



*The World's Forum for Aerospace Leadership*



# **TAKING THE LONG VIEW**

**AIAA ANNUAL REPORT 2008–2009**

Supplement to *Aerospace America* June 2009

# AIAA HONORS AND AWARDS

## Recognizing Excellence

AIAA is proud to honor the very best in our industry – those individuals and teams who have taken aerospace technology to the next level, who have advanced the quality and depth of the aerospace profession, and who have leveraged their aerospace knowledge for the benefit of society. The Honors and Awards program began recognizing achievements in aerospace before the American Rocket Society and the Institute of the Aerospace Sciences merged to become AIAA in 1963. There are now over 80 different awards. The oldest date back to the 1930s and 1940s and today two awards—the Reed Award for Aeronautics and Goddard Award for Astronautics—represent the highest honors that AIAA can bestow.

For well over 70 years, thousands of the industry's best and brightest have been recognized for their outstanding achievements in and significant contributions to aerospace, in technical fields as well as in public service, publications, section participation, and sustained service to AIAA. In 2008, 139 awards were presented.

Five hundred guests gathered to salute honorees from academia, government, and industry on 14 May 2008 at the AIAA Aerospace Spotlight Awards Gala—a magnificent event that showcased the 2008 AIAA Honorary Fellows, the 2008 AIAA Fellows, and the recipients of AIAA's top honors.

Bringing the aerospace community together, and encouraging and recognizing outstanding achievement, are among the primary goals of AIAA, and nominating worthy candidates for awards or membership upgrade is an important task for AIAA members. Every AIAA member should consider which of their colleagues and peers are most deserving of nomination for special recognition of their achievements.



At the 2008 Aerospace Spotlight Awards Gala, AIAA President George Muellner presented the **Reed Aeronautics Award** to Alain Garcia, Technical Advisor to the CEO of Airbus S.A.S., Toulouse, France (top left photo); the **Goddard Astronautics Award** to Charles Elachi, Director of the Jet Propulsion Laboratory, Pasadena, Calif. (top right); the **AIAA Public Service Award** to Amanda Wright Lane, great-grandniece of Orville and Wilbur Wright (below left); and the **AIAA Distinguished Service Award** to John Blanton, Chief Consulting Engineer, Heat Transfer, GE Energy, Greenville, S.C. (below right).



Above left: On behalf of the NASA Jet Propulsion Laboratory, past JPL director Edward Stone (L) accepts the **AIAA Foundation Award of Excellence** from AIAA Executive Director Bob Dickman.

Above right: AIAA President George Muellner presents the **AIAA International Cooperation Award** to Peter Bainum, Distinguished Professor, Howard University, Washington, D.C.



Below: The 2008 AIAA Fellows and Honorary Fellows, at the Aerospace Spotlight Awards Gala.

Above: **Daniel Guggenheim Medal** winner Alexander Flax (2nd from R) with (L-R) AIAA President George Muellner; David Peters, Midwest Regional VP of the American Helicopter Society; Susan Skemp, Past President of the American Society of Mechanical Engineering; and Ron York, Aerospace VP of SAE International.



# AIAA PRESIDENT'S REPORT



**George K. Mueller**  
AIAA President

## TAKING THE LONG VIEW

*Change alone is unchanging.* —HERACLITUS

The story is told of an ancient king who ordered his chief advisor to locate a fabled ring having the power to make its wearer happy when he was sad, and sad when he was happy. After a fruitless search, with time running out, the advisor hit upon an idea, and arranged for a special ring to be made. On the appointed day, he presented it to the king,

who held it up and read its inscription: "This too shall pass."

As the inscription shows, change is unavoidable. The future promises to bring many changes, some welcome, others very challenging. To plot our course amid these crosswinds, we need to focus not just on short-term tactics, but on long-term strategy.

That is exactly what AIAA is doing, and I want to highlight our strategic approach, as well as touch on some of our activities over the past year that reflect on the course we have set, for the benefit of current and future AIAA members, and of the aerospace enterprise worldwide.

### Thinking Strategically

Only entropy is easy. Planning for the future, and working to bring those plans to fruition, takes focused effort. Over the past 24 months, our ongoing strategic planning process has been strengthened and sharpened, leading to the March 2009 publication of our **2009-2013 Strategic Plan**. (A summary version is available to the public at [www.aiaa.org](http://www.aiaa.org), and AIAA members can access the full document, with detailed action plans, at [my.aiaa.org](http://my.aiaa.org). I urge you to read the plan, and share your thoughts on how best to achieve these objectives.)

The Strategic Plan is founded upon the AIAA Vision, of being the shaping, dynamic force in the aerospace profession—the forum for innovation, technical excellence, and global leadership, and upon the AIAA Mission, of addressing the professional needs and interests of the past, current, and future aerospace workforce and advancing the state of aerospace science, engineering, technology, operations, and policy to benefit our global society.

