



STC Helps Break-In to McMurdo Station, Antarctica

Jim St. John, Alex Iyerusalimskiy, and David Karnes of STC's Polar Technology Division recently returned from McMurdo Station, Antarctica where they assisted in the break-in to the station. Every year one or two icebreakers are sent to the station in December to prepare a channel for two resupply ships, a tanker and the containerized cargo ship. The ships generally arrive in January and the icebreakers escort them to a pier at the station that is built of sea ice. Approximately 9 millions gallons of aircraft and vehicle fuel and 700 standard containers were delivered this year by the two ships.



Krasin stopped in the ice.

STC was asked to observe the ice conditions and the performance of the icebreaker this year and make daily predictions on when the ship would reach McMurdo Station. The predictions were necessary because only one ship was sent this year, the Russian icebreaker *Krasin*, and a second ship, the USCGC *Polar Star* was standing by should she be needed. The ice thickness exceeded the ship's ability to run continuously through the ice; so, backing and ramming the ice was the mode of operation used. A dedicated GPS was installed and the

(Continued on page 2; see ANTARCTICA)

STC Wins Dugway Support Contract

STC was awarded the Dugway Proving Ground West Desert Test Documentation and Management Support Services contract effective 12 February 2006 as the prime contractor. This contract is expected to employ over 30 personnel for a period of 10 years if all option years are exercised. The successful proposal was headed by the STC Edgewood Region with significant help from our Utah offices, particularly Wes Ercanbrack and Steve Freudenberger.



Craig Gurling
Program Manager

Joining STC in this new contract will be Jacobs Engineering and Mellor

(Continued on page 4; see DUGWAY)

Honors and Awards

Park Receives Innovation Committee Board (ICB) Award from NASA LaRC



Dr. Yeonjoon Park

STC staff researcher, Dr. Yeonjoon Park together with NASA Langley civil servant researchers Dr. Sang Choi and Mr. Glen King received the Innovation Committee Board (ICB) award from NASA Langley Research Center. The researchers invented a new semiconductor thermo-electric material growth scheme and its characterization method to control material defects. Semiconductor thermo-electric materials are being used in a wide area, from IR detector coolers to a compact refrigerator in automobiles

in the consumer market. The spaceships Voyager 1 and 2 at the edge of the solar

(Continued on page 4; see ICB)

Thirteen STC Employees Presented NASA TGIR Awards

In 1997, NASA restructured its investments into outcome-oriented objectives that were defined to address the Nation's critical aerospace needs. These objectives were intended to

(Continued on page 3; see TGIR)



From left to right: Dr. George Wood, Mark Wynkoop (NASA CS), Dick Gray, Jeri L. Carter, Chand Deepak, Mary Jo Watterton, June W. Lawrence, Brenda M. Adams, Delores L. Russell, Cathy L. Kern, Viola Jackson, and Karen Cruz. Not pictured: Debbie A. Wulff, Wesley C. Easley, C. Thomas Feigh, Steve Sudik, and Paul Timbrell.

IN THIS ISSUE...

STC Helps Break-in at McMurdo	1
STC Wins Dugway Contract.....	1
Honors and Awards	1
STC Co-develops Bio-Threat Detection	2
Kirt Bush	2
In Memory of Robert C. Wright	2
STC Supports CALIPSO Mission	3
STC Managers Meet	4
AMS/STC Scholarship Award	4
New Contracts	4

Edgewood Employees Receive Various Awards

Four employees based at our STC Edgewood office received awards for their work. Kent Billings, Senior Scheduler within the PAIS contract, has been singled out by both Chemical Stockpile Disposal Project and SAIC management for his excellent

(Continued on page 3; see EDGEWOOD)

STC Edgewood Co-develops Proteomics-based Bio-Threat Detection

Samir Deshpande is an STC employee working in support of Point Detection at the Aberdeen Proving Ground Edgewood Campus. The team has developed methods for rapid sample extraction and analysis by Mass Spectroscopy which, when used in concert with software written by Mr. Deshpande, facilitates rapid identification of biological agents (bacteria, viruses, and toxins). The system has the unique ability to identify peptide patterns and match these to theoretical patterns obtained by analysis of proteomic databases. Just as impressive, multiple agents can be identified simultaneously, and the system is very fast, taking only about 20 minutes from sample receipt to identification.



Samir Deshpande

Some aspects of the work have been recently published in the *Journal of Proteome Research* (January 2006) in an article entitled "Mass Spectrometry-Based Proteomics Combined with Bioinformatic

Tools for Bacterial Classification." The article appears to have generated a lot of interest, as it was reviewed in the February 1 issue of *Analytical Chemistry* (journal), and was featured on the Swiss Proteomics Society website as required reading in the field.

