Annual Report 2010

GEOFORCE TEXAS

THE UNIVERSITY OF TEXAS AT AUSTIN

JACKSON

SCHOOL OF GEOSCIENCES

On the cover:
Students from the GeoFORCE Houston 12th Grade Academy take a break at Great Falls National Park, Virginia.

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U.S. Assistant Secretary of the Interior Anne Castle visits with GeoFORCE Houston 12th Graders at Harpers Ferry, West Virginia.

Message from the Dean

GeoFORCE continues to surpass our expectations.

The GeoFORCE program was initially designed to expose high school students to the excitement of learning about our natural environment in the hopes that some of them would be inspired to take difficult science courses that would prepare them to pursue college degrees in science, engineering, and math. As we complete our sixth year of operations, we have learned that GeoFORCE does more than just provide an incentive to pursue science education—it is a platform that allows students to grow as individuals, to broaden their view and understanding of the world outside their neighborhoods, and to begin to fine-tune their interactions with the adult world.

GeoFORCE is meeting its primary objective to engage a large and diverse group of students in science education and increase the percentage of minorities pursuing science, technology, engineering, and mathematics (STEM) degrees. The numbers speak for themselves, as we now have more than 500 high school students and nearly 200 college students in the program. Our demographics are 60 percent Hispanic, 19 percent Caucasian, 15 percent African American, 5 percent Asian, and 1 percent Native American. We graduated our second senior class in 2010, consisting of 114 students. Three of these students are class valedictorians, and three are class salutatorians; most are ranked in the top 20 percent of their graduating classes. All 114 of our seniors graduated from high school. Two of these students have joined the U.S. Military. One student is dealing with family illness, and we have been unable to reach three other students. The other 108 students are attending college this fall, mostly in Texas (94 percent) and mostly at public institutions (88 percent) and four-year colleges (89 percent). Twenty-two GeoFORCE graduates are enrolled at UT Austin, nine of them in the Jackson School.

This year's graduating class is overwhelmingly leaning toward science careers. So far, 61 percent of the students are planning to major in a STEM field. This number includes 19 percent who are aiming for earth science degrees and 9 percent who are planning to study engineering. So we are meeting the primary objective.

A newly realized contribution of GeoFORCE comes directly from the students, who, after four years of GeoFORCE, are themselves emerging as a force to be reckoned with. We have watched children entering the program at the end of eighth grade become young adults by the time they are seniors, having the competence not only to master their academic requirements but also to impress those around them with their level of maturity and presence.

Webster's explains presence as "the ability to project a sense of ease, poise, or self-assurance, especially the quality or manner of a person's bearing before an audience." Popular American poet Walt Whitman aptly articulated the value of this trait: "We convince by our presence."

This summer, while at Harpers Ferry, West Virginia, our 12th-grade Houston students were honored with a visit by U.S. Assistant Secretary of the Interior Anne Castle. Secretary Castle spent a morning talking with the students and participating in field activities. Afterward she shared her favorable impression of them in an e-mail:

> **These kids are fabulous…. they have great presence and are comfortable outside of their home environment and with adults.**
>
> *Anne J. Castle*
> *U.S. Assistant Secretary for Water and Science*
> *U.S. Department of the Interior*

She could not have summed it up better. These kids *are* fabulous.

Dr. Sharon Mosher, Dean
Jackson School of Geosciences

GeoFORCE Overview

- **Nationally only 24 percent of students in the graduating class of 2010 scored high enough on the ACT in math, reading, English, and science to ensure they would pass entry-level college courses (Wall Street Journal, 2010).**
- **Scientific innovation has produced roughly half of all U.S. economic growth in the last 50 years (National Science Foundation, 2004).**
- **If current trends continue, more than 90 percent of all scientists and engineers in the world will live in Asia (U.S. Department of Labor, 2007).**

The Need

Ensuring that we have an adequate supply of competent science, technology, engineering, and mathematics (STEM) workers for the future requires us to begin involving segments of the population that have not historically pursued science and math degrees in high proportions. Using the latest census figures, USA Today reports that more than 48 percent of children in the United States under age five are now minorities. As the current STEM workforce ages out of the system, we must find a way to increase the interest of minorities in science to replace these workers.

Meeting this challenge will be difficult because historically Hispanics and African Americans have not pursued math and science degrees in the same proportions as the majority population. John Brooks Slaughter, president and CEO of the National Action Council for Minorities in Engineering, underscores the crisis we are facing in his open letter to colleagues in *Confronting the "New" American Dilemma:* "The disparity in the representation of minorities, as well as women, is becoming an increasing problem for the STEM disciplines given the demographic changes occurring in society. African Americans, American Indians, and Latinos constitute 30% of the nation's undergraduate students, a proportion that is expected to grow to 32% in 2010 and 38% by 2025. Latinos will account for 90% of the growth; they will constitute one-sixth of the nation's population by 2011. Yet, today, fewer than 12% of baccalaureate engineering graduates in this country are underrepresented minorities." The situation is even worse in the geosciences, where the percentage of geoscience degrees conferred on Hispanics falls 41 percent short of current national graduation trends and the percentage of geoscience degrees conferred on African Americans misses the mark by 82 percent (American Geological Institute, 2010).

The Method

GeoFORCE is designed to address this issue by targeting predominantly minority and female honor students from the Houston Independent School District and school districts across southwest Texas. The objectives of GeoFORCE are to

- Increase the number of students pursuing degrees in math and science.
- Increase the diversity of the future high-tech workforce.

The program is neither a subtle nor an inexpensive approach. It is designed to provide lasting experiences for middle and high school students that will capture their interest, motivate them to excel in their math and science courses, and build their awareness of opportunities in high-tech careers, especially within the geosciences. This intense program is accomplished through a four-year series of summer academies and field courses that include learning in dynamic field and classroom environments, living on a major university campus, interacting with university faculty and research scientists, and participating in field trips to spectacular geologic settings in Texas and across the United States.

GeoFORCE recruits at selected schools within the Houston Independent School District and from 18 independent school districts in southwest Texas. Although the program is open to all outstanding students, regardless of background, the recruiting

GeoFORCE students conquer their fears, and the Grand Canyon, July 2010.

areas exhibit a high percentage of minorities, and our academies and field courses reflect these demographics.

GeoFORCE provides spectacular, multiyear, science learning experiences for talented high school students, with the goal of encouraging underserved youths to excel in the sciences and pursue higher education in scientific fields. We have learned that one effective way to excite and engage young people is to immerse them in geologic experiences that spark their imagination, inspire their academic development, and broaden their perception of the world.

The strength of GeoFORCE is its ability to give students a powerful and memorable experience that has a lasting impact on their lives. The ongoing nature of the program—every summer for four years throughout high school—is critical, as is the intensity of the GeoFORCE experience, with spectacular field trips to emphasize science learning and exciting travel to new environments.

GeoFORCE identifies high achievers in math and science at the eighth-grade level and then provides the students with a four-year series of work-and-reward activities that motivates them to excel in school and builds their awareness of opportunities in math and science. Students participate in summer field sessions, or "academies," that occur every year throughout their high school education, with each academy building upon the curriculum of the previous year. The field trips are from two to six days and include study on the UT Austin campus, as well as visits to places such as Mount St. Helens, Florida Keys, Guadalupe Mountains, and the Grand Canyon that give the students outstanding opportunities to discover science in some of the most beautiful field sites in the world. Each event includes a detailed guidebook, and the students take quizzes each

evening and a final exam. A minimum score of 80 must be achieved to continue in the program.

As GeoFORCE students approach their senior year of high school, focus is on helping them make a successful transition to college. To further improve the chances of GeoFORCE students entering higher education, the 11th-grade program includes an SAT preparation session aimed at maximizing their scores. We also offer a college and financial aid application workshop to students in their senior year. The ultimate goal is to have them attend a university and achieve a degree in science, math, or technology. Of course, having these students pursue geoscience studies at UT Austin would be a bonus to our program.

Parent, family, and community support are critical to student success with GeoFORCE. Family members are required to support their child through the four-year program, and they sign a commitment document that is included in the application. Parents attend orientation sessions and closing ceremonies and are invited to participate in admissions and scholarship workshops every fall. To build a sense of civic pride for GeoFORCE and our student participants, we work with local media to publish press releases in hometown newspapers. At the completion of each academy, a closing ceremony is held involving students and their families, representatives from the University of Texas, program sponsors, and program participants such as park rangers and museum curators. These events are designed to strengthen the community, family, and student commitment to continued success of the program all the way to college and beyond.

