

GEOFORCE T E X A S

ANNUAL REPORT 2009



THE UNIVERSITY OF TEXAS AT AUSTIN

JACKSON

SCHOOL OF GEOSCIENCES



On the cover:

Students from the GeoFORCE Southwest 11th Grade Academy pause with Dr. Eleanor Snow on top of Big Obsidian Flow in Oregon.

Students from the GeoFORCE Southwest 10th Grade Academy, along with instructors Dr. Charles Woodruff and Dr. Jay Raney, pose in front of Balanced Rock, Lees Ferry, Arizona.

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*Laura Reich,
Marathon,
presents the
geology of
Salt Creek
Falls, Oregon.*



*Students take
in the geology
of the Colorado
River below
Glen Canyon
Dam.*

Message from the Dean

In 2009, we learned that GeoFORCE works—it *really* works.

When the program started in 2005, it was definitely an experiment. There were many unanswered questions. Would the students stick with it for four years? Would they get excited about the geosciences? Most importantly, would a large number of them go to college? Would they pursue science and engineering degrees? Would some pursue the geosciences at (better yet) the Jackson School?

We now know the answer to all of these questions is a resounding yes.

Of the original 80 kids who started in the GeoFORCE Academy and Young Geoscientist programs in 2005, 76 have been admitted to colleges and universities. Not only are 95 percent of these students (61 percent female and 77 percent Hispanic) going to college, but more than 50 percent have chosen to pursue degrees in science and engineering. Eight of them are going after geoscience degrees—five at the Jackson School.

Inside the program, this first cohort of students became known as the “guinea pigs,” as every activity in every year of their four-year ride through GeoFORCE was new, untested, and full of surprises: some good, some not so good.

They endured field trips that lacked guidebooks, hotels and restaurants that did not have the capacity to deal with 40 kids,

and buses that broke down in the middle of nowhere. They set the standard for “no complaining, no matter what” as they tolerated a lot of lessons learned by the GeoFORCE staff, while expressing unbridled excitement and enthusiasm for the adventures offered to them. Remarkably, of the 40 students who started the Academy in 2005, all but one completed the full four-year program.

As GeoFORCE continues to grow and have broader impact, I think we will always remember these trailblazers and be thankful for the high standard they set for all those who follow. Congratulations to the GeoFORCE class of 2009.



*Dr. Sharon Mosher, Dean
Jackson School of Geosciences*

It is incredible and awesome to watch and nurture 42 sixteen-year-olds spend 14 hours a day learning, studying, acting, and writing poetry about geology. My whole life I have felt connected to the Earth, and this experience intensified that connection. It is spectacular to observe youthful minds finding their own passions and love of geology similar to my own.

*Laura Reich, Subsurface Manager, Marathon Oil Company,
reflecting on spending a week with the Southwest 11th Grade Academy*

GeoFORCE Overview

GeoFORCE Texas is a summer outreach program targeting predominantly minority and female honor students from the Houston Independent School District and school districts across southwest Texas. GeoFORCE is designed to address two pressing needs for the geosciences:

- ▶ 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 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 students at selected schools within the Houston Independent School District

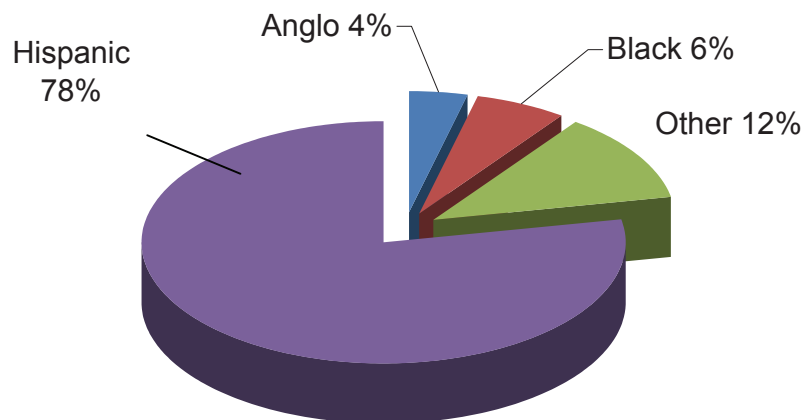
and from 18 independent school districts in southwest Texas. Although the program is open to all outstanding students, regardless of background, the recruiting areas exhibit a high percentage of minorities, and our academies and field courses reflect these demographics.

Since the late 1990s the number of students enrolled in the geosciences has been rapidly decreasing. GeoFORCE seeks to reverse this trend by increasing the number of students from diverse backgrounds who complete degrees in math and science and enter the workforce.

Goals and Objectives

Minorities represent a virtually untapped reservoir for increasing the number of individuals pursuing degrees in the sciences. National Science Foundation (NSF) statistics show participation by minorities in science and engineering, specifically the geosciences, to be unacceptably low. NSF numbers also indicate that underrepresented groups earn almost 15 percent of all U.S. bachelor's degrees in science and engineering but only 4.6 percent of the bachelor's degrees awarded in the geosciences. The projected demographics of Texas provide a clear indication of the need to engage minorities in the sciences.

Projected Percent of Net Change in Texas Population Attributable to Each Race/Ethnicity Group for 2000-2040



Using U.S. Census count for 2000 and Texas State Data Center 1.0 population projection scenario for 2040

Methods and Strategies

GeoFORCE draws on a wealth of resources to develop a comprehensive program of exciting hands-on learning for our students and participants. Financial assistance is received from the Jackson School's Geology Foundation to support the majority of full-time staff. As a result, outside contributions go directly to the student and educator activities. The School's units (Department of Geological Sciences, Institute for Geophysics, and Bureau of Economic Geology) provide instructors, counselors, and support to create the guidebooks and other teaching materials.

GeoFORCE partners with Fort Valley State University, the Houston Independent School District, and Southwest Texas Junior College to create a strong consortium to attract high-caliber students to the program. Through these partnerships, GeoFORCE has access to interaction with existing outreach programs such as Fort Valley's Cooperative Developmental Energy Program (CDEP). These partnerships were crucial to the initial creation of GeoFORCE and remain critical to its continued success.

Each year, about 75,000 Hispanics earn Bachelor's degrees in something, but only about 150 are in geosciences. Over 100,000 African Americans earn Bachelor's degrees, but only about 60 individuals earn a degree in geosciences.

Czujko, R., 2004, Painting by the Numbers: The Representation of Minorities in the Geosciences: Eos, American Geophysical Union.



Participants in the Houston 11th Grade Academy pose in front of Mt. Hood, Oregon, with instructor Dr. Jeff Paine.

GeoFORCE Staff

The Jackson School provides support for GeoFORCE that includes funding as well as personnel. Members of the outreach team assist with logistics, accounting, contracting, purchasing, communications, and human resources.

Doug Ratcliff, Director of Outreach Programs, supervises the GeoFORCE program. He is assisted by program coordinators Julie O'Shaughnessy and Danielle Horton, who have primary responsibility for organizing

and conducting activities associated with the Academy program. Edgar Garza and Justin Hance are responsible for the Young Geoscientist events. Salwa Uzri assists with accounting, finances, and travel. Joel DePenning, an undergraduate assistant, helps with office support and trip preparation.

