

GEOFORCE T E X A S

ANNUAL REPORT 2008



THE UNIVERSITY OF TEXAS AT AUSTIN

JACKSON

SCHOOL OF GEOSCIENCES

CHANGING THE WORLD OF GEOSCIENCES

*On the cover:
Students from the GeoFORCE Houston 11th grade academy
enjoy the geology of Crater Lake, Oregon during their June 2008 field trip.*

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GeoFORCE Texas Honored with Silver Star

Monte King (Manager of Workforce Development, Shell Oil Company) and Marshall Schott (Assistant VP, Instructional Support and Outreach, University of Houston), Co-Chairmen of the Energy Collaborative Workforce Committee of the Greater Houston Partnership, presented GeoFORCE Texas the Silver Star.

This award recognizes outstanding performance by programs that are part of the Partnership's portfolio of priority initiatives. ExxonMobil and Mike Loudin, manager, global geoscience recruiting at ExxonMobil, also received a Silver Star for their role in bringing GeoFORCE to the Houston region. This award acknowledges all the hard work and effort put forth by the GeoFORCE staff (including Doug Ratcliff, Julie Spink, Cristina Rodriguez, Danielle Horton, Edgar Garza, Justin Hance, Jessica Gordon, Liliana Martinez, and Heidi Penix).

A private, non-profit organization, the Greater Houston Partnership is the primary advocate of Houston's business community, dedicated to building regional economic prosperity.

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Clockwise from top left: Charles "Chock" Woodruff addressing students at Harper's Ferry; Christina Rodriguez-Tapia of Exxon-Mobil making a career presentation; Houston ISD teacher at the spring educators workshop at Canyon Lake; Elizabeth Powers of Shell with the 11th grade southwest academy; Randy Orndorff and Lydia Quintana of USGS with 9th grade academy students.



Message from the Dean: The Great Good of Giving Back

A lot of people take well-deserved pride in the success of GeoFORCE. Our partners in government, industry, and academia, along with the individuals who give to the program and the Jackson School, provide the substantial financial support required for such a large-scale program. Without this funding, the planes and buses that transport students on our grand geological adventures would not leave the parking lot.

But GeoFORCE, as it begins its fifth year, has touched many of us in ways that extend far beyond the importance of financial contributions. Each year our industry and government partners have allowed many of their employees to participate in the field and at closing events. Some of our mentors have been with the same student cohort for a complete four-year cycle. This has led to some long-term, meaningful friendships. These personal interactions between successful scientists and developing young adults are making a major difference in the lives of our students.

GeoFORCE also provides undergraduate students who serve as counselors an opportunity to participate in great geologic fieldtrips while mentoring young students, encouraging

them to do well in school and move on to college. For many of the GeoFORCE kids, going to college will be a first for their family and will hopefully increase greatly the quality and scope of their lives.

Our faculty and research scientists, who provide instruction that includes hands-on projects, quizzes, and a final exam, have learned to communicate to a younger population than they usually face on campus. They reap the reward of truly teaching in a way that allows children to gain confidence in their ability to succeed at a high level. Our teachers are doing something right because average scores on pre-tests are 55 while the final exams average around 90.

Finally, we can all feel great about our GeoFORCE students. They have stayed with us (a mere six have left the academy program in 4 years), and they continue to excel in classes and conduct. In 2009, our oldest students will graduate from high school and move on to the next phase of their lives. We will not know until next year how many will enter college, but the number will probably astound us. Once again, we can all take pride in GeoFORCE and its ability to impact a significant number of lives.



A handwritten signature in black ink, appearing to read 'Chip Groat'.

**Chip Groat, Interim Dean
Jackson School of Geosciences**

“This year’s GeoFORCE trip to Florida was my first experience with this remarkable program and with these outstanding young men and women. I was truly inspired by their intellectual capabilities, maturity, motivation and dedication. I hope to see some of these students in my classes at UT in the coming years!”

—Terry Quinn, JSG Professor

GeoFORCE Overview

GeoFORCE Texas is a summer outreach program targeting predominantly minority and female honor students from the Houston Independent School District and 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.

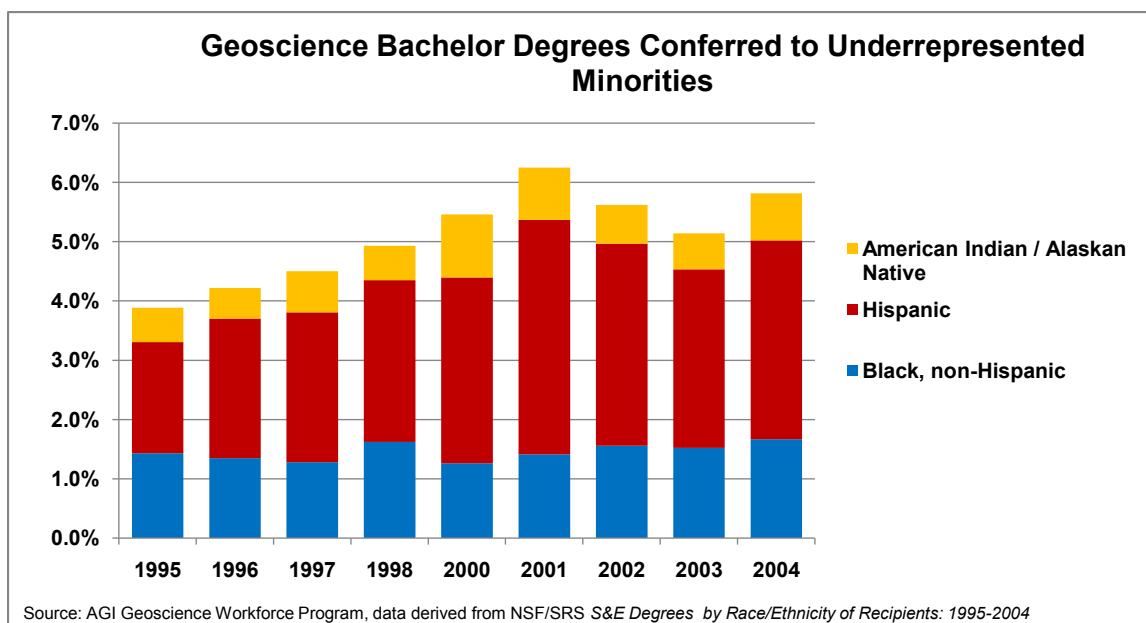
The program is neither a subtle nor an inexpensive approach. It is designed to provide lasting experiences for middle and high school students that will capture their interest, motivate them to excel in their math and science courses, and build their awareness of opportunities in high-tech careers, especially 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 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 1990's 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 and females represent a virtually untapped reservoir for increasing the number of individuals pursuing degrees in the geosciences. National Science Foundation (NSF) statistics show participation by minorities in science and engineering, and specifically geosciences, to be unacceptably low. NSF statistics 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



Students from the 11th Grade Houston academy visiting Mount St. Helens.



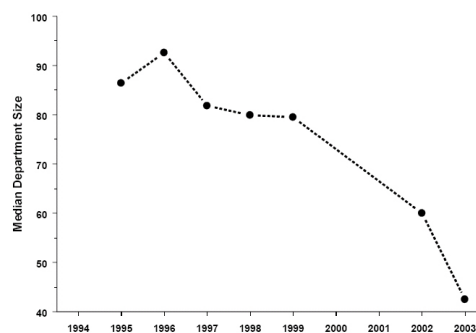
in the geosciences. These numbers are particularly troubling given the latest demographic statistics (2007) from the U.S. Census Bureau, which listed the minority population of the U.S. at around 30 percent.

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 of Geosciences (JSG) Geology Foundation to support the majority of all full-time staff. As a result, outside contributions go directly to the student and educator activities. The JSG's Bureau of Economic Geology supplies instructors and assists in writing and producing the guidebooks. Additionally, JSG's Department of Geological Sciences and Institute for Geophysics contribute instructors, teaching assistants, and counselors to the summer activities.

GeoFORCE partners with Fort Valley State Uni-

versity (FVSU), the Houston Independent School District (HISD), and Southwest Texas Junior College (SWTJC) to create a strong consortium to attract high-caliber students to the program. Through these partnerships, GeoFORCE also has access to and interaction with existing outreach programs. These partnerships were essential in the initial creation of GeoFORCE and remain crucial to its continued success.



Median number of students enrolled per geoscience department (from 2003 Report on the Status of Academic Departments by Barry J. Katz, ChevronTexaco).

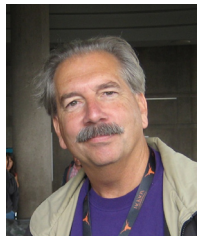
GeoFORCE Staff

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 Danielle Horton, Julie Spink, and Cristina Rodriguez, who have primary responsibility for organizing and conducting activities associated with the program. Lisa Diaz, Edgar Garza, and Justin Hance are new coordinators who were hired this summer to help with the expansion of the program. Jessica Gordon, a graduate student in the College of Education, assists with program content, development, and with planning the Texas High School Project Exemplar

Program field events. Heidi Penix assists with accounting, finances, and travel. Liliana Martinez, an undergraduate assistant, helps with program logistics and organization.

Many others in the Jackson School assist with GeoFORCE 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 most of the summer academies as the educational coach. Guidebook preparation and layout were done by Susie Doenges, Joel Lardon, Jamie Coggin, and Lana Dieterich.



*Doug Ratcliff
Director*



*Julie Spink
Coordinator*



*Danielle Horton
Coordinator*



*Cristina Rodriguez
Coordinator*



*Edgar Garza
Coordinator*



*Justin Hance
Coordinator*



*Lisa Diaz
Coordinator*



*Liliana Martinez
Undergraduate
Assistant*



*Julie Jackson
Educational
Consultant*



*Jessica Gordon
Graduate
Assistant*



*Heidi Penix
Business Affairs*

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, Jeanelle Perez, Willie Edwards, Wade Carpenter, and others) assist in setting up GeoFORCE events in south Texas, arranging transportation for students in Eagle Pass and Del Rio, and preparing news articles for publication in local newspapers. The Jackson School supports a coordinator at SWTJC who is responsible for providing local logistical support, making initial contacts with students and teachers, and maintaining financial records for local purchases.

Houston Independent School District

Houston Independent School District (HISD) is a new partner with GeoFORCE. HISD administrators, such as Kelly Trlica, Shelley McKinley, John Haro, Linda Balkin, and others, have worked closely with GeoFORCE to identify schools, teachers, and principals, as well as provide meeting space for various GeoFORCE functions. Without the support of HISD, GeoFORCE would not have been able to access



*9th grade academy
Students with Dominic
Druke of Shell.*

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. The two programs join together when our 9th grade groups meet and interact closely on the Washington, D.C. trip each summer. This year, we had an impressive combined group of nearly 120 students descend on the USGS headquarters in Reston, Virginia. GeoFORCE also hosts and funds the FVSU MSEA 11th graders and the Jackson School provides scholarships for FVSU students who choose



*Houston and Southwest 9th grade academy
students outside USGS headquarters in Reston,*

to transfer to the Jackson School and pursue degrees in the geosciences. Currently, one FVSU transfer student, Stanley Stackhouse, is entering his second year of graduate school at JSG.

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. These activities have grown each year, this past year in particular, so the cost of the program has increased and will continue to climb until the Houston program reaches its goal of 320 students in the summer of 2009. The table on the opposite page lists the contributions and expenses to date. This table is continuously being updated as sponsors and expenses change.

GeoFORCE students benefit from interac-

tions with many corporate and government participants who take the time to personally meet with them. The United States Geological Survey (USGS) puts on a half-day seminar and exhibition for the students and exposes them to the wide variety of career opportunities available to scientists. Steve Hammond, USGS, first conceived of bringing the students to USGS headquarters in Reston, Virginia, and through the support of Deputy Director Bob Doyle and the efforts of Katrina Burke, the USGS seminar and exhibition were a success for the fourth year in a row. For the past three years, we have met the FVSU MSEA 9th graders and had a combined group at the USGS event. This year it was especially impressive as we had 40 students from southwest Texas, 40 students from Houston, and 36 students from MSEA for a total of 116 students! The interaction between all three groups of students was substantial

Southwest Texas Participating Schools

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 High School, Nueces Canyon Junior High School
Pearsall	Pearsall High School, Pearsall Junior High School
Rocksprings	Rocksprings High School
Sabinal	Sabinal High School, Sabinal Junior High School
Utopia	Utopia School
Uvalde	Uvalde High School, Uvalde Junior High School

Houston Independent School District Participating Schools

High Schools

Middle Schools

Chavez	Sterling	Williams	Lanier	Holland
Madison	Washington	Burbank	Ryan	Long
Scarborough	Worthing	Key	Jackson	Sharpstown
Sharpstown		Hartman	Ortiz	Fondren
		Attucks	Stevenson	Revere

GeoFORCE Income and Expenses					
	2004-05	2005-06	2006-07	2007-08	Total
Sources					
AAPG Foundation				10,000	10,000
AEP Texas				3,000	3,000
Alcoa			5,000		5,000
BP			50,000	80,000	130,000
Chevron			40,000	40,000	80,000
Communities Foundation of TX				42,500	42,500
ConocoPhillips	20,000	41,000	21,000	21,000	103,000
Devon				25,000	25,000
Dominion Exploration		10,000	5,000		15,000
ExxonMobil	10,000	25,000	50,000	100,000	185,000
GDL Foundation				1,400	1,400
Halliburton		10,000	20,000	30,000	60,000
Jackson School	141,722	260,052	358,051	471,453	1,231,278
UT Tuition Waivers		18,816	24,313	25,000	68,129
Marathon		3,000	50,000	100,000	153,000
Bill and Marilee Fisher				1,000	1,000
Minerals Management Service		25,000	25,000		50,000
Priority Oil & Gas LLC	2,000				2,000
AT&T Foundation	25,000	15,000			40,000
Schlumberger		3,000	3,000		6,000
Shell Oil Company	60,000	65,000	40,000	70,000	235,000
Swift		10,000	12,000		22,000
Texas Workforce Commission				191,350	191,350
Valero Energy Corporation				15,000	15,000
Vulcan Materials Foundation			5,000	25,000	30,000
Subtotal Sources	258,722	485,868	708,364	1,251,703	2,704,657
Expense Activity					
JSG Staff and Admin	106,722	98,513	221,427	341,169	767,831
Teacher Workshops	6,000	6,500	5,172	20,689	38,361
MSEA 11th grade academy	39,300	40,694	40,031	31,960	151,985
FVSU student visits	0	4,700	9,770	5,198	19,668
CDEP transfer scholarships	0	51,216	39,301	17,408	107,925
GeoFORCE Texas	85,000	150,000	308,671	439,713	983,384
GeoFORCE Houston	0	0	10,000	203,088	213,088
AP Courses in Geosciences	0	0	0	14,766	14,766
Scholarship Facilitator	0	0	0	0	0
Textbooks	0	85,000	54,345	57,070	196,415
Total Expenses	237,022	436,623	688,717	1,131,061	2,493,423
Funding Surplus	21,700	49,245	19,647	120,642	211,234



ExxonMobil



devon



ConocoPhillips



Texas Workforce Commission



HALLIBURTON



Bill & Marilee Fisher

and many new friendships were formed.

