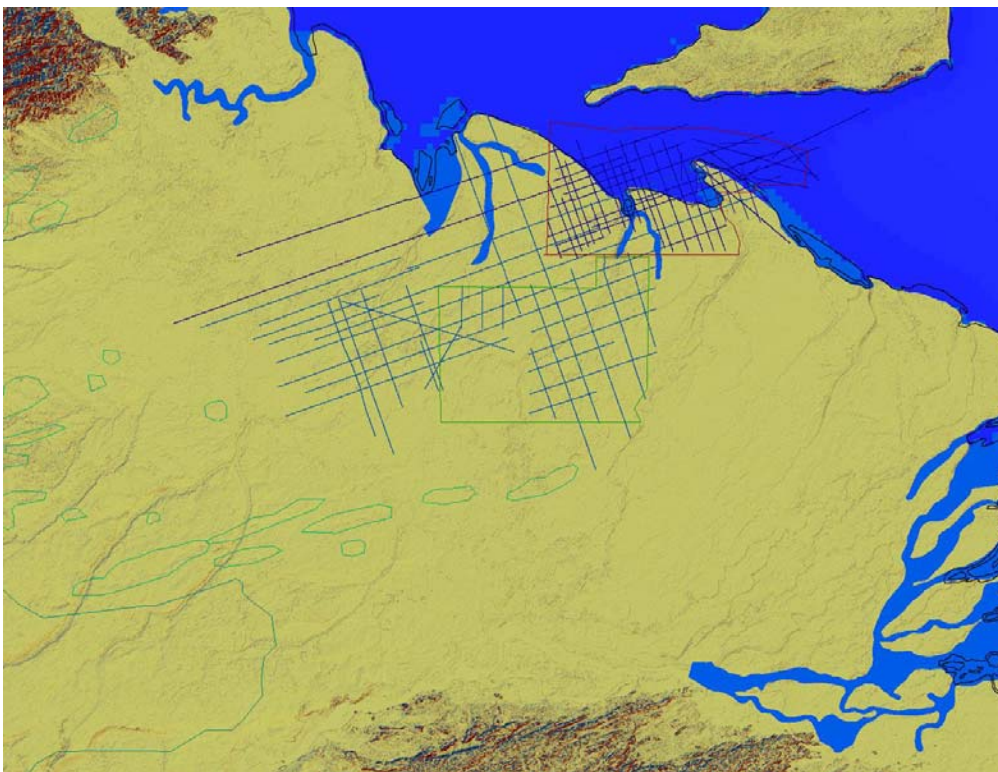


Figure 3. Gustavo's study area.



Tricia Alvarez

Tricia is pursuing a PhD study within the framework of the CBTH project at the UT Institute for Geophysics. Hailing from Trinidad and Tobago, Tricia completed her Masters of Science degree in Geosciences from UT in December 2008. Her MS thesis, titled "Tectonic geomorphology of the eastern Trinidad shelf: Implications for influence of structure on reservoir distribution and nature in older basin fill," was supervised by Dr. Lesli Wood at the UT Bureau of Economic Geology. Her PhD topic is "Tectonostratigraphic evolution of shelf to deepwater basin systems in a tectonically-active area, southeastern Caribbean Sea." Her PhD study at UT, projected to be completed in 2012, will be jointly supervised by Drs. Paul Mann, Lesli Wood, and Alejandro Escalona. Tricia will summarize her MS results at the AAPG annual meeting in June. Tricia recently won the AAPG Isaac J. Crumbly Minorities in Energy Grant to assist funding for her fieldwork during the summer of 2009.

