STC Participates in USCGC Healy Ice Trials

During April and May 2000, STC’s Polar Technology Office, based in Columbia, Maryland, conducted tests on the U.S. Coast Guard’s newest icebreaker, the Healy. Jim St. John, Alex Iyerusalimskiy, and Joseph Stratton all participated in the instrumentation and measurements in the Canadian Arctic. The Healy is the first heavy icebreaker commissioned by the Coast Guard in nearly 20 years, and is meant to serve as a scientific research platform for the Arctic regions. It was delivered on 9 November 1999 by Avondale Shipyards of New Orleans, Louisiana.

The STC Polar Technology Office was awarded the task of designing, installing, and eventually monitoring the instrumentation and data acquisition systems for the trials. This involved a monitoring system of over 200 channels, which recorded data on a wide range of performance and structural capability parameters. Some of these measurements included ice-induced loads on the hull and rudders, torque and thrust response on the shafts, and power plant dynamics. The data collected will be used to ensure that the ship meets its design specifications, to provide operation performance characteristics for the new crew, and to improve design criteria for future ships.

Jim, Alex, Joseph, and subcontractor Mike Steele of Fleet Technology Ltd., met the ship in Halifax, Nova Scotia at the end of March. There, final preparations were made on the instrumentation system, the majority of which had been completed during November 1999.

The Healy set sail on 1 April 2000, steaming through the Strait of Belle Isle on route to the Davis Strait, between Greenland and Northern Canada. Dedicated tests were performed in this area, in big to vast ice floes (diameters of 0.5 to 10 km). These floes were of thicknesses from 0.7 to 2 meters, and the vessel performed well in these conditions. Many natural wonders that are unique to the Arctic environment were also

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DTRA Contract to Update "Smoke" Archive

Alan Rishel to Direct Effort

A team of experienced scientists from STC and the Titan Corporation have won the contract with the Defense Threat Reduction Agency (DTRA) to update the archived smoke and obscurant (S&O) data. STC is teamed as prime contractor with the Titan Corporation as its subcontractor in a 5-year contract. Alan Rishel, who was recently promoted to the position of Project Manager at the STC-Las Cruces office, will manage the contract. Mr. Rishel holds the M.S. in Physics from Michigan State University.

DTRA’s Hazard Prediction and Assessment Capability (HPAC) project requires the development and implementation of an operational tool that can integrate the S&O data archive into useful modules for the current HPAC missions. It will be used in training, planning, executing, and managing smoke and obscurant deployment on the battlefield.

This tool will be integrated with the DTRA HPAC software with the goal of leveraging existing smoke and obscurants databases/software, and developing a validated fast-running operational level tool to support the effective use of battlefield smoke and obscurants.

With nearly 20 years of S&O experience in field test design, field test management and operations,

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STC’s Oglesby and Watkins Receive NASA Awards

Drs. Donald M. Oglesby and A. Neal Watkins, key members of the Advanced Chemistry Group (ACG), have received letters of commendation and monetary awards for their work in support of SAERS Contract NAS1-96013 Task GH07.

The commendations, from Dr. Jeffrey D. Jordan, read in part, "...their efforts are critical to realizing program objectives and meeting deliverable and metric milestones. (Their) strong work ethic, dedication to the individual program goals, and positive attitude are a model to all personnel in the ACGC."

The efforts of the NASA ACG are directed toward the goals of the Pressure and Temperature Sensitive Paint (GH07) activities. The work requires expertise in sensor systems, polymer chemistry, and complex chemical reaction processes, and has enabled the development of temperature-insensitive pressure-sensitive paints and the successful transition and implementation of advanced pressure sensitive paint systems within NASA Langley Research Center wind tunnel facilities.

Dr. George Wood is the STC manager for tasks under this contract.
TEAM (continued from page 1)

members of the team include Lockheed Martin and Boeing. The other winner was a team headed by Raytheon.