The field events would not be possible without the efforts and energy of the instructors. The following tables list individuals who provided career presentations, professional instruction, and outstanding interactions with the students in the field.

We also had strong participation from our industry sponsors at the Spring Educator Workshop.

Career Presentations

9th Grade GeoFORCE Academy (Houston & Southwest)

Chuck Caughey, ConocoPhillips & Houston Geological Society
Lee DeCola, U.S. Geological Survey
Dominic Druke, Shell Oil Company
Steve Hammond, U.S. Geological Survey
Pat Jellison, U.S. Geological Survey
Aaron LaRocca, National Park System
Christina Rodriguez-Tapia, ExxonMobil

10th grade GeoFORCE Academy (Southwest)

Laura DeMott, ExxonMobil
Christina Tapia-Rodriguez, ExxonMobil

11th Grade GeoFORCE Academy (Southwest)

Danielle Carpenter, Chevron
Elizabeth Powers, Shell Oil Company

11th Grade GeoFORCE Academy (Houston & Southwest)

Chuck Caughey, ConocoPhillips & Houston Geological Society

12th Grade GeoFORCE Academy (Southwest)

Anna Morisani, Shell Oil Company
Christina Rodriguez-Tapia, ExxonMobil

9th Grade Young Geoscientists (Houston)

Jamie Lambrecht, Shell Oil Company

11th Grade Young Geoscientists (Southwest)

Juanita Baldwin, Texas Commission on Environmental Quality

Field Instructors

9th Grade Academy

Nysha Chaderton, Bureau of Economic Geology
Sigrid Clift, Bureau of Economic Geology
Dominic Druke, Shell Oil Company
Randy Orndorff, U.S. Geological Survey
Charles "Chock" Woodruff, Woodruff Geologic Consulting, Inc. and UT Dept of Civil Engineering

10th Grade Academy

Laura DeMott, ExxonMobil
Ramón Treviño, Bureau of Economic Geology

11th Grade Academy

Danielle Carpenter, Chevron
Jeff Paine, Bureau of Economic Geology
Elizabeth Powers, Shell Oil Company

12th Grade Academy

Anna Morisani, Shell Oil Company
Terry Quinn, Department of Geological Sciences

9th Grade Young Geoscientists

Sigrid Clift, Bureau of Economic Geology
Jamie Lambrecht, Shell Oil Company

10th Grade Young Geoscientists

Tiffany Hepner, Bureau of Economic Geology

11th Grade Young Geoscientists

Jay Banner, Department of Geological Sciences
Pablo Buenafama, Shell Oil Company
Bayani Cardenas, Department of Geological Sciences
Sue Hovorka, Bureau of Economic Geology
Ernie Lundelius, Department of Geological Sciences
James Sansom, Sansom Geologic Consulting
Ramón Treviño, Bureau of Economic Geology

12th Grade Young Geoscientists

Becky Smyth, Bureau of Economic Geology

MSEA

Leon Long, Department of Geological Sciences

Park Rangers, Museum Staff, and Others in the Field

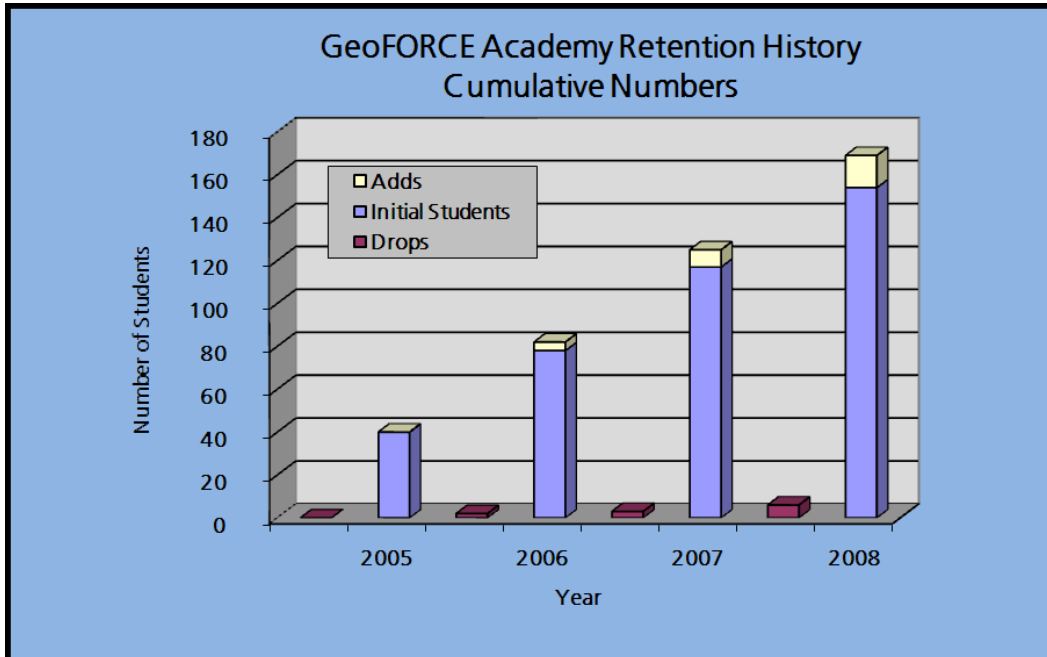
Great Falls Park:	Aaron LaRocca, Walter McDowney, Michael Sacks, Cheryl Bresee
Harpers Ferry:	Catherine Bragaw, Roxanne Ruppenthal, Jeff Woods, Autumn Cook, J. Brown, Thomas Frezza, Keegan Donovan
Smithsonian:	Matt Young, Richard Efthim, Ms. Peterson, Helene Lisy, Ms. Lorine, Lataya Young
Texas Natural Science Center:	Cristina Cid
City of Austin Parks & Recreation:	Pedro Patlan Jr
Barton Springs:	Nathan Bond, Morgan Rankins
USGS:	Katrina Burke, Steve Hammond, Bob Doyle, Lydia Quintane, Diane Welch, Yolanda Fong-Sam, Irma Mabry, Lee De Cola, Adonnis Goldstein, Randy Orndorff, Will Stettner, Pat Jellison
Fort Valley State University:	Adyita Kar
UT Union Underground:	Robert Waters
UT Multi-cultural Center:	Brandelyn Franks, Brenda Burt
Carl Hayden Visitors Center - Paleo:	Michelle Haas
Colorado River Discovery Guide:	Korey Seyler, Kelli Wiggins, Jennifer Miller, Brendyce Budd
Glen Canyon Dam:	Megan Parks, Nikki Johnson, Rachel Dawavendewa
Grand Canyon:	Joshua Henson, Jacob Philien, David Smith, Randy Henderson, Jim Heywood
Wupatki Monument:	Vickie Allen
Sunset Crater:	Holly Richard, Floy Healer
Zion National Park:	David Walker
Crater Lake National Park:	Amelia Bruno, Heidi Moore, Brian Kahn, Elise Gonzales
Hatfield Marine Science Center:	Fawn Custer, Maureen Collson
Mt Hood National Forest:	Tammy Villali
Mt St Helens:	Todd Cullings, Chris Costello
Newberry National Forest:	Pete Hatman
Siuslaw National Forest:	Paul Meznarich, Carole Wendler
John Pennekamp Coral Reef:	Russ Kane, Kerry Whalley, Terri Polk, Cecelia McCafferty, Deanna Norling
Lovers Key State Park:	Michael Hensley
Everglades National Park:	Bonnie Foist
Shark Valley Visitors Center:	Christine Mackarvich
Windley Key Fossilized Coral Reef:	Melba Nezbed, Ben Paswater, Maryann Reider
Canaveral National Seashores:	Eric Lugo, John Stiner, Laura Henning, Candace Carter
Mulberry Phosphate Museum:	Lewetta Haag
Merritt Island National Wildlife Refuge:	Nancy Corona, Tom & Diane Klem, Jennifer English
Annandale Bat Cave:	Bane Walker
Big Oak River Camp:	Terry Maner
Fort Ing and Uvalde Historical Society:	Dick Whipple
Hacienda Outcrop:	Sherman Mumme
Vulcan Materials, Knippa:	Dee Kirkpatrick
Vulcan Materials, Uvalde:	Chuck Beavis
Katy Research Vessel:	Captain Stan Dignum
Marine Science Institute:	Rick Tinnin, Linda Fuiman, John Williams
Port Aransas Parks and Recreation:	Gary Mysorski, Mike Lauer
Port Aransas High School:	Bill Slingerland
Texas State Aquarium:	Johnnie Smith, Tara Schultz
UT Austin Multi-cultural Center:	Brandelyn Franks
Inner Space Cavern:	Tonya Vessels
Guadalupe Mountains:	Dr. Jeanine Hearst
Hueco Tanks:	Wanda Olszewski, Joe Barraza, Bill Barley
McDonald Observatory:	Cindy Crawford
Austin State Capitol:	Amanda Lopez
Longhorn Cavern State Park:	Kaye Barlow, Troy Futrel
Thunderbird Lodge:	John Williams, Donna Williams
Texas Natural Science Center:	Pamela Owens
UT Austin College of Engineering:	Tim Taylor

Background photos: Above, 11th Grade Southwest academy students at Mount Hood, Oregon. Below, 10th Grade Southwest Young Geoscientist students at Mustang Island, Texas.

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 six students from the academy program. The Young Geoscientist program provides replacements for those who choose to leave the academy program.



This chart is based on GeoFORCE Southwest academies (Houston is in its first year so there is no data) and includes four cohorts of 40 students each (160 total). Over the four-year period, only six students chose to leave the program, none for academic reasons, a retention rate of 96 percent.



Broadening the Program

The following new activities are planned for the coming year:

- Add rising 9th and rising 11th graders in Houston.
- Recruit more rising 10th and rising 12th graders in Houston.
- Conduct SAT workshop in Houston and southwest Texas.
- Conduct a College Admissions and Financial Aid workshop in southwest Texas.
- Add a web-based introductory, dual-credit geology course for high school and junior college students in southwest Texas.

Adding students in Houston

GeoFORCE Houston will expand to a total of 320 students in summer 2009. We plan to do this by adding new cohorts of rising 9th and rising 11th grade students. There will be 40 academy students and 40 Young Geoscientists in each grade. In addition, we will recruit more students in the rising 10th and rising 12th grade classes to bring the Young Geoscientist cohorts up to the full 40 students. Adding these new students in Houston will bring the total number of students participating in both the southwest Texas region and the Houston area to our original goal of 640!

SAT workshop

A professionally delivered tutorial for the Scholastic Aptitude Test (SAT) will be delivered to all GeoFORCE students. In Houston, we will offer a one-day Saturday workshop to our rising 12th grade cohort (current juniors in high school). In southwest Texas, we will offer a Saturday workshop to our rising 11th grade cohorts (current sophomores in high school). We hope that this prep course will help prepare GeoFORCE students for the PSAT and SAT and result in higher scores.

College Admissions and Financial Aid Workshop

This fall we will offer a College Admissions and Financial Aid Workshop to our rising 12th grade students in southwest Texas. This

workshop will cover topics such as filling out the Texas common college application, an overview of the various cost elements associated with college and different financial options that may be available, filling out a FAFSA (Free Application for Federal Student Aid) form, and possible internship opportunities. In addition, attending college at UT Austin, and specifically the Jackson School, will be discussed. Presenters include the Hispanic Scholarship Fund, US Geological Survey, and UT Outreach and Admissions.

Geology Course in Southwest Texas

In spring 2009, we will offer a web-based, dual-credit introductory geology course in southwest Texas. It will be offered jointly through UT and SWTJC and will be open to all high school and junior college students. Dr. Eleanour Snow, adjunct faculty in the Jackson School, will be organizing and teaching the course. She has extensive experience in teaching web-based geology courses through the University of South Florida. The course will have a strong research component and expose GeoFORCE students to a college-level geology course while still in high school. This course will meet the following objectives:

Objective 1: To make available college-credit courses in the geosciences for students attending community college in southwest Texas.

Objective 2: To make concurrent courses in the geosciences available to high school students in the GeoFORCE network.

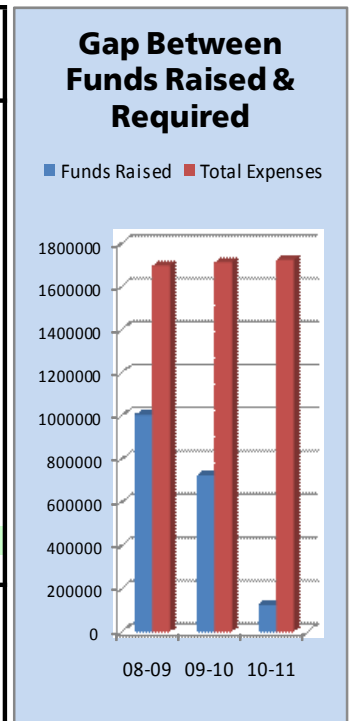
Objective 3: To make dual-credit courses in the geosciences available to high school students in the GeoFORCE network.

Cost of Operation—2009 and Beyond

The following table shows the cost of operating GeoFORCE for the next three years, including the planned expansion of the Houston program in 2009 to enroll all four classes of students. The estimates are based on sustaining GeoFORCE programs at full capacity in both Houston and southwest Texas and include an inflation adjustment of 3 percent per year. Sub-

stantial efforts in 2008 began to increase the funding base for the program and to prepare for scholarship needs (not included in the table) that will occur as GeoFORCE students move into college programs. Because of the long-term nature of the program, it would benefit greatly from receiving major endowment or multi-year funding from sponsors.

GeoFORCE Texas Future Commitments to Date:			
	2008-09	2009-10	2010-11
Sources			
AAPG Foundation	10,000	10,000	
AEP Texas	25,000		
Alcoa	15,000		
BP	80,000		
Chevron	120,000		
ExxonMobil	120,000		
Jackson School	485,597	500,165	
UT Tuition Waivers	25,000	25,000	
Marathon	100,000	50,000	
Shell Oil Company	125,000	125,000	125,000
Texas Workforce Commission	100,000		
Valero Energy Corporation			
Vulcan Materials Foundation	15,000	15,000	
Subtotal Sources	1,220,597	725,165	125,000
Expense Activity			
JSG Staff and Admin	350,000	360,500	371,315
Teacher Workshops	20,000	20,600	21,218
MSEA 11th grade academy	35,000	35,000	35,000
FVSU student visits	5,000	5,000	5,000
CDEP transfer scholarships	64,000	64,000	64,000
GeoFORCE Texas	425,000	425,000	425,000
GeoFORCE Houston	624,800	628,154	628,154
Dual-Credit Courses in Geo	100,000	100,000	100,000
Textbooks	25,000	25,000	25,000
Total Expenses	1,648,800	1,663,254	1,674,687
Funding Required	428,203	938,089	1,549,687



Summary of 2008 Activities

GeoFORCE Texas experienced rapid growth during 2008. Each passing year seems to bring another milestone, and this year was no different. With the success of our southwest Texas program, GeoFORCE Texas added the Houston area. We are partnered with the Houston Independent School District and have 25 target schools. The number of students involved in GeoFORCE Texas rose from 236 in 2007 to well over 400 in 2008. Another 2008 milestone was the completion of our original southwest Texas cohort. In addition, our southwest Texas program is fully active with classes of rising 9th, 10th, 11th and 12th graders.

