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Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

http://www-pao.ksc.nasa.gov/kscpao/snews/snewstoc.htm John F. Kennedy Space Center

Kodiak Star to launch from Alaska

The launch of Kodiak Star aboard a Lockheed Martin Athena I launch vehicle from Alaska's Kodiak Launch Complex was scheduled at press time for Sept. 17. The launch window was to extend from 9 -11 p.m. EDT.

This will be the first mission to be launched into an Earth orbit from Kodiak Island.

Riding atop the Athena I, the Kodiak Star payload consists of four individual satellites, NASA's Starshine 3 and three Department of Defense (DoD) satellites.

PICOSat, PCSat and Sapphire are payloads sponsored by the DoD Space Test Program.

Each satellite has specific orbit requirements, which the Athena I vehicle will accomplish by maneuvering into two separate orbits.

The STP satellites will be released at an altitude of 497 miles and Starshine 3 released at an altitude of 310 miles.

Technicians work on the Athena I rocket that will launch the Kodiak Star payload from Kodiak, Alaska.

Starshine 3 consists of over 1,500 hand-polished mirrors, 31 retro-reflectors and seven clusters of solar cells powering an amateur radio transmitter. The spherical satellite, one meter in diameter and weighing 200 pounds, can be used to study orbital decay.

Flashes from the satellite will occur every two seconds. They will be visible just after sunset and just before sunrise as far north as Point Barrow, Alaska, and as far south as McMurdo Station, Antarctica. The Starshine Program involves participation from students in kindergarten through high school.

This will be the first time that students from Alaska, and nations at high latitudes, can participate in the project due to the higher orbital inclination.

Launching Starshine 3 from the Kodiak Launch Complex at a 67-degree inclination will allow students worldwide, including northern latitudes such as Alaska, northern Canada, Scandinavia and Russia, to participate in the project.

Worldwide student participation has not been possible on previous Starshine missions.

Inside

Multiple launches challenge team

Back to back launches challenged the Cape Canaveral Spaceport team the week of Aug. 6.

It took closely coordinated teamwork among all government, military and contractor Spaceport partners to safely and successfully launch a Shuttle and two Expendable Launch Vehicles in five days.

Thanks to the team's efforts, an Air Force Titan IV-B rocket launched Monday, Aug. 6; a Boeing Delta II rocket carrying NASA's Genesis spacecraft launched Aug. 8; and the Space Shuttle Discovery's mission STS-105 launched Aug. 10.

If not for a weather scrub that delayed Discovery's launch one day, launch frequency at the Spaceport would have paralleled the hectic pace of the early days of the space program with three launches in four days. That hasn't happened since the early 1960s.

"With all the upgrades they've made in recent years, the Range can now process two launches within about 24 hours. Of course, we all worked together to help support the Range's efforts."

Mike Leinbach
Shuttle launch director

The biggest challenge fell on the Air Force's 45th Space Wing. The wing manages the Eastern Range and must reconfigure the range to support each mission. Each launch vehicle has its own unique requirements.

"Kudos to the Air Force and our contractor teams that made this happen," said Brig. Gen. Donald Pettit, 45th SW commander. "What we've accomplished is a clear indicator that the Eastern Range is

(See LAUNCHES, Page 8)

Recognizing Our People

Kennedy Space Center Space Act Award winners gather outside of the Debus Conference Facility. They were honored during a technology awards luncheon at the facility on Aug. 22. Because of their contributions, KSC took first place among NASA centers in total Space Award dollars received.

KSC tops in tech awards for 2nd year

Kennedy Space Center took first place among the NASA centers for the second year in total Space Act Award dollars received.

A technology awards luncheon was held at the Debus Conference Facility at the KSC Visitor Complex on Aug. 22 to honor NASA and contractor inventors for their technical contributions to KSC during Fiscal Year 2000.

A total of $187,300 was received by KSC inventors, up from $175,000 in FY 2001; and $140,000 in FY 99.

Space Act Awards are given for innovations that have been reported in *NASA Tech Briefs*; commercial quality software approved for public release by NASA; and for patent applications submitted by NASA.