Many others in the Jackson School assist with GeoFORCE, and they are mentioned in other sections of this report. Of special note, Sigrid Clift



Julie O'Shaughnessy



Danielle Horton



Justin Hance



Edgar Garza



Salwa Uzri



Joel DePenning

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 Susie Doenges, Joel Lardon, Jamie Coggin, and Lana Dieterich.

Chris Havelka, Manager of the Uvalde Asphalt Quarry operated by Vulcan Materials, explains the site to GeoFORCE 9th graders from southwest Texas.



Partnerships

The success of GeoFORCE depends on bringing together academic, government, and industry partners who have institutional and personal commitments to improving the lives of the next generation. The financial support provided by our partners allows the students to experience spectacular geologic venues that are important to increasing and maintaining their attraction to science and math. Personal commitments of individuals create one-on-one learning experiences, provide an opportunity to discuss careers with professionals, and make GeoFORCE the special experience it is.

Southwest Texas Junior College

Southwest Texas Junior College (SWTJC) is the connection between the Jackson School and 18 independent school districts in southwest Texas. They have provided access to their established network of

schools, administrators, and teachers. Because of this, 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 Kelly Trlica, Shelley McKinley, and John Haro 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.

The Houston region was fast-tracked, which meant building the program to incorporate all four grades (9–12) within the first two years of operation. Without the support of HISD, GeoFORCE would not have been able to access the schools, recruit students, and establish our program.

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.



11th Grade Houston Academy at Crater Lake, Oregon.

The Jackson School also provides scholarships for FVSU students who choose to transfer to the Jackson School and pursue degrees in the geosciences. During 2009, one FVSU transfer student completed his master's degree in the Jackson School, and we accepted four new undergraduates beginning in the fall of 2009.

Government and Industry

Our government and industry partners provide funding, access to sites, instructors, mentors, and insight into what it is like to work as a geoscientist. As GeoFORCE has grown, the cost of the program has increased. The table on page 10 lists the contributions and expenses to date. This table is continually updated as sponsors and expenses change.

GeoFORCE students benefit from interactions with corporate and government participants who take the time to personally meet with them. The U.S. Geological Survey (USGS) contributes significantly by participating in our field events and our college admission workshops.

The USGS has historically hosted GeoFORCE 9th graders at their Reston headquarters, and through the tireless efforts of Steve Hammond, Randy Orndorff, Lydia Quintana, and Katrina Burke, these events have been outstanding. In our five years of GeoFORCE, 2009 has been the only year that we did not have an event at USGS headquarters because we were retooling the curriculum of the program. The new program design has been completed, and beginning in 2010 our 12th-grade students will spend time with the USGS.

Our other industry partners supply mentors for our field programs. These individuals spend up to a full week traveling with our students, providing insight into careers in the energy sector and, in many instances, teaching.

Our industry partners also contribute significantly to our Educator Workshops by supplying interesting venues such as drill sites, visualization laboratories, and geological field trips.

10th Grade Young Geoscientists study the back beach at Port Aransas, Texas.





*GeoFORCE
Houston
12th graders
at Lovers
Key, Florida,
with Dr. Terry
Quinn.*

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	Hogg	Long	Sharpstown
Madison	Sterling	Burbank	Fondren	Holland	Ortiz	Stevenson
Milby	Washington	Clifton	Hamilton	Jackson	Revere	Williams
Scarborough	Worthing	Deady	Hartman	Lanier	Ryan	

**Danielle Carpenter
(far right) of
Chevron shows
12th graders
from southwest
Texas how to
dig a trench on
Cape Canaveral
Seashore, Florida.**



Event	Field Instructor	Career Presentation/Closing Ceremony Attendees
Houston		
9 th Grade Academy	Nysha Chaderton, ExxonMobil	Nysha Chaderton, ExxonMobil Chuck Caughey, ConocoPhillips Weston Mukalich, Chevron George Hildebrandt, Chevron Natalia Canahuati, Marathon
10 th Grade Academy	Martha Barnes, Marathon	Martha Barnes, Marathon Wilfredo Solano, Chevron Irene Arango, Chevron Joni Baird, Chevron
11 th Grade Academy	Denise Butler, Shell	Denise Butler, Shell Pam Darwin, ExxonMobil Chuck Caughey, ConocoPhillips Natalia Canahuati, Marathon Cora Robinson, Marathon George Hildebrandt, Chevron
12 th Grade Academy	Laura DeMott, ExxonMobil	Laura Demott, ExxonMobil Chuck Caughey, ConocoPhillips Mac McGilvery, ConocoPhillips Mike Loudin, ExxonMobil George Hildebrandt, Chevron
12 th Grade Young Geoscientists	Dominic Druke, Shell	Dominic Druke, Shell
Southwest		
Graduating Seniors	Anna Morisani, Shell	Anna Morisani, Shell
9 th Grade Academy	Kristen Woody, Shell	Kristen Woody, Shell Sylvia Rodriguez, Valero
11 th Grade Academy	Laura Reich, Marathon	Laura Reich, Marathon Tony Arce, AEP Texas
12 th Grade Academy	Danielle Carpenter, Chevron	Danielle Carpenter, Chevron
11 th Grade Young Geoscientists	Matthew Densmore, Shell	Matthew Densmore, Shell

Park Rangers, Museum Staff, and Others in the Field	
Annandale Bat Cave:	Bane Walker
Archbold Biological Station:	Nancy Deyrup, Mark, Deyrup, Rick Lavoy, Shane Pruet, Marilyn
Austin State Capitol:	Amanda Lopez
Big Oak River Camp:	Terry Maner
Canaveral National Seashore:	Eric Lugo, John Stiner, Laura Henning, Candace Carter
Capitol Aggregates:	Steve Eckert, Barry Dickens, Dan Yentes, Andy Bujanos
Carl Hayden Visitor Center - Paleo:	Liz Losch
Colorado River Discovery Guide:	Korey Seyler, Karen Gullickson, Brenda, Matia, Adrian
CPR Trainer:	Orazio Loayza
Crater Lake National Park:	Amelia Bruno, Heidi Moore
Everglades National Park:	Bonnie Foist
Fort Ing and Uvalde Historical Society:	Dick Whipple
Glen Canyon Dam:	Nikki Johnson, Rachel Dawavendewa, Dana Crane, Curtis Jaborski
Grand Canyon:	Joshua Henson, Jacob Philien, David Smith, Randy Henderson, Jim Heywood
Gregory Gym Swim Complex:	Kristen Nussa
Guadalupe Mountains:	Dr. Jeanine Hearst
Hacienda Outcrop:	Sherman Mumme
Hueco Tanks:	Wanda Olszewski, Joe Barraza, Bill Barley
Inks Lake:	Pam Major
Inner Space Cavern:	Tonya Vessels
John Pennekamp Coral Reef:	Russ Kane, Kerry Whalley, Terri Polk, Cecelia McCafferty, Deanna Norling, Jesuela, Captain Stuckey, Jorge Alardo, Nathan
JSG Wind Tunnel Experiment:	Dave Mohrig
KATY Research Vessel:	Captain Stan Dignum
Longhorn Cavern State Park:	Kaye Barlow, Troy Futrel
Lovers Key State Park:	Michael Hensley
Marine Science Institute:	Rick Tinnin, Linda Fuiman, John Williams
McDonald Observatory:	Frank Ciancolo
Merritt Island National Wildlife Refuge:	Nancy Corona, Turtle Watch Volunteers
Mt Hood National Forest:	Tammy Villali
Mt St Helens:	Todd Cullings
Newberry National Volcanic Monument:	Pete Hatman
Oregon Coast Aquarium:	Leslie
Port Aransas Parks and Recreation:	Gary Mysorski, Mike Lauer
Shark Valley Visitors Center:	Christine Mackarvich
Siuslaw National Forest:	Carole Wendler, Paula DiCarlo
Sunset Crater:	Holly Richard, Floy Healer, Casey Hodnett
Texas Natural Science Center:	Cristina Cid
Texas State Aquarium:	Johnnie Smith, Tara Schultz
Thunderbird Lodge:	John Williams, Donna Williams
Tualatin Valley Fire & Rescue:	Jeff Rubin
UT Austin College of Engineering:	Erin Gandy
UT Multi-cultural Center:	Jay Guevara
UT Union Underground:	Robert Waters
Vulcan Materials, Knippa:	Dee Kirkpatrick, Ron Robles
Vulcan Materials, Uvalde:	Chris Havelka
White Sands	Cliff Wagner, McKinney Briske
Windley Key Fossilized Coral Reef:	Melba Nezbed
Wupatki National Monument:	Bonnie Stewart, Sherry Williams, Janice Richmond, Nicole Murphy
Zion National Park:	David Walker