Our interactions with Fort Valley State University (FVSU) continued, and for the fifth straight year, we conducted the summer program for their 11th Grade Mathematics, Science and Engineering Academy. The Jackson School of Geosciences (JSG) funded and hosted a campus visit for FVSU sophomores and juniors who are considering transferring to JSG.

The GeoFORCE educator network remained strong and engaged as we hosted two workshops this past year. Each workshop was attended by educators from the southwest Texas and Houston areas, who participated in hands-on learning, as well as listened to presentations and earned professional development credits.

GeoFORCE Academies

GeoFORCE academies remain the driving force of the program. The students who are accepted into the academies exhibit outstanding academic skills, as well as exceptional conduct.

Staffing for each of the 2008 academies is built around our program coordinators. Julie Spink coordinates our southwest program, and Danielle Horton coordinates our Houston program. Each coordinator is assisted by our conference coordinators, Cristina Rodriguez, Lisa Diaz, Edgar Garza and Justin Hance. All learning materials, including guidebooks and assessments, are reviewed by Dr. Julie Jackson, who as a professor of science education ensures the content is aligned with the grade level and learning expectations. The team also includes educational coaches who help the instructors deliver content and provide individual tutoring to the students. Many of our counselors are JSG undergraduates and are able to assist in tutoring, as well as monitor student activities and performance.

This year was the first year for participation from Houston students. We are bringing the Houston program up to full capacity in two years, as opposed to the four years we have taken in southwest Texas. Therefore, the Houston program started with rising 9th and 11th graders. Next year those students will be rising 10th and 12th graders and we plan to add additional 9th and 11th grade classes. The Houston program will then have all four years of classes participating.

Left: 9th grade Houston and southwest students at Harper's Ferry National Historic Park. Right: 9th grade southwest students at Great Falls Park.





Scenes from GeoFORCE 2008

Left facing page, clockwise from top: Jay Raney teaching 11th grade Houston academy students at Heceta Head State Park, Oregon; Ramón Treviño, Sigrid Clift, and Cristopher Marshall teaching 10th grade southwest students at the Grand Canyon; B. Schroeder lecturing 9th grade southwest academy students.

Right facing page, clockwise from top left: Ernie Lundelius and Jim Sansom teaching 11th grade Houston Young Geoscientists at Perry Park; Aditya Kar of Fort Valley State University teaching MSEA and 9th grade academy students at Harper's Ferry; Jessica Gordon with 9th grade Houston Young Geoscientists at the Vulcan Knippa Quarry; students from the 9th Grade Houston Academy at the Smithsonian Air & Space Museum; students from the 10th grade southwest academy floating the Colorado River through Glen Canyon.





9th Grade Academy

For most students, the 9th grade academy marks the beginning of their GeoFORCE experience. Students from our targeted schools are eligible to apply for the GeoFORCE program during their 8th grade year. This year 144 applications were received from the 18 participating school districts for the southwest Texas program, and 94 applications were received from the 18 participating schools in the Houston Independent School District (HISD). This year marks the first time HISD has participated in the GeoFORCE program.

Applications were reviewed by a committee that selected students on the basis of their academic achievements, recommendations from their teachers, and the content of their personal essay. Selection by the committee into the academy program is designed to ensure that we balance representation across our network. The 40 students in the Southwest 2012 cohort represent 15 school districts. Two districts represented this year have not had previous involvement with the GeoFORCE program (LaPryor and D'Hanis). The 40 students in the Houston 2012 cohort are from 12 different middle schools representing all five HISD regions.

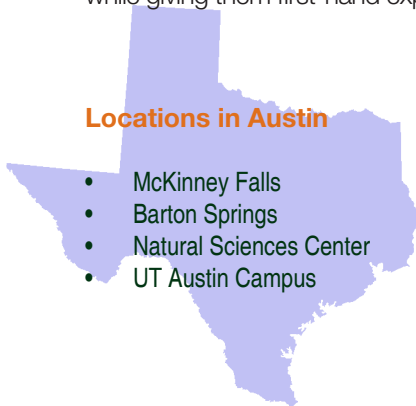
The objective of the 9th grade academy is to introduce the students to basic geological terms and processes, give them a glimpse of life on a major university campus, and expose them to the many types of careers in the geosciences, all while giving them first-hand experience in the field.

In addition to the incredible geologic experience these students receive, GeoFORCE also creates and fosters a strong peer group. This year with the introduction of Houston GeoFORCE, the 40 students from Houston and the 40 students from southwest Texas in the 9th grade academy were able to network with other students who share the same interest and values. The Houston group and the Southwest group traveled together and interacted throughout the entire academy.

A rigorous schedule of classroom-style learning blended with hands-on experiences immerses the GeoFORCE students in the geosciences. GeoFORCE also ties in elements of history, engineering, math, and ecology throughout the academy.

The academy concludes with a closing ceremony that awards the students for their hard work and achievement. The first closing ceremony for the inaugural class of Houston GeoFORCE had 207 attendees, including sponsor and partner representatives from Marathon Oil Company, BP, HISD, and Shell Oil Company. The southwest Texas community has truly embraced GeoFORCE with over 225 family and friends attending the closing ceremony. All 80 students passed the final exam with a 'B' or better and have been invited back to the GeoFORCE 10th grade academy in 2009 – providing their grades remain above a 'B' throughout the school year.

Locations in Austin



- McKinney Falls
- Barton Springs
- Natural Sciences Center
- UT Austin Campus

Locations in D.C.-Area

- Vietnam War Memorial
- Lincoln Memorial
- Korean War Memorial
- Smithsonian Air & Space Museum
- Smithsonian Natural History Museum



- USGS Headquarters, Reston, VA
- Harpers Ferry National Historic Park, WV
- Great Falls Park, VA
- Smithsonian Learning Center, Leesburg, VA

Geology Learned

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> • Geologic time • Erosion, deposition and lithification • Law of superposition • Uniformitarianism • The three major rock types | <ul style="list-style-type: none"> • Rock cycle • Watershed and stream discharge • Terrace, floodplain, pothole, and confluence • Floods • Coastal plain • Faults | <ul style="list-style-type: none"> • Geomorphology • Fossil, mineral, and meteorite • Differential erosion • Lateral continuity • Plate tectonics • Subduction and rifting • Orogeny |
|---|---|---|



Southwest Staff

Coordinators

Julie Spink, JSG
Lisa Diaz, JSG

Instructors

Sigrid Clift, JSG Bureau of Economic Geology

Educational Coach

B. Schroeder, Brackettville ISD

Guest Presenters

Dominic Druke, Shell Oil Company
Christina Rodriguez-Tapia, ExxonMobil

Counselors

Gus Castillon, SWTJC undergraduate
Sarah Doyle, JSG undergraduate
Mary Gabaldon, SWTJC undergraduate
Stephanie Mills, JSG undergraduate
Matt Prudhomme, JSG undergraduate
Lauren Welker, JSG undergraduate

Houston Staff

Coordinators

Danielle Horton, JSG
Justin Hance, JSG
Edgar Garza, JSG

Instructor

Nysha Chaderton, JSG graduate student
Charles "Chock" Woodruff, Woodruff Geologic
Consulting, Inc. and UT Dept of Civil Engineering

Educational Coach

Julie Jackson, Texas State University

Guest Presenters

Dominic Druke, Shell Oil Company
Chuck Caughey, ConocoPhillips & Houston
Geological Society

Counselors

Elizabeth Collins, JSG undergraduate
Kyle DeLeon, UT English undergraduate
Casey Huff, JSG undergraduate
Andrew King, UT Engineering undergraduate
Victoria Perkins-Miller, UT Business undergraduate
Jessica Schubert, JSG undergraduate
Andrea Wolfowicz, JSG undergraduate

10th Grade Southwest Academy

The 10th grade academy was the first event of the summer for Southwest GeoFORCE. There were 43 students on this year's trip. One student chose to leave the program to pursue other extracurricular activities and this open slot was filled by one of our highest performing Young Geoscientists. In addition, a student that had to leave due to illness last year re-joined the group. Students in the 10th grade academy represent 15 of the 18 school districts eligible to participate in southwest Texas.

Like the 9th grade academy, the objective of the 10th grade academy is to inspire students to think like geoscientists while learning about the geologic process that created the spec-

tacular landscapes of the Southwestern United States. The 10th grade academy reviews and reinforces geological concepts learned in the 9th grade academy and then expands upon that knowledge.

The academy concluded with a closing ceremony where students were supported by 200 family and friends. All students passed the final exam with a 'B' or better and have been invited back to the GeoFORCE Southwest 11th grade academy in summer 2009.

“What was especially moving for me was the fact that—despite the gulf in years between the kids and me (I’m certainly old enough to be their grandfather)—I felt a connection, a warmth of response for my efforts. From my perspective as a teacher, that made it all worthwhile.”

—Dr. Charles “Chock” Woodruff, Woodruff Geologic Consulting, Inc., and Senior Lecturer, Department of Civil, Architectural, and Environmental Engineering

Locations in Utah & Arizona

- Zion National Park, Springdale, UT
- Glen Canyon Dam, Page, AZ
- Balancing Rock, Page, AZ
- Navajo Bridge, Page, AZ
- Lees Ferry, AZ
- Glen Canyon National Recreation Area, Colorado River raft ride
- Grand Canyon National Park, Desert View
- Grand Canyon National Park, Kaibab Trail hike
- Grand Canyon National Park, Bright Angel fossil find
- Wupatki National Monument, Flagstaff, AZ
- Sunset Crater, Flagstaff, AZ



Geology Learned

- Geologic time
- Erosion, deposition and lithification
- Law of superposition
- Lateral continuity
- Unconformity
- Uniformitarianism
- Crossbedding
- Desert varnish
- Monocline
- Butte, mesa, plateau
- Gradient
- Meander and antecedent drainage
- Mass wasting and landslides
- Geologic cross section
- Dendrochronology and relative dating
- Cinder cone and strata volcano



Southwest Staff

Coordinators

Julie Spink, JSG
Cristina Rodriguez, JSG

Instructor

Laura DeMott, ExxonMobil
Ramón Treviño, Bureau of Economic Geology

Educational Coach

Cristopher Marshall, Frisco ISD

Guest Presenters

Christina Rodriguez-Tapia, ExxonMobil

Counselors

Sarah Doyle, JSG undergraduate
Chris Heiligenstein, JSG undergraduate
Veronica Lopez, UT Kinesiology undergraduate
Andrew Nicholson, JSG undergraduate
Jeanelle Perez, SWTJC undergraduate
Andrea Wolfowicz, JSG undergraduate

Above: Hiking Kaibab Trail, Grand Canyon. Below: Fossil find on Bright Angel Trail, Grand Canyon.



11th Grade Academy

The trip to Oregon was the first GeoFORCE trip for the Houston 11th grade academy. They learned a great deal of geology and also had to quickly learn how to study and learn effectively while in the field – all skills that are taught to GeoFORCE students beginning in the 9th grade. By the 11th grade, academy students have usually been immersed in field activities and understand the importance of teaching, seeing, doing and then testing in order to learn and retain important geological concepts. The students are able to quickly get into the GeoFORCE mode and seek to immediately access their field guides for information.

This year 36 students from Houston and 44 students from southwest Texas attended the 11th grade academy. This is the largest Southwest academy to date due to several special circumstances. Two of the new students were

Young Geoscientists who met all qualifying criteria as well as have attended Young Geoscientists field courses for the past two years. Students in the 11th grade academy represented 15 different school districts from southwest Texas and 6 different high schools within the Houston Independent School District.

The 11th grade academy is as visually spectacular and geologically rich as the Grand Canyon. The introduction to coastal geology prepares the students for their final academy trip to Florida the following year. Both the southwest Texas and Houston academies concluded with a closing ceremony each attended by over 230 family, friends, and sponsor representatives. All students passed the post test with a 'B' or better grade and we look forward to seeing them at the GeoFORCE 12th grade academy 2009.

Locations in Oregon & Washington

- 
- Loowit Lookout, Mount St. Helens, WA
 - Hummocks Trail, Mount St. Helens, WA
 - Johnston Ridge Observatory, Mount St. Helens, WA
 - Crown Point State Scenic Corridor, OR
 - Peter Skene Ogden State Scenic Viewpoint, OR
 - Mt. Hood ski-lift and lecture, OR
 - Newberry National Volcanic Monument, OR
 - Crater Lake National Park, OR
 - Salt Creek Falls, OR
 - Multnomah Falls, OR
 - Cape Perpetua, OR
 - Heceta Head, OR
 - Seal Rock State Recreation Site, OR
 - Oregon Coast Aquarium, Newport, OR
 - Glacial Erratic, OR

Geology Learned

- Magma, lava
- Fissure
- Columnar joint
- Vesicular texture
- Pyroclastic flow
- Rhyolite, andesite, obsidian, pumice, scoria
- Seismograph
- Lava dome
- Shield volcano
- Caldera
- Longshore current
- Tides
- Tsunami
- Wave crest, height, trough, length
- Sea stack
- Marine terrace
- Sea cave
- Intertidal zone



Clockwise from top left: 11th grade academy students at Oregon Aquarium, Crater Lake, Salt Creek, and Seal Rock.

Southwest Staff

Coordinator

Julie Spink, JSG

Instructor

Jeff Paine, JSG Bureau of Economic Geology

Educational Coach

Julie Jackson, Texas State University

Guest Presenters

Danielle Carpenter, Chevron
 Elizabeth Powers, Shell Oil Company
 Chuck Caughey, ConocoPhillips & Houston Geological Society

Counselors

Alix Broadfoot, JSG undergraduate
 Mary Gabaldon, SWTJC undergraduate
 Jenna Harlow, JSG undergraduate
 Andrew King, UT Engineering undergraduate
 Matt Prudhomme, JSG undergraduate
 Lauren Welker, JSG undergraduate

Houston Staff

Coordinator

Danielle Horton, JSG

Instructor

Jeff Paine, JSG Bureau of Economic Geology

Educational Coach

Julie Jackson, Texas State University

Guest Presenters

Chuck Caughey, ConocoPhillips & Houston Geological Society

Counselors

Gus Castillon, SWTJC undergraduate
 Elizabeth Collins, JSG undergraduate
 Doug Farre, JSG undergraduate
 Mary Gabaldon, SWTJC undergraduate
 Victoria Perkins-Miller, UT Business undergraduate
 Jessica Schubert, JSG undergraduate
 Kristin Vollman, JSG undergraduate

12th Grade Southwest Academy

This is a milestone year for the GeoFORCE Southwest program. The summer of 2008 marks the completion of the inaugural cohort through an entire, four-year cycle of GeoFORCE summer activities. Of the original 40 students selected in 2005 to attend the GeoFORCE Southwest program, 39 students remain. The 40th slot was filled in 2006 by an outstanding Young Geoscientist student. This year 42 students participated in the academy. The 12th grade academy represents 12 of the 18 participating school districts.