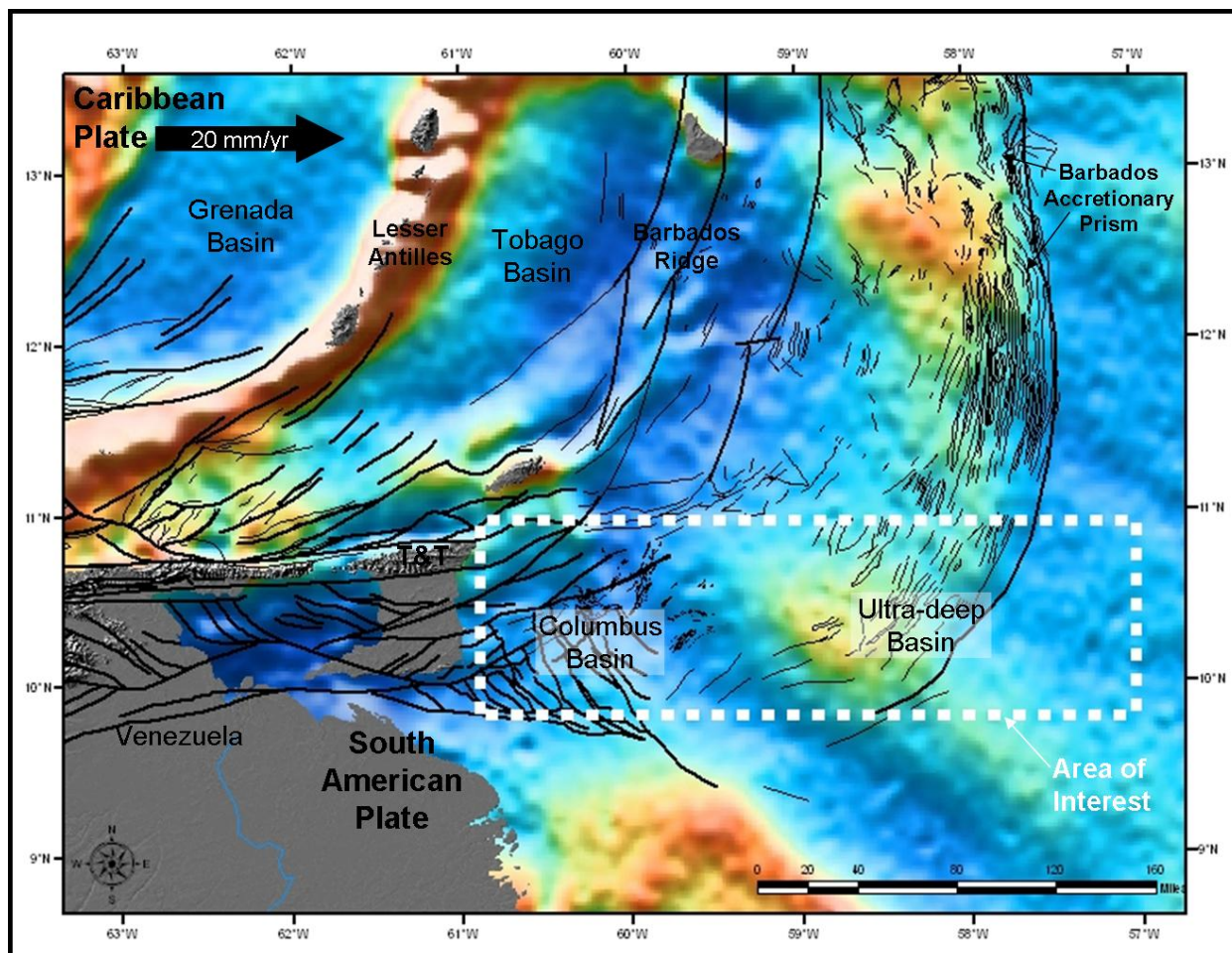


Figure 4. Tricia Alvarez's study area.

Intern Graduate Student



Elodie Autret

Elodie Autret is a master's level graduate student working on a marine geology degree from the University of Brest (France). She works with Alejandro Escalona at the University of Stavanger in Norway as an intern interpreting seismic data from Suriname and Guyana. The dataset Elodie works with was a salvaged paper dataset that was converted to SEG-Y. Elodie's structural mapping, as well as the converted SEG-Y, will be included in the 2009 CBTH data release.