Financial Status

Numbers in blue are expected levels of support.

GEOFORCE FINANCIAL STATUS							
Sources	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Total
Jackson School	141,722	260,052	358,051	471,453	485,597	500,165	2,217,040
Shell Oil Company	60,000	65,000	40,000	70,000	125,000	125,000	485,000
ExxonMobil	10,000	25,000	50,000	100,000	120,000	120,000	425,000
Chevron			40,000	40,000	200,000	120,000	400,000
BP			50,000	80,000	135,000	120,000	385,000
Marathon Oil Company		3,000	50,000	100,000	100,000	100,000	353,000
Texas Workforce Commission				100,000	195,416		295,416
ConocoPhillips	20,000	41,000	21,000	21,000	21,000	21,000	145,000
UT Tuition Waivers		18,816	24,313	25,000	18,392	36,784	123,305
Halliburton		10,000	20,000	30,000	30,000	30,000	120,000
TG Foundation						100,000	100,000
Minerals Management Service		25,000	25,000		25,000		75,000
Devon				25,000	40,000		65,000
Vulcan Materials Foundation			5,000	25,000	15,000	15,000	60,000
Communities Foundation of TX				42,500			42,500
AT&T Foundation	25,000	15,000					40,000
AAPG Foundation				10,000	10,000	10,000	30,000
Estate of Myrtle Isensee					29,975		29,975
AEP Texas				3,000	25,000		28,000
Valero Energy Corporation				15,000	10,000		25,000
Swift Energy		10,000	12,000				22,000
Alcoa			5,000		15,000		20,000
Dominion Exploration		10,000	5,000				15,000
El Paso Corporation					10,000		10,000
Schlumberger		3,000	3,000		3,000		9,000
Kinder Morgan Foundation					5,000		5,000
Darwin Family GeoFORCE Endowment					5,000		5,000
SEG Foundation					5,000		5,000
GDL Foundation				1,400	2,500		3,900
Ernie Lundelius						2,000	2,000
Fisher, Bill and Marilee				1,000	1,000		2,000
Priority Oil & Gas LLC	2,000						2,000
Jim Sansom						1,000	1,000
Subtotal	258,722	485,868	708,364	1,160,353	1,631,880	1,300,949	5,546,136
Expense Activity							
JSG Staff and Admin	106,722	98,513	221,427	341,169	351,404	361,946	1,481,181
Teacher Workshops	6,000	6,500	5,172	20,689	19,400	19,982	77,743
MSEA 11th grade academy	39,300	40,694	40,031	31,960	37,808	35,000	224,793
FVSU student visits	0	4,700	9,770	5,198	9,770	6,000	35,438
CDEP transfer scholarships	0	51,216	39,301	17,408	82,400	164,800	355,125
GeoFORCE Texas	85,000	150,000	308,671	439,713	399,673	425,000	1,808,057
GeoFORCE Houston	0	0	10,000	203,088	400,020	628,154	1,241,262
Dual Credit Courses in Geo	0	0	0	14,766	100,000	100,000	214,766
Textbooks	0	85,000	54,345	57,070	78,470	75,000	349,885
Total Expenses	237,022	436,623	688,717	1,131,061	1,478,945	1,815,882	5,788,250
Surplus/Deficit	21,700	49,245	19,647	29,292	152,935	-514,933	
Cumulative Balance	21,700	70,945	90,592	119,884	272,819	-242,114	

