



# CSSI Horizons

Spring 2003

## President's Message



It gives me great pleasure to present you with the inaugural issue of our new quarterly newsletter, *CSSI Horizons*.

With offices in four locations and the addition of more than 67 employees since January 2002, I thought it was important to inform CSSI's staff, customers, colleagues and others involved in our industry about the technical and engineering expertise our company provides the Federal Aviation Administration, National Aeronautics and Space Administration, Department of Defense, and the worldwide aviation and airport industries.

In every issue of the newsletter, we will profile at least one employee doing unusual or cutting-edge work, or even include stories about our newest projects; our most current technology developments; our latest technical studies; and our most recent contract awards, new hires, and conference participation.

Finally, every effort will be made to give equal billing to our core business areas: Program Engineering and Management, Information Management, System Engineering, and Airspace Analysis and Modeling, and our Advanced Programs Group, which works with the other groups in addressing customers' most challenging technical needs.

I hope that you find the information contained within these pages both informative and useful, and that you learn something new about our vibrant company every time you read them.

Cindy Castillo

P.S. Since our newsletter is a work in progress, we would welcome any comments or suggestions you have about its design and content. Recommendations can be sent to [jberkowitz@cssiinc.com](mailto:jberkowitz@cssiinc.com).

## CSSI Continues to be Global Leader in RVSM

CSSI, Inc. continued to demonstrate during the first quarter of 2003 why it is a global leader in airspace utilization, air traffic control, and aviation safety issues, winning several new contracts, publishing new research, and gaining increased attention in Washington and across the country.

Much of the activity related to CSSI's cutting edge work on airspace utilization and safety matters involves the implementation of reduced vertical separation minimum (RVSM) in upper airspace. RVSM, which decreases required aircraft separation from 2,000 feet to 1,000 feet, has already been implemented over the Atlantic, Pacific, Europe, Australia, Southeast Asia and northern Canada. CSSI has played a significant role in this process. The company continues to work with Canadian air authorities on Canada's RVSM implementation, and also is discussing possible work on RVSM implementation with aviation authorities in Latin America and the Caribbean.

The Federal Aviation Administration (FAA) deadline for implementing domestic reduced vertical separation minimum (DRVSM) in U.S. airspace, Alaska, and parts of the Gulf of Mexico is January 20, 2005. After that date, aircraft flying between 29,000 and 41,000 feet must be fitted with FAA-approved avionics equipment capable of maintaining altitude to exact standards. RVSM-approved aircraft must obtain certification and be monitored periodically for safety purposes. CSSI, Inc., is heavily involved in this process – conducting DRVSM briefing sessions around the country on behalf of the FAA and monitoring flights on behalf of a number of air carriers. The CSSI team has monitored thousands of flights worldwide, and now provides more than 60 percent of the RVSM monitoring services in the domestic arena.

In addition, CSSI, Inc., engineers helped the FAA design the next generation portable GPS-based Monitoring System that will be used to conduct the majority of monitoring missions.

DRVSM implementation is expected to produce significant benefits for both air travelers and the aviation community, improving the operational efficiency of the National Airspace System (NAS), increasing airspace capacity, providing air traffic controllers with more flexibility, and reducing airline fuel costs. Ross Burton, a Program Manager at CSSI, has worked closely with the FAA on the agency's regulatory impact analysis of DRVSM. Preliminary findings indicate that the airlines will accrue approximately \$6 in fuel savings and other benefits for every \$1 they spend to become DRVSM compliant.

CSSI, Inc., is considered a world leader in RVSM analysis and technology. CSSI has been actively involved in RVSM implementation in the Asia-Pacific region, South China Sea, the Middle East, Australia, and Canada.

The company also provides national aviation governing authorities with risk assessment and safety analysis services. CSSI worked with NAV CANADA on its pre-implementation risk assessment before RVSM was implemented in Northern Canadian airspace in April 2002. CSSI also just received an additional contract to conduct NAV CANADA's safety assessment of the same area.

The International Civil Aviation Organization, a consortium of 188 countries working together on aviation issues, is requiring all RVSM participating countries to have these risk assessment and safety analysis plans in place by November of this year.

RVSM/DRVSM activities are conducted by CSSI's airspace analysis and modeling group, directed by Bob Miller.