Based on these fundamentals, looking ahead we can see several pressing strategic threats to the future viability of the aerospace profession. We have accordingly identified three "Strategic Imperatives" to be considered in all of our strategic planning:

- (1) **to sustain a robust aerospace workforce and develop next-generation professionals;**
- (2) **to improve aerospace energy efficiency and advance new energy technologies;** and
- (3) **to advance technologies to monitor and reduce environmental impacts.**

The first of these strategic imperatives is crucial because our aging aerospace workforce will not be adequately replaced unless we increase the number of college graduates solidly grounded in the "STEM" subjects of science, technology, engineering, and mathematics. The second is critical because the age of fossil fuels is on the wane, and we already have seen major companies driven to the brink of bankruptcy by fuel costs. The third is crucial because of increased awareness of the global threat posed by human-driven climate change, and the need for aerospace to be part of the solution to this threat, rather than being portrayed as part of the cause.

To address these imperatives and our other strategic goals, we are taking action in a variety of arenas, which reinforce one another in promoting and sustaining a robust aerospace profession and the many benefits it brings to the world. Some of these initiatives are described below.

### Reaching Out

Our communications and branding strategy supports all of our activities, and helps to raise the profile of the Institute, the profession, and aerospace in general. Our "When Did You Know?" campaign is an example of this synergy. On one level, it reaches out to members, to remind them of the passion they felt when they first entered the profession, and to encourage them to get more involved in AIAA to help spread that excitement. It also supports our education activities by inspiring students and encouraging them to consider the reasons why they might want to pursue an aerospace career. And it reaches out to the public at large, stressing the fact that—let's face it—*aerospace is cool*, and is a major contributor to our economy.

After initially collecting "When Did You Know?" stories in print, we expanded to video segments of AIAA members recounting how aerospace first captured their imagination. We added evocative background imagery based on each individual's story, and have made many of these inspiring short videos available on our Web site. The stories featured on

video have also enlivened an expanded print advertising campaign, as well as a series of banners on our Web site, under the headline "That's When I Knew."

The "When Did You Know?" campaign has been a rousing success. An AIAA member survey showed overwhelmingly positive response, banner advertising in non-AIAA media has produced a better-than-average "click-through" rate, and Web banner views have exceeded 350,000. We will continue developing this campaign at least through 2010, especially since its mixed-media approach appeals strongly to a younger demographic.

### Shaping Public Policy

The profile of our public policy efforts over the past year was heightened by the 2008 presidential campaign, as we sought to illuminate the views of the candidates on aerospace issues, and impress upon them the key role aerospace plays in our national prosperity and security. For example, we produced a special supplement to *Aerospace America*, "The Candidates' Vision for Aerospace," posing questions to the candidates and setting forth their statements, on topics such as their vision and timetable for future U.S. achievements in space and aeronautics, their prescriptions for addressing workforce and education issues, and their plans for supporting the infrastructure of research and development. The candidates' policy advisors addressed conferees at the AIAA SPACE 2008 Conference, and after the election, AIAA leaders were invited to brief the new administration's NASA transition team on our policy positions for aeronautics and civil space.

Institute members nationwide come to Washington each year for AIAA Congressional Visits Day (CVD), to discuss key aerospace issues with their elected officials, and this year's event was the most heavily attended to date. Participation also increased in our "August is for Aerospace" event, during which AIAA members meet with Senators and Congressmen while they are in their home districts. We have also recently added policy forums to major AIAA conferences, focusing on topics such as the implications of aviation's role in global climate change, and what factors the new administration will consider in setting transportation-related energy and environmental policy.

We presented a forum on Capitol Hill on "Workforce Development, Global Competition and the Future of the U.S. Aerospace Sector" with the House of Representatives' STEM Education Caucus. These topics were also addressed for a second straight year in AIAA's "Inside Aerospace" forum, which brings together aerospace leaders from industry, academia, and government. And through CVD, press conferences, and other means, we have begun to make headway in explaining the adverse consequences of the current International Traffic in Arms Regulations (ITAR) regime on key sectors of the aerospace industry: In February of this year, Congress began hearings on ITAR and its consequences, at which AIAA Executive Director Bob Dickman testified.

All AIAA members benefit from our active public policy focus, with so many important issues in play, from the rebalancing and expansion of NASA activities, to efforts to address global climate change, energy efficiency, and alternative energy sources, and from airline solvency and building the next-generation air traffic control system, to the implications of the rising aerospace abilities and ambitions of other nations around the world, and how America can best develop and maintain the human capital needed to compete and to lead. Our ongoing efforts help shape the debate on these crucial issues.