Sponsors



Shell Oil
Company



ExxonMobil



ConocoPhillips

Texas Workforce
Commission



HALLIBURTON



devon

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



AEP TEXAS
A unit of American Electric Power

Vulcan

Materials Company



el paso

Schlumberger

KINDER MORGAN

FOUNDATION

Darwin Family Endowment

Estate of Myrtle Isensee

Bill & Marilee Fisher

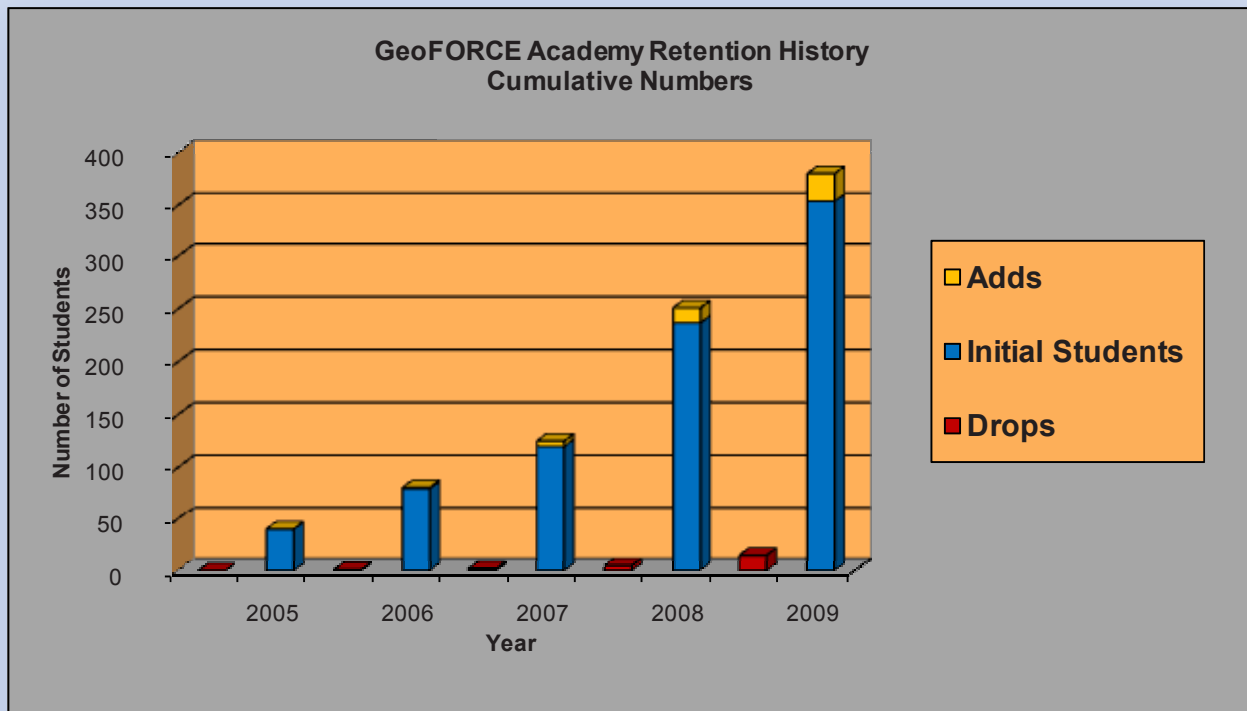
Maintaining the Numbers

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 students who begin the GeoFORCE program after completing the eighth grade.

The chart displaying retention history shows that we have lost only 15 students from the Academy program. The Young Geoscientist program provides replacements for those who choose to leave the Academy program.

Participation to date in both the Academy and Young Geoscientist programs now totals more than 600. This number includes 53 Houston students who participated in both the Academy and the Young Geoscientist events (shown in pink on the chart at the bottom of the page).

In 2010, we will add the class of 2014 in both Houston and the southwest region. In addition, we will take measures to increase existing cohorts to their capacity of 40 students in each event.



	Houston			Southwest			Total		
	Academy	Young Geo	Total	Academy	Young Geo	Total	Academy	Young Geo	Total
Class 2009	0	0	0	42	28	70	42	28	70
Class 2010	40	28	68	44	26	70	84	54	138
Class 2011	30	25	55	42	30	72	72	55	127
Class 2012	37	17	54	40	53	93	77	70	147
Class 2013	41	21	62	40	46	86	81	67	148
Total	148	91	239	208	183	391	356	274	630

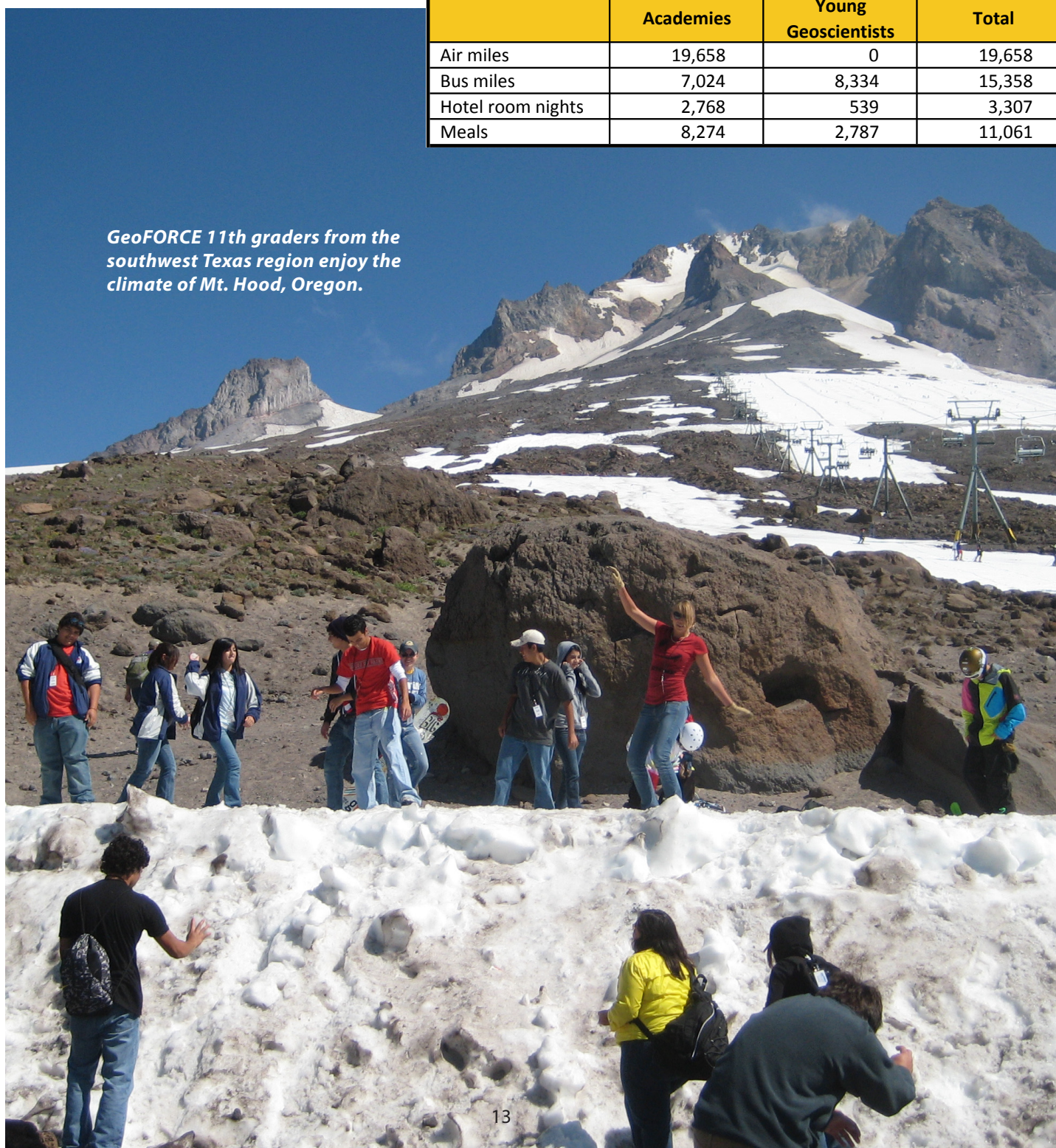
Summary of 2009 Activities

GeoFORCE completed several milestones during 2009, including graduating the first cohort of students, bringing the Houston program up to the full four-year cohort level, providing SAT review courses in both Houston and the southwest, initiating a dual-credit, Web-based freshman geology course, holding two professional development workshops,

and continuing collaboration with Fort Valley State University. The size of GeoFORCE is impressive, and the logistics required to accommodate more than 500 students plus instructors, counselors, and teachers is complex. The table below summarizes the main ingredients for the summer program.

	Academies	Young Geoscientists	Total
Air miles	19,658	0	19,658
Bus miles	7,024	8,334	15,358
Hotel room nights	2,768	539	3,307
Meals	8,274	2,787	11,061

GeoFORCE 11th graders from the southwest Texas region enjoy the climate of Mt. Hood, Oregon.



GeoFORCE Goes to College

This year marked the end of a four-year wait that started in 2005 when our first cohort of students just completed the eighth grade. This first group has wowed us with their achievements, which include a very high ratio of admission to college. The tables below summarize the current status of these students.

