



# CSSI Horizons

Summer / Fall 2003

## President's Message



If you ask most business owners what they consider to be their main staffing objective, my guess is they'll most likely say they are focused on hiring only the most qualified employees. While this is a primary objective at CSSI, there is another element of personnel management that is every bit as important to us, the retention of current employees. At CSSI, the importance of employee retention is embraced by all levels of management, since we realize that without these employees, we at CSSI won't be able to provide the quality customer service and outstanding work product our customers have come to expect from us.

One of the ways we let our employees know how important they are to us is by periodically giving out awards of recognition.

For instance, we give out several "Achievement Awards" every year, which show our appreciation for employees whose work is considered exemplary by the CSSI management or by a CSSI client. A case in point is the recent "Achievement Award" given to Almira Williams, a CSSI system analyst who is profiled on page three of this newsletter. She received the award because our client, the National Aeronautics and Space Administration's Langley Research Center, was delighted with her work on the study, "Demand for a Future Air Transportation System."

Last year we initiated the Frank G. Castillo Founder's Award. The award is presented annually at our headquarters' holiday party to one full or part-time CSSI employee in recognition of extraordinary customer service that has embodied the spirit, vision and principles of CSSI and its founder.

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## Customers Rely on Advanced Programs Group for Modeling Needs

CSSI's Advanced Programs Group, headed by Chief Scientist Stéphane Mondoloni, Ph.D., tackles the most difficult and challenging technical requests from CSSI clients at the Federal Aviation Administration, National Aeronautics and Space Administration, Department of the Navy, and elsewhere.

An important part of the Group's work involves developing analytical, continuous, and discrete-event simulation models, modifying legacy models and creatively applying industry-accepted simulation models to solve problems.

Take the CSSI-copyrighted Optimal Trajectory Generator (OPGEN), which the company developed in 1997. The modeling program allows users to conduct studies to determine whether changes to the concept of operations would be economical, while still meeting the required flight time. The model incorporates winds, aircraft type, estimated arrival weight, origin/destination, departure/arrival procedures, scheduled arrival time, and special use airspace, ensuring the evaluation is based on real-life conditions.

Another successful model created by CSSI for the FAA and NASA is the National Airspace Resource Investment Model, or NARIM. This particular model helps determine the impact that procedural or technical changes will have on the nation's air traffic control system (referred to as the National Airspace System, or NAS). NARIM consists of three parts: traffic data reduction, traffic demand generation and operational impact assessment.

CSSI also is known for its airspace simulation models and for architecture and technical modeling to assess how hardware and software systems will work together. Unlike many other computer models, CSSI's architecture models analyze the interaction of and interdependencies between different system components during the *entire* system design process. As changes are made, the architecture model utilizes the most current information and provides systems engineers with increasingly more accurate pictures of how well the final product will operate.

CSSI also has re-engineered, and now maintains, updates, and provides technical support for the FAA's Emissions and Dispersions Modeling System (EDMS). This modeling program is used to evaluate how proposed changes to an airport, such as adding a new runway, will affect air quality. Since CSSI became responsible for EDMS, the FAA now requires that all government airport environmental analyses be performed using the system. (More information on EDMS can be found in a story in the Spring 2003 issue of *CSSI Horizons*.)

## Additional Modeling Work Done by Program Engineering and Management Services Business Unit

In addition to the computer modeling done by CSSI's Advanced Programs Group, the Program Engineering and Management Services Business Unit also oversees two substantial modeling projects: airport control tower modeling for the Federal Aviation Administration and antenna modeling for the Department of the Navy.

CSSI technical expert Dan Delaney, working at the Airway Facilities Tower Integrated Lab in Atlantic City, NJ, provides start-to-finish support to customers building new air traffic control towers at airports nationwide.

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## Washington Times and Hispanic Business Feature CSSI, Inc.

CSSI recently received top billing in the *Washington Times*, the District of Columbia's second largest daily newspaper, and in the nation's most prominent Hispanic publication, *Hispanic Business*.

The *Washington Times* story, appropriately titled "Flying High," was the lead story in the business section of the May 1<sup>st</sup> edition of the paper and featured CSSI's cutting-edge work on reduced vertical separation minimum (RVSM) programs, both nationally and internationally. In addition, reporter Marguerite Higgins article provided readers with a general profile of the company and President and CEO Cindy Castillo.