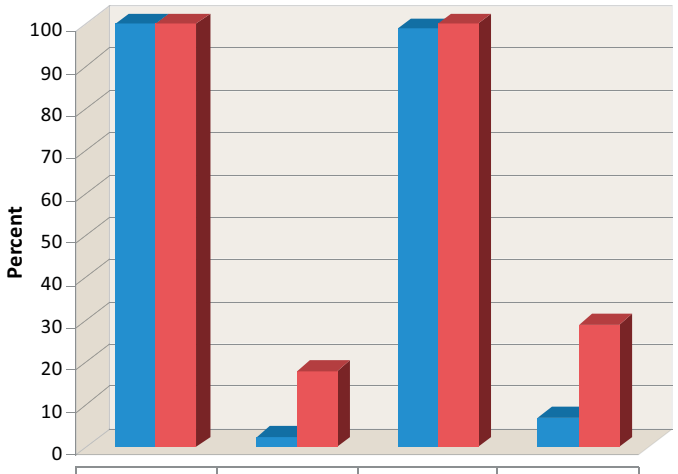
Results

GeoFORCE graduated its second senior class in 2010, consisting of 114 students. Three of these students are class valedictorians, and three are class salutatorians; most are ranked in the top 20 percent of their graduating classes. All 114 of our seniors graduated from high school, and 108 of them have enrolled in college in the fall (2 entered the U.S. Military, 3 have been unreachable, and 1 is dealing with family illness). Of the students enrolled in college, 94 percent are attending college in Texas, 88 percent are at public universities or colleges, and 89 percent are enrolled in four-year colleges. Twenty-two of our 2010 GeoFORCE graduates are enrolled at UT Austin this fall.

This year's graduating class is overwhelmingly leaning toward science careers. Sixty-nine percent of students declaring a major so far are seeking a degree in a STEM field. This number includes 21 percent who are aiming for earth science degrees and 10 percent who are planning to study engineering.

The fact that GeoFORCE makes a difference is best illustrated by comparing GeoFORCE student data with regional statistics. GeoFORCE students reported that 100 percent of them achieved college readiness as measured by their Texas Assessment of Knowledge and Skills (TAKS) scores. In southwest Texas schools overall, college readiness of students as measured by TAKS scores averages 29 percent. For our Houston schools, college readiness on TAKS is 18 percent. On the SAT, all GeoFORCE students in both regions, except for one student, surpassed the college readiness standard of 1100. In contrast, the average for college readiness as measured by the SAT is 7 percent in the southwest Texas region and only 2.4 percent for the Houston schools we serve.

Comparison between GeoFORCE students and GeoFORCE schools



	Houston GeoFORCE	Houston Schools	Southwest GeoFORCE	Southwest Schools
SAT college readiness (>1100)	100	2	99	7
Texas assessment of knowledge and skills (TAKS)	100	18	100	29

GeoFORCE Goes to College

- **189 Graduates—176 in College**
- **47 Colleges and Universities**
- **100 STEM Majors**
- **27 Geoscience Majors**

With the graduation this year of our second cohort of GeoFORCE students, including the first group of students from Houston, we are initiating the GFGrads program, designed to track, mentor, and support graduating GeoFORCE students as they move through college. We are following all Academy students, as well as each Young Geoscientist who meets the following criteria: attended three or more events, or attended two events during the junior and senior years, or attended only the senior year.

Class of 2009: Our class of 2009 had 75 students, all of whom graduated from high school, and 74 of whom started college in the fall of 2009. Of this group, two have already graduated from college, one from Southwest Texas Junior College as a licensed practical nurse and one from UT with a degree in psychology. (This student actually graduated from high school in 2007, but she was part of this GeoFORCE class because we did not have a class of 2007.) Of the other 73 students, 68 are in their sophomore year of college. There was some movement among the 2009 class. Seven switched colleges, two decided to take a semester off, one joined the Air Force, and one decided to try his hand at marketing. Twenty-five students from this class are enrolled at two-year colleges. Most of them report they plan to pursue bachelor's degrees after completing junior college.

- **In the U.S., 2007**
  17% of STEM degrees awarded to minorities
- **Among GeoFORCE College, 2010**
  80% of STEM majors are minorities

Class of 2010: Our class of 2010 had 114 graduates, 40 in Houston and 84 in southwest Texas. Most of these students (108) are in college. Three have not reported their plans, two joined the U.S. Military, and one is taking time off for family medical issues. A smaller percentage of this year's class (12 students) chose a two-year college. Among those enrolled in four-year institutions, 7 students chose historically black colleges, 13 chose private colleges, and 7 enrolled out of state.

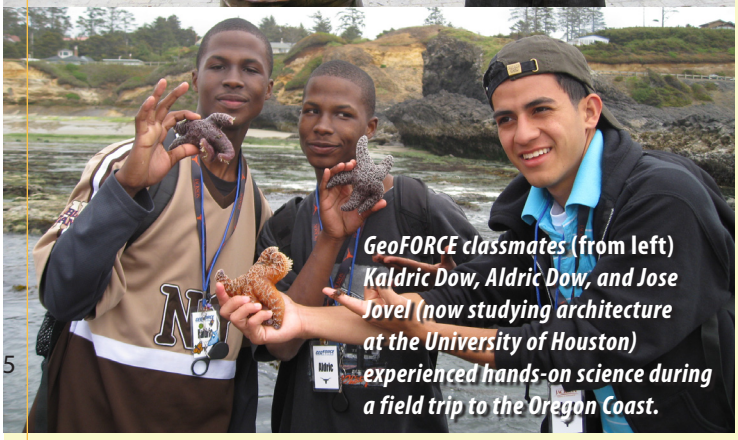
One important goal of the GeoFORCE program is to place more minority students in college pursuing science, technology, engineering, and mathematics (STEM) degrees. Of our two groups overall, 176 out of 189 are in college, and 100 of those are pursuing STEM degrees. Not counting the undecided students, a full two-thirds of GeoFORCE graduates started college with STEM fields in mind, and 80 percent of those students are minorities.

Meet Aldric Dow, UT Class of 2014

"When I was a kid I was not very social because we always moved. Then in the 10th grade at Scarborough [a high school in inner city Houston] GeoFORCE had a presentation, and we saw all the kids and all the places they went, and they were so happy! Everyone was smiling. We were determined we had to join GeoFORCE. The trips were amazing—the highlight of my life so far. I met great people, and we stay in touch. GeoFORCE united us. Before GeoFORCE I was not thinking about college; I would not have come to UT. But we came here on a GeoFORCE trip and I loved it. After that I did not think of any other school. I came to UT because of the Jackson School of Geosciences and because of GeoFORCE. I love this place!"

Aldric and his twin brother, Kaldric, are part of the first graduating class from GeoFORCE Houston. Aldric is considering several majors. Kaldric is at UT San Antonio studying engineering.

New college freshman Aldric Dow shows his school spirit on the UT campus.



GeoFORCE classmates (from left) *Kaldric Dow, Aldric Dow, and Jose Jovel (now studying architecture at the University of Houston) experienced hands-on science during a field trip to the Oregon Coast.*

At UT Austin, 16 GeoFORCE students enrolled in the fall of 2009, 5 of them in the Jackson School. Twelve of these students remain at UT. Of the four students who left, one graduated, one started a marketing firm, and two are taking classes at junior colleges and hope to return to UT. In the Jackson School, one student went to a junior college, and one transferred to Communications. The class of 2010 sent 22 GeoFORCE students to UT Austin, 9 of them to the Jackson School.

We learned something very important from our first group of college students: they are not as well prepared as they need to be to study STEM fields at a university, particularly math. Their initial struggles have prompted us to plan a summer math academy for GeoFORCE students who wish to study STEM fields in college. We are currently seeking funding to start the program and hope to be reporting on its success in the next Annual Report.

College Major	#	Of the STEM	
Biology	17	Women	52
Chemistry	1	Men	48
Engineering	16		
Geology	27	Hispanic	59
Health Sciences	21	Caucasian	20
Mathematics	1	African American	14
Physics	1	Asian	6
Pre Med	13	Native American	1
Science	3		
Total STEM	**100**		
Architecture	1	**Of the Earth Sciences**	
Business	9	Women	12
Education	10	Men	15
Fine Arts	7		
Liberal Arts	17	Hispanic	18
Total Non-STEM	**44**	African American	3
Undecided	32		
TOTAL IN COLLEGE	**176**		

Of the Group Overall	
2-year Colleges	37
Historically Black C/U	7
Private Colleges	18
Out of State Colleges	13
Armed Forces Academy	1

All GFGrads, School, Fall 2010	#
Abilene Christian	1
Angelo State	3
Baylor University	1
Blinn College	1
Brigham Young University, Idaho	1
Coastal Bend CC	1
Concordia	1
Galen College of Nursing	1
Houston Community College	6
Incarnate Word	3
Kansas State	1
Lamar University	3
McMurry University	1
Navarro College	1
Northeast Lakeview CC	1
Northwest Vista CC	3
Ohio State University	4
Prairie View A&M University	3
Rice University	2
Sam Houston	1
San Antonio College	1
Schreiner University	2
Southern (LA)	2
Southwest Texas Junior College	25
St Edwards	1
Tarleton State	2
Texas A&M	14
Texas A&M Corpus Christi	3
Texas A&M International	5
Texas A&M Kingsville	5
Texas Christian University	1
Texas Lutheran	1
Texas Southern	2
Texas State University	6
Texas Tech	2
U.S. Coast Guard Academy	1
University of Houston	5
University of Mary Hardin-Baylor	1
University of North Texas	2
Ursinus College	1
UT Austin	34
UT El Paso	1
UT Permian Basin	1
UT San Antonio	16
Wabash	1
Xavier University	1
Yale	1
TOTAL IN COLLEGE	**176**
Graduated SWTJC May 2010	1
Graduated UT May 2010	1
Starting a marketing firm	1
Taking time off	3
US Armed Forces	3
Have not Reported	4

GeoFORCE Staff

Those responsible for planning and leading the many events associated with GeoFORCE are small in number but large in heart. This year saw significant changes in the staff as Graham Miller, Danielle Horton, and Julie O'Shaughnessy left to pursue new directions. New additions to the group include Eleanour Snow, Associate Director of Outreach, and new Coordinators Erin Driggers and Lindsay Stephens. Edgar Garza continues as Coordinator, Karen Barton manages our finances, and Doug Ratcliff, Director of Outreach, supervises the staff.