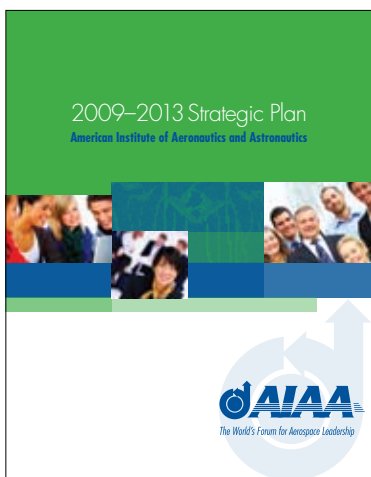
### Promoting Education

AIAA continues working to ensure a healthy supply of talented young engineers who can help chart the future course of aerospace. At the university level, the AIAA Foundation awarded \$146,000 in scholarships to promising students over the past year, and supported seven design competitions. The AIAA Design/Build/Fly competition set a new record for the number of teams participating, and drew international entries from Israel, Slovenia, and Turkey. Student membership in AIAA grew, and another international student branch was established.

At the pre-college level, our flagship events continue to have a strong impact. At AIAA's SPACE 2008 conference, "Education Alley" drew more than 2,000 San Diego-area schoolchildren to hands-on activities and events—including a student press conference with astronauts and NASA engineers—that reflect the excitement of the space industry. We expanded our outreach to teachers as well; at the AIAA Joint Propulsion Conference in Hartford, the "Passport to the Future" teacher workshop featured a keynote address by the chief scientist of the Air Force and an evening event at the New England Air Museum, as well as offering detailed information about curriculum development and how to excite students about aerospace. The AIAA Foundation awarded classroom grants to more than 200 teachers, reaching more than 11,000 students.

"Kid's Place" on our Web site continues to add new content for students and for teachers, and our Precollege Outreach Committee is preparing to launch an exciting new Web site, "Ask Polaris," which will encourage high school students to consider an aerospace career, and guide them in choosing a school and researching scholarships. Our forward-looking initiatives will help attract bright students to aerospace careers.

*(continued overleaf)*



*AIAA's 2009-2013 Strategic Plan is available for review online by AIAA members and by the public.*

## Celebrating Achievement

Even as we embrace the future, we celebrate past accomplishments, which offer continuing inspiration, pushing us to enlarge the scope of what we see as achievable. In particular, this past year saw the 50th anniversary celebrations of two organizations that have played pivotal roles in creating the aerospace endeavor as we know it: the Federal Aviation Administration and the National Aeronautics and Space Administration.



AIAA honored fifty remarkable years in air and space.

well as a message directly from the astronauts aboard the International Space Station.

Recognizing the achievements of individuals and organizations serves to inspire us all. One of the joys of my tenure as AIAA President has been having the chance to meet with so many award-winning engineers and scientists, who have further burnished the image of AIAA. Some of these awards are described on the inside cover of this report, and I want to take another moment to salute all of those who have been honored in the past year. They deserve our applause and our thanks, for their efforts in driving aerospace forward.

There is much else to applaud, throughout the Institute. Nine hundred people have now become Lifetime Members, an increase of more than 13% over the past year. A new memorandum of understanding between AIAA and the Canadian Aeronautics and Space Institute calls for collaboration on events, publications, student activities, and professional development. A new effort is under way to raise the profile of our standards activities, in part by regular reports in *Aerospace America* and the *Daily Launch*. The Technical Activities Committee has undertaken the development of an integrated approach to planning conferences so as to provide the best value to our membership, in part by collocating conferences that will allow creative interchange among related disciplines.

Journal and book publications remain strong as we adapt to the market of the future. Institutional subscriptions to our journals have increased by 3.5% in the past year, and book sales have increased 8%. In the past year, we began making AIAA books available in e-book format, and we made the archives of the American Rocket Society and the Institute of the Aerospace Sciences available for online searching and purchase. We will soon publish our first “e-only” book title, marking an exciting new initiative that will allow us to address important niche markets that might not support the production and warehousing costs of traditional books. We have also begun the transition to a new online manuscript submission and peer review system, which will allow added functionality and improved service to our authors.

These are only some of the highlights of the past year. I encourage you to read more about the breadth and depth of AIAA’s activities on behalf of our members, the profession, and aerospace, on the following pages.

## A Personal Word

Serving as president of AIAA has been an honor and a privilege; it has given me the chance to work with a great many talented and dedicated people. Involvement with AIAA offers a host of personal benefits; our publications, conferences, and professional development courses, our technical, program, and standing committees, our section and regional activities offer the chance to grow professionally, to network and develop rewarding peer relationships, to present papers and to publish articles and books—to thrive at the forefront of this rapidly changing field.

These are excellent reasons to be an active member of AIAA, but I want to add another perspective as well. To paraphrase John F. Kennedy, I hope you will not only ask what AIAA can do for you, but also what you can do for AIAA. I say this because we need the active involvement of all those who believe, as I do, that in a time of great change, great opportunity, and great risk, we are strongest when we all work together to support the goals we share. Will we continue to lead and prosper in the realm of air and space? If we all support the efforts of AIAA to work on the fundamentals—to develop the workforce of tomorrow, to promote scientific exploration and discovery, to adapt to dwindling resources and rising competition—then we will secure America’s aerospace future, as well as our own.

