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SPC instructors share NASA flight experiences

LEVELLAND – While space travel usually refers to flying a craft into and through outer space, four South Plains College instructors recently had a chance to experience the closest thing on earth to space flight. The faculty members took part in the Reduced Gravity Flight Program at Johnson Space Center in Houston.

The flight program was conducted Jan. 8-17, 2009.

The SPC team included Shirley Davis, assistant professor of mathematics; Alan Worley, assistant professor of mathematics; and Charlotte Young, assistant professor of computer science. Raymond Benge, associate professor of physics and astronomy at Tarrant County College, was the fourth member of the team. John Sparks, chairperson of the Communications Department and professor of journalism, accompanied the team and captured the event via video camera.

“Our team was required to conduct a meaningful experiment for reduced gravity conditions,” said Young. “Our experiment involved using a pendulum, a harmonic oscillator, and a glider. The experiment, which is a modification of a college physics lab, allowed us to see if theory meets reality in different gravity conditions.”

The pendulum and harmonic oscillator were released under hyper gravity, low gravity and microgravity conditions and their behaviors were recorded. The team said that some of the movements of the pendulum did not follow what they expected. The opportunity to actually observe objects in different gravity conditions was invaluable to the educators.

Young said that on the first day of flight, the team’s experiment was influenced by inclement weather, and the team had to learn how to control their body movements during the changes in gravity. By the time the team was able to gain control of their movements, time factors disrupted their ability to fully complete the experiment. Young added that Davis and Benge shared this information with the other team members who were able to make adjustments during the second day of flight.

The reduced gravity aircraft generally flies 30 parabolic maneuvers over the Gulf of Mexico. This parabolic pattern provides about 30 seconds of hyper gravity (about 1.8G-2G) as the plane

climbs to the top of the parabola. Once the plane starts to “nose over” the top of the parabola and descend toward Earth, the plane experiences about 25 seconds of microgravity (0G). At the very top and bottom of the parabola, flyers experience a mix of partial G's between 0 and 1.8 (called “dirty air”).

Nicknamed the Vomit-Comet, the flights have been known to cause participants to experience severe motion sickness. SPC's Davis experienced some motion sickness toward the end of her flight. However, she enjoyed the rest of the flight so much; she stated she would go again with no hesitations.

The SPC team joined 13 teams from across the nation to participate in the flight program. Each team was required to submit information regarding their experiments that would be conducted during the flights. The SPC team was the only team comprised of all college faculty members.

The flights were conducted over a two-day period with Davis and Bengé participating on the first day while Worley and Young flew on the second day. Sparks flew on the first day and recorded the SPC team's experiences.

The faculty team from SPC was selected based on an existing relationship with NASA. Since 2002, SPC mathematics/engineering department has participated in NASA's Texas Aerospace Scholars (TAS) program for community colleges and has taken a team of 10 students to Johnson Space Center every spring semester.

This was the first time a team of only college faculty has ever been offered this opportunity through NASA Johnson Space Center. This includes all colleges and universities nationwide.

All three instructors will use the data collected from the experiments in their classrooms. Computer science classes will write programs to compare predicted data to actual data and analyze the results. Math classes will work on problems presented with a “real world” application.

The team is enthusiastic about sharing with schools and organizations. Presently, Worley is set to make 10 presentations at area elementary and high schools to share his NASA experience. Davis has three appearances slated.

If you would like to have the SPC instructors speak to your school, organization or business, please contact:

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View the blog written by Bengé at www.astroprofspage.com.

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