Eleanour Snow


Edgar Garza


Lindsay Stephens


Erin Driggers


Karen Barton


Graham Miller


Danielle Horton


Julie O'Shaughnessy

Many others in the Jackson School assist with the program, and they are mentioned in other sections of this report. Of special note, Sigrid Clift and Jay Raney have helped immensely with designing and participating in field activities, as well as writing the guidebooks used on each trip. Julie Jackson, a professor of science education at Texas State University, developed the program content, testing materials, and evaluations. She also participates in the summer academies as an educational coach. Guidebook preparation and layout were done by Jamie Coggin, Lana Dieterich, Susie Doenges, Joel Lardon, and David Stephens.

Partnerships

GeoFORCE is fortunate to have among its committed sponsors representatives from academia, government, industry, and foundations, as well as individuals. Each partner brings something unique and valuable to the program. In addition to the funds necessary to run the program, GeoFORCE also benefits from the many individuals who mentor the students in the field and classroom. This report attempts to mention those who have been involved with GeoFORCE, but some contributors may inadvertently have been left out, and we sincerely apologize for any such oversight.

Southwest Texas Junior College

Southwest Texas Junior College (SWTJC) is the connection between the Jackson School and 18 independent school districts in southwest Texas. The college has provided access to its established network of schools, administrators, and teachers. Because of this resource, GeoFORCE can efficiently disseminate

information, conduct the application process, and establish the program across a vast geographic area. In addition, SWTJC is an active participant in all aspects of the program. SWTJC personnel (Blaine Bennett, Andrea Flores, Mayta Garza, Willie Edwards, Wade Carpenter, and others) assist in setting up GeoFORCE events in southwest Texas, arranging transportation for students in Eagle Pass and Del Rio, and preparing news articles for publication in local newspapers. SWTJC employees provide local logistical support, make initial contacts with students and teachers, and maintain financial records for local purchases.

Houston Independent School District

The Houston Independent School District (HISD) is the seventh largest school district in the country, and its size alone can be intimidating. But with assistance provided by district administrators such as Shelley McKinley, we have managed to achieve our objectives in the Houston area. HISD administrators have worked alongside GeoFORCE staff to identify schools, teachers, and principals, as well as provide meeting space for various GeoFORCE functions. Ms. McKinley has personally joined GeoFORCE students in the field on several occasions.

Fort Valley State University

Fort Valley State University (FVSU) has played a significant role in the overall concept of GeoFORCE. GeoFORCE is modeled after FVSU's successful Mathematics, Science, and Engineering Academy (MSEA), which was started in 1993. Dr. Isaac Crumbly created the FVSU program, continues to direct it, and has personally provided valuable guidance to GeoFORCE.

As part of our partnership with FVSU, the Jackson School funds and hosts the FVSU MSEA 11th graders. The Jackson School also provides scholarships for FVSU students who choose to transfer to the Jackson School and pursue degrees in the geosciences. During 2010, four transfer students joined the Jackson program and are on track to receive bachelor's degrees in 2011.

Industry and Government

Our industry and government partners provide funding, access to sites, instructors, mentors, and insight into what it is like to work as a geoscientist. GeoFORCE students benefit from Interactions with corporate and government participants who take the time to personally meet with them. Each year we have several sponsor representatives who spend up to a week in the field with our students and take part in instruction and review. They also assist with our Educator Workshops. This year Chevron hosted our teachers at their Houston visualization center and provided an excellent perspective on the complex nature of exploration.

Foundations and Individuals

GeoFORCE meets the objectives of many major foundations: diversification of the future workforce, empowering at-risk students, and engaging students in STEM learning. Five foundations contributed to GeoFORCE in 2009–2010 (TG, Ed Rachal, American Association of Petroleum Geologists, Society of Exploration Geophysicists, and GDL). In addition, several individuals contributed to the program, including two families who established endowments for GeoFORCE (Janet E. and David I. Rainey Endowment and Darwin Family GeoFORCE Endowment). All contributions are significant, and it is especially gratifying to receive a handwritten check from someone who simply wants to lend a hand in educating these kids. See table on page 12 for a complete list of donors.

Participating Schools

Each year we receive many requests from parents, teachers, and school administrators to broaden the reach of GeoFORCE. Expanding the program is something that we continually consider. We are committed to maintaining the high standards essential to the success of the program and want to make sure that we can deliver the same high-quality program to every student included. At this time, with our small staff and budget constraints, adding schools would challenge our limited resources.

Southwest Texas

School District	Participating Schools
Brackettville	Brackett High School, Brackett Junior High School
Carrizo Springs	Carrizo Springs High School, Carrizo Springs Junior High School
Cotulla	Cotulla High School, Frank Newman Middle School
Crystal City	Crystal City High School, Sterling Fly Junior High School
D'Hanis	D'Hanis School
Del Rio	Del Rio High School, Del Rio Middle School, San Felipe Memorial Middle School
Dilley	Dilley High School, Mary Harper Middle School
Eagle Pass	Eagle Pass High, CC Winn High, Eagle Pass Junior High, Memorial Junior High
Hondo	Hondo High School, McDowell Middle School
Knippa	Knippa School
La Pryor	La Pryor School
Leakey	Leakey School
Nueces Canyon	Nueces Canyon School
Pearsall	Pearsall School
Rocksprings	Rocksprings School
Sabinal	Sabinal School
Utopia	Utopia School
Uvalde	Uvalde High School, Uvalde Junior High School

Houston Independent School District

High Schools		Middle Schools				
Chavez	Sharpstown	Attucks	Dowling	Hartman	Lanier	Sharpstown
E-STEM	Sterling	Burbank	E-STEM	Hogg	Long	Stevenson
Madison	Washington	Clifton	Fondren	Holland	Ortiz	Williams
Milby	Worthing	Deady	Grady	Jackson	Revere	
Scarborough			Hamilton	Key	Ryan	

Individual Participation

Event	Field Instructor(s)	Sponsor Participant in the Field	Educational Coaches
Graduating Seniors	Ernie Lundelius, Jackson School Jim Sansom, Consultant	Chuck Caughey, ConocoPhillips Laura DeMott, ExxonMobil John Haro, HISD Shelley McKinley, HISD	
Houston			
9th Grade Academy	Charlie Kerans, Jackson School Ernie Lundelius, Jackson School Jim Sansom, Consultant	Laura DeMott, ExxonMobil	John Won
10th Grade Academy	Peter Flaig, Jackson School	Nysha Chaderton, ExxonMobil Denise Butler, Shell	John Won
11th Grade Academy	Jeff Paine, Jackson School	Martha Barnes, Marathon	Julie Jackson
12th Grade Academy	Jay Raney, Jackson School (retired) Chock Woodruff, Consultant	Danielle Carpenter, Chevron Lydia Quintana, USGS Randy Orndorff, USGS Katrina Burke, USGS Gary Fleeger, Pennsylvania Geological Survey Jocelyn Lewis-Miller, Snyder Companies, Inc.	Karla Auzenne Julie Jackson
9th Grade Young Geoscientists	Pat Bobeck, Consultant	Charlotte Jolley, Shell Liz Baker, Shell Yolanda Evans, HISD	Madelyn Percy
10th Grade Young Geoscientists	Tiffany Caudle, Jackson School	Bud Scherr, Valence Operating Company Heather Scherr, Valence Operating Company	Madelyn Percy
11th Grade Young Geoscientists	Ernie Lundelius, Jackson School Jim Sansom, Consultant		Jessica Gordon
12th Grade Young Geoscientists	Laura Zahm, Jackson School		Scott Osborne
Southwest			
9th Grade Academy	Tiffany Caudle, Jackson School Ernie Lundelius, Jackson School Jim Sansom, Consultant		B. Schroeder
10th Grade Academy	Elizabeth Catlos, Jackson School	Anna Morisani, Shell Gill Apps, BP	Eleanour Snow
11th Grade Academy	Jeff Paine, Jackson School	Dominic Druke, Shell	Marla Hibbitts
12th Grade Academy	Terry Quinn, Jackson School	Laura Reich, Marathon	Madelyn Percy
9th Grade Young Geoscientists	Pat Bobeck, Consultant		Madelyn Percy
10th Grade Young Geoscientists	Pat Bobeck, Consultant		Madelyn Percy
11th Grade Young Geoscientists	Ernie Lundelius, Jackson School Jim Sansom, Consultant		Jessica Gordon
12th Grade Young Geoscientists	Pat Bobeck, Consultant	Carolina Isaza, Shell Jack Grow, Shell	Jill Elliott