There are many ways to become more active in this community of excellence, from serving on a technical, program, or standing committee, to becoming involved in section and regional activities, to mentoring students, to helping policymakers understand how important aerospace is to our security and prosperity. As your involvement with AIAA deepens, so too will your satisfaction—on a personal level and as a part of something larger. Together, we can follow the advice of noted computer scientist Alan Kay, who said, “The best way to predict the future is to invent it.”

## EDUCATION



**Merri J. Sanchez**  
Vice President

AIAA’s educational programs impact thousands of students, educators, and professional members across the world. We contribute to workforce development for the future aerospace industry, and to the professional growth of our members. Throughout FY08 we continued to strengthen our educational program offerings, focusing in the areas of precollege, college, and continuing education.

An Institute highlight was the Inside Aerospace Forum, organized by AIAA, and sponsored by the Aerospace Industries Association and the Aerospace Department Chairs Association in May 2008. This conference focused on the education and policy issues and barriers to workforce development, which is one of the leading challenges confronting the aerospace community. The conference resulted in a published Report and Recommendations on Workforce Development. Inside Aerospace 2009 will continue the focus on these crucial issues.

## Professional Member Education

FY08 was a year of significant growth for the AIAA Professional Development Program. The program now has over 130 courses to choose from. This year AIAA offered over 40 courses at our technical conferences and through our home study program. Over 540 professionals attended these courses. Our courses cover a range of technical topics, from propulsion systems to structures design to missile guidance, and are offered in an array of formats, such as traditional short courses, home study opportunities, and online tutorials.

The Professional Member Education Committee (PMEC) consists of 17 members under the leadership of Steve Gorrell. Several major projects were completed this past year, including improving the evaluation and approval process for new courses, creating the education partner program, and implementing the electronic course notes process.

The involvement of AIAA’s Technical Committees (TCs) has been instrumental in both expanding the breadth and preserving the quality of our professional development offerings. Last year, 11 TCs proposed and/or sponsored AIAA short courses, while many others provided the invaluable service of evaluating proposed courses for content and member interest. Approximately 23 new courses have been added to the program through this peer review of the TCs and PMEC.

The On-Site Course Program continues to be successful. Though many of our courses are held at the AIAA’s technical conferences, many companies and government agencies opt to train their employees on-site, which saves them time and money. Many NASA Centers, Northrop Grumman, The Boeing Company, Lockheed Martin Corporation, and Raytheon Corporation are among those who have brought AIAA short courses to their facilities to train their employees in a closed, secure training session.

As we move forward, the Professional Development Program will continue to serve the educational needs of the aerospace community by developing a Professional Development Policy Handbook, increasing professional development event attendance, and expanding course offerings by partnering with other organizations.

## Student Programs

In 2008, there were 7,059 student members, including both college and high school students. Of these, 718 upgraded to professional membership, 4,291 were new student



*Susan Jukosky, a 2009 AIAA Foundation Educator Achievement Award winner, experiencing weightlessness on NASA’s KC-135 aircraft.*

members, and 1,200 were international student members. Student membership increased over 2% from the previous year. There are currently 178 student branches. One new international student branch was granted a charter. The Student Activities Committee (SAC) continued under the leadership of Neal Barlow.

The Institute, with support from the AIAA Foundation and the AIAA Technical Committees, continued providing students with opportunities to actively engage with their peers and solve real design challenges. Seven AIAA Foundation design competitions were held in different design disciplines at both the undergraduate and the graduate level. The undergraduate team aircraft and undergraduate team space transportation competitions had the greatest number of entries, with 28 and nine entries respectively. The Student Design/Build/Fly Competition—in which students build and fly a small electric-powered, remote-controlled airplane over a predefined course in a limited time—continued, with 60 flying entries out of the 68 teams that submitted reports. International participation came from Israel, Slovenia, and Turkey. This competition continues to have more student teams entered every year.

The AIAA Foundation Scholarship Program awarded 28 undergraduate student scholarships with a combined total of \$61,000. In the graduate category, nine \$5,000 graduate scholarships were awarded, and four graduate students received awards of \$10,000 each. The winners of these awards were acknowledged at the 2009 Aerospace Sciences Meeting. The Abe M. Zarem Awards for Distinguished Achievement were presented to outstanding candidates and their academic advisors: in Aeronautics, Joshua Butler, from Clarkson University, and his academic advisor, Kenneth Visser; in Astronautics, Laurren Kanner, from the University of Colorado, and her academic advisor, Brian Hynek. We also sponsor their travel to an appropriate national or international conference to present their work. The Orville and Wilbur Wright Graduate Awards for 2008 went to Alan Zorn of Stanford University, Supratik Datta of the University of Maryland, Brian Pomeroy of Purdue University, and Benjamin Jorns of Princeton University.