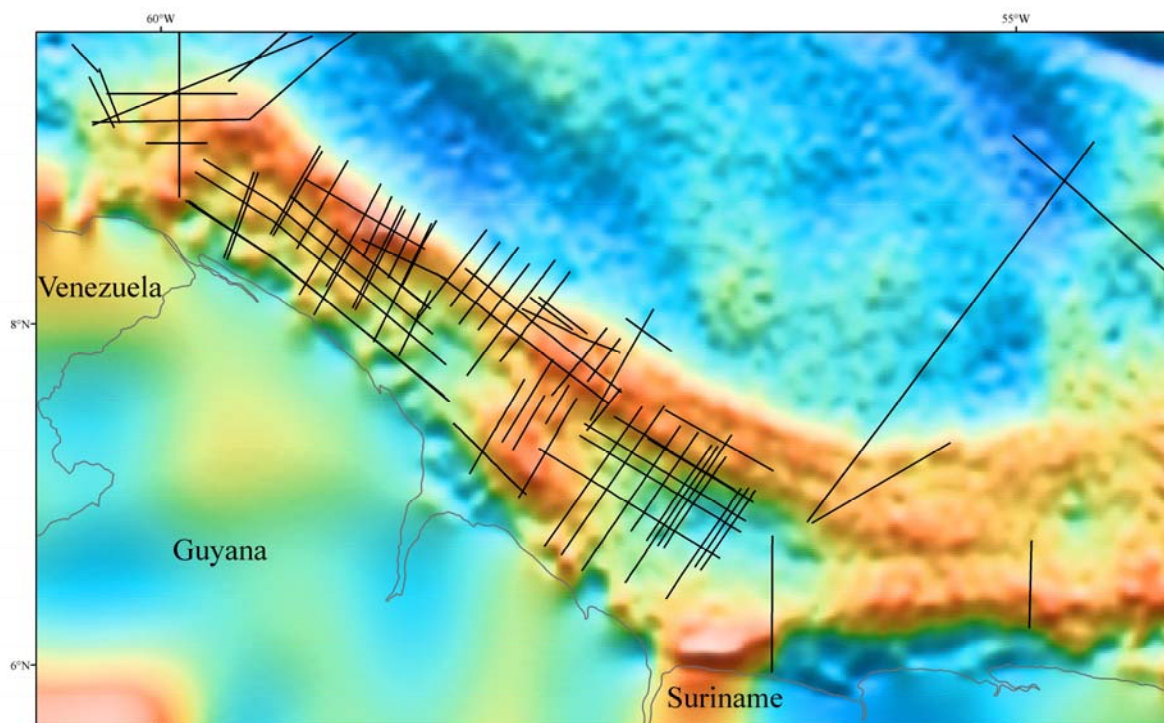


Figure 5. Elodie's study area.

CBTH staff currently working on CBTH Phase II (2008-9)



Xiangyun Jiang

Xiangyun "Shawn" Jiang received her PhD from the China Petroleum University in Beijing in June 2007. Her PhD topic was "Fluvial reservoir architecture modeling and remaining oil distribution study" in Bohai basin, China. Xiangyun's current research activities for CBTH include interpreting seismic data, creating surface maps, and converting vintage well data to digital format. Xiangyun is interpreting data from Agencia Nacional de Hidrocarburos (ANH) expanding the existing structural mapping from the Magdalena fan to Panama. Xiangyun will present her latest findings at the AAPG meeting in June 2009 and her final map products will be the basis for the 2009 CBTH Colombia release.



Figure 6. Xiangyun Jiang's overview study.