NASA is in partnership with the Federal Aviation Administration (FAA) to provide national aerospace modernization. Key objectives of this collaboration are: to optimize air traffic into airports; improve weather information to pilots; develop procedures and equipment for more efficient flights; provide an inexpensive precision approach capability; reduce runway occupancy time and expedite taxi times; optimize aircraft departures from airports; reduce delays caused by bad weather; coordinate safe, efficient ground GPS with airlines; and decrease delays for aircraft ready to take off.

Several of these areas are weather related and relevant to one of STC’s Core Capabilities: Atmospheric Sciences and Meteorology.

The NASA ATMSDI Program involves other NASA Centers, namely Langley Research Center, Dryden Flight Research Center, and Glenn Research Center. Langley’s program, which supports research-oriented initiatives, is the largest outside of Ames.

Currently STC supports Langley’s air traffic management efforts with the lidar wake-turbulence detection work performed by Mulageta Petros. Last summer, Mr. Petros participated in the wake vortex studies at the Dallas-Fort Worth airport.

At the initial briefing by the CSC team to Ames managers, Dr. Amar Choudry made a PowerPoint presentation of the A.I.R.P.ORT.S. software program he and his students developed, with STC’s financial assistance, to optimize spacing of aircraft during take-off and landing operations, taking into account local weather and wake vortex conditions, as well as the types of aircraft involved. He showed the potential applications of A.I.R.P.ORT.S. to commercial airline takeoffs and landings.

Seen in the photograph on page 1 are Drs. Choudry and E. David Hinkley of STC along with Dr. Vernon Rosso of NASA Ames Research Center. Dr. Rosso has published several technical papers on the theory and analysis of clear air turbulence (CAT). He was particularly interested in the use of A.I.R.P.ORT.S. and its analytical software for display of CAT information for airline pilots. The kinds of new technology Dr. Rostow is interested in include those which apply to global topography (since several accidents have been caused because of lack of good information), weather, pollution, and noise abatement.

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STC’s Axenson Hosts International Aikido Tournament

The Friendship Games Aikido tournament was held at the Chesapeake Conference Center on 3-5 August 2000. Dr. Theresa Axenson, STC Scientist in the Laser Systems Branch at NASA Langley Research Center and President of Tidewater Shodokan, served as host.

Over 100 registered participants from around the USA, Canada, Brazil, and Japan participated. Instruction in Aikido was given by Nariyama Tetsuro Shihan, 8th Dan (degree black belt) and technical head of the Japan Aikido Association. Some instruction was also given by Tanaka Seiji (7th Dan) of Denver, Colorado. Details of the competition outcome are at http://www.sni.net/tomiki/

After attending a SPIE conference on Remote Sensing in Japan in 1998, Dr. Axenson trained for three weeks at Shodokan Hombu Dojo in Osaka under Nariyama Shihan. While there, she took her dan exam (2nd degree black belt). She describes the training as "intense yet enjoyable," and returned in October 2000 to develop her skills further.

STC was a cosponsor of the games.

Honors and Awards

On 8 September 2000, Dr. Adarsh Deepak, President of STC, attended the unveiling of the Wall of Honor, recently installed in Kaufman Engineering Hall at Old Dominion University. Science and Technology Corporation was listed as a wall honoree.

ODU President, Dr. James V. Koch, and Dean William Swart presented Dr. Deepak with a plaque "in recognition of his generous and visionary support of the College of Engineering and Technology."

On June 14, 2000, Science and Technology Corporation was presented with the U.S. Small Business Administration (SBA) "Administrator’s Award for Excellence," by Joseph E. May of the SBA.

This award is presented annually in recognition of outstanding contribution and service to the nation by a small business in satisfying the needs of the federal procurement system.