Park Rangers, Museum Staff, and Others in the Field	
CPR Trainer:	Orazzio Loayza
Carl Hayden Visitors Center - Paleo:	Rob Gay
Colorado River Discovery:	Korey Seyler
Glen Canyon Dam:	Nikki Johnson, Rachel Dawavendewa, Dana Crane, Curtis Jaborski
Grand Canyon:	Joshua Henson, Jacob Philien, David Smith, Randy Henderson, Jim Heywood, Pat Gammon
Sunset Crater:	Inez Paddock, Jenna Randerson
Wupatki National Monument:	Dawn Beeker
Zion National Park:	David Walker, Amy Esplin
Crater Lake National Park:	Amelia Bruno, Heidi Moore
Mt Hood National Forest:	Tammy Villali
Mt St Helens:	Todd Cullings
Newberry National Volcanic Monument:	Pete Hatman
Siuslaw National Forest:	Carole Wendler, Paula DiCarlo
Tualatin Valley Fire & Rescue:	Jeff Rubin
TXI - Texas Industries Inc.:	Joe Parks, Bill Flanigan, Kathy Scott
JSG Wind Tunnel Experiment:	Dave Mohrig
Everglades National Park:	Bonnie Foist
John Pennekamp Coral Reef:	Russ Kane, Kerry Whalley, Terri Polk, Cecelia McCafferty, Deanna Norling, Jorge Alardo
Shark Valley Visitors Center:	Christine Mackarvich
Windley Key Fossilized Coral Reef:	Melba Nezbed
Lovers Key State Park:	Michael Hensley
McConnells Mill State Park	Natalie Simon
Harpers Ferry National Historical Park:	Roxanne Ruppenthal
Ida Lee State Park:	William Ferrence
Great Falls Park:	Michael Sacks, Cheryl Bresee
Leesylvania State Park:	Ken Benson, Dalia Castellanos
Archbold Biological Station:	Nancy Deyrup, Mark Deyrup, Rick Lavoy, Shane Pruett
Canaveral National Seashores:	Eric Lugo, John Stiner, Laura Henning, Candace Carter
Merritt Island National Wildlife Refuge:	Nancy Corona, Turtle Watch Volunteers
Longhorn Cavern State Park:	Kaye Barlow, Troy Futrel
Thunderbird Lodge:	John Williams, Donna Williams
Austin State Capitol:	Elizabeth Garzon
KATY Research Vessel:	Captain Stan Dignum, John Williams
Marine Science Institute:	Rick Tinnin, Linda Fuiman, John Williams
Port Aransas Parks and Recreation:	Gary Mysorski, Mike Lauer
Texas State Aquarium:	Johnnie Smith, Tara Schultz
Gregory Gym Swim Complex:	Kristen Nussa
Inner Space Cavern:	Shirree Krahn
Texas Natural Science Center:	Cristina Cid
UT Union Underground:	Robert Waters
Carlsbad Caverns:	Helen Fields
Guadalupe Mountains:	Dr. Jeanine Hearst
Hueco Tanks:	Wanda Olszewski
White Sands:	Cliff Wagner, McKinney Briske
Annandale Bat Cave:	Bane Walker
Big Oak River Camp:	Terry Maner
Fort Ing and Uvalde Historical Society:	Dick Whipple
Del Rio Outcrop:	Sherman Mumme
Vulcan Materials, Knippa:	Ron Robles
Vulcan Materials, Uvalde:	Chris Havelka

Financial Status

The tables below have been revised from previous years and now include funding provided from all sources to the GeoFORCE program including contracts and grants. This table is being updated and will change:

OUTREACH PROGRAM SUMMARY (including grants, contracts, and endowment payouts)							
Income	**03-04**	**04-05**	**05-06**	**06-07**	**07-08**	**08-09**	**09-10 In Process**
Jackson School	61,482.88	120,453.30	300,552.72	466,995.00	778,224.00	678,334.47	663,965.00
UT Tuition Waivers			18,816.00	24,313.00	26,850.00	19,898.00	87,760.00
Gifts							
Leon Long	990.24						
Leon Long	9,602.75						
Priority Oil & Gas	2,000.00						
Dennis Trombatore	100.00						
ConocoPhillips		41,000.00	43,000.00	21,000.00	21,000.00	21,000.00	21,000.00
Shell		65,000.00	60,000.00	40,000.00	70,000.00	125,000.00	125,000.00
Chevron				40,000.00	40,000.00	200,000.00	161,000.00
BP				50,000.00	80,000.00	120,000.00	120,000.00
AT&T Foundation		25,000.00	15,000.00				
ExxonMobil		10,000.00	25,000.00	40,000.00	10,000.00	220,000.00	120,000.00
Marathon		3,000.00			150,000.00	100,000.00	100,000.00
Devon					25,000.00	40,000.00	40,000.00
Dominion			10,000.00	5,000.00			
Halliburton			10,000.00	20,000.00	30,000.00	30,000.00	30,000.00
Schlumberger			3,000.00	3,000.00		3,000.00	2,000.00
Vulcan Materials					30,000.00		15,000.00
Valero					15,000.00		10,000.00
William and Marilee Fisher					1,000.00	1,000.00	1,000.00
El Paso Corporation						10,000.00	
Jim Sansom							1,000.00
Ernie Lundelius							2,000.00
Jeremy and Linda Greene							2,500.00
Myrtle Isensee Estate						29,974.90	
John Preston							200.00
Edward Cazier							500.00
Charles Woodruff, Jr.							1,000.00
Mark Wink							
Ed Rachal Foundation							20,000.00
SIPES-Central Chapter							1,000.00
Kinder Morgan Foundation						5,000.00	5,000.00
AAPG Foundation					10,000.00	10,000.00	10,000.00
AEP Foundation					3,000.00	25,000.00	1,500.00
SEG Foundation						5,000.00	3,000.00
GDL Foundation					1,400.00	2,500.00	7,500.00
Alcoa				5,000.00		15,000.00	
Swift Energy			10,000.00	12,000.00			
Subtotal Gifts	12,692.99	144,000.00	176,000.00	236,000.00	486,400.00	962,474.90	800,200.00
Contracts and Grants							
BOERME			25,000.00	25,000.00		25,000.00	50,000.00
Communities Foundation					42,323.88		
TG Foundation							99,341.81
Texas Workforce Commission					171,548.94	215,217.04	179,299.67
USGS EDMAP							14,265.83
Title V CAMSC						161,989.00	178,760.28
Subtotal Contracts and Grants	0.00	0.00	25,000.00	25,000.00	213,872.82	402,206.04	521,667.59
Endowment (Payout)							
Darwin Family Endowment							1,086.00
Janet E. and David I. Rainey							0.00
Valence Operating Company							2,146.00
Subtotal Endowment (Payout)	0.00	0.00	0.00	0.00	0.00	0.00	3,232.00
Total Available Funds	74,175.87	264,453.30	520,368.72	752,308.00	1,505,346.82	2,062,913.41	2,076,824.59

OUTREACH PROGRAM SUMMARY (continued)							
Expenses	**03-04**	**04-05**	**05-06**	**06-07**	**07-08**	**08-09**	**09-10**
JSG Staff and Administration	41,882.88	123,253.30	152,900.10	232,661.51	418,683.38	416,952.03	425,261.36
General Expenses	366.07	33.29	24,942.27	112,253.61	214,898.83	123,512.20	837.87
Teacher Workshops		4,527.92		5,172.01	22,064.04	19,688.44	16,440.22
GFGrad Events					71,144.38	10,314.24	26,201.89
GeoFORCE Scholarships							78,832.00
CAMSC Summer Interns						71,071.00	100,000.00
Explore UT					6,870.26	12,464.75	
USGS EDMAP							14,265.83
Exemplar Manor and East Texas					21,455.22	792.15	
MSEA 11th Grade	30,771.83	28,305.12	41,103.12	29,030.93	39,640.57	45,387.25	20,485.08
FVSU Scholarships			51,216.00	63,613.89	57,989.96	57,721.52	131,016.00
CDEP Student Visits	1,544.34	2,254.65			610.24	9,298.02	3,795.10
GeoFORCE Southwest							
9th Grade Academy		77,753.40	70,183.53	72,878.78	89,550.80	87,528.41	86,430.76
10th Grade Academy			62,783.42	72,478.54	65,206.73	70,513.07	77,077.77
11th Grade Academy			2,995.95	84,034.17	92,060.00	92,846.40	82,714.25
12th Grade Academy			817.95		100,042.13	89,162.32	91,291.82
9th Grade Young Geoscientists		5,987.79	7,910.08	11,397.82	9,976.21	14,141.31	14,742.99
10th Grade Young Geoscientists			12,979.03	15,582.77	15,529.00	15,292.34	12,921.87
11th Grade Young Geoscientists				9,183.08	17,385.08	16,449.51	11,225.38
12th Grade Young Geoscientists					15,423.57	25,704.54	19,813.57
GeoFORCE Houston							
9th Grade Academy					83,426.00	79,703.70	88,267.33
10th Grade Academy						94,017.58	99,324.30
11th Grade Academy					88,710.00	78,332.95	86,923.11
12th Grade Academy						84,503.12	79,796.53
9th Grade Young Geoscientists					15,000.00	16,566.31	14,684.85
10th Grade Young Geoscientists						25,655.31	19,201.76
11th Grade Young Geoscientists					16,984.00	16,954.59	15,345.30
12th Grade Young Geoscientists						31,716.87	27,288.55
Dual-Credit Course					42,831.84	92,708.55	86,668.24
Total Expenses	74,565.12	242,115.47	427,831.45	708,287.11	1,505,482.24	1,698,998.48	1,730,853.73
Surplus/Deficit	-389.25	22,337.83	92,537.27	44,020.89	-135.42	363,914.93	345,970.86