Students from this cohort are all from the southwest region, where the high school graduation rate is less than 62 percent and the number of students moving on to college and into science, technology, engineering, or math (STEM) degree programs is much less.

	Gender			Ethnicity		College		Degree Program Pursued			
	Female	Male	Total	Hispanic	Caucasian	Admitted	Not Attending	Geo	Sci/Eng	Math	Other/ Undecided
Academy											
Number	26	16	42	34	8	41	1	8	13	1	19
Percentage	34%	21%	55%	44%	10%	53%	1%	11%	17%	1%	25%
Young Geo											
Number	21	14	35	25	10	35	0	0	15	1	19
Percentage	27%	18%	45%	32%	13%	46%	0%	0%	20%	1%	25%
Total											
Number	47	30	77	59	18	76	1	8	28	2	38
Percentage	61%	39%	100%	77%	23%	99%	1%	11%	37%	2%	50%

	Academy	Young Geoscientists	Total
A&M College Station	3	2	5
A&M Corpus Christi	1	0	1
A&M International	2	2	4
A&M Kingsville	1	3	4
Brigham Young	1	0	1
Coast Guard Academy	1	0	1
Concordia	1	0	1
Del Mar	1	0	1
Kansas State	1	0	1
North Texas	2	0	2
Northern Arizona	0	1	1
Ohio State	2	0	2
Rice	1	0	1
San Angelo State	0	1	1
St. Edwards	1	0	1
Sul Ross	1	0	1
Southwest Texas Junior College	9	16	25
University of Texas at Austin	10	6	16
University of Texas at Dallas	1	0	1
University of Texas at San Antonio	1	4	5
Yale	1	0	1
	41	35	76

Marissa Vara meets with Vice President of BP, Dr. David Rainey, at a University reception. Marissa began GeoFORCE in 2005 when she completed the eighth grade. She completed the four-year GeoFORCE program and entered the Jackson School in fall 2009.



We will continue to track GeoFORCE graduates throughout their college years and on into the workforce. Next May will provide another milestone as we will graduate cohorts from both the Houston area and the southwest region. At this time there are 110 students in both cohorts, which could result in more than 100 GeoFORCE graduates entering college in 2010.

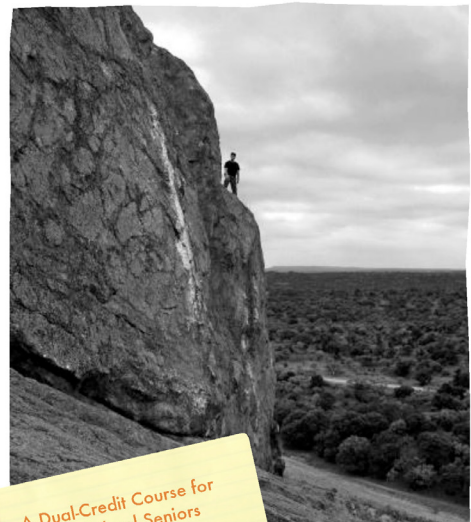
Dual-Credit Geology Course

Another milestone was reached in 2009 as the Jackson School's Dr. Eleanour Snow began teaching a Web-based, dual-credit physical geology course to our southwest Texas region. This course brings a high-quality science curriculum to rural high schools that are challenged to provide exciting, upper-division science to their students. It is the same physical geology course that is taught on campus and uses the same textbook. The course includes a laboratory section and a day-long field trip.

The course was delivered to eight high schools in our southwest Texas region during the spring semester of 2009. Twenty-six high school students successfully completed the freshman-level course.

We will continue to teach the course in our southwest Texas region and expand to the Houston Independent School District in fall 2010.

University of Texas at Austin Dual Credit in Geology
GEO401: Physical Geology
GEO271C: Issues in Geosciences
Earth and Space Science (High School)



A Dual-Credit Course for High School Seniors

W

NeoGEO Spring Field Trip

The first field event of 2009 was a trip to Port Aransas, Texas, with our graduating GeoFORCE students. The event was sentimental as we said goodbye to our initial group of students. Anna Morisani of Shell participated in the trip for the fifth year in a row with these students. Anna went on the initial 2005 trip as a graduate assistant and returned each year after accepting employment with Shell.

NeoGeo 2009 (Port Aransas)	
	Southwest Texas
Number of Students	40
Coordinator	Julie O'Shaughnessy
Trail Driver	Doug Ratcliff
Sponsor	Anna Morisani
Counselors	Edgar Garza
	Justin Hance
	Mary Gabaldon



Academies

9th Grade Academy

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

9 th Grade Academy (Austin, Florida)		
	Houston	Southwest Texas
Number of Students	41	40
Coordinator	Edgar Garza	Julie O'Shaughnessy
Instructor	Jim Sansom	Jim Sansom
	Ernie Lundelius	Ernie Lundelius
	Charlie Kerans	Tiffany Caudle
Trail Driver	Doug Ratcliff	Mary Gabaldon
Sponsor Representative	Nysha Chaderton	Kristen Woody
Education Coach	John Won	B. Schroeder
Counselors	Courtney Alexander	Alicia Farre
	Carlos Camacho	Jose Guevara
	Elizabeth Collins	Evan Pearson
	Steve Gohlke	Matt Prudhomme
	Nicole Parker	Alyssa Rodriguez
	Vicki Perkins-Miller	Drew Slack



10th Grade Academy

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 9 th Grade Academy		

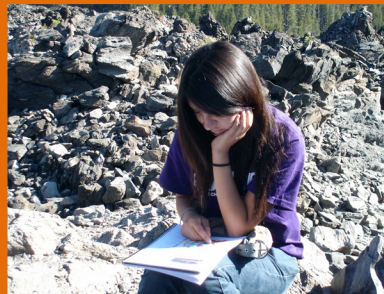
10 th Grade Academy (Nevada, Utah, Arizona)		
	Houston	Southwest Texas
Number of Students	37	40
Coordinator	Justin Hance	Julie O'Shaughnessy
Instructor	Lesli Wood	Charles Woodruff
Trail Driver	Doug Ratcliff	Mary Gabaldon
Sponsor Representative	Martha Barnes	Jay Raney
Education Coach	Julie Jackson	B. Schroeder
Counselors	Samantha Abbott	Sordaya Arellano
	Steff Lazo-Herencia	Elizabeth Collins
	Jennifer Loeffler	Alicia Farre
	Kendall Phillips	Jose Guevara
	Brandon Steele	Bianca Sanchez
	Zach Zhenani	Drew Slack



11th Grade Academy

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 9 th and 10 th Grade Academies		

11 th Grade Academy (Oregon)		
	Houston	Southwest Texas
Number of Students	30	42
Coordinator	Justin Hance	Doug Ratcliff/Julie O'Shaughnessy
Instructor	Jeff Paine	Jeff Paine
Trail Driver	Doug Ratcliff	Mary Gabaldon
Sponsor Representative	Denise Butler	Laura Reich
Education Coach	Julie Jackson	Eleanour Snow
Counselors	Courtney Alexander	Soryada Arellano
	Carlos Camacho	Alicia Farre
	Jay Guevara	Sarah Doyle
	Hana Kabazi	Evan Pearson
	Vickie Perkins-Miller	Matt Prudhomme
	Kendall Phillips	Bianca Sanchez