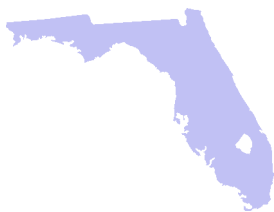
Each student has exhibited outstanding performance in their high school classes, completed all GeoFORCE assignments, and participated fully in the all of the lectures, hands-on activities, and field experiences. They should be commended for their sustained and continuing effort. The 12th grade students have provided essential feedback to the coordinating staff, helping evolve the program to the rewarding experience it is today.

These students have become GeoFORCE advocates and have assisted the program by presenting to the 9th grade academy at orientation and assisting in the application process by describing their GeoFORCE experience to applying 8th graders. Proof that GeoFORCE has successfully engaged the community is

evidenced by the high retention rate as well as their friends and family members who are involved with the program. For four years, family and friends numbering in the hundreds have attended the closing ceremonies and they continue to encourage their students.

The 12th grade academy spent 6 days in Florida, including a day at Disney's Epcot Center. In their final summer, the students engaged in geology-based projects that included beach profiling, mapping, measuring, and digging. All of the geology learned from the previous three years is reinforced through hands-on activities allowing the students to practice what they learned in the field.

Though the GeoFORCE summer activities have come to an end for these students, GeoFORCE staff will continue to work with them throughout their senior year. We will mentor them through the college application process and other post-secondary opportunities. The College Admissions and Financial Aid presentation this fall will mark the beginning of our efforts to prepare the students for college with much more to come. GeoFORCE will be tracking them through the college application process and the start of their college career.



Locations in Florida

- Pennekamp Coral Reef glass-bottomed boat, Key Largo
- Windley Key Fossilized Coral Reef, Islamorada
- Snake Creek Pass, Islamorada
- Shark Valley, Everglades
- Everglades City
- Lover's Key State Park, Ft. Myers
- Titusville: Canaveral Seashores, Merritt Island Wildlife Refuge, Sea Turtle nesting watch
- Epcot Center, Orlando

Geology Learned

- Carbonate rocks and reefs
- Highstand, lowstand
- Rock record
- Shelf
- Siliciclastic
- Beach, backbeach
- Beach renourishment
- Berm, dune, swash zone
- Barrier flat, spit, island
- Longshore drift and current
- Washover, channel, fan
- Storm surge
- Unconformity
- Ocean currents
- Active/passive remote sensing
- Electromagnetic spectrum

Top: 12th grade Southwest academy students at Lover's Key and, below, Windley Key.



Southwest Staff

Coordinators

Julie Spink, JSG
Edgar Garza, JSG

Instructor

Terry Quinn, JSG

Educational Coach

Julie Jackson, Texas State University

Guest Presenters

Anna Morisani, Shell Oil Company
Christina Rodriguez-Tapia, ExxonMobil

Counselors

Doug Farre, JSG undergraduate
Mary Gabaldon, SWTJC undergraduate
Martha Gomez, Texas State undergraduate
Michael Ponce, Texas State undergraduate
Jessica Schubert, JSG undergraduate
Kristin Vollman JSG undergraduate



9th Grade Young Geoscientists

Our 9th grade Young Geoscientist class brought a new group of students eager and excited to learn about the geology in their local surroundings.

The purpose of our 9th grade Young Geoscientist program is to expose the students to basic geological terms and processes. Students from both our Southwest and Houston programs received a true hands-on experience in the Southwest Texas area. They were able to apply basic geological concepts they learned in the classroom and put them to use in the field at sites such as the Knippa Traprock Quarry

where they viewed columnar joints and the Del Rio Formation where they discovered fossil hash.

The 49 students in the 2012 9th grade Young Geoscientist class represented many schools from the two regions. The Houston program hosted 15 students from 9 middle schools within the 5 regions of the Houston Independent School District. Our 2012 Southwest 9th grade Young Geoscientist had 34 students attend the trip. These students represented 8 different middle schools and junior high schools from our targeted region.



9th grade Young Geoscientists at (left to right) Vulcan Asphalt Quarry, Vulcan Knippa Quarry, and the Del Rio Formation.



Locations in Texas

- Blackwater Hole, Uvalde
- Vulcan Materials Knippa Traprock Quarry, Knippa
- Del Rio Formation, Uvalde
- Fort Ing, Uvalde County
- Leona River, Uvalde
- Bat Cave at Annandale Ranch, Concan
- Vulcan Materials Asphalt Quarry, Dabney

Geology Learned

- Meander
- Point bar
- Cutbank
- Karst
- Watershed
- Terrace
- Aquifer
- Water table
- Magma
- Basalt
- Columnar joints
- Igneous rock
- Sedimentary rock
- Quarry
- Limestone
- Floodplain volcano
- Deposition
- Differential erosion
- Lithification
- Uniformitarianism
- Law of Superposition



Southwest Staff

Coordinators

Cristina Rodriguez, JSG
Lisa Diaz, JSG

Instructor

Sigrid Clift, JSG Bureau of Economic Geology

Educational Coach

Jessica Gordon, College of Education graduate student

Counselors

Gus Castillon, SWTJC undergraduate
Mary Gabaldon, SWTJC undergraduate
Veronica Lopez, UT Kinesiology undergraduate
Stephanie Mills, JSG undergraduate
Jeanelle Perez, SWTJC undergraduate
Abel Ruiz, SWTJC undergraduate

Houston Staff

Coordinators

Danielle Horton, JSG
Justin Hance, JSG

Instructor

Sigrid Clift, JSG Bureau of Economic Geology

Educational Coach

Jessica Gordon, College of Education graduate student

Guest Presenter

Jamie Lambrecht, Shell Oil Company

Counselors

Elizabeth Collins, JSG undergraduate
Veronica Lopez, UT Kinesiology undergraduate
Stephanie Mills, JSG undergraduate
Abel Ruiz, SWTJC undergraduate

10th Grade Southwest Young Geoscientists

This year's 10th grade Young Geoscientist program had 31 students from Southwest Texas who attended the trip to Port Aransas. Our 2011 class represented 12 different high schools from the Southwest Texas region. This was the second year for these students to be a part of GeoFORCE, and they picked up right where they left off.

The purpose of the 10th grade Young Geoscientist program is to learn basic coastal processes and the nomenclature of the coastal zone. This trip consisted of four days of rigorous classes, field-based lectures, and hands on activities. One of the highlights of the Port

Aransas trip was having the students go out on the Marine Science Institute's research vessel KATY. It was a chance for the students to experience marine research and be exposed to a wide variety of marine life. On the KATY they had the opportunity to see and touch everything from shrimp to sharks.

The Port Aransas trip allowed the students to build on the knowledge they gained from the 9th grade trip in Uvalde. Our entire 10th grade Young Geoscientist cohort received a 'B' or higher on their final and will be invited back next year, provided they maintain their grades in school.



10th grade Young Geoscientists on (left and middle) Mustang Island and (right) the Research Vessel KATY.



Locations in Texas

- Mustang Island, Port Aransas
- Packary Channel, Corpus Christi
- Corpus Pass, Corpus Christi
- Leona Belle Turnbull Birding Center, Port Aransas
- UT Marine Science Institute, Port Aransas
- Texas State Aquarium, Corpus Christi

Geology Learned

- Accretion
- Algal mat
- Back-island Sand dunes
- Backshore, backbeach
- Beach
- Breaker
- Estuary
- Fetch
- High tide
- Jetty
- Longshore bar, current, drift
- Salt marsh
- Scarp
- Surf zone
- Swash zone



Check out what we found in our net!

Staff

Coordinators

Cristina Rodriguez, JSG
Justin Hance, JSG

SWTJC Staff

Jeanelle Perez, SWTJC

Instructors

Tiffany Hepner, JSG Bureau of Economic Geology

Educational Coach

Bill Slingerland, Port Aransas ISD

Counselors

Gus Castillon, SWTJC undergraduate
Elizabeth Collins, JSG undergraduate
Nick Perez, JSG undergraduate
Matthew Prudhomme, JSG undergraduate
Abel Ruiz, SWTJC undergraduate
Andrea Wolfowicz, JSG undergraduate

“Witnessing these students grow into adults has been a privilege. Their transformation has been amazing. Through their intelligence, guts, and compassion we will be guided into the future, and all I can say to that is THANK GOODNESS.”

—Anna Morisani, Exploration Geologist, Shell and JSG graduate



11th Grade Young Geoscientists

The 11th grade Young Geoscientists field course was held in Austin, Texas. Students visited geological sites such as McKinney Falls State Park, Mt. Bonnell Park, and Inner Space Caverns. They learned first-hand about the Edwards Aquifer at Barton Springs, and enjoyed swimming in the pool afterwards. Students received a true “college experience” and stayed on the UT campus in Jester Dormitory, interacted with a select panel of diverse UT

undergraduates, had a campus tour, and attended several classroom lectures in the geology building. The students finished with a tour of the Texas State Capitol building and learned some state history.

This trip was another first for the Houston students. The Young Geoscientist Field Course was composed of the same students who attended the 11th grade Houston academy trip to Oregon, plus one new student. Thirty students from seven high schools from all five regions in the Houston Independent School District attended.

The 11th grade Southwest Young Geoscientists attended their third GeoFORCE trip this summer. The Young Geoscientists were able to use and apply their previous knowledge of geologic concepts to better understand the Austin area. Campus life at UT was also a priority and it gave them an insight into life at a major university. Thirty-two students from seven high schools in seven out of the eighteen eligible school districts in southwest Texas attended.



11th grade Southwest Young Geoscientists at Mount Bonnell.



Locations in Texas

- McKinney Falls State Park, Austin
- Barton Springs, Austin
- Texas Memorial Museum, Austin
- UT Austin Campus Tour with emphasis on the building stones, Austin
- Texas State Capitol
- Inner Space Cavern, Georgetown
- Mount Bonnell Park, Austin
- Perry Park, Austin

Geology Learned

- Geologic time
- Erosion, deposition and lithification
- Law of superposition
- Uniformitarianism
- The three major rock types
- Rock cycle
- Watershed and stream discharge
- Terrace, floodplain, pothole, and confluence
- Geomorphology & topography
- Flood
- Coastal plain
- Fault
- Balcones Fault Zone
- Earthquake
- Escarpment
- Karst
- Speleothem



11th grade Houston Young Geoscientists at McKinney Falls.

Southwest Staff

Coordinators

Cristina Rodriguez, JSG
Lisa Diaz, JSG
Justin Hance, JSG

Instructor

Ramón Treviño, JSG Bureau of Economic Geology

Educational Coach

Jessica Gordon, College of Education graduate student

Guest Presenters

Heather Beatty, Texas Commission for Environmental Quality (TCEQ)
Juanita Baldwin, TCEQ

Counselors

Gus Castillon, SWTJC undergraduate
Kyle De Leon, UT English undergraduate
Jenna Harlow, JSG undergraduate
Casey Huff, JSG undergraduate
Stephanie Mills, JSG undergraduate
Matt Prudhomme, JSG undergraduate
Jessica Schubert, JSG undergraduate

Houston Staff

Coordinators

Danielle Horton, JSG
Edgar Garza, JSG

Instructors

James Sansom, Jr., P.G., Engineering and Environmental Geologic Consultant
Ernie Lundelius, JSG

Educational Coach

Jessica Gordon, College of Education graduate student

Counselors

Kyle De Leon, UT English undergraduate
Mary Gabaldon, SWTJC undergraduate
Casey Huff, JSG undergraduate
Stephanie Mills, JSG undergraduate
Nick Perez, JSG undergraduate
Victoria Perkins-Miller, UT Business undergraduate
Jessica Schubert, JSG undergraduate

12th Grade Young Geoscientists

12th grade Young Geoscientists at Guadalupe Mountains National Park.



Our 12th grade Young Geoscientists have been with GeoFORCE since the inception of the program and they are now in the fourth and final year of the program. These students are breaking new ground as the first class to complete the full four-year cycle. Twenty-five students attended the West Texas and New Mexico trip representing twelve school districts and thirteen high schools in Southwest Texas. The 12th grade Young Geoscientists Field Course traveled to areas in West Texas and New Mexico and focused on geologic pro-

cesses such as plate tectonics, fluvial systems, and dune formation. Students were also able to reinforce basic geologic concepts learned on previous trips. Another important goal of the GeoFORCE program is to give students a chance to become better informed about career options, and on this trip they learned about job opportunities in hydrogeology, petroleum geology, archeology, structural geology, volcanology, geomorphology, and economic geology. The trip consisted of four days of rigorous classes, field-based lectures, and hands-on activities. One highlight of the trip was visiting the McDonald Observatory where the students observed planets, nebulae, galaxies and other deep sky objects through world-class telescopes.

Though the GeoFORCE summer activities have come to an end for these students, GeoFORCE staff will continue to work with these students throughout their senior year. GeoFORCE staff will mentor the students throughout the college application process and other post-secondary opportunities. The College Admissions and Financial Aid Workshop this fall will mark the beginning of our efforts to prepare the students for college and future careers.



Locations in Texas and New Mexico

- McDonald Observatory, Alpine
- Peña Park, Marathon
- Pecos High Bridge Roadside Park
- Guadalupe Mountains National Park Visitor Center
- McKittrick Canyon at Guadalupe Mountains National Park
- White Sands National Monument, Alamogordo, New Mexico
- Hueco Tanks State Historic Site, El Paso
- Balmorhea State Park, Toyahvale

Geology Learned

- Aquifer, groundwater
- Basin
- Desertification
- Clastic and chemical sedimentary rocks
- Depositional environment
- Law of Superposition
- Eolian dunes
- Lithification
- Meander, cutbank, point bar
- Recharge, discharge, spring
- Subduction
- Tectonics
- Uniformitarianism
- Water table



12th grade Young Geoscientists at (top) White Sands National Monument and (bottom) and with instructor Becky Smyth.