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MMS U.S. Department of the Interior Minerals Management Service Gulf of Mexico OCS Region

SEG Foundation

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SIPES Central Texas Chapter

AEP TEXAS A unit of American Electric Power

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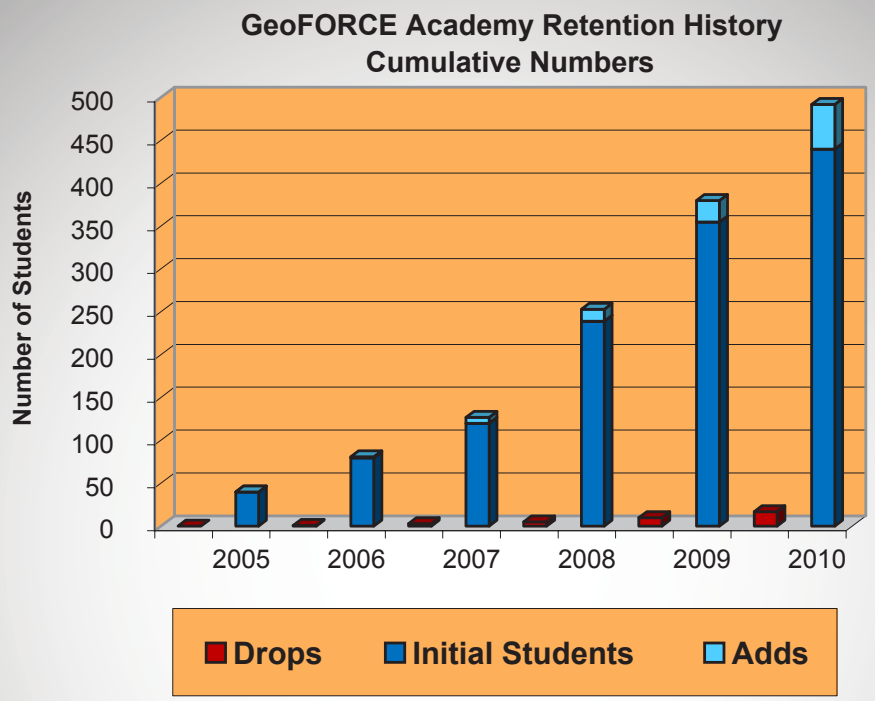
Janet E. and David I. Rainey Endowment	
John Preston	Edward Cazier
Darwin Family Endowment	Bill & Marilee Fisher
Ernest Lundelius	Jeremy & Lynn Greene
Charles Woodruff, Jr.	James Sansom

Maintaining the Numbers

The objective of GeoFORCE is to place substantially more students into the high-tech career fields of the future, particularly the geosciences. To achieve this objective in the coming years, it is essential that we have a high retention rate among our students who begin the GeoFORCE program after completing the eighth grade.

The following chart shows that we have lost only 17 students from the Academy program in our six years. Forty-two students have been added outside the regular recruiting process to fill empty seats, replace lost students, or balance the gender count on a trip. Attendance requirements of the Young Geoscientist program are less rigorous than those of the Academy. We allow Young Geoscientist students to drop out for a summer and return the following year, and we move students up to fill vacancies in the Academy program. Adds and drops are therefore not reported for the Young Geoscientist program.

Total participation to date in both the Academy and the Young Geoscientist programs now exceeds 700. Sixty-five Houston students participated in both Academy and Young Geoscientist events (shown in pink below). They are counted only in the Academy column among Total Participants below.



	Houston			Southwest			Total Participants		
	Academy	Young Geo	Total	Academy	Young Geo	Total	Academy	Young Geo	Total
Class of 2009				43	28	71	43	28	71
Class of 2010	42	39	42	46	26	72	88	26	114
Class of 2011	31	26	31	44	35	79	75	35	110
Class of 2012	42	9	51	43	53	96	85	62	147
Class of 2013	42	11	53	40	41	81	82	52	134
Class of 2014	38	27	65	41	33	74	79	60	139
Total	195	112	242	257	216	473	452	263	715

Summary of 2010 Activities

GeoFORCE continued to grow in 2010 as we graduated our second cohort of students and added some new programs. The table below provides some statistics for participation in each event. GeoFORCE (grades 9–12) enrollment is expected to remain stable in the coming years with about 640 students. Growth will occur in the GFGrads each year as students graduate and move on to college.

2010 GeoFORCE Participation									
	Males	Females	Total	African American	Hispanic	Asian	Caucasian	Other	Total
GFGrads Field Trip									
Houston	21	19	40	24	12	3	1	0	40
Southwest	62	87	149	1	109	4	34	1	149
Subtotal	83	106	189	25	121	7	35	1	**189**
Houston									
12th-Grade Academy	12	18	30	20	9	0	1	0	30
11th-Grade Academy	16	24	40	13	11	9	7	0	40
10th-Grade Academy	17	21	38	10	18	6	4	0	38
9th-Grade Academy	10	28	38	11	16	6	5	0	38
12th-Grade Young Geo	10	14	24	16	6	1	1	0	24
11th-Grade Young Geo	10	13	23	6	12	5	0	0	23
10th-Grade Young Geo	7	19	26	5	16	1	4	0	26
9th-Grade Young Geo	8	19	27	7	18	0	2	0	27
Subtotal	**90**	**156**	**246**	**88**	**106**	**28**	**24**	**0**	**246**
Southwest									
12th-Grade Academy	18	26	44	0	35	0	9	0	44
11th-Grade Academy	16	26	42	0	31	0	10	1	42
10th-Grade Academy	16	24	40	2	29	0	8	1	40
9th-Grade Academy	16	25	41	0	25	2	14	0	41
12th-Grade Young Geo	14	18	32	0	26	6	0	0	32
11th-Grade Young Geo	11	15	26	0	21	0	5	0	26
10th-Grade Young Geo	7	21	28	0	21	0	7	0	28
9th-Grade Young Geo	9	25	34	1	23	0	10	0	34
Subtotal	**107**	**180**	**287**	**3**	**211**	**8**	**63**	**2**	**287**
MSEA	14	12	26	24	1	0	1	0	26
Dual-Credit Course	23	16	39	18	13	0	8	0	39
EDMAP Project	0	2	2	2	0	0	0	0	2
GFGrads Field Trip	27	47	74	26	36	5	7	0	74
Summer Research Interns	12	8	20	0	15	0	5	0	20
TOTAL	356	527	883	186	503	48	143	3	883

There were 30 students who attended both Academy and Young Geoscientist events in their regions. They are counted both places.
There were 25 students from southwest Texas who attended Houston area Young Geoscientist trips.

The logistics involved in the events are impressive, and the main events are summarized as follows:

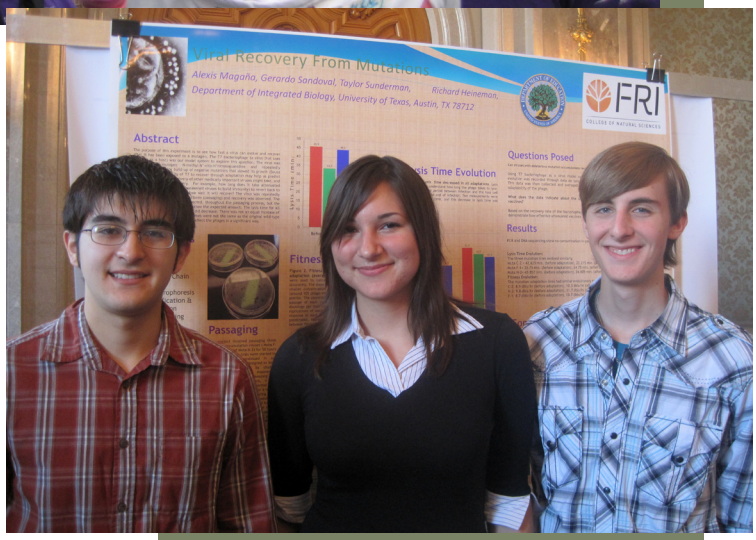
	Academies	Young Geoscientists	Total
Air miles	19,967	0	19,967
Bus miles	6,759	8,334	15,093
Hotel room nights	3,530	779	4,309
Meals	12,669	3,237	15,906

Dual-Credit Geology Course

As part of our commitment to delivering excellent science to GeoFORCE students, Eleanour Snow teaches an online dual-credit geology course at the high schools that our students attend. This year 16 students in southwest Texas schools enrolled in the class, and 23 students in two Houston schools enrolled. The course gives students a full year of high school credit plus six hours of college credit, including four hours of Physical Geology and two hours of Topics in Geology. The course includes the typical labs one would take on a college campus and a one-day field trip to see local geology. This year GeoFORCE sponsors Chuck Caughey of ConocoPhillips and Neal Immega of Shell helped plan field activities and led the field trip for the Houston students.