Board Action Awards are awarded by the NASA Headquarters Inventions and Contributions Board to technology submissions that are judged to be of significant scientific or technical value.

The Space Act Awards program was authorized under the Space Act of 1958 to provide official recognition and to grant equitable monetary awards for those inventions and other scientific and technical contributions that have helped to achieve NASA's aeronautical and space goals.

Commercial Invention of Year
NOx Scrubber Liquor to Fertilizer: Clyde Parrish, NASA; Dale Lueck, NASA; Andrew Kelly, NASA; Paul Gamble, Dynacs

Southeast Federal Laboratory Consortium for Excellence in Technology Transfer
Gas-Liquid Supersonic Cleaning and Cleaning Verification System: Eric Thaxton, NASA; Raoul Caimi, NASA; Melanie Chan, NASA; Ron Barile, Dynacs

Software of the Year
NASA TechTracS System (runner-up, joint submittal, KSC and LaRC): Jim Aliberti, NASA; Dave Makufka, NASA

Space Shuttle Star Award (Johnson Space Center)
Design and implementation of the control system on the Payload Ground Handling Mechanism Automation project: Andy Bradley, NASA

Tech Briefs Award
Unique Energy Absorber for Space Shuttle Blast Container (a Marshall Space Flight Center technology): Donald Balles, Tom Ingram, Hal Novak and Burt Schricker, all of USA

Software Release Awards
Real-Time Monitoring of Data Using JAVA and C++ Across the Intranet: Richard Birr, Dynacs; Automated Software Updates of Embedded Real-Time Computer System Using FLASH Memory File System (also received Tech Briefs Award): Charles Chapman, NASA; Automatically Generated Excel Interface to Livingstone: Charles Goodrich, Dynacs; Architectural Assessment Tool Enhanced and Patent Application Award: Joseph Glochick, NASA; Jacob Heuther, Boeing; Rick Vargo, Boeing; Kevin Ingoldsby, Lockheed-Martin; Edgar Zapata, NASA; Carey McCleskey, NASA; Russ Rhodes, NASA; Ray Byrd, Boeing; Web-Based Training Registration, Tracking and Testing System: Larry Haines, Dynacs; Angela Smibert, Dynacs; ITS90 Converter International Temperature Scale of 1990 (ITS90 Temperature Converter): Dick Deyoe, Dynacs; Realtime Data Dump to File (Tech Briefs Award): Peter Johnson, NASA; Douglas Johnston, USA; Solenoid Controlled Valve Health Monitoring Software: Brad Burns, Dynacs; Space Shuttle Main Engine Propellant Valve Actuator Engineering Performance Data Analysis: Edwin Cortes; On-Line Game and Training Management System: Edward Farrar, Dynacs; David Penca, Dynacs; Angela Smibert, Dynacs; Disconnect Automated Resource Tracking System (DART): Stephen Schneider, USA; Rick Edwards, USA; KSC Virtual Shuttle Mission Quiz: Chris Nelson, Dynacs; David Penca, Dynacs; Angela Smibert, Dynacs; Brian Bertucci, Dynacs; Space Shuttle Launch Simulation System: Dennis Armstrong, NASA; Patrick O'Rourke, NASA; Phillip Yon, Logicon; Dominic Hamilton, Logicon; Christopher Chamberland, Logicon; Andrea Sanders, Logicon; Richard Sartore, SGS; Melissa Reeder, American Management Systems; Orbiter Re-Waterproofing Automated Status Tool (H20 E-Maps): Carlton Brown, USA; Patti Celli, USA; Eddie Fisher, USA; Michael Carlile, USA; Orlando Torres, Boeing; Alan Zide, Boeing; David Sessa, Boeing; Robert Mraz, Boeing; Daniel Dvorak, Boeing; Magnetic Impulse Force Calculator: Robert Youngquist, NASA; Chris Immer, Dynacs; John Lane, Dynacs; James Simpson, Dynacs; Closed Loop Accounting Management System (CLAMS): Michael Olejarski, USA; Design Process Integration: Glenn Torrey, USA; Gerald Sawasky, USA; Karim Courey, NASA; Circuit Assignment Management System: Tony Nguyen; USA; Thomas Jones, USA