## Staff Profile – Debbie Hendrix, Charleston, South Carolina

Debbie Hendrix, a native of Charleston, has always been the adventurous type, with pastimes such as paddling, climbing and hiking. This year, Debbie had the opportunity to do something especially adventuresome as part of her job with CSSI: travel to Antarctica.

Debbie, a CSSI employee for nearly seven years, is part of the company's Network Operations and Helpdesk team that provides information technology support to the U.S. Navy Space and Naval Warfare Systems Center (SPAWAR). SPAWAR provides the National Science Foundation's U.S. Antarctic Program with logistics support.

On her January trip, she helped evaluate the Aviation Technical Services (ATS) assets of McMurdo Station, the largest camp and the hub of the U.S. program. During the summer months, nearly 1000 people reside at McMurdo, and numerous dignitaries visit. This number declines to 250 during the winter months.

The work Debbie undertook ensured the residents had a stable and functioning IT infrastructure and included evaluating software and hardware setups; repairing existing system errors; installing and testing weather tracking software; and, assessing and making recommendations for upgrades of equipment.

Debbie will return to Antarctica this August to continue her efforts in these areas.



Debbie up to her knees in snow at McMurdo Station

### Technical Publications Accepted at Upcoming Conferences:

Breunig, T., Liang, D., Bradford, S.,  
*Standardizing Performance Metrics.*

Topic: Creating a Standard Methodology for Measuring Performance

Williams, A., Mondoloni, S., Liang, D., Bradford, S., Jehlen, R.,  
*The Big Iron.*

Topic: Information Assembly and Processing Under Free Flight

Mondoloni, S., Liang, D.,  
*Improving Trajectory Forecasts Through Adaptive Filtering Techniques.*

Topic: Kalman Filter's Ability to Reduce Trajectory Forecasting Errors

Hall, C., Mondoloni, S., Thrasher, T.,  
*Estimating the Impact of Reduced Thrust Takeoff on Annual NOx Emissions at Airports.*

Topic: Estimating the Emission Factors for Aircraft Engines Operating at Varied Data Points

Hall, C., Thrasher, T., Draper, J., Holsclaw, C., Wayson, R., Kim, Y., Fleming, G.,  
*FAA EDMS Airport Air Quality Model Development.*

Topic: Updates to Emissions & Dispersion Modeling System for Airports

### CSSI Technical Experts to Publish Five Studies

The high quality of CSSI's technical work was recently recognized when five of the company's technical papers were accepted for presentation and publication at upcoming prestigious conferences.

Three of the papers will be presented at the upcoming 5<sup>th</sup> Annual USA/Europe Air Traffic Management Research & Development Seminar in Budapest, Hungary, which is hosted by the European Organisation for the Safety of Air Navigation and the FAA.

According to the selection committee, 117 papers were submitted for possible publication and 70 – including all three submitted by CSSI – were accepted. The committee judged the papers for their relevance, technical soundness, overall significance, originality of approach or content, availability of results, adequacy of references and overall clarity of writing.

In addition, two technical papers were accepted at this summer's Air and Waste Management Association (AWMA) Annual Conference in San Diego, CA. AWMA represents over 9000 environmental professionals, including consultants, attorneys, scientists, engineers, and policymakers in 65 countries.

The CSSI staff involved in producing these technical papers were Dr. Stephane Mondoloni, Almira Williams, Tamara Breunig, Theodore Thrasher, and Clifford Hall.

Over a dozen CSSI technical papers have been accepted at industry conferences since January 2002.

### Employee's Efforts Spur Glowing Letter of Appreciation

Sam Trotman, a CSSI Senior Planner, received a special letter of appreciation from Gregory Burke, FAA Director of Air Traffic Systems Development. The letter commended Trotman for his "extraordinary customer service." His rapid response to the needs of the customer "was exceptional and way beyond ... expectations." Within just a few hours, Sam produced architectural CAD drawings to assist the ATSD team with its space planning. Sam's work resulted in additional contract work for CSSI. CSSI will be providing ATSD with integrated scheduling work as well as designing FAA office space in their new building.



## Navy Reserves Use CSSI Technical Experts to Design User-Friendly Web Portal

A new web portal designed by CSSI and the U.S. Navy Space and Naval Warfare Systems Center, which has replaced all existing Naval Reserve Forces sites, will enable the 690,000 men and women of the Navy Reserves to easily share information.

CSSI, using Microsoft technology and with Microsoft as a subcontractor, developed a web portal that allows command centers worldwide to easily update and post information without needing an experienced web developer.