Xiangyang Xie

Xiangyang “Cheyenne” Xie received his PhD from the University of Wyoming in June 2007, where his topic was “Intracontinental Deformation and Sedimentary Response in the Mesozoic southern Ordos Basin, north central China.” Cheyenne's current research interests include basin analysis using regional provenance studies of potential reservoir sandstones. His post-doctoral research study for the CBTH project is a provenance and reservoir quality study of on- and offshore Paleogene sandstones collected in northern South America. This work is jointly supervised by Paul Mann and Alejandro Escalona. Xiangyang is presenting his final results at the AAPG conference in June 2009. His final results and report will be presented at the 2009 Annual AAPG meeting and will be included in the CBTH 2009 atlas.

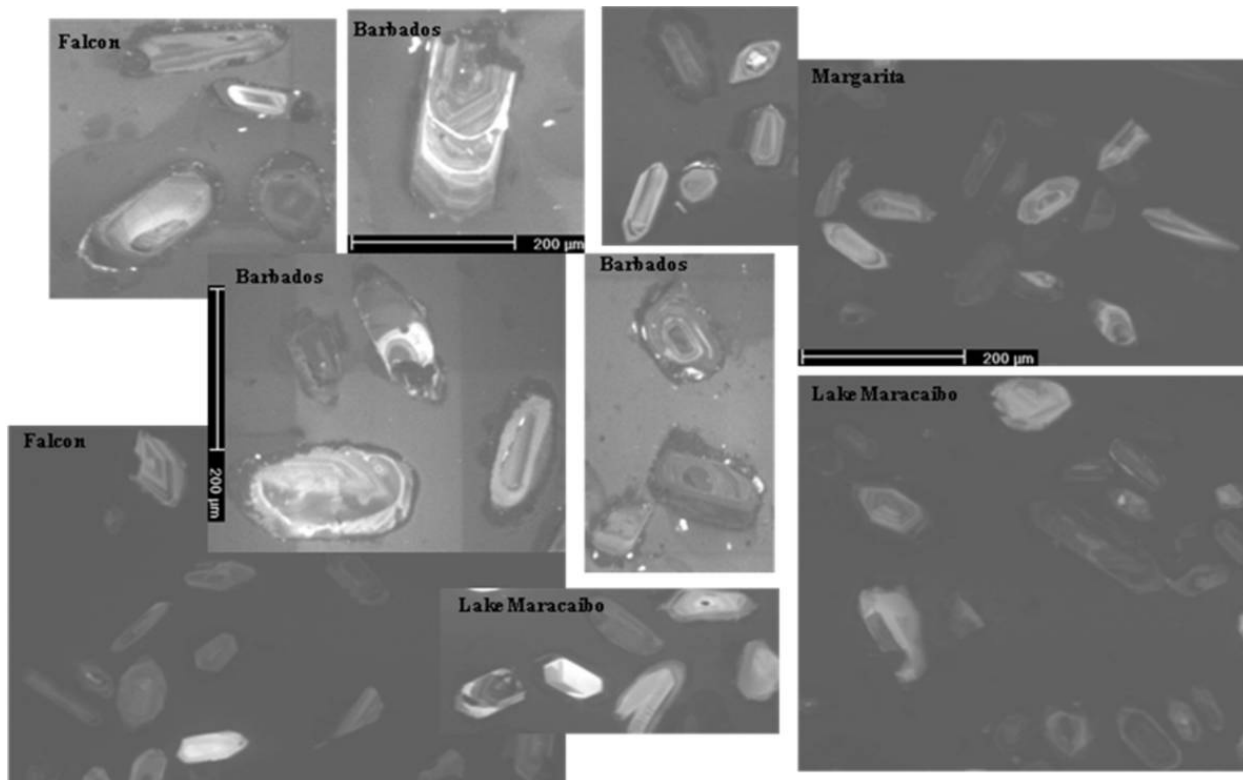


Figure 7. Zircon grain samples from Xiangyang Xie's study.