Applications for the technology are expected to be widespread, encompassing Bio-Threat Detection, Medical Diagnostics, vaccines and biotherapeutics manufacturing, and basic research. □

ANTARCTICA (Continued from page 1) output was recorded every second on a laptop computer. From these recordings, the exact trackline, the backing and ramming cycle times and speeds, and the penetration distance of each ram were computed. These results were compared with our analytical model predictions to determine whether we were ahead or behind the arrival prediction.

This ice season was also one of the worst on record. Landfast level ice was encountered about 80 nautical miles from the station and it varied from 5 to 8 ft thick along the route. The team boarded icebreaker *Krasin* in New Zealand and prepared for the observations en route to McMurdo Sound. The break-in was completed in ten days with about 2000 backing and ramming cycles required by the ship. STC team flew back from the ice through New Zealand.

STC's Polar Technology Division provides early stage icebreaker design services, performance prediction and transportation simulation in ice, and shipboard measurements on icebreakers and

ice-going ships for both government and industry world wide. Measurements include ship performance, ice impact loads,



STC's David Karnes (right), Alex Iyerusalimskiy (left) and Jim St. John (middle) on the ice alongside the *Krasin*.

power plant performance and control, and power quality on common bus systems.

Jim St. John is the head of STC's Polar Technology Division. He is a naval architect with 25 years of experience working on polar technology in the marine environment, including an historic expedition across the Arctic Ocean via the North Pole. He led a multiyear program to gather ice impact loads on ships and he has used the resulting data to develop design criteria and design methods for icebreaking ships. He has managed many field programs in the Arctic, Antarctic and various sub-Arctic locations. Jim joined STC in 1991. □



Jim St. John

Welcoming Kirt Bush

STC is pleased to announce that **William (Kirt) Bush** has joined the company as Vice President and Programs Manager. Kirt has a master's degree in Systems Management/Technology from the University of Southern California with a background in systems development and computer sciences. He has supported multiple DoD aircraft weapons systems design



Kirt Bush

to include the F-14 and AH-1 for the Navy and Marine Corps. In 1994 he began his support to NASA as the Resident Chief Engineer on CSC's contract at the Wallops Flight facility supporting Sounding Rocket research projects. He later moved to the John C. Stennis Space Center, where he directed the Facilities Operations Support Service Contract with over 600 employees providing engineering, technical, and institutional support to the Center. He is a Six Sigma Greenbelt, an Achieve Global facilitator, and an ISO lead auditor. In addition to program management, Kirt will assist in developing NASA and other federal business. Kirt will be located in STC's Hampton Office. □

In Memory of ...

Robert C. Wright

STC regrets to let you know that **Robert C. Wright**, known to all as Bob, passed away March 16, 2006. Before joining STC in 1990 he was a career Coast Guard officer, retiring as a commander, and continuing to work in the defense industry. We knew him at STC as a cheerful ("the singing Coastie"), kind, and loyal individual, devoted to his family, and taking care of his wife Barbara through many years. He was survived by his wife, a daughter, son, brother, and three grandchildren. Bob will be missed by STC and its staff. □



Bob Wright

The STC NEWSLETTER is published by the Science and Technology Corporation, 10 Basil Sawyer Drive, Hampton, VA 23666.

Editor: Diana McQuestion
Layout: AnnaMaria Clack
(757) 766-5800/Fax (757) 865-1294
Web site address: www.stcnet.com

STC Aerospace Program Supports CALIPSO Mission

The CALIPSO and CloudSat spacecraft are a pair of Earth-observing satellites designed to study clouds and aerosols from space. The Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observation (CALIPSO) satellite is equipped to examine the role that clouds and

airborne particles play in regulating Earth's weather, climate, and air quality. CALIPSO provides vertical information of our atmosphere using lidar technology, while CloudSat uses a powerful radar to see into the structures of clouds. The knowledge gained from these atmospheric measurements will improve weather and climate prediction tools. CALIPSO is a collaboration between NASA and France's

Centre National d'Etudes Spatiales (CNES). Langley is leading the CALIPSO mission and providing overall project management, systems engineering, and payload mission operations. CALIPSO and CloudSat were launched aboard the Boeing Delta II rocket from Vandenberg Air Force Base in California at 6:02 a.m. EDT on April 28, 2006. (Dr. Adarsh Deepak, STC President, was present for the initially sched-

uled launch on April 20, which was postponed 40 sec prior to liftoff.) These two satellites then joined several other satellites already orbiting the earth in a formation called the "A" Train. The combinations of measurements from these satellites will provide a much better understanding of global weather and climate.