The portal, found at <http://reserves.navy.mil>, has both a public and a private section. The public portion of the site will include general information about individual command centers, reserve pay scales, dependent support details and other basic data. The other portion, which will be classified at an "Official Use Only" level, may include training schedules, weekend drill plans, and other internal information of the individual units.

The Navy Reserves make up 20 percent of the entire U.S. Navy. Currently, 375 command centers have active web sites affiliated with the new portal. As many as 10,000 individual reserve units eventually will develop and post their own sites, according to estimates.

The project is part of CSSI's growing Department of Defense information technology assistance activities in Charleston, South Carolina.

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## Enhancements Continue to the Emissions and Dispersion Modeling System

When an airport wants to expand, its proposal to the government must include an air quality analysis outlining emissions from aviation and non-aviation sources operating at the airport.

Since 1998, the Federal Aviation Administration has mandated that the air quality analysis be performed using the Emissions and Dispersion Modeling System, better known as EDMS. The aviation emission algorithms and data used in EDMS also are well established and are developed and/or recommended by the U.S. Environmental Protection Agency.

Although others developed the EDMS prototype in the 1980s, CSSI refined the software in 1997 and has been in charge of continually making updates to the software and providing technical support, as needed.

Released last year, the newest version of EDMS, version 4.1, includes substantial enhancements. And CSSI is working vigorously on future developments that will make the next version of the software even easier to use and even more flexible.

The next version should be released as early as May 2004.

### EDMS Version 4.1 Enhancements

- Ø Ability to easily import and export files into and out of the program
- Ø Improved aircraft plume characterization, using results from the LIDAR study
- Ø Incorporation of the necessary data to include ground support equipment (GSE) from EPA's NONROAD model
- Ø Changes that allow gate activity to be modeled as area sources
- Ø Addition of "wallpaper" of over 400 tower-controller airports in the United States

### Forthcoming Enhancements

- Ø Incorporation of deterioration factors related to GSE
- Ø Increased accuracy and flexibility on modeling stationary sources
- Ø Addition of EPA's AERMAP, allowing the incorporation of terrain effects
- Ø A new interface that will allow users to use the EPA's upcoming new release of AERMOD

## Briefs

### New Contracts

CSSI has received its first prime contract from NASA. The 5-year contract is to support the Glenn Research Center with research, testing, experimental design, requirements development, and applications software development assistance as part of the Center's effort to improve airspace systems, aviation safety and the Small Aircraft Transportation System.

CSSI, in partnership with Joseph Sheairs, Associates, won a 7-year FAA Oceanic Integrated Services contract to support the FAA in its oceanic airspace modernization efforts. Activities will include engineering, system development and prototyping.

NAV CANADA, the company that operates Canada's air navigation services, chose CSSI to conduct a RVSM post-implementation safety assessment of their April 2002 RVSM implementation in the Northern Canadian Region. CSSI also performed the RVSM pre-implementation risk assessment.

The FAA selected CSSI to design the office space in their new building. The work will fall under CSSI's already existing GSA Management, Organizational and Business Improvement Services (MOBIS) contract.

### Staff Changes

CSSI promoted four senior managers to the position of director. Nils van den Beemt is director of program engineering and management services, John Markey is director of information management, David Barstow is director of system engineering and Bob Miller is director of airspace analysis and modeling.

Mark Schell is CSSI's new deputy program manager on its Oceanic and Offshore Automation contract. He formerly was a senior systems engineer on the program.

### Other News

CSSI successfully passed another external ISO 9001 audit. The completion of this audit upgrades CSSI's certification to ISO 9001:2000.



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*CSSI Horizons is the quarterly newsletter of CSSI, Inc. For more information about the company or the content of the newsletter, visit our web site at [www.cssiinc.com](http://www.cssiinc.com).*

**About CSSI, Inc.**

*Founded in 1990, CSSI, Inc., is a transportation technical and engineering services company specializing in systems analysis and engineering, airspace analysis and modeling and information and program management. Clients include the international and U.S. aviation industry, the Federal Aviation Administration, National Aeronautics and Space Administration, and the Department of Defense.*

**Distribution Information**

If you know someone who would like to receive this quarterly newsletter or if you would like to be removed from our mailing list, please contact Jennifer Berkowitz by e-mail at [jberkowitz@cssiinc.com](mailto:jberkowitz@cssiinc.com) or by phone at (703) 726-9167.