Lisa Bingham

Lisa completed her undergraduate degree at UT in May 2005, and has worked as the project manager and sponsor contact person for Phases I and II of the CBTH project. Lisa supervises three UT undergraduate research assistants who are employed by the CBTH project for various project tasks. Her main research interests are developing GIS databases. Lisa is presenting a new GIS database on the Mexican sector of the Gulf of Mexico at the AAPG meeting in June. The GIS database will be included in the 2009 CBTH GIS release.

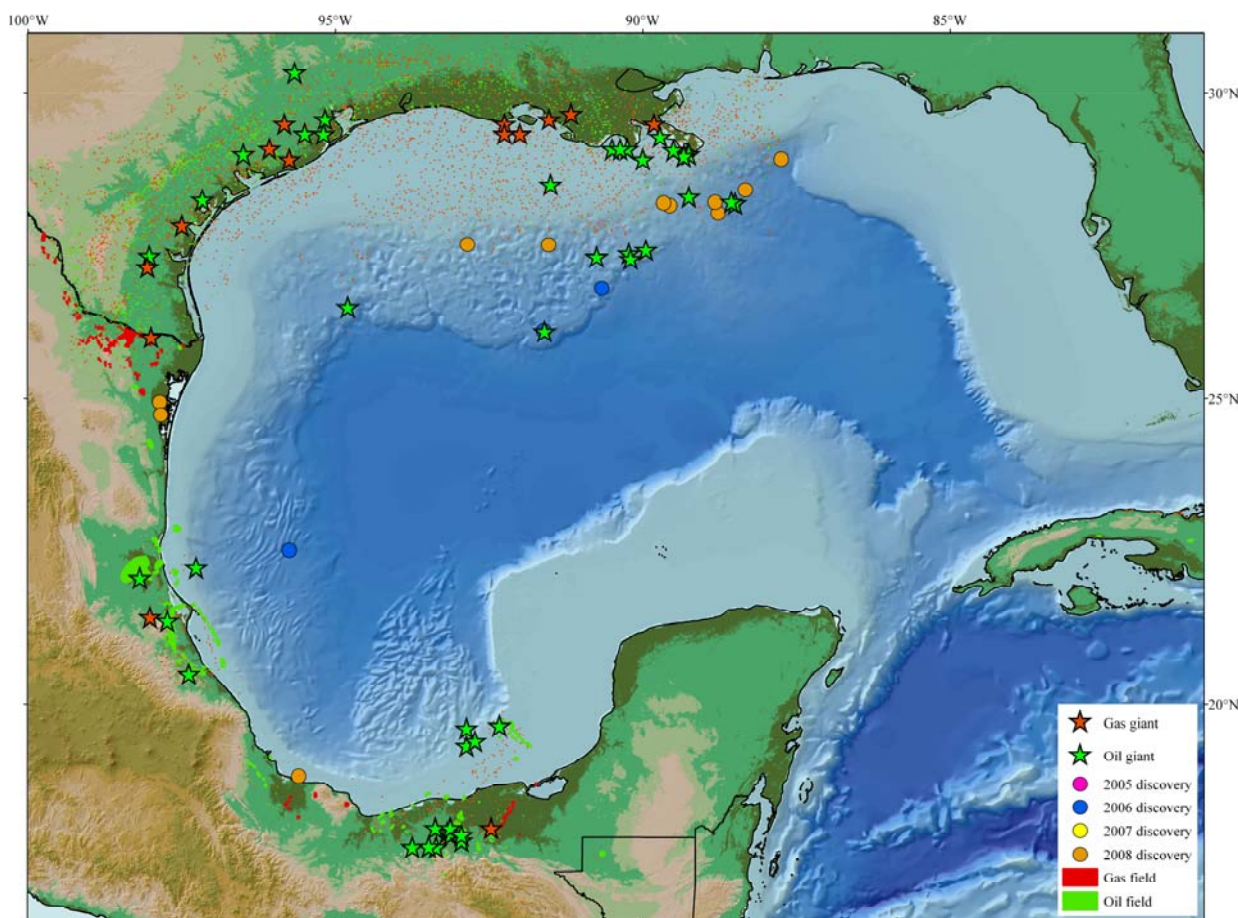


Figure 8 Giant oil and gas fields of the Gulf of Mexico.