Board Action Awards
Remote Monitor Alarm System: Tracy Bierman, Dynacs; Pedro Medelius, Dynacs; Robet Swindle, Dynacs; Robert Stute; Improved Ultrasonic Leak Detector: Bob Youngquist, NASA; Bobby Cox, Dynacs; William Haskell, Dynacs; Steve Moerk, Dynacs; Jimmy Polk, Dynacs; Hydrogen Fire Detector for the Space Shuttle Launch Pads: Greg Hall, NASA; Angel Lucena, NASA; Pedro Medelius, Dynacs; Jeffrey Rees, Dynacs; The SRB Taper Pin Laser Alignment Tool: Jorge Rivera, NASA; Bob Youngquist, NASA; Bobby Cox, Dynacs; William Haskell, Dynacs; Kevin Murtland, Dynacs; GOx Vent Hood Alignment and Distance Measurement Tool: Bob Youngquist; William Haskell, Dynacs; Jimmy Polk; Non-intrusive Cable Tester Using Digital Quadrature Detector: Pedro Medelius, Dynacs; Cable and Line Inspection Mechanism: Mike Hogue, NASA; Tom Bonner, NASA; Ken Nowak, NASA; Bob Morrison, NASA; Eduardo Lopez del Castillo, NASA; Andy Bradley, NASA; Portable Aft Mass Spectrometer, PAMS: Ric Adams, NASA; Francisco Lorenzo-Luaces, Dynacs; Guy Naylor, Dynacs;

(See AWARDS, Page 6)

Inside

Weather Monitoring

Keeping a close eye on the weather minute to minute is vital to conducting safe and successful operations at the Cape Canaveral Spaceport.

High winds can damage ground support equipment or a payload being transported and can create unsafe launch or landing conditions.

Space Shuttle and Expendable Launch Vehicles (ELV) can be damaged if upper level wind changes are not correctly predicted.

Hail can cause extensive damage to both the Orbiter and the External Tank.

Lightning strikes can be life-threatening to personnel on the ground and can destroy a Space Shuttle or an ELV in flight.

On March 26, 1987, for example, an Atlas/Centaur rocket and its satellite were lost when the unmanned vehicle triggered a lightning strike. Following that loss, official lightning criteria for Shuttle and rocket launches were extensively revised.

To help space program managers keep on top of wind, lightning, hail and other weather developments, the Cape Canaveral Spaceport features the world's densest operational network of weather sensors, including 23 systems with a total of 900 sensors.

The sensors — which monitor pressure, temperature, humidity, precipitation, wind speed and direction, lightning strikes and even lightning potential — are spread over the Spaceport and adjacent counties into the Saint Johns River basin.

Weather balloons are released daily at Weather Station A at Cape Canaveral Air Force Station to provide information on upper level temperatures and winds.

The majority of the weather sensors, including the weather balloons, are maintained and monitored for accuracy by Computer Sciences Raytheon (CSR) under contract with the 45th Space Wing.

CSR also provides weather observations around the clock in addition to Shuttle launch and landing weather support from Weather Station B, located off S.R. 3 near the Shuttle Landing Facility.

"It's our responsibility to make sure the weather data that goes to the 45th Weather Squadron is as accurate as possible," said Dave Chapman, meteorologist and upper air systems controller for CSR. "We have to make sure that the sensors are in proper working order and confirm any suspect data."

Another contractor, CTI, provides support for a Doppler radar wind profiler and the Lightning Detection and Ranging system under contract with NASA. United Space Alliance maintains weather sensors on Pads 39-A and 39-B.

The 45th Weather Squadron uses all the Spaceport weather monitoring data, and information from other sources, including the National Weather Service (NWS), to provide local weather analysis, forecasting and warnings for NASA, the Air Force, the Navy and Spaceport contractors.