Summer Research Interns

Through a grant from the Department of Education to Southwest Texas Junior College, with GeoFORCE as a subcontractor, we sponsored 20 young college students from our southwest region in the College of Natural Sciences' Freshman Research Initiative. Each



From left, ***Gerardo Sandoval (now at Southwest Texas Junior College studying biology), along with GeoFORCE graduates Alexis Magaña (now at Texas A&M studying engineering) and Taylor Sunderman (now at UT studying biology), presented a poster at the conclusion of the summer research internship program at UT.***

student lived on campus for six to nine weeks and was assigned to a research project in the College of Natural Sciences or Engineering. Students tackled everything from robotic cars to gene splicing. One student, Jeff Sitgreaves, worked with scientists at the Bureau of Economic Geology, supervised by GeoFORCE mentors Ramon Trevino and Sigrid Clift. A poster symposium at the end of the experience allowed the students to showcase their work. Of the 20 students involved, half were 2010 GeoFORCE graduates, and half were science majors at Southwest Texas Junior College, 3 of whom were 2009 GeoFORCE graduates. It was a great way to introduce the students to how science is really done.

EDMAP Project

The U.S. Geological Survey has a grant proram called EDMAP that is designed to give students an opportunity to produce geologic maps. Working in consort with the local state geologists, EDMAP students do basic field mapping in small, easily managed areas. This year Eleanour Snow and Eddie Collins (geologist at the Jackson School's Bureau of Economic Geology) were awarded an EDMAP grant to guide two of our Fort Valley State University transfer students as they completed a geologic map of the Mansfield Dam quadrangle, west of Austin. It was an ideal field location because its proximity to campus made it easy for the instructors to supervise the field work. These students, Jasmine Langston (*on left in photo below*) and Keri Vinas (*right*), spent the summer in the field and the lab, using aerial photos to guide their field work and ArcMap to complete the final map. Below is a picture of them examining an outcrop near the top of the Walnut Formation.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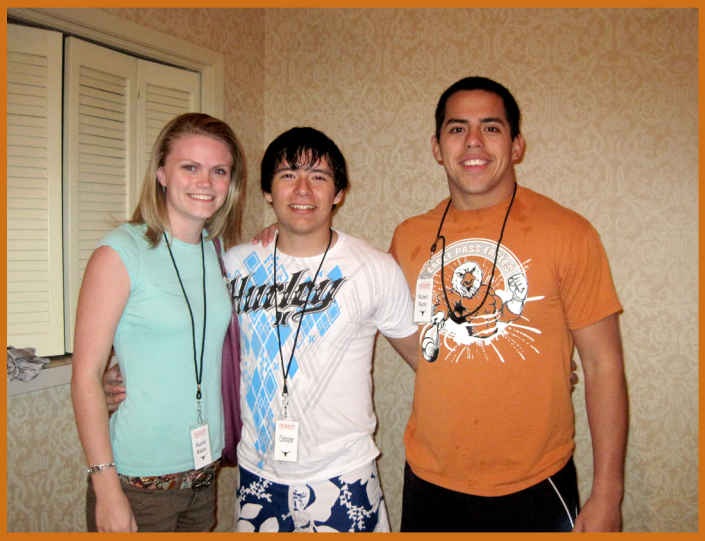


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GFGrad Spring Field Trip

The GFGrad spring field trip is a celebration of the end of four great years together and the beginning of new adventures. Of course, we could not resist throwing in a little geology, so we took students from southwest Texas and Houston, combined for the first time, to Enchanted Rock. We invited 2009 graduates who are currently in college to come and talk to the students about what to expect in college. The trip culminated in a dinner cruise on Lady Bird Lake, attended by several of the students' GeoFORCE instructors and sponsors. We learned that although our two regions are physically and culturally quite different, the students all know the same games, and they had a lot of fun together on the deck of that sternwheeler.

GFGrads - 2010 (Austin)		
	Houston	Southwest Texas
Number of Students	28	46
Coordinator	Graham Miller	
	Edgar Garza	
	Lindsay Stephens	
Trail Driver	Doug Ratcliff	
Sponsor Representative	Chuck Caughey, ConocoPhillips John Haro, HISD Shelley McKinley, HISD Laura DeMott, ExxonMobil	
Counselor	Mary Gabaldon	

Academies

9th Grade Academy

9th Grade Academy (Austin, Florida)		
	Houston	**Southwest Texas**
Number of Students	38	41
Coordinator	Graham Miller	Edgar Garza
Instructor	Jim Sansom	Jim Sansom
	Ernie Lundelius	Ernie Lundelius
	Charlie Kerans	Tiffany Caudle
Trail Driver	Doug Ratcliff	Mary Gabaldon
Sponsor Representative	Laura DeMott, ExxonMobil	
Education Coach	John Won	B. Schroeder
Counselors	Lindsey German	Liz Bloch
	Anine Pedersen	Karina Robledo
	Debbie Duran	Bianca Sanchez
	Melanie Lynch	Melanie Lynch
	Ivan Ponce	Drew Slack
	Quinn Wenning	Quinn Wenning

Objective(s)	Geologic Topics	Locations
Introduce students to basic geological terms and processes	Geologic time, erosion, deposition, lithification, law of superposition, uniformitarianism, rock cycle, coastal plain, faults, geomorphology, differential erosion, lateral continuity, plate tectonics, orogeny	**Austin:** Aggregate quarry, McKinney Falls, Texas Memorial Museum
Experience life on a major university campus		**Florida:** Lovers Key, Everglade City, Pennekamp National Park, Windley Key

10th Grade Academy

10th Grade Academy (Nevada, Utah, Arizona)		
	Houston	**Southwest Texas**
Number of Students	38	40
Coordinator	Lindsay Stephens	Edgar Garza
Instructor	Peter Flaig	Elizabeth Catlos
Trail Driver	Doug Ratcliff	Mary Gabaldon
Sponsor Representative	Nysha Chaderton, ExxonMobil	Gillian Apps, BP
	Denise Butler, Shell	Anna Morisani, Shell
Education Coach	John Won	Eleanour Snow
Counselors	Alejandra Eljuri	Rosa Arellano
	Ivan Ponce	Sorayda Arellano
	Dolores van der Kolk	Bianca Sanchez
	Melanie Lynch	Alicia Farre
	Victoria Herndon	Joey Perez
	Kendall Phillips	Jose Guevara
	Quinn Wenning	

Objective(s)	Geologic Topics	Locations
Inspire students to "think like a geoscientist"	Law of superposition, lateral continuity, crossbedding, unconformity, desert varnish, monocline, gradient, antecedent drainage, mass wasting, uniformitarianism, differential erosion, dendrochronology, cinder cone, strata volcano	**Utah:** Zion National Park
Apply geological concepts to what is seen in real time		**Arizona:** Glen Canyon, Balancing Rock, Lees Ferry, Navajo Bridge, Grand Canyon - Desert View, Grand Canyon - Kaibab Trail hike, Wupatki, Sunset Crater
Expose students to sedimentary structures, processes, and environments		
Reinforce geological concepts from 9th Grade Academy		

11th Grade Academy

11th Grade Academy (Oregon)		
	Houston	**Southwest Texas**
Number of Students	40	42
Coordinator	Lindsay Stephens	Erin Driggers/Edgar Garza
Instructor	Jeff Paine	Jeff Paine
Trail Driver	Doug Ratcliff	Mary Gabaldon
Sponsor Representative	Martha Barnes, Marathon	Dominic Druke, Shell
Education Coach	Julie Jackson	Marla Hibbitts
Counselors	Schaefer Edwards	Alyssa Rodriguez
	Ivan Ponce	Bianca Sanchez
	Kathryn Dianiska	Marissa Vara
	Alejandra Eljuri	Lindsey German
	Pat Saucedo	Drew Slack
	Steven Gohlke	Jose Guevara

Objective(s)	Geologic Topics	Locations
Expose students to volcanic, structures, processes, and environments	Law of superposition, lateral continuity, uniformitarianism, magma, lava, fissure, vesicular texture, pyroclastic flow, caldera, longshore current, tides, tsunami, sea stack, marine terrace, intertidal zone	**Washington:** Mount St. Helens
Compare beach environments on East and West coasts of US		**Oregon:** Columbia River Gorge, Mt. Hood, Newberry Caldera - Big Obsidian Flow, Crater Lake, Salt Creek Falls, Multnomah Falls, Cape Perpetua, Heceta Head, Oregon Dunes, Seal Rock, Glacial Erratic
Reinforce geological concepts from 9th and 10th Grade Academies		