"CSSI Takes Flight," as the *Hispanic Business* article is titled, gives a broad overview of CSSI, mentioning the companies work on weather delay analysis, the Emissions and Dispersion Modeling System (EDMS), airport capacity analysis and RVSM. Additionally, the article references CSSI's recent National Aeronautics and Space Administration prime contract award.

The *Washington Times* and *Hispanic Business* articles are a result of CSSI, Inc.'s increased efforts to tell the company's story to the nation's news media.

Since efforts began earlier this year, the company also has been mentioned more than 25 times in articles in trade publications, such as *Aviation Daily*, *Aerospace Daily*, *The Weekly of Business Aviation*, *The ATCA Bulletin*, *Aviation Week & Space Technology*, *Overhaul & Maintenance*, *SIGNAL*, and *Jane's Airport Review*.

The combined readership of the articles in the *Washington Times*, *Hispanic Business* and the industry trade publications is nearly 1.5 million.



**PRESIDENT and CEO** ..... Cindy Castillo  
**CHIEF OPERATING OFFICER** ..... Bill Colligan  
**CHIEF FINANCIAL OFFICER** ..... Mark Rados  
**VICE PRESIDENT/GENERAL MANAGER** ..... Brent Berner  
**EDITOR** ..... Jennifer Berkowitz

*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.*

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Delaney does everything from generating initial electronic plans of the airport and detailed drawings of the proposed towers to developing and integrating three-dimensional models of the tower interior and exterior and surrounding airport facilities.

He works closely with air traffic controllers and others to ensure the tower design meets all of their needs and offers an unobstructed view of all runways and airplanes during takeoff, landing, and taxiing.

CSSI's Lexington Park, MD office is tackling another modeling project – for the Naval Air Warfare Center Aircraft Division (NAWCAD). Spearheaded by CSSI employee Glenn Craig, the CSSI effort is helping the Navy determine the optimum location for antennae on amphibious transport dock ships, or LPD-17 class ships. Amphibious transports are piloted by the U.S. Navy, but are used to transport and land Marines and their equipment and supplies, including amphibious vehicles, landing craft and helicopters, during amphibious warfare missions. The placement of an antenna is important to the success of the mission, helping the ship's high-tech communications systems operate effectively, reducing radio interference and making the LPDs less visible to enemy radar.

The two modeling projects are overseen by Nils van den Beemt, CSSI's Director of Program Engineering and Management Services.

For more information on CSSI's modeling capabilities, please visit their website at <http://www.cssiinc.com>.



**CSSI, Inc.**

SEEING BEYOND THE HORIZON

## Staff Profiles - Tamara Karakis and Almira Williams, Washington, DC

The latest statistics from the National Science Foundation reveal that women in science and engineering are still relatively rare, comprising only 22 percent of the entire science and engineering workforce. CSSI's workforce, slightly above the national average, is comprised of 25.9 percent of women in these technical careers, *and* the company is woman-owned and operated.

As part of this workforce, CSSI employs Tamara Karakis (formerly Breunig) and Almira Williams, both professionals with over five years of aviation experience and with post-graduate work in transportation engineering. Tamara received her B.S. in Industrial Systems Engineering from Virginia Polytechnic Institute and State University in Blacksburg, VA, and is working toward her M.S. in Civil Engineering, Advanced Transportation Systems at the university's Northern Virginia campus. Almira received her B.S. in Transportation Engineering from the University of Belgrade in Serbia and her M.S. in Transportation Engineering from the University of California at Berkeley.

Both women are part of CSSI's Advanced Programs Group, which conducts research -- often initiated by clients -- that helps solve customers most complex and technical problems. As part of this group, their responsibilities include analyzing the feasibility, design, implementation, cost, and performance of current and future operational concepts within the Air Traffic Management (ATM) system.

Such analysis is demonstrated in Tamara's study of en route free maneuvering and en route trajectory negotiation, which are integral tasks of the National Aeronautics and Space Administration's Advanced Air Traffic Technologies project. Her research focused on modeling the current and future airspace operations to evaluate the potential benefits regarding flight efficiency and airspace utilization.

