

DATES & DATA**August 30**

Astronomy seminar: The JSC Astronomy Seminar Club meets at noon August 30 and September 6 in Bldg. 31, Rm. 248A. For more information contact Al Jackson at x35037.

Spaceteam Toastmasters meet: The Spaceteam Toastmasters meet at 11:30 a.m. August 30 and September 6 at United Space Alliance, 600 Gemini. For details contact Patricia Blackwell at (281) 280-6863.

August 31

Communicators meet: The Clear Lake Communicators, a Toastmasters International club, meet August 31 and September 7 and 14 at 11:30 at Wyle Laboratories, 1100 Hercules, Suite 305. For more information contact Allen Prescott at (281) 282-3281 or Richard Lehman at (281) 280-6557.

Radio Club meets: The JSC Amateur Radio Club meets at 6:30 p.m. at Piccadilly, 2465 Bay Area Blvd. For more information contact Larry Dietrich at x39198.

September 1

Chess Club meets: The Space City Chess Club meets from 5 p.m. - 9 p.m. at the Clear Lake Park Recreation Bldg. All skill levels are welcome. For details please call James Mulberry at x39287 or James Termini at x32639.

September 5

Quality Society meets: The Bay Area Section of the American Society for Quality meets at 6 p.m. at the Ramada King's Inn on NASA Road 1. For more information contact Ann Dorris at x38620.

September 7

Warning System Test: The site-wide Employee Warning System performs its monthly audio test at noon. For additional information contact Bob Gaffney at x34249.

September 8

Astronomers meet: The JSC Astronomical Society meets at 7:30 p.m. at the Center for Advanced Space Studies, 3600 Bay Area Blvd. For details contact Chuck Shaw at x35416.

OUT & ABOUT ★

NASA JSC Photo 2000e20692 by James Blair
JSC's new Child Care Center nears completion. Shown here, Shannon Clem (left) and Ronald Zepeda of Houston Safety Surfaces paint the surface of the swing set. The center, located near the Gilruth Center, opened August 16.

September 12

Aero Club meets: The Bay Area Aero Club meets at 7 p.m. at the Houston Gulf Airport clubhouse at 2750 FM 1266 in League City. For details contact Larry Hendrickson at x32050.

NPMA meets: The National Property Management Association meets at 11:30 a.m. at the Gilruth Center. For additional information contact Ray Whitaker at (281) 212-6030.

September 13

IAAP meets: The Clear Lake/NASA Chapter of the International Association of Administrative Professionals (formerly Professional Secretaries International) meets at 5:30 p.m. at Bay Oaks Country Club. Cost is \$16. For details and reservations, call Tami Barbour at (281) 488-0055, x238.

September 14

Airplane club meets: The Radio Control Airplane Club meets at 7 p.m. at the Clear Lake Park building. For more information contact Bill Langdoc at x35970.

NASA BRIEFS**HUBBLE DISCOVERS MISSING PIECES OF COMET LINEAR**

To the surprise and delight of astronomers, NASA's Hubble Space Telescope has discovered a small armada of "mini-comets" left behind by what some astronomers had assumed was a total disintegration of the explosive comet LINEAR.

Hubble's powerful vision has settled the fate of the mysteriously vanished solid nucleus of the comet, which seemed to disappear after it moved around the Sun.

On July 27, ground-based observers lost sight of the bright core of the comet and suggested that the nucleus disintegrated into a pile of dust. Astronomers at the Space Telescope Science Institute in Baltimore, MD, quickly reprogrammed Hubble to search for the missing nucleus. Johns Hopkins University astronomer Hal Weaver said he was stunned when the Hubble image popped up on his computer screen. "My first thought was Hubble Space Telescope does it again! We caught the fish! This is amazing, very exciting, very neat."

Though comets have been known to break apart before, this is the first time astronomers have a close-up view of the dismantling of a comet's nucleus due to the Sun's heat. Since the 1950s, researchers assumed comet nuclei were loose clusters of ice and dust, called cometesimals, held together by gravity. Solar heat causes the ices to sublimate and violently release gas as explosions and garden hose-style jets. The pressure of the solar radiation blows away particles like debris caught in a gale.

Some astronomers think that the fragments now being seen in LINEAR may be the primordial building blocks of the original nucleus, the so-called cometesimals, which theory predicts should be several tens of feet across. The breakup of a comet tells scientists how it was put together in the first place. The cometesimals were built up from micron-sized grains of dust as it collected in the early solar system, roughly 4.6 billion years ago.