Ian Norton

Ian, in collaboration with Alejandro Escalona and Paul Mann, is working to update the UTIG PLATES database (PIs: Lawrence Lawver and Ian Dalziel). This update will reflect new PLATES results from the Gulf of Mexico and recent CBTH Phase I and II results from Venezuela, Colombia, Suriname, Guyana, and the northern Caribbean. Ian will be presenting preliminary results of these reconstructions at the AAPG annual meeting in June. All reconstructions are produced using PaleoGIS software that allows input of our vast GIS database into the reconstructions. Ian will be traveling to Norway to spend two weeks working with Alejandro on the plate reconstruction model in late July.

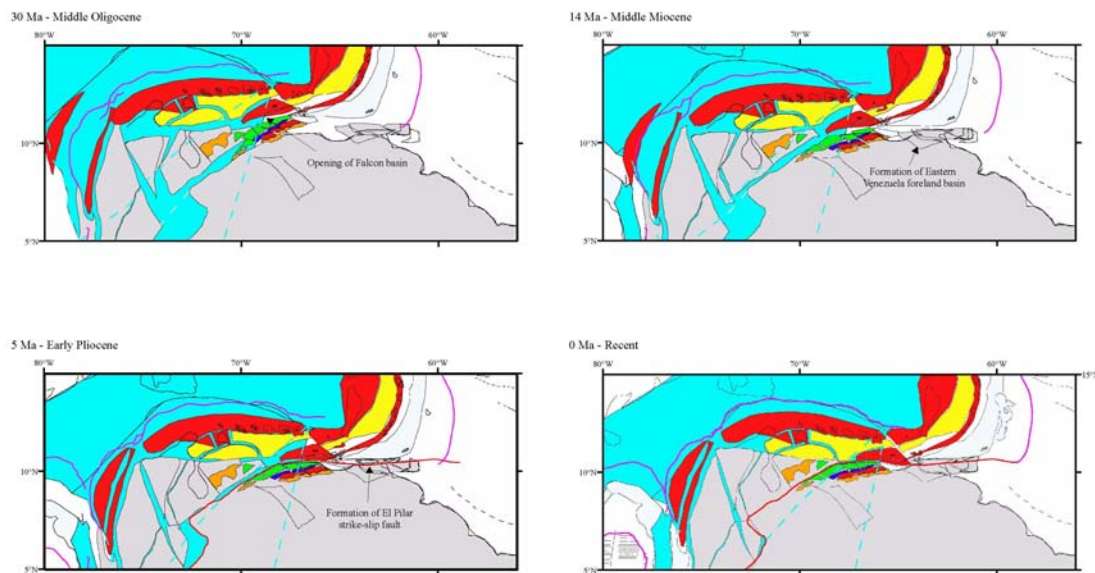


Figure 9. CBTH preliminary plate reconstructions from Phase I.

Pete Emmett

Pete Emmett of Brazos Valley Geo Services, Inc. is interpreting vintage seismic and well data from the Honduran sector of the offshore Nicaraguan Rise. The Nicaraguan Rise has not been systematically explored since the 1970s. We are using software to convert paper seismic records to segy and then interpreting the data in a workstation environment. Results of this study including GIS database updates will be made available to sponsors in 2010.