12th Grade Academy

12th Grade Academy		
	Houston (East Coast)	**Southwest Texas (Florida)**
Number of Students	30	44
Coordinator	Graham Miller	Edgar Garza
Instructor	Charles Woodruff/Jay Raney	Terry Quinn
Trail Driver	Doug Ratcliff	Mary Gabaldon
Sponsor Representative	Danielle Carpenter, Chevron	Laura Reich, Marathon
Education Coach	Julie Jackson/Karla Auzenne	Madelyn Percy
Counselors	Quinn Wenning	Sorayda Arellano
	Ivan Ponce	Alicia Farre
	Steven Gohlke	Alyssa Rodriguez
	Andrew Nuñez	Bianca Sanchez
	Kathryn Dianiska	Drew Slack
	Jenna Hartin	Jose Guevara

	Objective(s)	Geologic Topics	Locations
Southwest	Immediately apply teaching, seeing, doing, and testing methodology to all field work Expose students to carbonate structures, processes, and environments Reinforce geological concepts from past three summers	Carbonate rocks, reefs, high/lowstand, rock record, siliciclastic, beach renourishment, barrier flat, longshore drift, washover, storm surge, beach profiling, ocean currents	**Florida:** Pennekamp Coral Reef, Windley Key Fossilized Coral Reef, Everglades - Shark Valley, Lovers Key State Park, Canaveral Seashores, Merritt Island Wildlife Refuge – Sea Turtle Watch, Epcot
Houston	Immediately apply teaching, seeing, doing, and testing methodology to all field work Expose students to carbonate structures, processes, and environments Reinforce geological concepts from past three summers	Convergent plate boundary, orogeny, anticline, syncline, strike, dip, fault plane, rift basin, glacial moraine, terrace, thrust fault, valley and ridge province	**Pennsylvania**: Moraine State Park, McConnells Mill State Park, Graff North Mine, Valley and Ridge Province, Allegheny Front, Catskill Delta; **Maryland**: Rountop Hill, Sideling Hill, Crystal Grottoes; **West Virginia, Virginia, Washington DC:** Harpers Ferry, Great Falls, USGS, Washington Monuments

Young Geoscientists

9th Grade Young Geoscientists

9th Grade Young Geoscientists (Uvalde)		
	Houston	**Southwest Texas**
Number of Students	27	34
Coordinator	Lindsay Stephens	Graham Miller
Instructor	Pat Bobeck	Pat Bobeck
		Jim Sansom
		Ernie Lundelius
Trail Driver	Erin Driggers	Doug Ratcliff
Sponsor Representative	Charlotte Jolley, Shell	
	Liz Baker, Shell	
	Yolanda Evans, HISD	
Educational Coach	Madelyn Percy	Madelyn Percy
Counselors	Luciano Esquivel	Rosa Arellano
	Tim Prather	Melerie DeLeon
	Alejandra Eljuri	Melanie Lynch
	Victoria Herndon	Liz Bloch
	Mayta Garza	Luciano Esquivel
	Alyssa Rodriguez	

Objective(s)	Geologic Topics	Locations
Introduce students to basic geological terms and processes	Uniformitarianism, law of superposition, lithification, deposition, differential erosion, columnar joints, rock cycle, water table, point bar, cutbank, aquifer, terrace, quarry, floodplain volcano	**Uvalde and surrounding area:** Blackwater Hole, Vulcan Materials Asphalt Quarry, Knippa Traprock Quarry, Del Rio Hacienda Formation, Fort Ing, Leona River, Annandale Bat Cave
Expose students to fluvial systems		
Apply concepts to hands-on experiences		

10th Grade Young Geoscientists

10th Grade Young Geoscientists (Port Aransas)		
	Houston	**Southwest Texas**
Number of Students	26	28
Coordinator	Lindsay Stephens	Graham Miller
Instructor	Tiffany Caudle	Pat Bobeck
Trail Driver	Erin Driggers	Erin Driggers
Education Coach	Madelyn Percy	Madelyn Percy
Sponsor Representative	Bud Scherr, Valence	
	Heather Scherr, Valence	
Counselors	Katie Bales	Melerie DeLeon
	Kathryn Dianiska	Rosa Arellano
	Karyssa DeLeon	Debbie Duran
	Drew Slack	Lindsey German
	Angela Keller	Evan Strickland

Objective(s)	Geologic Topics	Locations
Learn basic costal processes and nomenclature of the coastal zone	Accretion, algal mat, swash zone, longshore drift, salt marsh, scarp, surf zone, estuary, fetch, high tide, jetty, beach, backbeach	**Port Aransas:** Mustang Island, Packery Channel, Leona Belle Turnbull Birding Center, UT Marine Science Institute, *KATY* Research Vessel
Inspire students to "think like a geoscientist" and apply the geological concepts to what they are seeing in real time		
Reinforce geological concepts from previous summer		**Corpus Christi:** Texas State Aquarium

11th Grade Young Geoscientists

11th Grade Young Geoscientists (Austin)		
	Houston	**Southwest Texas**
Number of Students	23	26
Coordinator	Lindsay Stephens	Graham Miller
Instructors	Ernie Lundelius	Ernie Lundelius
	Jim Sansom	Jim Sansom
Trail Driver	Erin Driggers	Erin Driggers
Sponsor Representative		
Education Coach	Jessica Gordon	Jessica Gordon
Counselors	Ivan Ponce	Debbie Duran
	Jose Guevara	Kendall Phillips
	Kathryn Dianiska	Melanie Lynch
	Lindsey German	Adelso Contreras
	Victoria Herndon	Drew Slack

Objective(s)	Geologic Topics	Locations
Give students a glimpse of life on a major university campus	Law of superposition, uniformitarianism, geologic time, erosion, deposition, watershed, stream discharge, geomorphology, topography, flood, fault, earthquake, escarpment, karst, cave, speleothem	**Austin and surrounding area:** McKinney Falls, Barton Springs, Texas Memorial Museum, Texas State Capitol, Inner Space Cavern, Mount Bonnell, Perry Park
Expose students to fluvial systems and aquifers		
Compare fluvial systems in Austin and Uvalde		
Reinforce geological concepts from 9th and 10th Grade field courses		






12th Grade Young Geoscientists

12th Grade Young Geoscientists (New Mexico)		
	Houston	**Southwest Texas**
Number of Students	24	32
Coordinator	Graham Miller	Lindsay Stephens
Instructor	Laura Zahm	Pat Bobeck
Trail Driver	Erin Driggers	Madelyn Percy
Sponsor Representative		Carolina Isaza, Shell
		Jack Grow, Shell
Education Coach	Scott Osborne	Jill Elliott
Counselors	Rosa Arellano	Tim Prather
	Debbie Duran	Karen Trevino
	Kathryn Dianiska	Victoria Herndon
	Lindsey German	Karina Robledo
	Luciano Esquivel	Alejandra Eljuri
		Evan Strickland

Objective(s)	Geologic Topics	Locations
Expose students to the many types of careers in the geosciences, all while giving them first-hand experience in the field	Aquifer, groundwater, basin, desertification, depositional environment, eolian dunes, subduction, tectonics, water table, recharge, discharge, spring	**New Mexico:** White Sands National Monument, Carlsbad Caverns
Expose students to basic tectonic concepts		**Texas:** Pena Park, Pecos High Bridge, Guadalupe Mountains, McKittrick Canyon, Hueco Tanks
In-depth comparison of fluvial systems		
Reinforce geological concepts from past three summers		

Fort Valley State University Events

The Jackson School completed its seventh year of partnership with Fort Valley State University (FVSU) in 2010. Our collaboration includes transferring students from FVSU to complete degrees in petroleum engineering and geosciences, hosting prospective FVSU students on the UT campus as a recruiting tool, and providing funding and instruction for the FVSU Mathematics, Science, and Engineering Academy (MSEA) for 11th graders for a one-week session each summer.

Four FVSU students transferred to the Jackson School in the fall of 2009. All transferred after completing degrees in three years at Fort Valley. They plan to finish their Jackson School degrees after completing a field geology course during the summer of 2011.

Twenty-six 11th-grade students from Alaska to Georgia attended the MSEA summer session at UT Austin June 13–20. The students were instructed by Leon Long, Professor in the Jackson School's Department of Geological Sciences. In addition to receiving classroom instruction, the students went on field trips, led by Dr. Long and assisted by Jessica Gordon, to Mount Bonnell, the Texas Natural Science Center, Longhorn Caverns, and Enchanted Rock. They also took some time out to swim at Gregory Gym Pool and to bowl at the Texas Union.

11th Grade MSEA	
Number of Students	26
Coordinators	Patrice McGhee, Jackie Hodges, Graham Miller
Instructor	Leon Long
Education Coach	Jessica Gordon

Students, from left:

Keri Vinas,
Bachelor of Science, Chemistry (FVSU), pursuing Geology at the Jackson School

Jasmine Langston,
Bachelor of Science, Chemistry (FVSU), pursuing Geology at the Jackson School

Marvin Scott,
Bachelor of Science, Mathematics (FVSU), pursuing Geophysics at the Jackson School

Carmine Atkins,
Bachelor of Science, Mathematics (FVSU), pursuing Geophysics at the Jackson School

Professional Development

GeoFORCE maintains close contact with educators at our target schools in southwest Texas and Houston. Our educators assist us with the application process, help monitor our students' progress through high school, participate in GeoFORCE activities, and make exceptional suggestions on how to improve our program. Without them, GeoFORCE would not be enjoying the success we have with the number of high-caliber students in our program. The Jackson School hosts two workshops each year in an effort to maintain that connection with our educators.