Pat Lucker (right) is awarded the Center Team Award, shown here with Dr. Lelia B. Vann, Director, Science Directorate at NASA LaRC, at the CALIPSO awards.

STC's **Patricia Lucker**, located at NASA Langley Research Center, supports the CALIPSO project through engineering and science data analysis and is a member of the mission operations team that commands and controls the satellite around the clock. As a CALIPSO Team member, Pat received the Center Team Award for "Out-

standing performance and dedication in the successful launch of the CALIPSO Satellite." Pat develops software and analysis routines for the lidar, a laser instrument that uses pulses of light to measure the vertical distribution of clouds and aerosols within the atmosphere, as well as visualization tools for the Wide Field Camera, another instrument on the satellite. Pat

creates and provides software tools for members of the science team to aid in their interpretation of the data and data formats. Prior to launch she participated in two atmospheric tests of the satellite, where she also had responsibility for the correlative lidar system operating alongside the CALIPSO satellite and the validation of the test data. Along with the development of software to analyze the



Lidar profile.

wide variety of data studies that require both numerical and graphical outputs. Being involved in a

project that has potential benefit to society and the environment in the areas of air quality and climate change, and being part of an international team of engineers and scientists makes the job very interesting and rewarding. □



CALIPSO launch.

EDGEWOOD (Continued from page 1)

planning support on two concurrent tasks. SAIC recognized Kent's performance in a commendation letter from SAIC PAISC Program Manager, Dr. William Kavanagh.

Bill Cyr, 11-year veteran with STC PAISC support, received a commendation letter from The Chemical Materials Agency Project Manager for Non-Stockpile Chemical Materiel (PMNSCM) for his motivated work with the Chemical Weapons Convention Support Team and his development of the Recovered Chemical Warfare Materiel poster being distributed by PMNSCM.

Celeste Lloyd, Task Manager for the Material Assessment Review Board (MARB) within the PAIS contract, received a commendation letter from The Chemical

Materials Agency Project Manager for Non-Stockpile Chemical Materiel (PMNSCM) for her supporting the MARB review of the Pine Bluff Munition Assessment System (PBMAS) and the related data transfer from PBMAS to MARB. PMNSCM described her work on the project as "extraordinary", and "critical in developing [the] comprehensive process."

Linda Wilkerson, Technical Analyst on the Guardian Program, received a commendation letter from the SAIC Systems Engineering Manager for outstanding performance in the Engineering Configuration Management section. She was noted for her development of Guardian Standard Procedures, high quality standards, and a "great can-do attitude." □

TGIR (Continued from page 1)

challenge the boundaries of NASA's knowledge and capabilities as well as stimulate innovation to sustain U.S. leadership in aerospace. Each year the Aeronautics Research Mission Directorate presents awards to the NASA/industry teams who have made significant progress towards achieving these highly ambitious objectives. For 2005, NASA Langley Research Center (LaRC) researchers and industry partners received two of these prestigious Turning Goals Into Reality (TGIR) awards for aviation safety and increasing capacity and mobility.

STC is proud that the award winning teams included 13 STC employees. On 25 January 2006, during the NASA LaRC TGIR award ceremony, the awardees were honored by Center Director Lesa B. Roe. The award recipients are: **Brenda Adams, Jeri Carter, Karen Cruz, Viola Jackson, Cathy Kern, June Lawrence, Delores Russell, Mary Jo Watterton, Debbie Wulff, Wesley Easley, C. Thomas Feigh, Steve Sudik and Paul Timbrell**. Congratulations to all! They were recognized for their collective efforts and noteworthy accomplishments as members of the following teams: *Gulfstream-V Synthetic Vision Integrated Technology Evaluation (GVSITE) Team-Objective 2.1 Aviation Safety and Small Aircraft Transportation Systems Project Team-Objective 2.3, Increase Capacity and Mobility.* □



Kent Billings



Bill Cyr



Celeste Lloyd



Linda Wilkerson

STC Program Managers Meet for Corporate Update

Science and Technology Corporation (STC) Program Managers and Vice Presidents joined CEO and President, **Dr. Adarsh Deepak**, late July 2006 for one of the largest and most significant corporate-wide management meetings held during STC's 27 years in business. In his opening remarks, Dr. Deepak thanked the managers for the recent achievements in growth of the company and certification in ISO 9001:2000. He also reminded all that much of this success is due to the outstanding quality of STC employees and they should also be recognized. The meeting centered on growing program capabilities, strategy for the future and STC's corporate focus on Six Sigma, CMMI, and Quality Standard Procedures. Rather than typical 'top-down' presentations, PMs were provided opportunities to share accomplishments, goals, and program

capabilities with other STC managers to increase awareness and identify related activities among other programs. STC

areas for exercising STC capabilities toward new contracts. The meeting also gave the PMs an opportunity to meet or renew acquaintances with the STC corporate support staff. Notable among the introductions was the spontaneous applause given by PMs when the highly regarded STC contracts staff was ushered into the meeting room. The meeting generated renewed interest in capturing existing skills and personnel in other