Staff

Coordinators

Cristina Rodriguez, JSG
Lisa Diaz, JSG
Justin Hance, JSG

Instructor

Becky Smyth, Bureau of Economic Geology

Educational Coach

Cristopher Marshall, Frisco ISD

Counselors

Gus Castillon, SWTJC undergraduate
Elizabeth Collins, JSG undergraduate
Casey Huff, JSG undergraduate
Stephanie Mills, JSG undergraduate
Abel Ruiz, SWTJC undergraduate
Jessica Schubert, JSG undergraduate



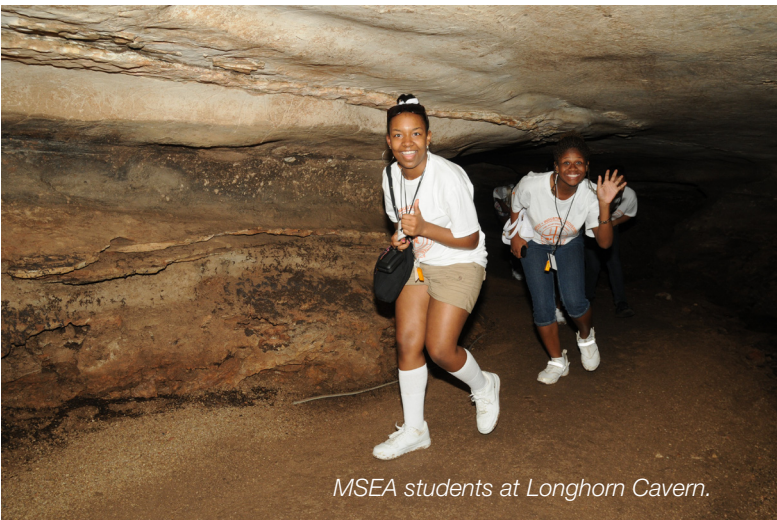
Fort Valley State University: 11th Grade Math, Science, and Engineering Academy

This marks the fifth straight year that JSG has partnered with Fort Valley State University (FVSU) to host the FVSU 11th grade Math, Science and Engineering Academy (MSEA). The 2008 trip included 20 students, 3 counselors, 2 members of the FVSU staff, and 4 members of the UT staff. The MSEA students were given an introduction to Texas geology and were provided a brief glimpse of campus life at the University of Texas at Austin and the Jackson School of Geosciences.

The students were able to experience all the university had to offer by living and dining in the Jester Dormitory, attending lectures in the

Geology Building, and going on a campus tour. The MSEA trip included several geology-focused stops and activities such as a mapping exercise on Spider Mountain. The intense nature of the fieldtrips provided the students an opportunity to experience the geology of Texas first hand.

The program ended with a closing ceremony. The students, as well as the staff of MSEA, did not fail to impress the families and guests who attended the ceremony. Their presentation and execution of skits went above and beyond expectations. All of the MSEA students achieved the score required on their final exam to continue in the program.



MSEA students at Longhorn Cavern.

Staff

Coordinators

Cristina Rodriguez, JSG
Justin Hance, JSG
Patrice McGee, Fort Valley State University
Jackie Hodges, Fort Valley State University

Instructor

Leon Long, JSG

Teaching Assistant

Jessica Gordon, College of Education graduate student



Locations in Texas

- The Llano Uplift, Llano
- Tom Miller Dam, Austin
- Krause Springs, Spicewood
- Colorado River Overlook
- Ellenburger Limestone, Llano
- Slaughter Gap, Marble Falls
- Longhorn Cavern, Burnet
- Devil's Waterhole, Burnet
- Enchanted Rock, Fredericksburg

Geology Learned

- Minerals
- Igneous, sedimentary, and metamorphic rocks
- Rock cycle
- Fossils
- Maps, cross sections
- Geologic time
- Laws and principles of stratigraphy
- Geologic contacts
- Buried surfaces of erosion

Educator Workshops



Left: Darrell Sims in the Structural Geology Laboratory at the Southwest Research Institute. Right (both pictures): Spring teacher workshop at Canyon Lake Gorge.

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 able to engage the large number of high caliber students required by our program. The Jackson School hosts two workshops each year in an effort to maintain our connection with educators.

Our fall workshop was held November 5-6, 2007, in San Marcos, Texas. Twenty-two educators from Houston joined 23 participants from southwest Texas, and both groups interacted seamlessly throughout the event, even though this was the first time HISD educators were introduced to GeoFORCE and their counterparts from the southwest region.

The first day of the workshop was a hands-on presentation by Allison Benjamin, Director of Education of the Space Center Houston, and Jackie Allen, Science Education Specialist at the NASA Johnson Space Center. Jackie and Allison demonstrated excellent critical thinking grade-level appropriate activities that the educators could take back to their classrooms.

The second day of the workshop involved a lecture by Professor Jim Petersen, an Earth Scientist in the Texas State Geography Department, a tour on a glass-bottomed boat over San Marcos Springs to see the Edwards Aquifer in action, and a presentation on water quality by Karen Marks, an Outdoor Learning Programs Specialist, for the Texas Parks and Wildlife Commission. She discussed the large

variety of educational programs offered through Texas Parks and Wildlife, including teacher workshops, instructional kits, discovery trunks, teacher toolkits, grant opportunities, service-learning projects, a lesson database aligned to the Texas Essential Knowledge and Skills (TEKS), and a large selection of outdoor learning programs.

Our spring workshop was held February 12-13, 2008, in San Antonio, Texas. Sixteen educators from HISD and 17 educators from southwest Texas attended. This workshop was more intense than the fall workshop, but very well received.

The first day was hosted by Southwest Research Institute (SwRI). Wes Patrick, Vice President of the Geosciences and Engineering Division was the driving force of this partnership. Career and research presentations were made by Chuck Caughey of ConocoPhillips and the Houston Geological Society, as well as Wes Patrick, Philippe Dubreuilh, Gordon Wittmeyer, Ronald Green, Alan Morris, and Danielle Wyrick, all of SwRI. SwRI geochemistry, structural geology, geophysics, and hydrology laboratory tours were conducted by Paul Bertetti, Chandrika Manepally, Darrell Sims, Ronald McGinnis, and James Prikryl.

The second day was an exciting field day with an exclusive guided tour through the Canyon Lake Spillway Gorge. The trip was led by Bill Ward and Cynde Thomas-Jimenez of the Gorge Preservation Society and Kevin Smart, David Ferrill, Alan Morris, and Ronald McGinnis of SwRI. Educators were treated to an experience of walking across faults, dinosaur tracks, numerous sub-tidal fossils, and a newly created gorge.

Exemplar Young Geoscientists

The Exemplar Young Geoscientist Field Course was sponsored by the Texas High School Project Fund of the Communities Foundation of Texas in an effort to expand the GeoFORCE Program. Participants for this event included 23 high school students from East Texas (3 rising 10th graders; 19 rising 11th graders; and 1 rising 12th grader). The University of Texas at Tyler's East Texas Science, Technology, Engineering, and Math Center helped recruit and select students from 10 school districts in East Texas.

The objective of the Exemplar Young Geoscientist Field Course is to provide students with field experiences that introduce them to the basic geological terms and processes, expose them to career opportunities in the geosciences, and give them insight into life on a major college campus.

Manor New Technology High School Field Trip to McKinney Falls

The Texas High School Project Fund of the Communities Foundation of Texas sponsored a field trip for 124 Manor New Technology High School Students (9th and 10th grade) to McKinney Falls State Park in an effort to inspire students to pursue higher education in science, technology, engineering, and mathematics (STEM) fields. Small groups of students rotated through activities that included Earth Science hikes (between the Upper and Lower Falls), water quality testing, and animal specimen sampling.

Staff—Exemplar YG

Coordinators

Jessica Gordon, College of Education graduate student
Cristina Rodriguez, JSG
Justin Hance, JSG
Al Ippolito, UT-Tyler

Instructors

Bayani Cardenas, JSG
Ernie Lundelius, JSG
James Sansom, Jr., P.G., Engineering and Environmental Geologic Consultant

Guest Presenter

Pablo Buenafama, Shell Oil Company

Counselors

Rodney Curry, John Tyler ISD
Kyle DeLeon, UT English undergraduate
Aretha Dixson, John Tyler ISD
Kassi Harris, Fruitvale ISD
Veronica Lopez, UT Kinesiology undergraduate
Kristin Vollman, JSG undergraduate

Staff—Manor H.S.

Coordinators

Jessica Gordon, College of Education graduate student
Danielle Horton, JSG
Cristina Rodriguez, JSG
Julie Spink, JSG

Instructors

Sigrid Clift, JSG Bureau of Economic Geology
Tiffany Hepner, Bureau of Economic Geology
Pete Rose, Rose and Associates
James Sansom, Jr., P.G., Engineering and Environmental Geologic Consultant
Charles "Chock" Woodruff, Woodruff Geologic Consulting, Inc. and UT Dept of Civil Engineering

Counselors

Elizabeth Collins, JSG undergraduate
Sarah Doyle, JSG undergraduate
Chris Heiligenstein, JSG undergraduate
Stephanie Mills, JSG undergraduate

Geology Learned

- Geologic time
- Watersheds
- Differential erosion
- Terrace, floodplain, and pothole
- Floods
- Lateral continuity
- Law of Superposition
- Paleontologist
- Perennial stream
- Erosion
- Geomorphology, topography
- Fault, Balcones Fault Zone
- Earthquakes
- Escarpment
- Aquifer, springs, and groundwater
- Recharge, discharge
- Karst
- Speleothems
- Limestone, sedimentary rock
- Hydrogeologist

Appendix A—GeoFORCE In the News

In addition to creating opportunities for outstanding young students to study earth science, one of the prime objectives of GeoFORCE is to inform Texas communities of the importance of the geosciences. Media relations staff at Southwest Texas Junior College and the Jackson School have taken the lead in getting our story to the press to keep GeoFORCE in the news. In addition to having GeoFORCE students recognized in local newspapers and national journals, we try to make sure that our sponsors, who provide vital funds to maintain and enlarge the program, are acknowledged. This increased visibility is essential to the success of the program.

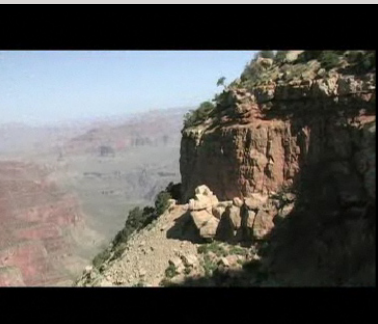
These efforts have resulted in branding GeoFORCE, creating a great deal of pride in our students, in their families, and in their teachers. At the same time, we enjoy providing positive recognition of our sponsors, whose generous contributions to our program help to make it thrive.

A few articles are included on the following pages.

For a complete list of articles, go to the GeoFORCE Web site:

www.jsjg.utexas.edu/geoforce/news/.

Don't Miss GeoFORCE, the Movie



This summer, UT Austin sent a film crew on location to Washington, Utah, and Arizona to document GeoFORCE. The result is an inspiring, nine-minute movie that lets GeoFORCE students explain in their own words what they love about the program. You can view the movie online from the GeoFORCE Web site and it is easy to share with colleagues. DVD versions are also available if you would like to show the movie to your organization or classroom.

To watch the movie online, go to:

www.jsjg.utexas.edu/geoforce



The Uvalde Leader-News

Locally Owned Independent Newspaper - Since 1879 A Leader in Southwest Texas

Florida full of surprises for GeoFORCE participants

Posted: Monday, Jul 14, 2008 - 08:28:02 am CDT

by Schaefer Edwards- Contributing writer

Awaking at 6 a.m., I fall out of bed and stumble to the kitchen where I microwave some leftovers. After breakfast, I take a quick shower and kiss my mother goodbye. My father drives me to Southwest Texas Junior College, pats me on the back, shakes my hand and leaves. Friends I have not seen for a year get my attention and lead me to the check-in table. My fourth and final summer adventure with GeoFORCE Texas is underway.

Over the past four years, my attitude about GeoFORCE has evolved from the nervous optimism of a so on-to-be high-school student into the excited anticipation of a veteran loading my bags onto a chartered bus and heading off on my final summer academy. The lack of fanfare accompanying my departure a few weeks ago symbolizes the fact that the GeoFORCE program no longer represents a blip on the radar of my summer routine. GeoFORCE has become much more than that. Instead of an anomaly, GeoFORCE has become a treasured part of my life.

Our final trip took us to the Sunshine State, otherwise known as Florida. After a day of air travel, we set up temporary base in Key Largo, one of the islands in the Florida Keys archipelago just off the state's southern tip. Over the next several days, we learned a great deal about coastal geology from our instructors, and soon discovered there is much more geology to Florida than simply meets the eye. For example, did you know the landmass of Florida, as we know it, is actually just the uppermost part of a massive underwater carbonate platform?

For five days we traversed the state, from the southern Keys to the western gulf coast and finally to the eastern Atlantic coast. At John Pennekamp Coral Reef State Park we took a glass bottom boat ride and observed a coral reef and the myriad marine life that call the reef home. We also stopped by Windley Key Fossil Reef and had the opportunity to observe an ancient, fossilized reef firsthand.

The next day we traveled through the Florida Everglades and learned how swampy conditions are ideal for the creation of coal. Later in the day we visited Lover's Key on the western coast and recorded the beach's profile, which includes any changes in elevation from the backbeach to the forebeach. Our group's beach profile will be a benchmark for comparison with the profiles of later GeoFORCE groups to chart any and all changes the beach goes through in the coming years.



STUDYING IN THE SAND - Jairo Chavez of Cotulla, Carlos de la Torre of Sabinal and Schaefer Edwards of Uvalde (left to right) work on a beach profile at Lover's Key on the Florida gulf coast during the recent GeoFORCE Texas summer academy.

On the following day, we made a quick visit to The Phosphate Museum in central Florida. Phosphate is the chemical compound of phosphorous, a rare, yet vital element needed to sustain life on Earth, plus oxygen. Florida is a very rich in phosphate, producing 80 percent of the country's supply. About 90 percent of Florida's phosphate is used in fertilizer, but it is also a key ingredient in soft drinks, light bulbs and toothpaste.

Our next stop was Cape Canaveral. We made a trip down to the beach just off the cape on Merritt Island where we were able to witness the Atlantic coast in all its glory. While carefully avoiding marked sea turtle nests, we took a beach profile and dug trenches into the sand to observe the many distinct layers of sediment that make up Merritt Island and all beaches.

That night, our group had the once-in-a-lifetime opportunity to witness a loggerhead sea turtle lay her eggs. Around midnight, we trekked back across the beach we had visited earlier in the afternoon. Led by park rangers and volunteer turtle enthusiasts, we witnessed the turtle lay over 100 eggs. We watched her bury the eggs with great care and then got to follow, no more than three feet behind her, as she made her way back into the ocean. It was an utterly breathtaking experience to observe such a majestic creature and for most of our group, myself included, it was the highlight of our trip.

According to our trip agenda, the last day in Florida was supposed to be spent listening to a guest speaker's presentation about remote sensing techniques like radar and sonar. But the GeoFORCE staff had a big surprise for us. As a reward for our attentiveness and general good behavior for the past four summers 🍀 we were going to be let loose in Disney World's Epcot theme park. What a fantastic surprise!

Arriving back in Uvalde on Friday afternoon, we took a final exam over the material we had covered during our week on the road. The next morning we listened to a presentation by an ExxonMobil representative and then went to the Southwest Texas Junior College campus for a closing ceremony. Many waxed poetic about the GeoFORCE program, several with tears in their eyes. Lunch was served, skits were performed, program director Julie Spink handed out awards and, just like that, it was time to go home. In what now seems like the blink of an eye, it was all over, but only in one sense of the word. Sure, the summer academies have ended for my group, but they were never what truly defined the GeoFORCE program. Besides the close friendships GeoFORCE made possible, the program reinforced in me the value of working hard, paying attention and asking lots of questions.