On Weaver's screen were at least a half dozen "mini-comets" with tails, resembling the shower of glowing fireballs from fireworks. They were clustered in the lance-head tip of an elongated stream of dust and an isolated brighter piece in front of the cluster may be the parent nucleus for the smaller fragments. Hubble's exceptional resolution and sensitivity allowed it to reveal the nuclei as separated bodies at a level of detail never before seen in a disintegrating comet.

Some astronomers believe this was Comet LINEAR's first visit to the inner solar system, after traveling for nearly the distance of one light-year (six trillion miles) from the vast comet storehouse called the Oort cloud.

PACIFIC DECADAL OSCILLATION PACKS A ONE-TWO PUNCH

The Pacific Ocean, the largest and deepest of the world's seven oceans, suffers periodic mood swings that have a dramatic impact on our weather. These mood swings are a climate phenomenon known as Pacific Decadal Oscillation, or PDO. It's an El Niño-like shift in the ocean's temperature that scientists once thought cycled every 15 to 20 years.

However, there's new NASA research that now shows there may be a second, much longer, PDO pattern that lasts about 70 years.

Yi Chao, Ph.D., an oceanographer at NASA's Jet Propulsion Laboratory, and colleagues Michael Ghil, Ph.D., and James McWilliams, Ph.D., of the University of California, Los Angeles, have found evidence of the PDO's two-part structure in a study of the past 92-year record of sea-surface temperatures in the North and South Pacific. The results of their study appear in the August 1, 2000, issue of Geophysical Research Letters.

More information about the Pacific Decadal Oscillation is available on the Internet at:

<http://topex-www.jpl.nasa.gov/discover/PDO.html>

and

<http://tao.atmos.washington.edu/pdo/>

GILRUTH CENTER NEWS**Sign up policy:**

All classes and athletic activities are on a first-come, first-served basis. Sign up in person at the Gilruth Center and show a yellow Gilruth or weight room badge. Classes tend to fill up two weeks in advance. Payment must be made in full, by cash or by check, at the time of registration. No registration will be taken by telephone. For more information, call x33345.

Gilruth badges:

Required for use of the Gilruth Center. Employees, spouses, eligible dependents, NASA retirees and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday and 9 a.m.-2 p.m. Saturdays. Cost is \$12. Dependents must be between 16 and 23 years old.

Open from 6:30 a.m.-10 p.m. Monday-Thursday, 6:30 a.m.-9 p.m. Friday, and 9 a.m.-2 p.m. Saturday. Contact the Gilruth Center at (281) 483-3345. <http://www4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm>

Nutrition intervention program: This is a free seven-week program designed to provide an understanding of the role diet and nutrition play in health. The program includes a series of lectures and private consultations with a dietitian. You will learn how to use dietary vitamins, minerals and herbal nutraceuticals for optimizing health. Classes are held on Wednesdays from 4 p.m. to 5 p.m. For details call Tammie Labiche, registered dietitian, at (281) 483-2980.

Defensive driving: One-day course is offered once a month at the Gilruth Center. Pre-registration required. Cost is \$25. Call for next available class.

Stamp club: Meets every second and fourth Monday at 7 p.m. in Rm. 216.

Weight safety: Required course for employees wishing to use the Gilruth weight room. Pre-registration is required. Cost is \$5. Annual weight room use fee is \$105. The cost for additional family members is \$58.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

Step/bench aerobics: Low-impact cardiovascular workout. Classes meet from 5:25-6:25 p.m. Tuesdays and Thursdays. Cost is \$40 for eight weeks.

Yoga stretching: Stretching class of low-impact exercises designed for people of all ages and abilities in a Westernized format. Meets Thursdays 5-6 p.m. Cost is \$40 for eight weeks. Call Darrell Matula, instructor, at x38520 for more information.

Ballroom dancing: Classes meet Thursdays from 6:30-7:30 p.m. for beginner, 8:30-9:30 p.m. for intermediate and 7:30-8:30 p.m. for advanced. Cost is \$60 per couple.

Country and western dancing: Beginner class meets 7-8:30 p.m. Mondays. Advanced class (must know basic steps to all dances) meets 8:30-10 p.m. Mondays. Cost is \$20 per couple.

Fitness program: Health-related fitness program includes a medical screening examination and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

Aikido: Martial arts class for men and women meets 5-6 p.m. Tuesdays and Wednesdays. No special equipment or knowledge is needed to participate. Aikido teaches balance and control to defend against an opponent without using strength or force. Beginning and advanced classes start each month. Cost is \$35 per month.

SPACE CENTER Roundup

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