The Regions hosted seven U.S. Regional Student Conferences and two International Student Conferences. The Australian Student Conference featured students from Asia presenting their work via videoconferencing, allowing student participation from a larger geographic area. This year, for the first time, an official Team Division was included to allow students that were working on collaborative projects to compete as a group. The AIAA Foundation provides prize money to each conference, along with a stipend for student members and faculty advisors attending the conferences. Regional fundraising and local sections provide the balance of the financial support. Professional members engage in the conferences as judges, organizers, speakers, and panelists. The AIAA Foundation International Student Conference includes the winners from the seven U.S. Regional Student Conferences, and the European and Australian Student Conferences. The 2009 Conference winners were Jason Leggett, from the University of Maryland, in the Undergraduate Division, James Villarreal, from Arizona State University, in the Masters Division, and the University of Colorado, Boulder, in the Team Division.

AIAA maintained its alliance with ABET, the accreditation board for engineering and technology. This year, 15 schools requested visitation for accreditation. The AIAA Academic Affairs Committee, under the leadership of William Garrard, supplies evaluators to ABET for this purpose. AIAA also maintained its support of the Aerospace Department Chairs Association, which meets yearly in conjunction with the AIAA Aerospace Sciences Meeting.

### Pre-College Programs

FY08 was another outstanding year for Pre-College Outreach, as we conducted our signature events: Education Alley and Passport to the Future Teacher Workshop. Education Alley inspires students to consider the possibilities of careers in the aerospace industry as they interact with aerospace professionals in a variety of occupations. Passport to the Future empowers science and math teachers from K-12 to share the revelations and



*AIAA Foundation Classroom Grants give K-12 teachers the opportunity to offer their students a variety of exciting activities, such as assembling, inflating, and flying their own hot-air balloons.*



rewards of aerospace related curriculum. These two cornerstone events are augmented by classroom grants, “Ask an Engineer,” and online aerospace activities for all ages.

Education Alley, at the AIAA SPACE 2008 Conference, drew more than 2,000 students from the San Diego area. Sponsors for the event were the Aerospace Industries Association, The Aerospace Corporation, and Wyle. Featured presentations by NASA’s Johnson Space Center (JSC), the Air Force Research Laboratory, the National Air and Space Museum Steven F. Udvar-Hazy Center, and others once again excited local students about space and its applications. Education Alley, now in its eighth year, continues to provide students and teachers with out-of-this-world experiences through hands-on activities, showcasing the space industry as an exciting place to work. A particular highlight this year was the Student Press Conference with former NASA astronauts and current JSC engineers. The 5th Passport to the Future Teacher Workshop, held in Hartford in conjunction with the AIAA Joint Propulsion Conference, was sponsored by Hamilton Sundstrand. The workshop provides teachers with the opportunity to learn firsthand about the aerospace industry, as well as curriculum materials to share with their schools. Highlights included:

keynote addresses by the U.S. Air Force Chief Scientist, Dr. Mark Lewis, and Wyle Senior Vice President, Drexel Smith; an evening event at the New England Air Museum; and many concurrent sessions. AIAA Foundation Classroom Grants, totaling \$20,000, were given to over 200 teachers, reaching over 11,000 students, for hands-on math and science classroom activities. In December 2008 AIAA Foundation Educator Achievement Awards were given to seven outstanding K-12 teachers. Local Sections continue to support pre-college activities by hosting local events, working with Boy Scouts and Girl Scouts, exhibiting at National Engineer’s Week events, and visiting hundreds of classrooms each school year.

“Kid’s Place,” in the “Students & Educators” section of the AIAA Web site, continues to grow as our Educational Partners and the Precollege Outreach Committee (PCO) add content for students and educators. Included are homework help, lesson plans, and resources to help make math and science easier to understand. The PCO Committee, chaired by Jane Hansen, will launch an exciting new Web site in mid-2009 aimed at high school students, parents, and guidance counselors. This site will provide details on aerospace as an educational choice, along with information about how to select a school and possible sources of scholarships.

Our growing list of Educational Partners has continued to make the AIAA pre-college program a valued asset in the classroom. The collaboration of our partners makes the AIAA educational programs successful, and we look forward to new opportunities in 2009.

### *The AIAA Foundation – Support for Aerospace Education*

A simple, compelling philosophy drives our commitment to education in science, technology, engineering, and math: **Make it exciting, make it empowering, and make it fun.**

At both the university level and K-12, our underwriting of scholarships, classroom grants, design competitions, and student conferences enhances scientific literacy and advances the arts and sciences of aerospace, fulfilling our mission to support the future aerospace professional, practicing aerospace professionals, and the organizations and institutions involved in aerospace.