The weather sensor information is also used by the NWS Spaceflight Meteorology Group (SMG) at Johnson Space Center to make forecasts for the Shuttle's on-orbit operations and landings at the Shuttle Landing Facility and alternate U.S. landing sites.

KSC's Weather Office, run by John Madura, coordinates weather support activities with the 45th Weather Squadron and SMG and defines requirements for NASA operations. The office also works with the Applied Meteorology Unit, an applied research group formed by NASA, the Air Force and the NWS to develop technologies for improved monitoring and forecasting.

"We've got the world's best weather monitoring system, but we've got to continue to make it better to improve safety and reduce operational costs," said Dr. Frank Merceret, chief of the Applied Meteorology Unit. "A big example: About one third of launch scrubs are because of weather. If the squadron had better data, they could do a better job of trimming that percentage while still maintaining safety."

Spaceport News will go inside weather forecasting in the next issue.

Above, Computer Sciences Raytheon meteorological data specialists Stephen Ezell (foreground) and Mike Boyer preparing a new GPS-tracked radiosonde for flight. At top, the two tie the radiosonde to a parachute and a helium-filled weather balloon just prior to release.

Kurt Warner (left), instrumentation, a meteorologist and describe how a ra radiosonde is carr by a weather ballo weather data up to

supervisor of meteorology
nd Dave Chapman,
upper air systems controller,
adiosonde operates. A
ried through the atmosphere
oon and routinely provides
o an altitude of 20 miles.

Clint Fergerson monitors the surface weather conditions at Weather Station B near the Shuttle Landing Facility. The station not only provides weather observations at least once an hour but also supports the Shuttle during launches, while on-orbit and during landings.

Stacie Price inspects a tipping rain gauge for obstruction.

Bill Ulbircht makes repairs to a lightning warning sensor.

Meteorological electronic specialist Alan Petit repairs an anemometer. Anemometers are sensors that provide wind speed and direction.

Silas Andrews checks the data acquisition equipment of a weather tower near the Shuttle Landing Facility.

Eric Fetzer, an RF technician with CTI, checks a a cable at the Doppler radar wind profiler station, which is located near the Shuttle Landing Facility.

Space Station Utilization Conference set

Kennedy Space Center and the Florida Space Research Institute (FSRI) will host the annual International Space Station Utilization Conference Oct. 15-18.

The event, sponsored by NASA and The Boeing Co., will be held at the Radisson Resort at the Port in Cape Canaveral.

The conference will feature nearly 250 technical papers and presentations on topics ranging from biomedical research, materials science, and microgravity science, to fundamental physics research, earth observation, and fluids and combustion research. Other discussions will focus on commercial developments on the Station.

Key speakers at the event will include NASA Chief Scientist Kathie Olsen, Space Station Program Manager Tommy Holloway, Boeing Vice President Brewster Shaw, and NASA Office of Space Flight Senior Scientist Roger Crouch.

In addition to technical discussions, the event will include exhibits of the major research facilities under development for the Space Station, along with booths for industrial partners and providers of hardware and services.

Two professional development courses are planned prior to the official start of the conference. These courses, Economics of Space Transportation and Fundamentals of Space Exploration, will be offered on Oct. 13 and 14.

Registration is available on-line through the American Institute of Aeronautics and Astronautics at **www.aiaa.org**. Alternately, those interested may register by completing a registration form available from FSRI at 321-452-2653, ext. 205.

Super Safety Day planned

Kennedy Space Center and the 45th Space Wing will participate in a full day of safety and health activities Oct. 17.

The activities are all part of an annual event known as Super Safety & Health Day.

This year's theme, "Safety & Health, A Way of Life," emphasizes not only the importance of safety and health in the workplace, but its significance in everyday life.

Safety & Health Day activities will kickoff with a keynote address at the KSC Training Auditorium by Mr. John Drebinger Jr., nationally known speaker, trainer and author.

Afternoon activities will feature appearances by NASCAR representatives at various locations throughout the Center.

Mark your calendars; and for the latest information, visit the Web site at **www-ss.ksc.nasa.gov/SuperSafety2001/**

Employee Appreciation Day set

It's that open-the-gates time of year again.