12th Grade Academy

Objective(s)	Geologic Topics	Locations
Immediately apply teaching, seeing, doing, and testing methodology to all field work	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
Expose students to carbonate structures, processes, and environments		
Reinforce geological concepts from past three summers		

12 th Grade Academy (Florida)		
	Houston	Southwest Texas
Number of Students	40	44
Coordinator	Edgar Garza	Julie O'Shaughnessy
Instructor	Jeff Paine	Eleanour Snow
Trail Driver	Doug Ratcliff	Mary Gabaldon
Sponsor Representative	Laura DeMott	Danielle Carpenter
Education Coach	John Won	Marla Hibbitts
Counselors	Courtney Alexander	Soryada Arellano
	Carlos Camacho	Alicia Farre
	Steve Gohlke	Martha Gomez-Ponce
	Jay Guevara	Jose Guevara
	Vickie Perkins-Miller	Michael Ponce
	Andrew Wang	Bianca Sanchez



Young Geoscientists

9th Grade Young Geoscientists

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

9 th Grade Young Geoscientists (Uvalde)		
	Houston	Southwest Texas
Number of Students	21	46
Coordinator	Justin Hance	Justin Hance
Instructor	Pat Bobeck	Pat Bobeck
Education Coach/Trail	Jessica Gordon	Jessica Gordon
Counselors	Samantha Abbott	Samantha Abbott
	Nicole Parker	Nicole Parker
	Kendall Phillips	Kendall Phillips
	Alyssa Rodriguez	Alyssa Rodriguez
	Brandon Steele	Brandon Steele
	Zach Zehani	Zach Zehani



10th Grade Young Geoscientists

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

10 th Grade Young Geoscientists (Port Aransas)		
	Houston	Southwest Texas
Number of Students	17	53
Coordinator	Edgar Garza	Justin Hance
Instructors	Tiffany Caudle	Pat Bobeck
		Lindsay Lowe
Trail Driver	George Bush	Marc Airhart
Education Coach	Lisa Green	Lisa Green
Counselors	Samantha Abbott	Elizabeth Collins
	Jay Guevara	Ymarie Leija
	Kendall Phillips	Steve Gohlke
	Jamie Ramage	Nicole Parker
	Alyssa Rodriguez	Jamie Ramage
	Zach Zehani	Joe Zimowski



11th Grade Young Geoscientists

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 9 th and 10 th Grade field courses		

11 th Grade Young Geoscientists (Austin)		
	Houston	Southwest Texas
Number of Students	25	30
Coordinator	Edgar Garza	Edgar Garza
Instructors	Ernie Lundelius	Ernie Lundelius
	Jim Samson	Jim Samson
Trail Driver	Doug Ratcliff	Doug Ratcliff
Sponsor Representative		Matthew Densmore
Education Coach	Jessica Gordon	Jessica Gordon
	Samantha Abbott	Samantha Abbott
	Alicia Farre	Alicia Farre
	Steve Gohlke	Steve Gohlke
	Nicole Parker	Nicole Parker
	Evan Pearson	Evan Pearson
	Vickie Perkins-Miller	Vickie Perkins-Miller



12th Grade Young Geoscientists

Objective(s)	Geologic Topics	Locations
Immediately apply teaching, seeing, doing, and testing methodology to all field work	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
Expose students to carbonate structures, processes, and environments		
Reinforce geological concepts from past three summers		

12 th Grade Young Geoscientists (New Mexico)		
	Houston	Southwest Texas
Number of Students	28	26
Coordinator	Justin Hance	Edgar Garza
Instructor	Dave Mohrig	Brian Horton
Trail Driver	Edgar Garza	Doug Ratcliff
Sponsor Representative	Dominic Druke	
Education Coach	John Won	Cristopher Marshall
Counselors	Courtney Alexander	Courtney Alexander
	Carlos Camacho	Steve Gohlke
	Steve Gohlke	Carlos Camacho
	Steff Lazo-Herencia	Steff Lazo-Herencia
	Vickie Perkins-Miller	Jennifer Loeffler
	Alyssa Rodriguez	Vickie Perkins-Miller



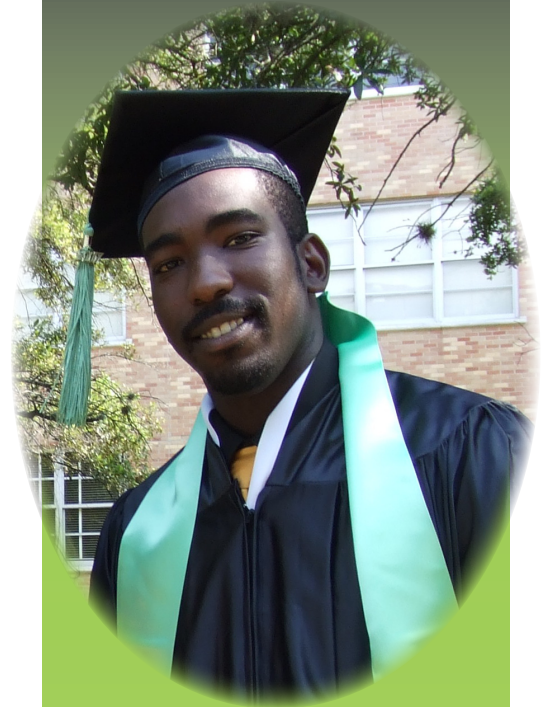
Fort Valley State University Events

Fort Valley State University (FVSU) and the Jackson School of Geosciences (JSG) continued their partnership into its sixth year. We reached a milestone this year when one of the FVSU transfer students completed his graduate studies at JSG. We will also receive four FVSU undergraduates beginning in the fall 2009.

JSG hosted FVSU's 11th-grade Math, Science, and Engineering Academy (MSEA) for the sixth straight year. As usual the academy ended with a rousing closing ceremony that featured skits, musical performances, and awards. The closing ceremony was attended by more than 20 people, including the Jackson School dean Sharon Mosher, professors Leon Long and Peter Fleming, Erin Gandy from the Cockrell School of Engineering, and Mary Long from the UTeach Institute. Former MSEA students who were summer interns at the Institute for Geophysics also attended. The closing ceremony was a great way for the students to demonstrate and reinforce what they learned during their week at UT.

JSG also hosted a campus visit for transfer students and provided summer internships for four FVSU students.

11 th Grade MSEA Academy	
Number of Students	23
Coordinators	Patrice McGhee, Jackie Hodges, Danielle Horton, Justin Hance, Julie O'Shaughnessy
Instructor	Leon Long
Education Coach	Jessica Gordon
Counselors	Hazel Abe, Jasmine Bowers, Johnne Dawson, Mario McGregor, Luther Harris



Stanley Stackhouse, a member of the first group of transfer students from Fort Valley State University in Georgia, completed his undergraduate degree in geophysics in 2007 and earned his master's degree in 2009.



Dr. Leon Long points out the geology of Austin from Mt. Bonnell to students participating in Fort Valley State University's MSEA program.