What I have taken away from my GeoFORCE experience is an increased awareness that our planet is a fascinating, complex and beautiful place. I have learned that our Mother Earth has a great deal to teach us, and if we take the time to listen to what she has to say, humanity will surely benefit.

(Editor's note: Schaefer Edwards is one of the Uvalde area members to complete the four-year GeoFORCE summer academy program.)



GeoFORCE Students to Travel Country for Summer Geology Studies

June 03, 2008

More than 130 students from 18 HISD high schools have been selected to participate in the GeoFORCE summer science academies in Austin, Oregon, and Washington.

The 134 freshmen, sophomores, and juniors will travel for three to seven days during the months of June or July, starting June 7.

GeoFORCE Texas is a summer geology-based program that rewards outstanding students from across the state from grades 8–12. The students will learn about the field of geoscience and participate in interactive opportunities for critical thinking and practical field experience.

“GeoFORCE is a great opportunity for underrepresented students to be exposed to geosciences at a critical time in their lives,” said GeoFORCE Program Coordinator Danielle Horton. “It grabs the students’ attention in a big way when starting high school and gives them a reason to be motivated and excited about science.”

Among the HISD participants are 16 students from HISD’s **James Madison High School** for Meteorology and Space Sciences.

“GeoFORCE Texas Summer Academies have impressive itineraries that will provide our Magnet students a unique experience,” said Madison High School Magnet Coordinator Yolanda Foster. “This experience will be a lasting one that will capture and motivate our students to excel in math and sciences courses and, most importantly, heighten their awareness of the geosciences and high-tech careers.”

Jarrett Mayon is a tenth-grade Magnet student at Madison High School. The 17-year-old plans to go to college after graduation to pursue a career in geology. “GeoFORCE will help me with learning math and science outside of the classroom and I am looking forward to the traveling experience,” said Jarrett.

Linda Nguyen, a tenth-grader at Madison High, is 16 and wants to pursue a career in math and science. “I feel this program will enable me to be academically prepared to go to college,” said Linda. “I’m looking forward to having a wonderful time with the GeoFORCE academy.”

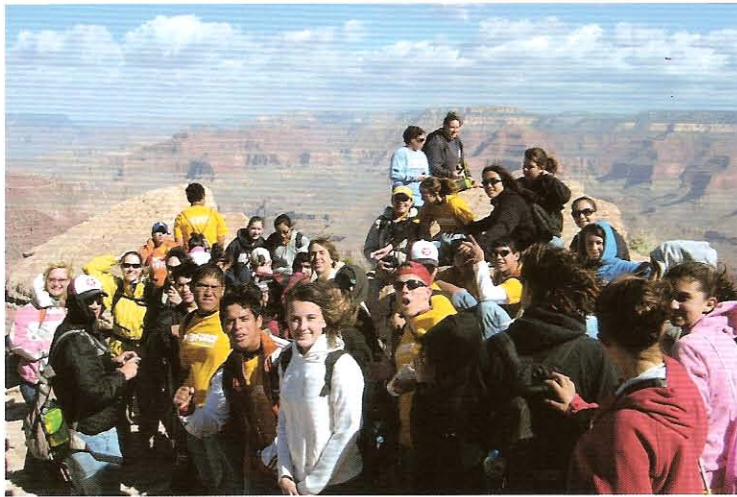
GeoFORCE Texas was launched to inspire the next generation of geoscientists and foster increased diversity in the U.S. workforce. Students who excel in math and science in the classroom enjoy the academy because it gives them a chance to apply their knowledge in the field. The experience also opens up a world of career opportunities.



Long Middle School eighth-graders Tania Babu, Meron Haile, Manusha Karki, Lisa Karki, Hapyness Odhiubo, and Carlos Salamanca are some of the dozens of students selected from HISD schools to participate in the University of Texas' GeoFORCE Academy. This summer, they will travel to Austin and Washington DC to study various aspects of geology, and continue their studies in Arizona, Nevada, Utah, Oregon, and Florida over the next three years. With them is Long Middle School science teacher Diann Valentine (third from right).

GeoFORCE “Rocks” HISD

GeoFORCE Texas, a college preparatory program that introduces the wonders of geology to middle and high school students, is coming to the Houston Independent School District (HISD). The program provides week-long summer academies and two- to four-day field courses. The summer field trips travel to outstanding geological sites around the country such as the Grand Canyon, Zion National Park, Mt. St. Helens and more. Study programs to help students understand these natural wonders are blended with coursework in preparation for college and development of writing and presentation skills. GeoFORCE also provides experience in leadership and teamwork.



program now has 320 students in grades 9-12, hailing from small towns throughout southwest Texas.

To introduce students to college education and further encourage them to study math and science, GeoFORCE organizes field seminars to exciting localities coast to coast—from the Smithsonian in Washington, D.C., to Crater Lake in Oregon. Professors and

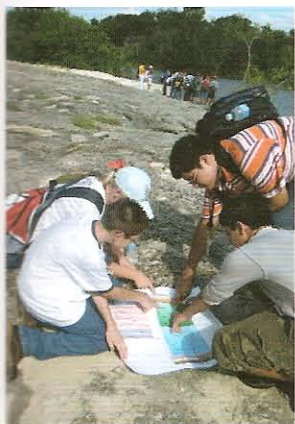
The Jackson School of Geosciences at the University of Texas at Austin developed GeoFORCE to address near future staffing needs of the “great crew change,” as baby boomer geoscientists retire leaving insufficient numbers of new graduates to take their place.

research scientists from the Jackson School provide learning exercises at each locality and administer daily tests, including a final exam. Each summer program ends with a graduation ceremony and dinner for participants and their families. Students perform skits highlighting their new skills and knowledge, and they bask in recognition for their achievements.

The Jackson School of Geosciences at the University of Texas at Austin developed GeoFORCE to address near future staffing needs of the “great crew change,” as baby boomer geoscientists retire leaving insufficient numbers of new graduates to take their place. GeoFORCE also fosters diversity by providing educational opportunities for minority and underprivileged students. Students are recommended by their teachers and complete a rigorous application process. If accepted, students must maintain an overall B average in math and science courses to remain in the four-year program.

The GeoFORCE program has been phenomenally successful. This summer, the rising 12th grade academy will provide more learning adventures in geoscience while assisting these students in making the transition to college. Many will be the first in their extended families to continue their education beyond high school.

Origins in the Rio Grande Valley



The Jackson School started GeoFORCE in 2005 in partnership with Southwest Texas Junior College in Uvalde. The program initially targeted students throughout the Rio Grande Valley, a rural and predominantly Hispanic area with very low college enrollment. GeoFORCE started with 80 students entering the 9th grade and then added a new class each year as the preceding group advanced. The

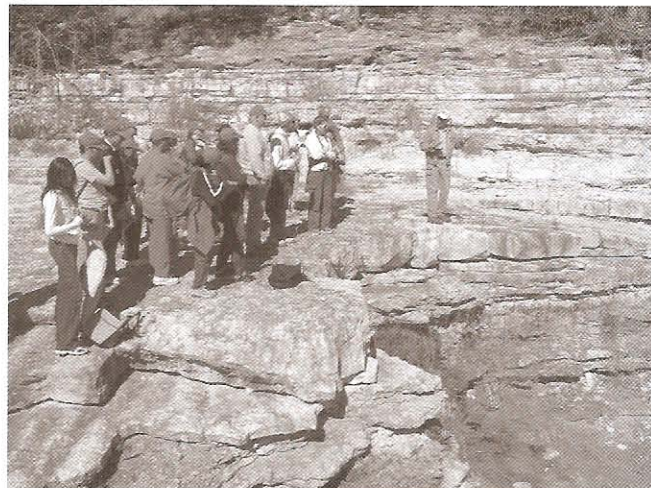
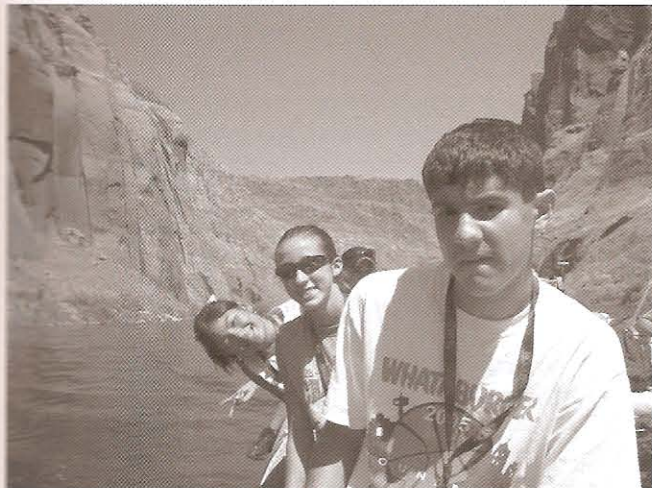
Coming to Houston

In partnership with the HISD, the Jackson School arranged to extend GeoFORCE to students in Houston in 2008. A fast, two-year startup is planned, with programs for 9th and 11th grade students beginning this year. These will continue as 10th and 12th grade programs are added next year to complete the four-year curriculum.

Teachers have nominated students from 25 HISD schools, and final selection of participants is made by a subcommittee of former HISD teachers. The ethnically diverse HISD student body will broaden the GeoFORCE experience with participants of African American, Hispanic, Asian and Caucasian heritage.

GeoFORCE Houston is managed by the Jackson School in collaboration with an advisory council representing the following organizations:

GeoFORCE “Rocks” HISD *continued on page 45*



- Houston Independent School District (HISD)
- Houston Geological Society (HGS)
- Representatives of the State of Texas.

The Jackson School organizes and staffs all activities. Professors and research scientists prepare and lead the field trips and learning exercises, with participation from other geoscience professionals. The program is presented at no cost to the students. All travel, lodging and other expenses are paid from sponsorships funded by more than a dozen organizations, including oil companies, the Texas Workforce Commission and others.

Adventures in San Antonio and the Canyon Lake Gorge

To lay the groundwork for GeoFORCE Houston, an Educator Workshop was held in San Antonio on February 12–13, for HISD teachers, administrators and members of the Advisory Council. Following a bus trip from HISD headquarters, the group spent the afternoon at the Southwest Research Institute (SwRI) in San Antonio. Dr. Wesley Patrick and SwRI staff hosted the group in technical lecture and lab tours. HISD educators learned first hand about high impact programs in a broad spectrum of geoscience disciplines, from nuclear waste management to astrogeology. The program focused on geoscience careers, covering new and interesting vocations that await bright and motivated students in their classes.

The educators were off bright and early the next day for Canyon Lake gorge. There they were treated to a walking tour of the gorge, which was carved over a six-week span in 2002 by raging floodwaters of the Guadalupe River. Following an introduction to the history and heritage of the gorge by Cinde Thomas-Jimenez from the Gorge Preservation Society, the group was treated to a guided tour. Dr. Bill Ward, a longstanding expert on the Cretaceous of the area, and Dr. David Ferrill, who is mapping the gorge for SwRI, led the group through excellent new Glen Rose exposures to find faults, examine fossils, and try to match their

stride with that of well preserved dinosaur footprints. Leaders guided discussions along the trek on diverse topics including environmental impact of development on ground water recharge, faults as conduits or barriers to fluid flow, and changes in life through geologic time. The educators welcomed the adventure, which provided an introduction to the kinds of experiences that await their students in GeoFORCE.

Join the Fun

The Houston Geological Society provides input through the Steering Committee to guide GeoFORCE, and HGS members have participated in GeoFORCE activities and discussed careers in geoscience with the students.

Come join the fun—your enthusiasm and experience can make a difference for these bright young youngsters. Check the website <http://www.jsg.utexas.edu/geoforce/> for information on coming attractions. To join a GeoFORCE activity (some are local) or lead a discussion with students on geoscience careers, contact HGS Representative Chuck Caughey (Chuck.Caughey@ConocoPhillips.com) or Jackson School coordinator Danielle Horton (DHorton@jsg.utexas.edu). ■

JOB OPPORTUNITY

An Independent E&P Company having affiliates actively engaged in petroleum exploration operations in North America, Africa, Central Asia, Middle East and Far East is seeking experienced geoscientists. The Group has offices in USA, Europe, Middle East and Asia. The selected candidates will be based in Houston, Texas. Job duties include interpretation of Gulf of Mexico 3-D seismic data and prospect generation for drilling and review and evaluation of 2-D and 3-D seismic data for joint ventures in Gulf Coast Region.

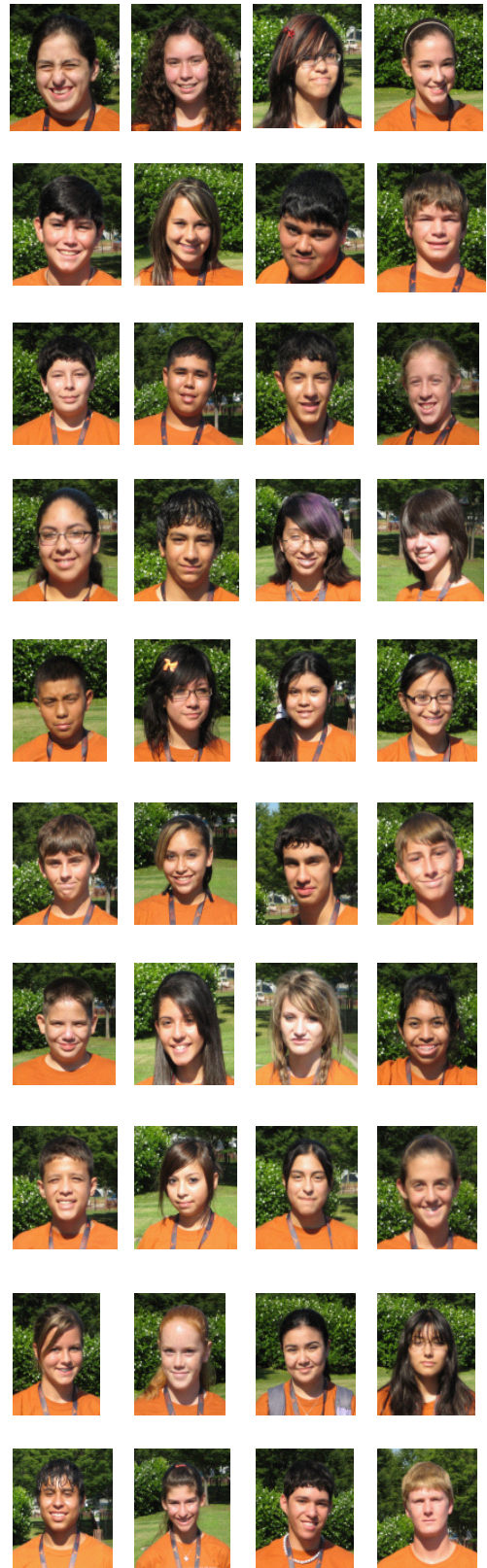
The applicant must have 5+ years offshore Gulf of Mexico experience and knowledge of latest geophysical methods and tools. Desired qualification is a degree in geology or geophysics.