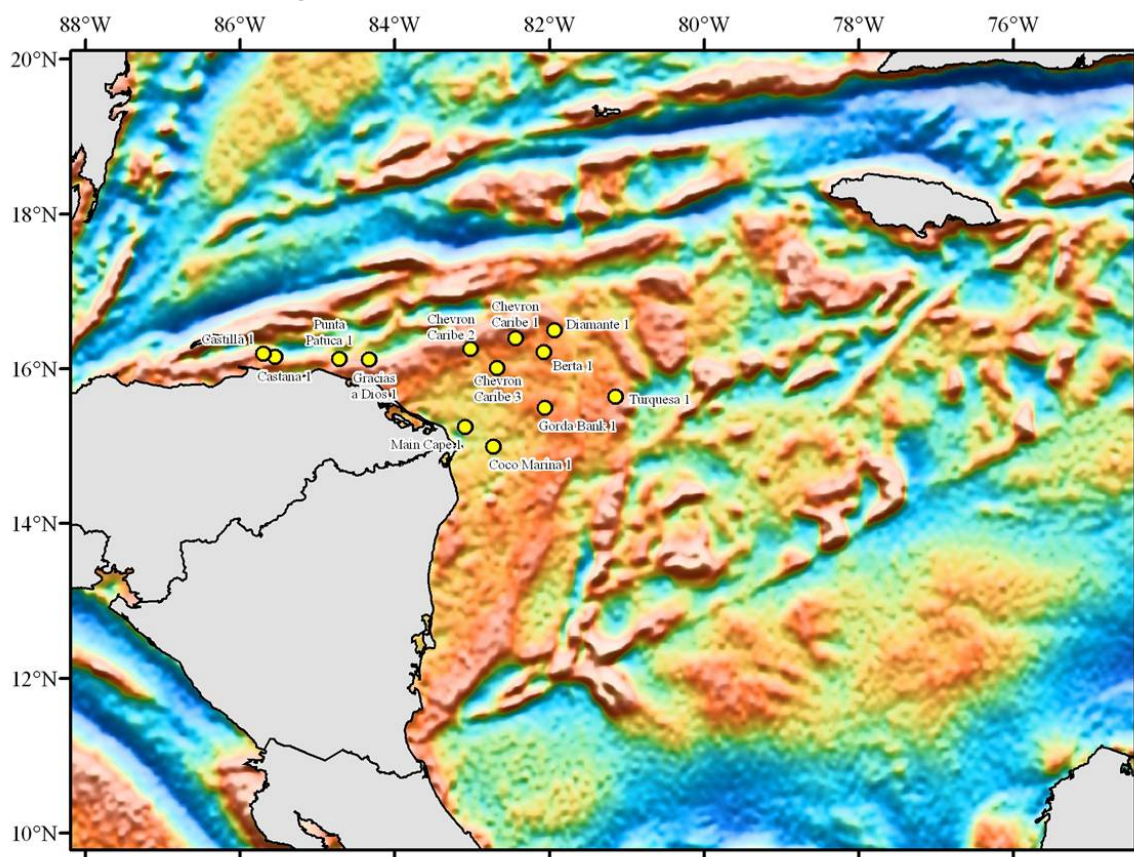


Figure 10. Corrected free air gravity map showing a selection of well locations used in the study.

Paul Mann



Paul's current assignments for the CBTH study include offshore Colombia, eastern Venezuela, and offshore Trinidad where he supervises the CBTH thesis-related work of UT-based postdoctoral researchers Xiangyang Xie and Xiangyun Jiang, graduate students Tricia Alvarez and Gustavo Taboada along with three UT undergraduates he co-supervises with Lisa Bingham. He is also conducting field studies in Jamaica, an uplifted area of the Nicaraguan Rise, and collaborating with Pete Emmet on the interpretation of vintage data from the Nicaraguan Rise. Paul and Alejandro are also co-editing a volume on the subsurface geology of the southeastern Caribbean that is currently in preparation as a special issue of *Marine and Petroleum Geology* (completion date: late 2009). Papers will be made available to sponsors as soon as they are published.