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 September 23–24, 2008, for southwest Texas educators and November 11–12,

2008, for Houston educators. A total of 44 educators attended. The workshop was held in Port Aransas and mirrored the 10th Grade Young Geoscientists trip. Educators went on a science cruise on the *KATY* Research Vessel at the UT Marine Science Institute and toured the new Wetlands Education Center.

On the second day of the workshop, Leslie Peart from the Deep Earth Academy, a part of the Consortium for Ocean Leadership, presented. She worked with the educators on activities and materials based on authentic data from shipboard research expeditions to strengthen students' mathematics, science, and analytical skills for a lifetime of learning. She discussed the ability of scientific ocean drilling, as carried out by Integrated Ocean Drilling Program, to provide a multidisciplinary approach to Earth systems science education and to engage broader audiences with the excitement of discovery and the scientific process.

Our spring workshop was held February 11–12, 2009, in Austin. A total of 32 educators attended. This workshop mirrored the 11th Grade Young Geoscientists trip in and around Austin. Dr. Ernie Lundelius and professional geologist Jim Sansom led the educators on a hike up Mt. Bonnell for an overview of Austin geology.

They then went to Inner Space Caverns, where educators were treated to an in-depth and personal tour of the caverns. Jim Sansom was on hand when the caverns were discovered and was the second person in the cavern. Ernie Lundelius has extensively studied the fossils and bones found in the caverns. On the second day of the workshop Dr. John Firth, the Curator in the Department of Science Services, Ocean Drilling Program, and an adjunct assistant professor of geology in the Department of Geology and Geophysics at Texas A&M University, presented. He brought core and core samples for the educators and discussed ways of interpreting results on the basis of data from cores.



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Fisher, Bill and Marilee

GeoFORCE Texas is a summer program of the Jackson School of Geosciences at The University of Texas at Austin, in partnership with Southwest Texas Junior College, that offers outstanding 8th - 12th grade students from Southwest Texas the chance to travel the country learning about geology, meeting inspiring people and discovering career opportunities in the geosciences. The Jackson School of Geosciences and Southwest Texas Junior College join our students in thanking industry sponsors for their generous support. For more information on this exciting program visit the GeoFORCE Texas Web site at www.jsg.utexas.edu/geoforce.

The ad appeared in local newspapers in Pearsall, Uvalde, Crystal City, Eagle Pass, and Hondo.

The following article, written by Marc Airhart, appeared in the September issue of OnCampus, a Web-based news venue sponsored by the Office of

Public Affairs at The University of Texas at Austin. It became the third most viewed and e-mailed article in the OnCampus series that month.


WHAT STARTS HERE CHANGES THE WORLD

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GeoFORCE grads head to college

by Marc Airhart
Published: Sept. 21

Twenty-three young scholars entered into the university this fall as some of the first graduates of the GeoFORCE Texas program, one of the nation's largest geosciences pipelines for high school students



Students take a break to enjoy lunch and the view.

The GeoFORCE program takes high school honor students from predominantly minority regions of southwest Texas and the Houston area on geological field trips across the country to educate and excite them about science. Each summer for four years, students travel to different sites – some as close as Austin, Uvalde and Port Aransas, and some as far away as Florida, Washington, D.C., and Oregon.


"Up until that point, I didn't know what I wanted to do," said Katie Bales, a GeoFORCE graduate from Sabinal, Texas (population 1,600) and incoming freshman in geosystems engineering and hydrogeology. "And that summer I knew that I was going to be in geology for the rest of my life."

Program influences futures

The program, run by the Jackson School of Geosciences, is designed to increase the number and diversity of students pursuing degrees in math and science, especially the earth sciences.

The first cohort of 80 students came from southwest Texas, and while not every graduate went on to study geosciences, it did influence their views on higher education – 90 percent were accepted into junior colleges,

Video Feature:



BOB TAYLOR SPEAKS

STUDENT BLOGS REVEAL

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LOOK AT COLLEGE LIFE

Get the scoop about college life from Longhorn Confidential's eight new student bloggers.

Digital Media Spotlight

- ❑ **Take a Stress Recess**
 The interactive Stress Management and Reduction Web site from the Counseling and Mental Health Center will take you on a guided journey to best meet your stress management needs.
- ❑ **The Sounds of the Longhorn Band**
 If you can't be there on game day, experience the sounds of "The Showband of the Southwest" with clips from both traditional and half-time music.
- ❑ **Make a Date with the Stars**
 StarDate Online from the McDonald Observatory is your guide to the universe. Get weekly stargazing tips, tune in to the daily English and Spanish radio programs, view a regularly updated image gallery and more.

colleges and universities, with 63 percent majoring in science, engineering or math. This year, five of the 23 GeoFORCE students at The University of Texas at Austin are pursuing majors in the Jackson School of Geosciences.

Creating excitement at UT

Half of the first cohort of GeoFORCE students began their odyssey in the summer of 2005 with a visit to the Austin campus. For most of the students, it was their first extended time on a university campus. They stayed for several days in Jester dorm and participated in a series of introductory geology seminars with professor Leon Long.

"That was the first time I'd been to UT and Austin," said Elyana Barrera, a GeoFORCE graduate from Del Rio, Texas (population 37,000) and incoming freshman in geosystems engineering and hydrogeology. "I was overwhelmed. It's a big campus, but I liked it a lot. (Coming for the visit) had a big influence on me being here right now."

Navigating first-generation students

Mike Loudin, manager of ExxonMobil's Global Geoscience Recruiting & Early Career Program and supporter of GeoFORCE, said one of the great strengths of the program is how it helps students navigate the process of getting into college. Many of the students don't have family members who have gone to college.

"You have to work with the families and students to demystify the whole process," Loudin said. "If you don't have any role models and nobody in the family has ever done it before, there's no one to tell you how to do it or what not to do."

GeoFORCE staff members and volunteers help students apply for university admissions and financial aid, and students are even taught strategies for taking the Scholastic Aptitude Test. Representatives from the Hispanic Scholarship Fund, UT Outreach and the U.S. Geological Survey also talk with students.


"We go to these little high schools and it's like everyone is there to just pass a class and get out," said Bales. "And on these trips, we were with teachers and sponsors who cared, who wanted us to succeed in life. That's what pushed us the most. There was finally someone in our lives besides our parents who wanted us to get a good education and have the opportunities that were out there."

[Read more](#) about GeoFORCE students.

[Watch](#) GeoFORCE students in action.

more.