Badged Kennedy Space Center, Cape Canaveral Air Force Station and contractor employees can bring family and friends to tour facilities, meet co-workers, and see their work environment at the 2001 Employee Appreciation Day, also known as Open House.

This year's Employee Appreciation Day is for employees and their guests only and will be held on Saturday, Nov. 3. Gates will open at 9 a.m. and close at 3 p.m.; however, launch pad viewing will end at 2:30 p.m.

A badged employee must be present in all vehicles (no vehicle can be larger than a 15-passenger van). Details about facilities and events, and a link to the Employee Appreciation Day Web site will soon be available. For more information, e-mail kathleen.warren-1@ksc.nasa.gov.

AWARDS...

(Continued from Page 2)

Board Action Awards continued
Richard Hritz, Dynacs; Terry Greenfield Dynacs; Curtis Lampkin, Dynacs; Tim Griffin, Dynacs; Laurance Lingway, Dynacs; Greg Breznik, NASA; Carolyn Mizell, NASA; Dave Collins, NASA; Hydrogen Umbilical Mass Spectrometer (Tech Briefs Award): Ric Adams, NASA; Greg Breznik, NASA; Francisco Lorenzo-Luaces, Dynacs; Guy Naylor, Dynacs; Richard Hritz, Dynacs; Terry Greenfield, Dynacs; Laurance Lingway; Dynacs; Curtis Lampkin, Dynacs; Charles Curley, Dynacs; Root Cause Analysis System (Software and Tech Briefs Awards): Donna Blankmann-Alexander, USA; Jeffrey Ewald, USA; Lisa Grace Kestel, NASA; Tim Barth, NASA; Jeannette Boogaerts, NASA; Andy Schwalb, Dynacs; David Floyd, Dynacs; Donald Young, Dynacs; Personal Cabin Pressure Monitor (Tech Briefs Award): Jan Zysko, NASA (Patent Award); Anthony Eckhoff, Dynacs; Pedro Medelius, Dynacs, Steve Moerk, Dynacs; Dick Deyoe, Dynacs; John Taylor, Dynacs; Jose Perotti, NASA; Cartridge Automated Reliance Tracking Program (Software Award): Stephen Schneider, USA; Christopher Ehrenfeld, USA; A Scaling Device for Photographic Images, Jorge Rivera; NASA: Charlie Stevenson, NASA; Bob Youngquist, NASA; Bobby Cox, Dynacs; William Haskell, Dynacs; Fastener Starter and Tote-All Keeper: Faith Chandler, Boeing; Harry Garton, Boeing; William Valentino, Boeing Michael Arnett, Boeing; Configuration and Evaluation of Mesoscale Numerical Weather Predition Models: John Manobianco; Greg Taylor, ENSCO; Jonathan Case, ENSCO; Allan Vianic ENSCO; Mark Wheeler, ENSCO; Coherence Time of Mid-Tropospheric Wind Features as a Function of Vertical Scale: Frank Merceret, NASA