Salary is competitive with excellent package of benefits including overrides and a chance to share in success of the Company.

Send resume to: hrop123@yahoo.com

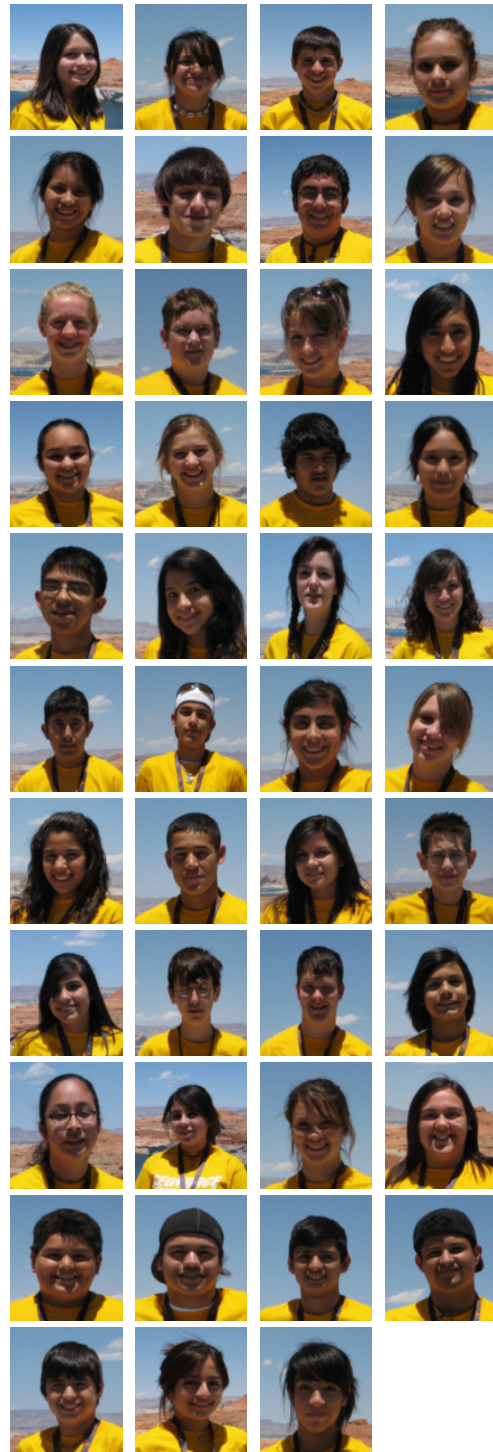
Appendix B—Participants by Cohort

9th Grade GeoFORCE Southwest Academy		
First	Last	School District
Brittany	Hale	Brackettville
Mercedes	Campos	Carrizo Springs
Faith	Montgomery	Cotulla
Dora	Ayala	Cotulla
Elaizah	Flores	Cotulla
Gabriela	Marquez	Cotulla
Ranae	Diaz	Crystal City
Xavier	Guzman	Crystal City
Melodie	Guerrero	Crystal City
Selina	Rios	Crystal City
Alex	Chapa	Crystal City
Laura	Flores	Crystal City
Emmanuel	Briseño	Crystal City
Daniela	Ocada	Del Rio
Alan	Meza	Del Rio
Jackson	Zerr	D'Hanis
Marcos	Segura	Eagle Pass
Glenda	Chavarria	Eagle Pass
Nicole	Saucedo	Eagle Pass
Jorge Luis	Luna Jr	Eagle Pass
Federico	Salinas	Eagle Pass
Jesus	Gonzalez	Eagle Pass
Saul Alberto	Fernandez	Eagle Pass
Jaclyn	Byrne	Eagle Pass
Nicholas	Stansbury	Hondo
Christina	Faseler	Hondo
Taylor	Freehauf	Hondo
Kolten	Van Damme	Hondo
Rey	Cabrera	Hondo
Maggie	Sunderman	Hondo
John Henry	Contreras	Knippa
Nairobi	Gonzalez	LaPryor
Hannah	Carnes	Nueces Canyon
Krystal	Gonzales	Pearsall
Laura	Grander	Pearsall
Carolyn	Hernandez	Sabinal
Alex	Dibbens	Utopia
Brandon	Guerrero	Uvalde
Briana	Vasquez	Uvalde
Elly	Cruz	Uvalde



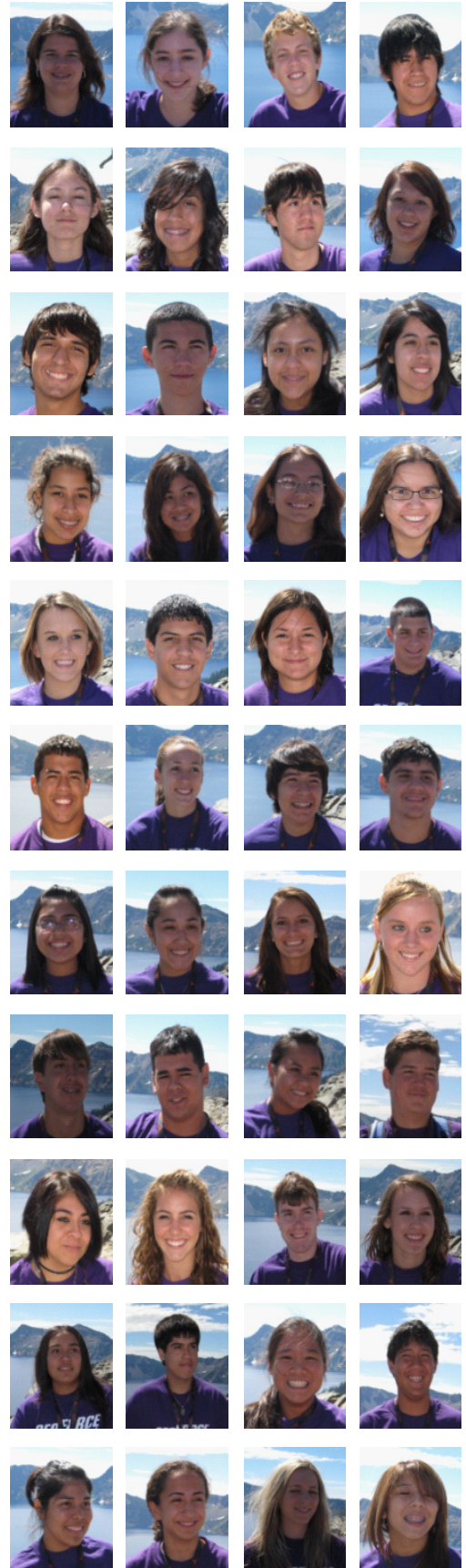
Appendix B—Participants continued

10th Grade GeoFORCE Southwest Academy		
First	Last	School District
Kelsey	Bruce	Brackettville
Bryan	Calk	Brackettville
Sahara	Rodriguez	Brackettville
Ricky Rey	Reyes	Carrizo Springs
Michelle	Contreras	Crystal City
Steven	Garza	Crystal City
Stephen	Cantu	Del Rio
Ruben	Polanco	Del Rio
Aimee	Vasquez	Del Rio
David	Obregon	Dilley
Maria	Aldape	Eagle Pass
Eduardo	Aranda	Eagle Pass
Cheyenne	Betancourt	Eagle Pass
Victoria	Fortiz	Eagle Pass
Miguel	Gonzalez	Eagle Pass
Jennifer	Jimenez	Eagle Pass
Priscilla	Martinez	Eagle Pass
Krizelle	Olivo	Eagle Pass
Hector	Pineda	Eagle Pass
Alexis	Rodriguez	Eagle Pass
Adriana	Torres	Eagle Pass
Jaquelyn	Arias	Hondo
Allison	Boehme	Hondo
Matt	De Leon	Hondo
Nicholas	Garcia	Hondo
Sabrina	Morin	Hondo
Caroline	Beltran	Knippa
Jesse	Ortegon	La Pryor
Sarah	Rubio	Leakey
JT	Morey	Nueces Canyon
AJ	Freitas	Pearsall
James	White	Pearsall
Emily	Dabney	Rocksprings
Anissa	Arce	Uvalde
Sanette	Bermudez	Uvalde
Daniel	Campos	Uvalde
Kalia	Elrod	Uvalde
Zenia	Garza	Uvalde
Alexis	Gonzalez	Uvalde
Travis	Kiesling	Uvalde
Cecilia	Soliz	Uvalde
Cheyenne	Mueller	Uvalde
Sierra	King	Uvalde



Appendix B—Participants continued

11th Grade GeoFORCE Southwest Academy		
First	Last	School District
Brooklyn	Gose	Brackettville
Jeff	Sitgreaves	Brackettville
Thomas	Lackey	Carrizo Springs
Dessirae	Ayala	Cotulla
Stephanie	Campos	Cotulla
Angela	Rodriguez	Cotulla
Maricruz	Bustamante	Crystal City
Dominique	Zvorak	Del Rio
Elias	Alvarez	Dilley
Kimberly	Demaree	Dilley
Angel	Garcia	Dilley
Daniel	Enriquez	Eagle Pass
Raquel	Espinoza	Eagle Pass
Alexis	Magana	Eagle Pass
Eric	Munt	Eagle Pass
Ruben	Recio	Eagle Pass
Josh	Villasenor	Eagle Pass
Sharayah	Gonzales	Hondo
Ashley	Bragg	Hondo
Hannah	Windham	Leakey
Jordan Michelle	Hicks	Nueces Canyon
Eryn	Freitas	Pearsall
Josh	Gonzales	Pearsall
Jayme	Grander	Pearsall
Alina Delmy	Herrera	Pearsall
Kristen	La Buhn	Pearsall
Aracely	Reyes	Pearsall
Sondee	Splawn	Rocksprings
Christopher	Graham	Sabinal
Christopher Devon	Vanderveer	Utopia
Yonelle	Aromin	Uvalde
Adriana	Jarosek	Uvalde
T. J.	Martinez	Uvalde
Greg	Martinez	Uvalde
Caleb	McBride	Uvalde
George	Melchor	Uvalde
Martha	Ortiz	Uvalde
Julia	Quiroga	Uvalde
Brittney	Sanchez	Uvalde
Athena	Sevilla	Uvalde
Alexandra	Talley	Uvalde
Cornelluis	Tobias	Uvalde
Teresa	Gaitain	Uvalde
Christine	Reyna	Uvalde



Appendix B—Participants continued

12th Grade GeoFORCE Southwest Academy		
First	Last	School District
Samantha	Moore	Brackettville
Jacob	Schroeder	Brackettville
Emily	Calk	Brackettville
Victoria	Herndon	Nueces Canyon
Siobhain	Alvarado	Cotulla
Jairo	Chavez	Cotulla
Justin	Treviño	Cotulla
Ramon	Lopez III	Crystal City
Alexandra	Perez	Crystal City
Adriana	Vargas	Crystal City
Elyana	Barrera	Del Rio
Sabrina	Cervantez	Del Rio
Aaron	Cason	Dilley
Rosalie	Rodriguez	Dilley
Melerie	DeLeon	Dilley
Debbie	Duran	Eagle Pass
Natalia	De Los Rellez	Eagle Pass
Oscar	Fuentes	Eagle Pass
Elsa	Garza	Eagle Pass
Isaac	Jimenez	Eagle Pass
Kaitlin	Rodrigues	Eagle Pass
Andrea	Rodriguez	Eagle Pass
Pat	Saucedo	Eagle Pass
Karen	Treviño	Eagle Pass
Karyssa	DeLeon	Hondo
Andy	San Miguel	Hondo
Jonathan	Cubriel	Pearsall
Melanie	Lynch	Pearsall
Benjamin	Martinez	Pearsall
Karina	Robledo	Pearsall
Joseph	Arrevalos	Rocksprings
Miranda	Garcia	Rocksprings
Katie	Bales	Sabinal
Carlos	de la Torre	Sabinal
Rosy	Arellano	Uvalde
Schaefer	Edwards	Uvalde
Andrew	Nunez	Uvalde
Nazarey	Ortiz	Uvalde
Hilary	Prado	Uvalde
Michelle	Rodriguez	Uvalde
Marissa	Vara	Uvalde
Felipe	Villanueva	Uvalde



Appendix B—Participants continued

9th Grade GeoFORCE Houston Academy		
First	Last	School
Danh	Nguyen	Attucks MS
Alexia	Rocha	Attucks MS
Princelee	Fernandez	Burbank MS
Antonio	Hernandez	Burbank MS
Stacy	Hernandez	Clifton MS
Kaylyn	Mayer	Clifton MS
Esalee	Andrade-Guerrero	Hamilton MS
Adrian	Sanchez	Hamilton MS
Frederick	Vu	Hamilton MS
Ashelyn	Williams	Hamilton MS
Hector	Alvarez	Hogg MS
Aaron	Berumen	Hogg MS
Denise	Castillo	Hogg MS
DeMichael	Blackshire	Holland MS
Jennifer	Gonzalez	Holland MS
Kaulin	Meads	Lanier Middle School
Stephen	Armstrong	Lanier MS
Grace	Hardwick	Lanier MS
Mary	Jalbert	Lanier MS
Cage	Pierre	Lanier MS
Victor	Prieto	Lanier MS
Rachel	Ruthven	Lanier MS
Tania	Babu	Long MS
Meron	Haile	Long MS
Manusha	Karki	Long MS
Lisa	Karki	Long MS
Hapynes	Odhiambo	Long MS
Carlos	Salamanca	Long MS
Dominique	Bilbo	Ortiz MS
Daphne	Martin	Ortiz MS
Alice	Solomon	Ortiz MS
Christina	Chong	Revere MS
Tammy	Huynh	Revere MS
Hope	Iyiewuare	Revere MS
Edgar	Aguilar	Sharpstown MS
Yoselin	Gallardo	Sharpstown MS
Albert	Lagman	Sharpstown MS
Abdul-Hamid	Saaka	Sharpstown MS
Georgia	Rodriguez	Stevenson MS
Crystal	Sowemimo	Stevenson MS