The awards ceremony took place at the Renaissance Hotel, Washington, DC, following a breakfast with the SBA Administrator, Aida Alvarez.
STC Hosts SHARP Students

For the seventh year in a row, STC Hampton hosted students from the NASA Summer High School Apprenticeship Research Program (SHARP). This year, in addition to the two SHARP Plus students selected, STC hosted a third from the SHARP Program for local area students.

The students, Ajay Nemade and Joydeep Chaterjee, SHARP students from New Jersey High Schools, and Shé Hall, a SHARP student from Phoebus High School, are all rising seniors with superior academic achievement backgrounds and an interest in mathematics, computer science, and engineering. Each student, chosen from a tight selection process nationwide, is assigned to a mentoring corporation or to NASA Langley Research Center for a period of 5 to 6 weeks, during which time they are assigned projects by their mentoring sponsors.

For STC, under the guidance of mentor David Ackley, assisted by Bob Wright, the students researched the necessary requirements for and successfully completed a project which included design of a company intra- and extra-net which will allow employees to access company databases, contracts, forms, and other files through the corporate web page.

Each of the students learned how to research information from the World Wide Web and downloaded applications as well as working with Microsoft Access and Microsoft Front Page. They also had to develop a procedure whereby online forms could be sent, filled out, and returned by e-mail.

Each of the students did exceptionally well in all of their activities. At the end of their projects Dave and Bob critiqued their presentations which were developed for their final report to NASA.

Meetings Conducted by STC Meetings Division

• Over 300 people attended the four day First Joint Conference on Point Detection for Chemical and Biological Defense (JCPD) held at the Williamsburg Hospitality House, 23–27 October 2000.
  The conference was organized by the Joint Science and Technology Panel on Chemical and Biological Defense (JSTPCBD) in cooperation with the U.S. Army, Navy, Air Force, and Marine Corps, and other CB agencies. Keynote addresses were given by Dr. Anna Johnson-Winegar, Deputy Assistant to the Secretary for Defense (CBD), and Col. (P) Patricia Nilo, Commandant, U.S. Army Chemical School.
  STC Meetings Division, led by Diana McQueston, provided logistical support to Edgewood Chemical Biological Center for the conference arrangements and publication of the proceedings and CD-ROM.
  • STC Meetings Division supported SAIC in providing the logistics for a NASA workshop on 28–30 November 2000 in Roslyn, Virginia.
  • The 2001 Scientific Conference on Chemical and Biological Defense Research, attended by 289 people, was held at Hunt Valley, Maryland on 6–8 March 2001 supported by the STC Meetings Division. This conference stemmed from a series of 18 scientific conferences sponsored by the Edgewood Chemical Biological Center. For the 19th meeting a change was made to share sponsorship between the U.S. Army Soldier and Biological Chemical Command and the medical community, specifically, the U.S. Army Medical Research and Materiel Command (MRMC). Consequently the presentations provided a balance between medical and non-medical aspects of CB Defense Research. MG John S. Parker, Commander, MRMC, opened the conference. The keynote address was given by Dr. Anna Johnson-Winegar, Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense Matters.

TRIALS (continued from page 1)

observed. A spectacular display of the Aurora Borealis impressed all aboard, as did multiple sightings of polar bears and seals.

The Healy made a port call in Nuuk, Greenland on the 25th of April, to exchange members of the test team, and then continued on to find land fast ice off Home Bay, Canada. This proved very difficult due to areas of high ice pressure and thick ice, which greatly restricted the movement of the ship. At one point, the Healy was beset between two very large floes, which effectively pinned the vessel in the ice for over six hours.

Many large loads were recorded during this time, and this was the first time such loads have been measured on any vessel. After being eventually released by the ice, the Healy made her way farther offshore, and resumed testing in big to vast ice floes.

Over all, the Healy Ice Trials were very successful, with the STC instrumentation system collecting over 20 gigabytes of statistically significant data. Both the officers and crew of the Healy, as well as STC’s client, the USCG Engineering Logistics Center, gave high praise to the STC Polar Technology Office for their accomplishments on this project.