For more information, please visit  
[www.aiaafoundation.org](http://www.aiaafoundation.org)



## PUBLICATIONS



**John L. Whitesides**

*Vice President*

As I look back over my tenure, it represents a period of constant change, encompassing both the preservation of AIAA's intellectual and publication heritage as well as exciting innovation in our products to better serve the aerospace engineer of today and the future.

When I prepared this report last year, we had almost completed archiving the journals of the American Rocket Society and the Institute of the Aerospace Sciences. I am pleased to say that these

valuable papers are now available to the aerospace community at large for searching and purchase. Likewise at that time, efforts were under way to create an eBook archive. I am pleased to report that in October individual titles from the Progress in Astronautics and Aeronautics series and the AIAA Education Series became available for purchase. In the next few months, complete legacy collections as well as topical collections of those book titles will become available for libraries. This will complete a decade-old desire to build an online collection of AIAA's content regardless of its original publication format: conference paper, journal article, or book. But we're nowhere near finished. The innovations and product improvements will continue.

Building upon our eBook efforts, we will publish later this spring our first planned "e-only" title in Progress in Astronautics and Aeronautics. John Cinnamon's book

*Hypervelocity Gouging Impacts* is not only important as AIAA's first planned e-only book. It also symbolizes a new means for AIAA to serve one of its critical missions. This book involves key state-of-the-art research that for better or worse would never enjoy widespread sales. AIAA's mission as a learned society and scholarly publisher is to serve niche and specialty fields, but business realities can present genuine financial and market challenges. With e-only publication, key research will be made available to those current and future engineers who can benefit from it. Dr. Cinnamon's work will be preserved for posterity, without incurring many of the production, warehousing, and storage costs of traditional books. All of AIAA's new books will have at least an electronic component and, for the foreseeable future, many will also be printed. But a new flexibility will be available for those important works where traditional printing would not have made financial sense.

This year we signed an agreement with a new distribution partner in Europe. Transatlantic Publishers Group (TPG), based in London, will handle the marketing and sales of our books to nonmember and institutional customers throughout Europe. After a competitive selection process, TPG emerged as the best candidate to meet AIAA's goals for this critical market segment. TPG assumed the responsibility for European marketing and sales in January 2009 and is already showing good results, even in the current challenging business climate.

We're also working to launch a pilot (and potentially long-term) partnership with Aviation Industry Press (AIP) in China. AIP is part of China Aviation Media Group, which has had a long relationship with McGraw-Hill's Aviation Week Group. The partnership will enable the translation of select AIAA titles into fully translated editions as well as partial translations that are used to bolster the English language skills of engineers while they utilize the technical content. AIAA and AIP are working to establish a joint editorial board to help ensure the quality of the end product.

One of the biggest changes under way is the preparation for a new manuscript submission and peer review system. WriteTrack, AIAA's current manuscript submission system, was developed internally by AIAA staff software developers with extensive input and testing by our journal editors-in-chief. At that time, the publishing industry as a whole was just entering this realm, and the systems available at the time did not meet our needs. In fact for a time WriteTrack outperformed many of the systems commercially available. However, over time, commercially available systems improved and were able to make the critical development investments to remain competitive and current that we could not. With a good deal of trepidation, we came to realize that we must prepare to retire WriteTrack and find a suitable replacement. We have selected Manuscript Central from ScholarOne as the successor to WriteTrack.

ScholarOne is the leading provider of peer-review systems. By adopting Manuscript Central, AIAA will join a user community of over 280 professional society and

commercial publishers. Manuscript Central is highly configurable, allowing us to use the best of WriteTrack's functionality as a baseline to build out new standard workflows. It will enable us to move forward with critical improvements we have wanted. Also we will be able to continue to improve service to our authors as additional functionality becomes available. Manuscript Central will also allow our three book series to manage new proposals as well as manuscript review online for the first time. AIAA staff and the editors-in-chief and associate editors are now involved in configuration, testing, and training. Our plan is for the first journals and book series to go live in early summer, with all publications online by fall. Journal submissions begun in WriteTrack will be managed in that system until published, so current authors need not worry. Indeed, I have the utmost confidence in the editors-in-chief, associate editors, and journals staff to take care of all authors throughout the transition.