Another example is Almira's research on facilitating autonomous operations through centralized air/ground decision support and aeronautical information assembly and processing, which she undertook at the request of the FAA's ASD office. Her research included developing two models: a simulation model of the air/ground communications to determine whether the message delay meets the industry standard, and a financial model to determine when benefits are likely to outweigh the investment in such a system. The results were communicated in the technical paper, *Big Iron*, and accepted and presented at the 5<sup>th</sup> USA/Europe ATM R&D Seminar.



In addition to this experience, both now lead efforts in ATM performance assessment. Combining her technical skills with her prior experience in performance measurement, Tamara identifies and develops metrics that are useful in evaluating performance of oceanic airspace operations. This includes overseeing all of the performance metrics for the Atlantic airspace controlled by the New York Air Route Traffic Control Center, and outlining the air carrier's priorities in oceanic performance measurement.

Additionally, she conducted preliminary research on the state of ATM performance measurement standardization. The research results were presented in a recent technical paper, *Standardizing Performance Metrics*, which -- in addition to Almira's paper and one other CSSI technical study -- was accepted and presented at the 5<sup>th</sup> USA/Europe ATM R&D Seminar. The results of Tamara's research led to the establishment of a joint team of experts charged with further exploration of methods of standardization.

Almira, Tamara and Advanced Programs Group Director Stéphane Mondoloni are part of the team, as well as experts from the Federal Aviation Administration and the European Organization for the Safety of Air Navigation. As part of this team of experts, Almira will be in charge of the design of the standardized framework, which aims to harmonize the methodology of evaluating current and future performance of the ATM system. This includes coordinating various interests that motivate performance measurement, identifying available data sources, and establishing an agreed upon global framework for ATM performance metrics taxonomy.

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### About Performance Metrics

Simply put, performance metrics are standard measures used to assess performance in a particular area. These measures can be used by inside or outside sources to evaluate companies, universities, non-profit organizations, departments or programs within such institutions, or -- as applied by CSSI -- government programs or agencies.

When performance metrics were initially developed, they allowed a particular company, organization, or agency to measure its own performance and make decisions accordingly. Now, however, performance metrics are being used across entire industries as a means of comparison. Since organizations differ, at least somewhat, in their objectives and characteristics, these comparative metrics allow corporate managers, business analysts, investors, journalists and others to compare "apples to apples and oranges to oranges."

As a leader in this area, CSSI, Inc. is currently working closely with the FAA and EuroControl on the development of a standard methodology for assessing the performance of the various programs overseen by the global aviation community.



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Nominees for the Founder's Award are judged not only on their job performance, which is – of course – an important factor, but also their attitude and initiative, their community involvement, their efforts at self-improvement, and their publishing record.

The first recipient of the Founder's Award was Roger Greenawalt, one of CSSI's longest-serving employees. Roger received the first award because his insight and dedication to this company, our clients and his co-workers have made a tremendous impact on the success of the company. From his current work on reduced vertical separation minimum projects to some of his earliest work negotiating with the Russians so the Federal Aviation Administration could use their satellites to pass air traffic information, Roger's level of performance has been exceptional, even when the circumstances were not.

It is my hope, as President and CEO of CSSI, that our efforts at recognizing a job well-done as well as offering an inspiring work environment full of opportunities for advancement will help us continue to keep the best and the brightest employees and – through them – our solid reputation as an important and growing presence in the transportation engineering and technical services industry.



Cindy Castillo

## CSSI Awarded Broad Information Technology Services Contract

The Federal Aviation Administration recently awarded CSSI, Inc., one of its Broad Information Technology Services (BITSII) contracts.

Under this contract, scheduled to last eight years, FAA program offices and other federal government customers can order a wide-range of information technology and telecommunications services from CSSI, Inc., and its partners in the contract, RICOMM Systems, ISI, Human Solutions, Inc., Architecture Technology Corporation, and RICHMAR Associates.

The BITSII contract award highlights the rapid expansion of CSSI's information management business unit, overseen by Director John Markey.

Services available under the BITSII contract include:

- Program Management;
- System Engineering and Design;
- System Procurement and Life Cycle Management;
- System Development;
- Training and Documentation;
- Risk Assessment and Disaster and Contingency Planning;
- Database Design and Integration;
- and, Information Security.



# CSSI, Inc.

PROVIDING THE BEST PEOPLE TO  
DELIVER THE RIGHT SOLUTION TO THE  
REAL PROBLEM IN PARTNERSHIP WITH  
OUR CUSTOMERS.



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SEEING BEYOND THE HORIZON