Most Viewed & E-mailed

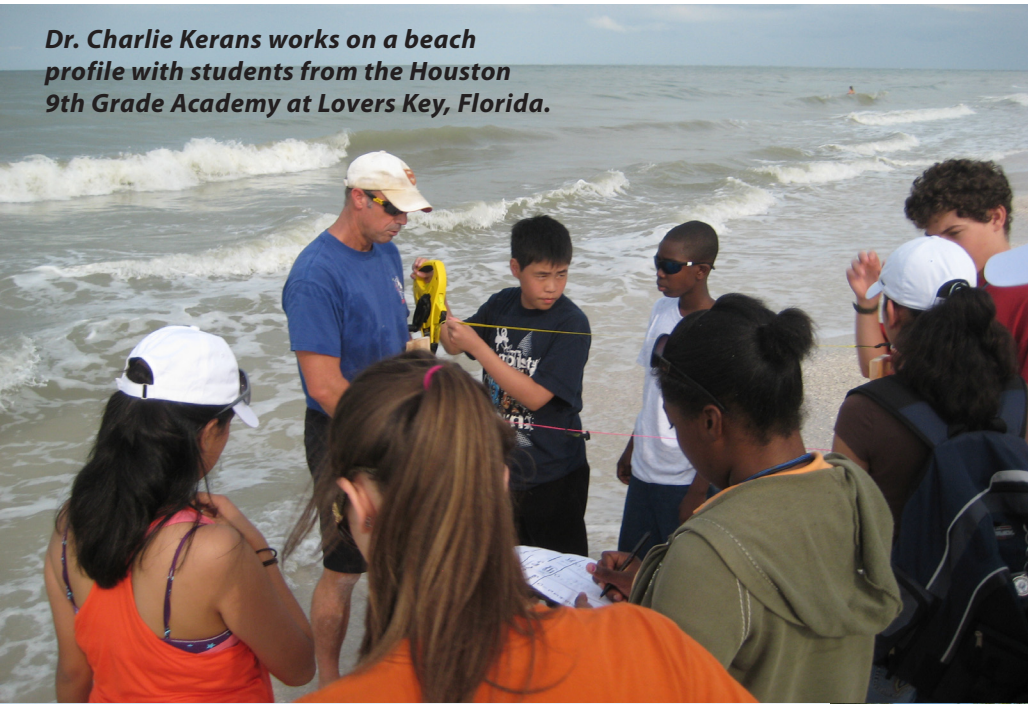
 [Articles](#)  [Multimedia](#)  [Events](#)

1. [A summer in Nigeria](#)

2. [Opinion: Almost 20](#)

3. [GeoFORCE grads head to college](#)

Dr. Charlie Kerans works on a beach profile with students from the Houston 9th Grade Academy at Lovers Key, Florida.



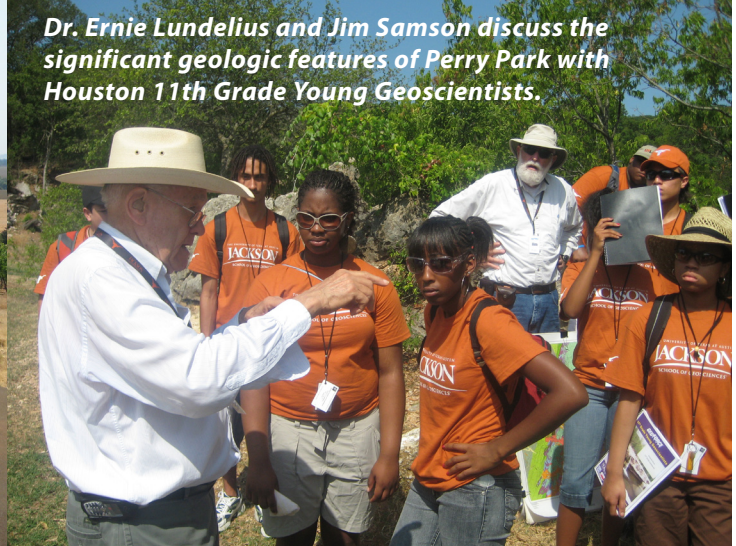
A 9th grade Southwest Young Geoscientist student checking out a rock at Knippa Quarry.



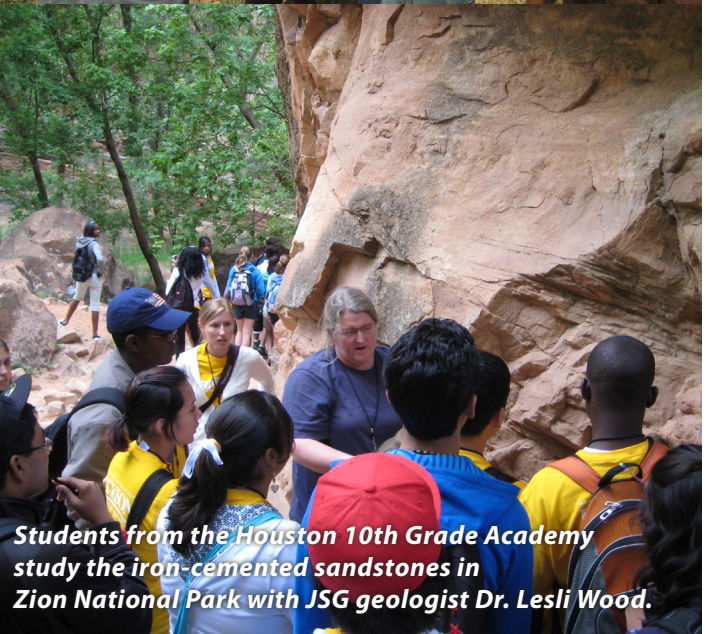
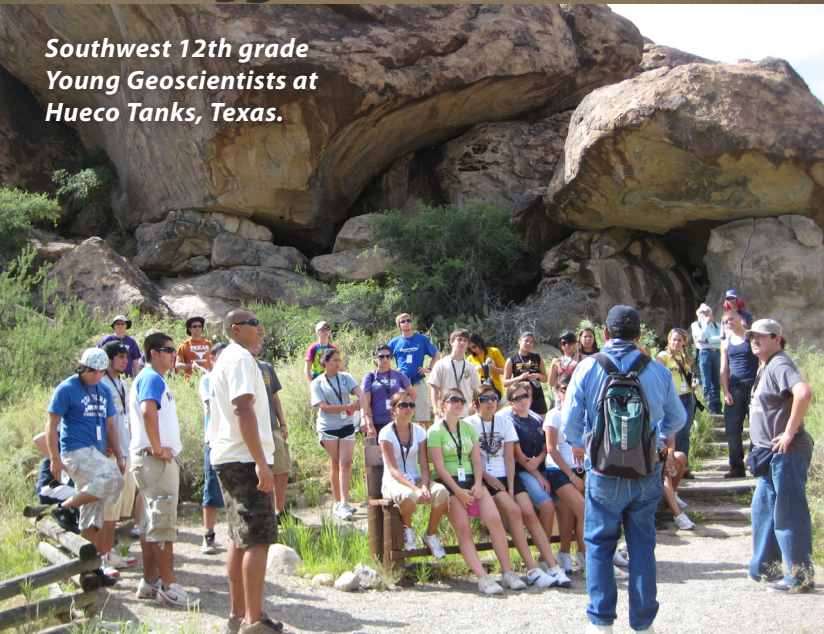
Dr. Jeff Paine and the students of the Southwest 11th Grade Academy on top of the glacial erratic in Oregon.



Dr. Ernie Lundelius and Jim Samson discuss the significant geologic features of Perry Park with Houston 11th Grade Young Geoscientists.



Southwest 12th grade Young Geoscientists at Hueco Tanks, Texas.



Students from the Houston 10th Grade Academy study the iron-cemented sandstones in Zion National Park with JSG geologist Dr. Lesli Wood.