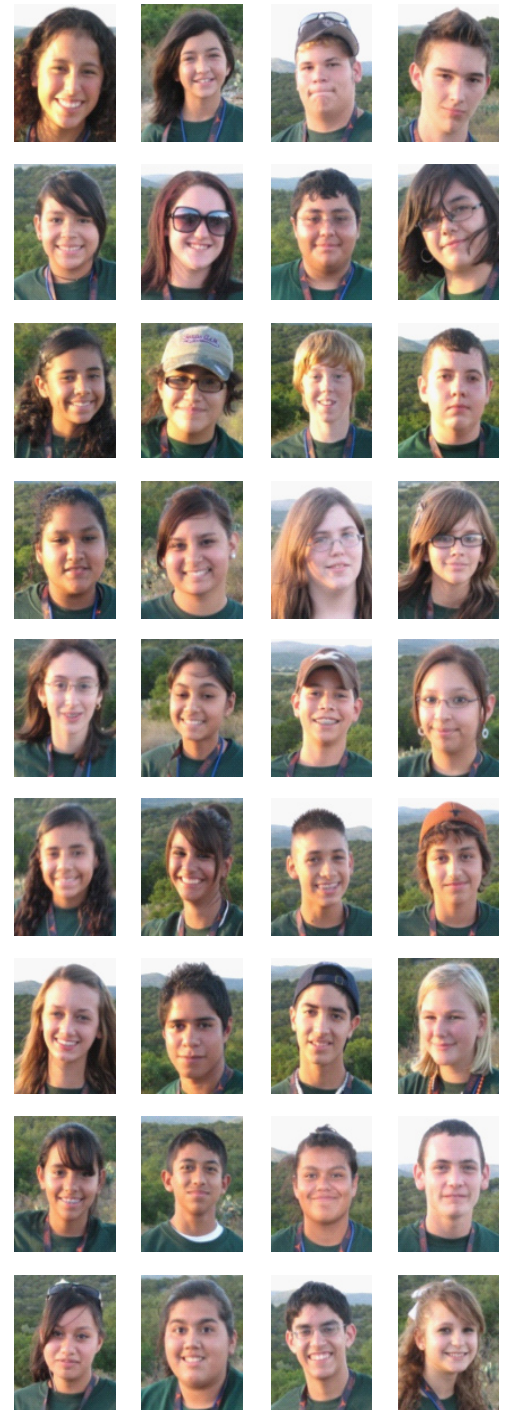
Appendix B—Participants continued

11th Grade GeoFORCE Houston Academy		
First	Last	School
Rose	Nguyen	Chavez HS
Ivan	Ponce	Galena Park HS
Kanavis	Alston	Madison HS
Angel	Barcnas	Madison HS
Queletha	Booker	Madison HS
Inmer	Cardona	Madison HS
Javonda	Davis	Madison HS
Victor	Delgado	Madison HS
Sambrosia	Duskin	Madison HS
Dennis	East	Madison HS
Leslie	Lopez	Madison HS
Claudia	Martinez	Madison HS
Jarrett	Mayon	Madison HS
Wesley	Nash	Madison HS
Linda	Nguyen	Madison HS
Ebony	Redman	Madison HS
Andrew	San Martin	Madison HS
Larry	Savoy	Madison HS
Kaldric	Dow	Scarborough HS
Aldric	Dow	Scarborough HS
Jose	Jovel	Scarborough HS
Kimberly	Mobley	Scarborough HS
Edgar	Solano	Scarborough HS
Victoria	Williams	Scarborough HS
Warren	Henry	Sterling HS
Edwin	Rodriguez	Sterling HS
Catherine	Janzer	Washington HS
Detrane	Lindsey	Washington HS
Nat	Meeks	Washington HS
Kimberly	Routt	Washington HS
Vontigra	Gibbs	Worthing HS
Brittnie	Houston	Worthing HS
Christopher	Hudson	Worthing HS
Sheila	Luevalo	Worthing HS
Clarissica	Mahoney	Worthing HS
Jasmine	Scott	Worthing HS



Appendix B—Participants continued

9th Grade Young Geoscientists Southwest		
First	Last	School District
Daulton	Woodson	Brackettville
Hector	Barraza	Cotulla
Jeanavie	Esparza	Cotulla
Steven	Rodriguez	Crystal City
Joseph	Baumgartner	Eagle Pass
Jeremiah	Brandt	Eagle Pass
Gabriela	Carranco	Eagle Pass
Alexandria	Castillo	Eagle Pass
Karina	Centeno	Eagle Pass
Isamar	De La Cerda	Eagle Pass
Jessica	Delgado	Eagle Pass
Alyssa	Esquivel	Eagle Pass
Sergio	Fernandez	Eagle Pass
Antonio	Fidalgo-Cabello	Eagle Pass
Hector	Garza	Eagle Pass
Pedro	Gomez	Eagle Pass
Azahareni	Guerra	Eagle Pass
Angel	Hernandez	Eagle Pass
Juan	Herrera	Eagle Pass
Carlos	Nolasco	Eagle Pass
Margarita	Ramirez	Eagle Pass
Kory Mitchell	Saucedo	Eagle Pass
Marianna	Uriegas	Eagle Pass
Rosa	Velasquez	Eagle Pass
Rebecca	Wauson	Eagle Pass
Clara	Heath	Hondo
Maria	Wigley	Hondo
Irene	Martinez	Pearsall
Veronica	Ramon	Pearsall
Justin	McCaleb	Utopia
Kassandra	Bravo	Uvalde
Cassandra	Canales	Uvalde
Tennessee	Crawford	Uvalde
Cyntya	Uriegas	Uvalde



Appendix B—Participants continued

10th Grade Young Geoscientists Southwest		
First	Last	School District
Villanueva	Erica	Brackettville
Hale	Haley	Brackettville
Martinez	Briana	Cotulla
Martinez	Antonio Esteban	Del Rio
Martinez	Eduardo	Del Rio
Perales	Jose	Del Rio
Rodriguez	Jose Luis	Del Rio
DeLeon	Malison	Dilley
Palomo	Evelyn	Eagle Pass
Chong	Gressia Monique	Eagle Pass
Cedillo	Jessica	Eagle Pass
Negrete	Jorge	Eagle Pass
Martinez	Kimberly	Eagle Pass
De La Cruz	Jonathan	Eagle Pass CC
Vela	Justin	Hondo
Caffey	Sarah	Hondo
Castillo	Bobby Joe	La Pryor
Velasquez	Gabrielle	La Pryor
Olascoaga	Nathaly	La Pryor
Bickham	Brooke	Madisonville
Walker	Cheyenne	Nueces Canyon
Monarres	Gerardo	Pearsall
Cook	Joshua	Rocksprings
Martinez Cruz	Christopher	Uvalde
Sandoval	Cristian	Uvalde
Padilla	Jacob	Uvalde
Jimenez	Jason	Uvalde
Bordovsky	Joshua	Uvalde
Perez II	Raul	Uvalde
Martinez	Roberto Antonio	Uvalde
De La Rosa	Steven	Uvalde



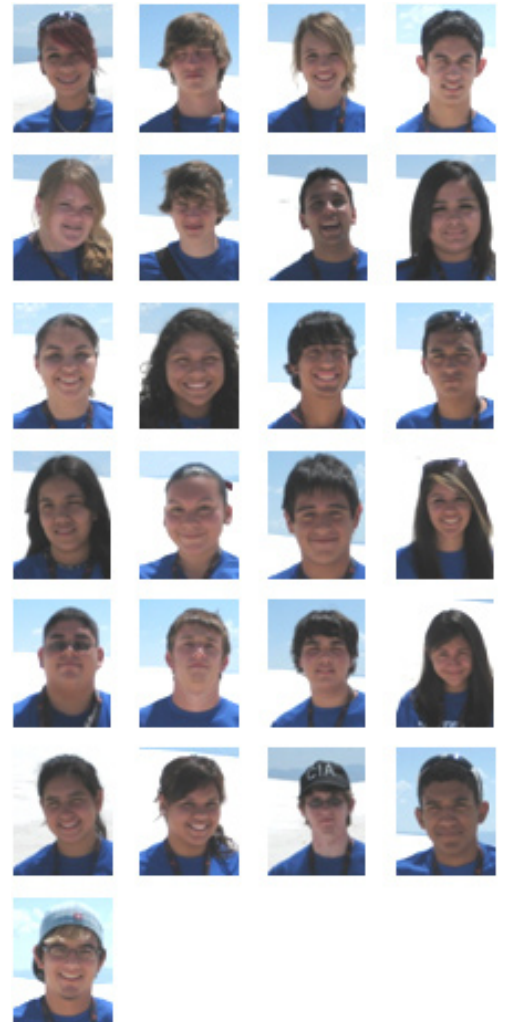
Appendix B—Participants continued

11th Grade Young Geoscientists Southwest		
First	Last	School District
Chris	Blake	Brackettville
Victor	Cantu	Brackettville
Cody	Clark	Brackettville
Jaleel	Proulx	Brackettville
Theresa	Ho	Cotulla
Sergina	Ramirez	Cotulla
Dessirae	Ayala	Cotulla
Yonder	Lopez	Cotulla
Cristina	Marquez	Cotulla
Vanessa	Perez	Cotulla
Valerie	Perez	Cotulla
Gabriel Lee	Saenz	Cotulla
Caitlyn	Storey	Cotulla
Jose O.	Gonzales	Dilley
Eryn	Patterson	Dilley
Abi	Guerra	Eagle Pass
Andres	Kashani	Eagle Pass
Roberto	Trevino	Eagle Pass
Ruth	Ruiz	Eagle Pass CC Winn
Christina	Gauna	Hondo
Taylor	Sunderman	Hondo
Steven	Sanchez	Sabinal
Christopher D.	Vanderveer	Utopia
Kyle	Felan	Uvalde
Teresa	Gaitan	Uvalde
Benjamin	Miller	Uvalde
Faith Marie	Musquiz	Uvalde
Carlos A.	Prado, Jr.	Uvalde
Christine	Reyna	Uvalde
Kaitlyn	Samarripa	Uvalde
Mauricio Daniel	Sanchez	Uvalde
Christina	Thomas	Uvalde



Appendix B—Participants continued

12th Grade Young Geoscientists Southwest		
First	Last	School District
Emily	Calk	Brackettville
Maribel	Rivas	Brackettville
Jared	Howard -Tomchesson	Charlotte
Harmony	Pettett	Comstock (former
Jaimine	Barraza	Cotulla
Ann Marie	Canales	Cotulla
Richard	Ramirez	Cotulla
Elizabeth	Segura	Cotulla
Andrew	Valles	Cotulla
Javier	Amaro	Del Rio
Joshua	Smith	Del Rio
Joseph	Few	Dilley
Abram	Garcia	Dilley
Crystal	Torres	Dilley
Luciano	Esquivel	Eagle Pass
Gerardo	Fisher	Eagle Pass
Azia	Ledesma	Eagle Pass
Abigail	Rodriguez	Eagle Pass
Stephanie	Sanchez	Eagle Pass
Leanna	Garza	Hondo
Andrew	Haertner	Hondo
Jose	Najera	Hondo
Jake	Dabney	Medina (former
Kimberly	Estrada	Uvalde
Ricardo	Rodriguez	Uvalde



Appendix B—Participants continued

9th Grade Young Geoscientists Houston		
First	Last	School
Princelee	Fernandes	Burbank MS
Crystal	Gonzalez	Burbank MS
Kaylin	McNary	Burbank MS
Kelly	Walton	Clifton MS
Quiandra	Grant	Fondren MS
Khadijah	Muhammad	Fondren MS
Lorena	Tejeda	Hogg MS
Lourdes	Renteria	Holland MS
Shelby	Schumacker	Holland MS
Grecia	Vazquez	Jackson MS
Leslie	Ramirez	Lanier MS
Daphne	Martin	Ortiz MS
Aggy	Palacios	Ortiz MS
Tyera	Morris	Sharpstown MS
Ramiro	Ponce	Stevenson MS



Appendix B—Participants continued

11th Grade Young Geoscientists Houston		
First	Last	School
Ivan	Ponce	Galena Park HS
Kanavis	Alston	Madison HS
Queletha	Booker	Madison HS
Inmer	Cardona	Madison HS
Javonda	Davis	Madison HS
Victor	Delgado	Madison HS
Dennis	East	Madison HS
Leslie	Lopez	Madison HS
Claudia	Martinez	Madison HS
Jarrett	Mayon	Madison HS
Wesley	Nash	Madison HS
Linda	Nguyen	Madison HS
Ebony	Redman	Madison HS
Andrew	San Martin	Madison HS
Larry	Savoy	Madison HS
Kaldric	Dow	Scarborough HS
Aldric	Dow	Scarborough HS
Edgar	Solano	Scarborough HS
Warren	Henry	Sterling HS
Tinesia	Hymes	Washington HS
Catherine	Janzer	Washington HS
Detrane	Lindsey	Washington HS
Nat	Meeks	Washington HS
Kimberly	Routt	Washington HS
Vontigra	Gibbs	Worthing HS
Brittnie	Houston	Worthing HS
Christopher	Hudson	Worthing HS
Sheila	Luevalo	Worthing HS
Clarissica	Mahoney	Worthing HS
Jasmine	Scott	Worthing HS



Appendix C—2009 GeoFORCE Event Calendar

	Venue	Dates
<u>Houston Academies</u>		
9th Grade	Florida	June 20-27
10th Grade	Arizona	June 13-20
11th Grade	Oregon	July 11-18
12th Grade	Florida	June 6-13
<u>Southwest Academies</u>		
9th Grade	Florida	July 11-18
10th Grade	Arizona	June 6-13
11th Grade	Oregon	July 25-Aug 1
12th Grade	Florida	June 20-27
<u>Houston Young Geoscientists</u>		
9th Grade	Uvalde	June 7-9
10th Grade	Port Aransas	July 13-16
11th Grade	Austin	July 6-8
12th Grade	New Mexico	July 28-Aug 1
<u>Southwest Young Geoscientists</u>		
9th Grade	Uvalde	June 10-11
10th Grade	Port Aransas	June 24-27
11th Grade	Austin	June 29-July 1
12th Grade	New Mexico	July 21-25

Appendix D—Awards Won by GeoFORCE 12th Grade Students



Sabrina Cervantez, Del Rio
National Honor Society of Secondary Schools
National Technical Honor Society
Phi Theta Kappa



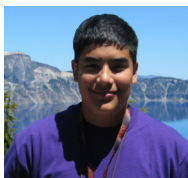
Schaefer Edwards, Uvalde
AP Scholar with Honor
National Merit Semifinalist



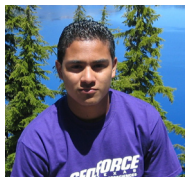
Oscar Fuentes, Eagle Pass
Honor Roll
President's Education Award-Outstanding Academic Excellence



Samantha Moore, Brackettville
US Border Patrol Award
Nominated for the Minnie Piper Scholarship



Andrew Nunez, Uvalde
National Honor Society of Secondary Schools
National Technical Honor Society
Certificate of Acceptance to Attend 2008 Congressional Student Leadership Conference



Jacob Schroeder, Brackettville
Texas A&M Youth Leadership Conference
Selected for RYLA Leadership Conference
1st Place UIL SS Team



Karen Treviño, Eagle Pass
Honor Roll
Gold Presidential Award (Outstanding Academic Excellence)
LDS Young Womens Club Leadership Award



Top: Danielle Carpenter of Chevron with 11th grade southwest academy students at Big Obsidian Flow, Oregon. Bottom: Jeff Paine of the Bureau of Economic Geology teaches 11th grade Houston academy students at Great Sand Dunes, Oregon.