Tech Briefs Award
Flow-Concentrating Supersonic Liquid Nozzle: Eric Thaxton, NASA; Raoul Caimi, NASA; Crane Load Motion Control, First Order Theory: Bob Youngquist, NASA; Stan Starr, Dynacs; Algorithm for the Determination of the Direction of Arrival from Four Sensors in A Y Array: Stan Starr, Dynacs; Fast and Efficient Algorithm for Cross-Correlation of Data Records: Stan Starr, Dynacs; Pedro Medelius, Dynacs; CRCA Oxygen Deficiency Monitoring System: Paul Mogan, NASA; Francisco Lorenzo-Luaces, Dynacs; Guy Naylor, Dynacs; Wayne Rutherford, Dynacs; Donald Young, Dynacs; Richard Hritz, Dynacs; Precise Measurement of the Time Delay Between Signals Received by the Short-Baseline LDAR System: Pedro Medelius, Dynacs; Stan Starr, Dynacs; Analog Output Version of the Capacitance Meter Electronics: Steve Moerk, Dynacs; William Haskell, Dynacs; Bob Youngquist, NASA; Bobby Cox, Dynacs; Advanced Life Support Automated Remote Manipulator: Robert Morrison, NASA; Bill Jones, NASA; Andy Bradley, NASA; Michael Hogue, NASA; KSC Simulation System: Juan Busto, NASA; Mike Dick, NASA; Kevin Grant, NASA; Scott Estes, NASA; Jimmy Celsor, NETLANDER; Chuck Lostroscio, NASA; Nathan Taylor, NASA; Carlos Alvarado, NASA; Patrick Sullivan, USA; Thomas Miller, USA; Caroline Achee, USA; John Coulter, USA; Lauren Graves, USA; Smart Current Signature Sensor: Angel Lucena, NASA; Jose Perotti, NASA; Curtis Ihlefeld, NASA; Online Training Game Engine: David Penca, Dynacs; and Angela Smibert, Dynacs; Pulse Code Modulation Stream Minor Frame to Major Frame Converter Software: Jonathan Morsics, USA; Support Software for Portable Data Collection System: Kathy Potter, NASA; Carl Delaune, NASA; Fast and Improved Transient Voltage Recorder: Pedro Medelius, Dynacs; Meterological Range Safety Support System/Eastern Range Dispersion Assessment System: Erik Magnuson, ENSCO; Alan Dianic, ENSCO; Greg Taylor, ENSCO; John Warburton, ENSCO

Patent Application Award
Extreme Wind Velocity System: Jan Zysko, NASA; Stan Starr, Dynacs; Transient Voltage Recorder: Pedro Medelius, Dynacs; Sonic Lightning Indicator: Stan Starr, Dynacs; Pedro Medelius, Dynacs; New Air Pollution Control Technology for Removal of Nitrogen Oxides from Stationary Combustion Sources: Michelle Collins,NASA

Daylight homecoming

Orbiter Discovery and its crew land on KSC's Shuttle Landing Facility runway 15 on Aug. 22, creating a cloud of smoke as its wheels touch the concrete. Main gear touchdown was at 2:22:58 p.m. EDT. The 11-day, 21-hour, 12-minute STS-105 mission accomplished the goals set for the 11th flight to the International Space Station: swapout of the resident Station crew; delivery of equipment, supplies and scientific experiments; and installation of the Early Ammonia Servicer and heater cables for the S0 truss on the Station. Discovery traveled 4.3 million miles on its 30th flight into space. Out of five missions in 2001, the landing was the first to occur in daylight at KSC.

LAUNCHES...

(Continued from Page 1)

capable of supporting multiple launches over a short period."

Reconfiguring the 15-million-square-mile range, with sites as far north as Newfoundland and south to Ascension Island in the South Atlantic, is an intensive process that involves adjusting and checking out the vast network of radars, telemetry, command destruct, communications, meteorology systems and more needed to accommodate the different vehicles launched from the Space Coast.

"With all the upgrades they've made in recent years, the Range can now process two launches within about 24 hours," said Mike Leinbach, NASA's Shuttle launch director. "Of course, we all worked together to help support the Range's efforts."

The Shuttle program did its part to help by starting the STS-105 mission call to stations and countdown four hours early so that Pad 39A would be clear for the Titan in case launch had to slip 24 hours.

NASA's ELV program contributed by agreeing to accept just one scheduled launch day during the week instead of the two days customarily available.

Weather scrubs the week before Aug. 6 would have otherwise bumped the Genesis launch dates to Aug. 12 and 13.

The Range was set to cease launch operations for five weeks on Aug. 18, and the next window of opportunity for a good launch date for the Genesis spacecraft wouldn't be until December.

"We were worried about the weather forecast for Aug. 12 and 13 and wanted to improve our chances of getting Genesis on orbit, so we got creative with the launch schedule," said Omar Baez, launch director for Expendable Launch Vehicles.

NASA's MILA, the Merritt Island Space Flight Tracking and Data Station, also supported the three launches. The station served by transferring data for the two ELV launches and by providing tracking data during the first seven minutes of the Shuttle launch.

John F. Kennedy Space Center

Spaceport News

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