In addition to technological changes, the Publications Committee and other volunteers have experienced some changes of responsibility and personnel as well. Probably the most significant was Dr. Elaine Oran's decision to step down as editor-in-chief of *AIAA Journal* (AIAAJ) at the end of her second term. Dr. Oran felt this was appropriate for the ongoing health and development of the journal. So with reluctance and understanding I accepted her resignation, and I commissioned VP-Elect for Publications Dr. Michael Bragg to convene a search committee to identify a worthy successor. Over the course of the summer and fall the search committee, meeting in a series of telecons, recruited and evaluated a talented pool of candidates. Ultimately their recommendation was to appoint Dr. Peretz P. Friedmann of the University of Michigan as editor-in-chief. Friedmann was approved by the AIAA Board of Directors in December 2008 to serve a three-year term commencing in January 2009. Subsequently, Dr. K. Kailasanath, who had served as deputy editor of AIAAJ, tendered his resignation,

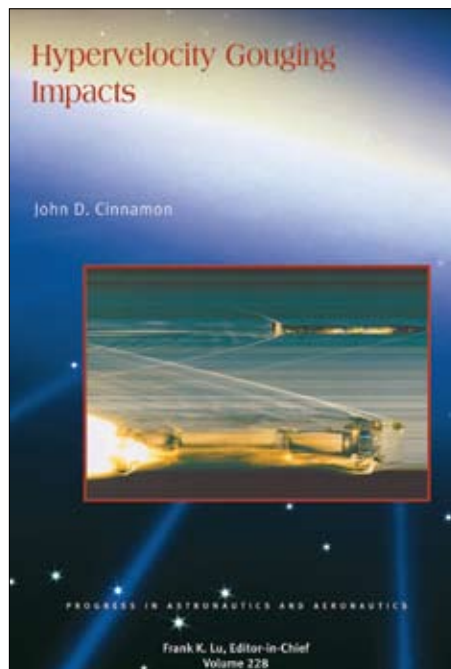
to allow for the further infusion of additional new blood. Kailasanath served as deputy editor with distinction since December 2005. Again, I along with Dr. Friedmann, reluctantly accepted this change and have appointed Dr. Datta Gaitonde of the Air Force Research Laboratory, Wright-Patterson AFB, as his successor. On behalf of the Publications Committee, the AIAA Board of Directors and the membership at large, I would like to thank both Dr. Oran and Dr. Kailasanath for their individual and collaborative service and dedication to AIAAJ and for making it into the premier publication that it is. I would be remiss if I did not acknowledge our other AIAAJ Deputy Editor Dr. Balakumar Balachandran's ongoing service and his critical role of providing continuity in this time of change. And lastly I want to thank Dr. Friedmann and Dr. Gaitonde for rising to the challenge before them.

As if that were not enough, Dr. Vigor Yang, editor-in-chief of AIAA's *Journal of Propulsion and Power* (JPP), has informed Mike Bragg and me that he feels it is time for that journal to have new leadership, and will step down at the end of 2009. Dr. Yang took over the editorship of JPP in 2000 as acting editor-in-chief before being selected in a process similar to that which identified Dr. Friedmann. Vigor has been editor-in-chief throughout my tenure as vice president, setting a high standard of quality for JPP. As the selection process will take some months and extend beyond my tenure as vice president, I consulted with Mike Bragg in naming a search committee chair. Dr. John Daily of the University of Colorado at Boulder will chair this effort, and is currently assembling a committee.

I would like to take this opportunity to thank Vigor for his service and support.

In more routine matters of committee business and volunteers, the Publications Committee has welcomed five new members and one returning member in the last year. Dr. Julie Albertson, University of Colorado, Colorado Springs; Dr. Claudio Bruno, University of Rome; Dr. Winfred "Butch" Foster, Auburn University; Mr. Ryan Rudy, The Boeing Company; and Ms. Barbara Williams, Massachusetts Institute of Technology all joined the committee this year. We also welcomed back Dr. Elaine Oran as a full voting member of the committee following her retirement as AIAAJ editor-in-chief. We are pleased to have these six join us and are particularly excited to have Barbara Williams bring the valued perspective of a librarian serving the aeronautics and astronautics research and academic community. I was pleased to reappoint three editors-in-chief this year, Dr. Thomas Weeks as editor-in-chief of *Journal of Aircraft* (JA), Dr. Michael Hinchey as editor-in-chief of *Journal of Aerospace Computing, Information, and Communication* (JACIC), and Dr. Edward "Ned" Allen as editor-in-chief of the Library of Flight book series.

We made strides this year in building an editorial advisory board for the Library of Flight book series. Ned Allen has recruited four outstanding members for his initial board and continues to seek more. Allen's goal is to recruit a board of diverse experience and background that reflects the mission of the Library of Flight. Because the series is intended to address topics of aerospace business and management,



AIAA's publication of "e-only" books such as *Hypervelocity Gouging Impacts* will better serve niche and specialty fields.

public policy, history, and public awareness, some of the members of this advisory board will come from some different parts of the aerospace community. The four members recently appointed are Norman Augustine, former chairman and CEO of Lockheed Martin; Richard Aboulafia, vice president of analysis at Teal Group; Mark Lewis, professor of aerospace engineering at University of Maryland; and Bill Blakemore, ABC News correspondent.

In conjunction with the Honors and Awards Committee, the committee bestowed the 2009 Pendraay Aerospace Literature Award upon Dr. Kenneth K. Kuo of Pennsylvania State University in January, for his "outstanding contributions to the propulsion and combustion literature through textbooks, edited volumes and technical articles."