Alejandro Escalona

Alejandro's current assignments for the CBTH study include offshore Guyana-Suriname where he supervises the graduate student intern Elodie Autret. He acts as co-supervisor for UT-based postdoctoral researchers and graduate students. He is also conducting basin modeling in the southeastern Caribbean with Dr. Willy Fjeldskaar of Stavanger University.



Willy Fjeldskaar

Willy Fjeldskaar is a researcher at IRIS in Stavanger, Norway. Willy co-created the BMT software which he and Alejandro use for basin modeling for the CBTH project.



Janet Everett

Jan is a Senior Administrative Associate who helps CBTH with travel logistics and other administrative requirements associated with our University. She helps format and submit students theses and also creates graphic designs, newsletters, and other promotional items for the project.



Jeff Storms



Sanchi Srivastava



Guy Fitz

Jeff Storms, Sanchi Srivastava, and Guy Fitz work as undergraduate research assistants for the CBTH project. Their duties range from scanning papers and inputting reference information to creating maps and information for the GIS database to converting paper images of seismic lines to SEG-Y. Each student has a different educational background which helps to create individual expertise. Jeff Storms has worked with the project the longest and has an overall understanding of the project as a whole and its impact on the oil and gas industry. Sanchi Srivastava is a Computer Sciences major and is able to help with the database aspects. Guy Fitz is a geology major and is able to help quickly with geologic and GIS aspects.

In addition to these studies currently supported by CBTH, new graduate students and post-doctoral researchers will be joining us over the next six months. Topics that will arise from these researchers are the continuation of the Llanos basin from Colombia to Venezuela; hydrocarbon potential of the Dominican Republic; structural mapping of the Cesar-Rancheria basin, Colombia; and structural mapping of the Magdalena fan, Colombia.

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Meet our 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.

Karen Tindale

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

Pinar Yilmaz

Houston, Texas



Newfield Exploration

Bruno Maldonado

Houston, Texas



Petrobrás

Alice Aragão

Rio de Janeiro, Brazil



PDVSA

Miguel Nuñez

Puerto la Cruz, Venezuela



Repsol

Raul Giraudo

The Woodlands, Texas



Shell

Fernando Sanchez-Ferrer

Houston, Texas



StatoilHydro

Frode Liestøl

Oslo, Norway



CBTH Software Support

Landmark Graphics

Bill Agee



Landmark Graphics is kindly providing our interpretative software.

IVS3D

Bill McKernan



We also use an exciting visualization package called Fledermaus from IVS3D.

Zetaware Genesis



ZetaWare, Inc.

Interactive Petroleum System Tools

Zhiyong He

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

PaleoGIS



PaleoGIS

Arwen Vaughan

CBTH and PLATES have acquired a license for the plate reconstruction program PaleoGIS. Using this software, CBTH will be working with Dr. Ian Norton of the PLATES project at UTIG to improve our plate reconstructions of the Caribbean.

Chesapeake Technology



For a list of distributors, visit:

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

CBTH has purchased the ImageToSEGy software that allows conversion of analog paper seismic records to segy format. This allows us to convert paper data in our possession to segy and thereby to increase its value in our regional studies. All converted data will be provided to sponsors.

Upcoming Meetings

Keep an eye on our website for updates and more information for these upcoming events:

www.ig.utexas.edu/research/projects/cbth/links.htm

CBTH will be attending the AAPG annual meeting June 7-10 in Denver, CO. To see a list of abstracts and presentation times, visit: http://www.ig.utexas.edu/research/projects/cbth/documents/abstracts/2009_AAPG_abstracts.pdf

American Association of Petroleum Geologists Annual Meeting

June 7-10, 2009
Denver, CO

X Simposio Bolivariano

July 26-29, 2009
Cartagena, Colombia

CBTH Year 4 Meeting

Friday, September 18, 2009
Austin, TX

We hope to see you at these meetings.

Contact Information

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Alejandro Escalona alejandro.escalona@uis.no
Lisa Bingham (GIS, database, billing questions or other questions and information): cbth@ig.utexas.edu

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