Our fall workshop was held October 27 and 28 and was co-sponsored by Chevron. George Hildebrandt arranged for the teachers to visit Chevron's Technology Center. Chevron scientists demonstrated some of the scientific advances that are helping to bring new oil discoveries to market and discussed the challenges that still lie ahead. One such technology is advanced visualization of seismic and other types of data that allows geoscientists to better understand the complexities of the subsurface. Another technology allows Chevron engineers to remotely monitor well operations in real time from offices in downtown Houston.

The workshop also included a trip to the Ocean Star Offshore Drilling Rig and Museum located in Galveston. The teachers boarded the retired rig and viewed a video about the offshore industry. The museum features three floors of models and interactive displays illustrating the story of offshore oil and gas from seismic technology to exploration and production. The teachers were also allowed to take the skywalk out onto the drill floor of the rig and visit the exhibits on the pipe deck from the first floor of the museum. Thirty-five teachers and counselors participated in this event.

In the spring we held one-day workshops in Uvalde (February 17) and in Houston (February 19). Southwest Texas Junior College provided logistical support and meeting space for the Uvalde meeting, and the Houston Independent School District did the same for the Houston event. The workshop was presented by the National Energy Education Development (NEED) Project and was titled ***Exploring Renewable Energy Resources***. It covered both photovoltaic and wind energy. Attendees tried the hands-on activities and received a curriculum packet to take back to their classrooms. Eleven teachers attended in Uvalde, and another twenty attended the Houston event.

GeoFORCE in the NEWS

From *Opportunity Houston* (Fall 2009)

From *Opportunity Houston* (Fall 2009)

THE NEXT GENERATION OF LEADERS

The Greater Houston Partnership Energy Collaborative Workforce Committee

PHOTOS: (THESE PAGES) KINJO YONEMOTO, GREATER HOUSTON PARTNERSHIP

"WHEN INDUSTRY and education partner effectively, we bring excitement and relevance to classroom learning," said Monte King, Co-chair of the Greater Houston Partnership's Energy Collaborative Workforce Committee and Manager of Workforce Development at Shell U.S.

The Energy Collaborative was designed to engage industry, education, economic development and community partners to work together to meet the current and future energy workforce needs.

"Students also benefit from thinking earlier about career choices. In doing so, the transition from high school to further education and the real world of work is much smoother," King said.

The Energy Collaborative Workforce Committee has identified key programs to support in an effort to build the pipeline of talent in the energy industry. A few selected programs are:

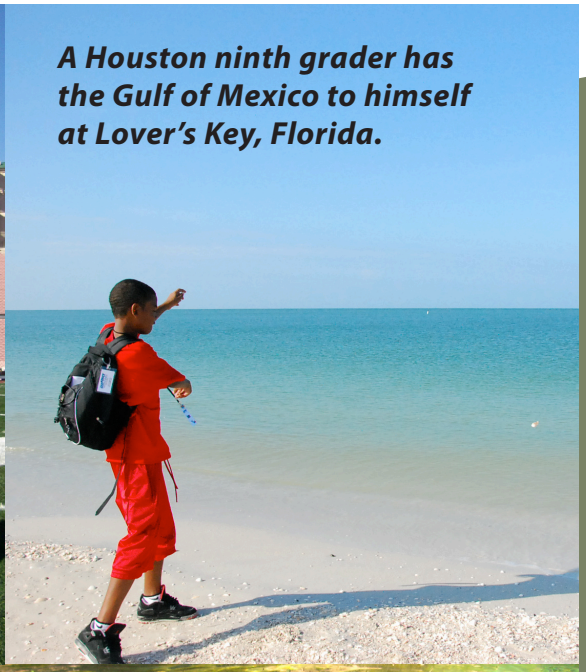
- **EnergyVenture summer camps** focus on the energy and petrochemical industries as well as science, technology, math and engineering (STEM). Designed for 8th – 11th grade students, the curriculum includes: hands-on activities, chemistry experiments, team building exercises, field trips to energy companies, safety awareness, laboratory work and industry career panels.
- **GeoFORCE Houston,** run by the University of Texas at Austin, is designed to inspire the next generation of geoscientists through field trips for Houston area students to such geologic wonders as the Grand Canyon. The goal is to attract a more diverse group of students to geosciences careers.
- **The Houston A+, Teacher Externship** provides teachers an opportunity to experience one week of work at area businesses and organizations. More than 200 area teachers spent a week with one of 68 Houston employers in 2008, where they learned of career opportunities and skill requirements for employment and identified examples of how their subject matter is applied in the real world. Teacher Externs create lesson plans based on their experience to assist students with both important skills development and career choices.

"Students are more motivated to do well, complete high school and pursue college when they understand how their classroom studies connect to real world jobs and careers," said Marshall Schott, Co-Chair of the Partnership Energy Collaborative Workforce Committee, and University of Houston, Assistant Vice President of Instructional Support and Outreach. "Whether that interest leads to a career in medicine, aerospace, energy or advanced manufacturing that's a victory for the student and our community." ★

Students participating in the geoFORCE program.

2011 GeoFORCE Activities in Date Order				
Dates	**Region**	**Event and Grade**	**Location(s)**	**Summary of Venues**
June 4 - 11	Houston	9th Grade Academy	Austin, Florida	McKinney Falls, Pennekamp Coral Reef , Windley Keys, Everglades, Lover's Key
June 4 - 11	Southwest	12th Grade Academy	Florida	Pennekamp Coral Reef, Windley Keys, Everglades, Lover's Key, Cape Canaveral Seashores
June 4 - 8	Southwest	12th Grade Young Geoscientists	New Mexico	Guadalupe Mtns., White Sands, Hueco Tanks, McDonald Observatory
June 12 - 19	FVSU	MSEA 11th Grade	Austin	Enchanted Rock, McKinney Falls, Longhorn Cavern, Mt. Bonnell
June 14 - 17	Southwest	10th Grade Young Geoscientists	Port Aransas	*KATY* Research Vessel, Mustang Island, Packery Channel, Marine Science Institute
June 18 - 25	Southwest	9th Grade Academy	Austin, Florida	McKinney Falls, Pennekamp Coral Reef , Windley Keys, Everglades, Lover's Key
June 18 - 25	Houston	12th Grade Academy	Florida	Pennekamp Coral Reef, Windley Keys, Everglades, Lover's Key, Cape Canaveral Seashores
June 20 - 25	Houston	12th Grade Young Geoscientists	New Mexico	Guadalupe Mtns., White Sands, Hueco Tanks, McDonald Observatory
June 29 - 30	Southwest	9th Grade Young Geoscientists	Uvalde	Knippa Basalt Quarry, Uvalde Rock Quarry, Annandale Bat Cave, Leona Springs, Fort Ing, Nueces River
July 5 - 7	Houston	9th Grade Young Geoscientists	Uvalde	Knippa Basalt Quarry, Uvalde Rock Quarry, Annandale Bat Cave, Leona Springs, Fort Ing, Nueces River
July 9 - 16	Houston	10th Grade Academy	Arizona, Utah, Nevada	Zion, Glen Canyon Dam, Colorado river raft ride, Balanced Rock, Grand Canyon, Kaibab Trail hike, Wupatki, Sunset Crater
July 9 - 16	Southwest	11th Grade Academy	Oregon	Mt. St. Helens, Columbia River Gorge, Crater Lake, Mt. Hood, Newberry Caldera, Oregon Coast
July 11 - 14	Houston	10th Grade Young Geoscientists	Port Aransas	*KATY* Research Vessel, Mustang Island, Packery Channel, Marine Science Institute
July 18 - 20	Southwest	11th Grade Young Geoscientists	Austin	McKinney Falls, Perry Park, Inner Space Cavern, Mt. Bonnell, Texas Memorial Museum, State Capitol
July 23 - 30	Houston	11th Grade Academy	Oregon	Mt. St. Helens, Columbia River Gorge, Crater Lake, Mt. Hood, Newberry Caldera, Oregon Coast
July 23 - 30	Southwest	10th Grade Academy	Arizona, Utah, Nevada	Zion, Glen Canyon Dam, Colorado river raft ride, Balanced Rock, Grand Canyon, Kaibab Trail hike, Wupatki, Sunset Crater
July 25 - 27	Houston	11th Grade Young Geoscientists	Austin	McKinney Falls, Perry Park, Inner Space Cavern, Mt. Bonnell, Texas Memorial Museum, State Capitol

Isaac Jimenez, 2009 GeoFORCE graduate, at the 2010 National Championship Game (Rose Bowl).



A Houston ninth grader has the Gulf of Mexico to himself at Lover's Key, Florida.

Southwest Texas 10th graders test the 48-degree water of the Colorado River below Glen Canyon Dam.

A Houston 11th grader meets a sea otter at the Oregon Coast Aquarium.

Danielle Carpenter, Chevron, with the Houston 12th graders in Washington, D.C.

Southwest Texas counselors do some heavy lifting near Lees Ferry, Arizona.