Left to right: (Back Row) Wes Ercanbrack (Dugway Range and Laboratory), Dr. Paul Try (Sr. VP, Washington, DC Region), Bob Lackey (PAIS/Guardian), Harry Kramer (ADST/ATSS – Data Collection & Test Support), Jim St. John (Polar Technologies), Steve Freudenberger (Tooele Operations), Jim Gilbert (Chem-Bio Defense), Sid Gerard (Cold Regions Research), Jeremy Throwe (Earth and Space Sciences), Kirt Bush (VP/Programs Manager), Jeff Manning (Earth and Space Sciences), Don Frank (VP, Earth and Space Sciences), Rink Wood (VP/CFO), Dr. George Wood (VP, Aerospace Programs), Craig Gurling (Dugway Data Services). (Front Row) Dick Gilligan (Sr. VP, Edgewood Region), Dr. Adarsh Deepak (President/CEO), Chand Deepak (Exec. VP/COO), Dave Donahue (Earth and Space Sciences), Dick Gray (Electronic Fabrication Support). Not shown Dr. Thomas Vonder Haar (VP, METSAT).

strengths in DoD, NASA, and NOAA support contracts were highlighted, while future growth in IT support was discussed for both current and future areas. The strong growth trend for STC reflected expansion of several programs, and provided the basis for strategic planning discussions among the managers to identify the best

programs to pursue new opportunities for STC. In closing the conference, **Chand Deepak**, STC COO, remarked "This was probably the most valuable managers' conference in a long time and has provided all a better appreciation of STC and its capabilities as well as a road map for the future."□

DUGWAY (Continued from page 1)

Engineering as subcontractors and teammates. STC has long-term teaming relations with both companies on other contracts in Utah, and with Jacobs at Aberdeen Proving Ground. **Craig Gurling** is the Program Manager for the contract, reporting to **Dick Gilligan**, Sr. Vice President for the STC Edgewood Regional Office. Craig has many years of experience at Dugway, including as the Deputy Program Manager for Lockheed Martin when it was the prime range support contractor there. STC is pleased to have such an experienced manager to head this new important effort.□

ICB (Continued from page 1)

system are also powered by thermo-electric power generators. According to Dr. Park, finding a new growth scheme and defect characterization method can open a new horizon of unprecedented alloy groups for thermo-electrics and semiconductor applications.

Dr. Park joined STC in 2003 after he received his Ph.D. in engineering from Materials Science Department, University of California at Berkeley. He has been supporting the Advanced Materials and Processing Branch, NASA Langley Research Center, since then.□

AMS/STC Scholarship Award

The American Meteorological Society (AMS) named Elizabeth Dunaway Sturges as the recipient of the AMS/STC Undergraduate Scholarship for 2004/2005. She is a senior at Harvard, double majoring in Earth & Planetary Sciences and Environmental Science & Public Policy. Based on her research with the Harvard University Atmospheric Chemistry Modeling Group, she is writing a senior honors thesis on the science and policy of atmospheric mercury. Other interests include teaching in an after-school program for motivated, underserved middle school students. After graduation, Elizabeth intends to travel and teach for a year before attending a Ph.D. program in atmospheric science.□



From left to right: Dr. Adarsh Deepak, Elizabeth Sturges, and Dr. Paul Twitchell.

New Contracts

STC is very pleased to announce a recent prime contract award totaling over \$22 million from the West Desert Test Center at Dugway Proving Ground in Utah for Test Documentation Support. STC also played a major role in helping its team win the follow-on to the Environmental Satellite Processing Center (ESPC) Support contract with NOAA in Camp Springs, Maryland. STC has 20 employees working on this contract, which has a potential value of \$21.7 million over 8 years.

Other notable awards include new contracts and subcontracts valued at over \$10 million from our Government and Commercial/prime customers, with aggregate orders totaling over \$4.6 million awarded under our GSA IT and PES contracts. We also won an SBIR Phase II proposal submitted by **Dr. Santosh Srivastava** for the Development of Person Portable Mounted Internet Ready Explosive Sensor.