AIAA's publications legacy was also honored this year. In April the U.S. Space Foundation commended the *Journal of Energy* for its role in disseminating aerodynamic vehicle design technology developed at NASA Dryden Flight Research Center in the late 1970s. The recognition ceremony was held at the Space Foundation's annual meeting in Colorado Springs, CO, during which NASA Dryden Flight Research Center Aerodynamic Vehicle Design was inducted into the Space Technology Hall of Fame.

In research described in a series of articles in the *Journal of Energy* beginning in 1977, the NASA Dryden team applied aerospace related technology to the design of terrestrial vehicles. This resulted in the widespread use of aerodynamic fairings on commercial trucks worldwide.

The *Journal of Energy* was published by AIAA from 1977 until 1983 as a response to the U.S. energy crisis of the 1970s, under the editorship of Dr. William Heiser. Publication ceased as government funding of energy research declined following the return of stable petroleum supplies. This research, and all of the contents of the *Journal of Energy*, may be accessed through the AIAA Electronic Library.

I also wanted to share news of a renewed effort in collaboration between the Publications Committee and the Technical Activities Committee. Dr. I-Shih Chang of The Aerospace Corporation, who serves as Deputy Director, Rocket and Space Propulsion, and as liaison to the Publications Committee, has reinvigorated the effort to share concerns and suggestions between these critical areas of the Institute. Dr. Chang has assisted with the recruitment of two of our newest members. More importantly he assiduously solicited and collected input from the majority of the technical committees. At the January 2009 Aerospace Sciences Meeting he shared this comprehensive input with the Publications Committee. The level of effort and detail was refreshing and represents the most significant exchange of insight between the committees in a number of years. The Publications Committee is reviewing this input and will be following up in a series of reports in the coming months.

### Publication Statistics and Highlights

**Journals:** In FY08, our journals collectively accepted 1157 manuscripts, a slight decline from 2007. However, on average, manuscript acceptance has increased 5% since 2005. Almost half of all manuscripts originated outside the United States this year, continuing a trend of the last few years. The actual number of pages published, which experienced 19% growth since 2005, remained steady from 2007, with a total of 10,752 pages published in 2008. *JACIC*, our online-only journal, published 35 papers.

Overall institutional subscriptions increased about 3.5% over fiscal 2007, with *JPP*, *Journal of Spacecraft and Rockets* (*JSR*), and *JACIC* individually experiencing growth.

<b>Journal of Energy</b>	
VOLUME 1, NUMBER 5	SEPTEMBER-OCTOBER 1977
<b>SYNOPTIC</b>	
A Benefit-Cost Analysis of Nuclear Power Applied to the GPS Mission .....	J. S. Greenberg 265
<b>SURVEY PAPER</b>	
Gaseous Fuel Reactor Systems for Aerospace Applications .....	R. Thom and F. C. Schwenn 267
<b>CONTRIBUTED PAPERS</b>	
Experimental Investigations and Stochastic Modeling of Fluctuations in an MHD Generator .....	M. H. Scott 277
Calculations of Three-Dimensional Transonic Compressor Flowfields by a Relaxation Method .....	W. J. Rae 284
Entry Region Heat Transfer in Rotating Radial Tubes .....	G. E. Metzger and R. L. Stan 297
MHD Power Generation with Fully Ionized Seed .....	H. Yamazaki and S. Shiooka 301
Analysis and Testing of a Heat Pipe Mirror for Lasers .....	L. L. Stears and E. J. Saltzman 306
Reduced Thrust Fuel Consumption Through Aerodynamic Design .....	D. L. Jacobson, W. Bickford, J. Kido, R. Barthelemy, R. H. Bloomer, Jr. 312
Solar Air-Conditioning Performance Using Stochastic Weather Models .....	D. K. Anand, R. W. Allen, E. O. Baltzakis 319
Two-Dimensional Analysis of a Flat Plate Solar Collector .....	P. P. Rao, J. E. Francis, T. J. Love Jr. 324
<small>A Publication of the American Institute of Aeronautics and Astronautics Devoted to Energy Research and Development JENR 15(265-328)(1977)</small>	

*AIAA's Journal of Energy received a special commendation from the U.S. Space Foundation for its role in disseminating aerodynamic vehicle design technology developed at NASA Dryden Flight Research Center in the late 1970s that has been adopted throughout the world.*

The remaining journals saw 12% declines. *JACIC*, our newest journal, continues to add both individual and institutional subscribers. Member subscriptions have continued to decline, with *JACIC* the only journal experiencing growth among our members.

**Books:** The Library of Flight series, under the editorship of Ned Allen, has hit its stride in FY08, publishing six new titles, on topics of program and corporate history, program management, and issues of interest to policy makers and the general public. The AIAA Education Series published four new and revised editions, the Progress in Astronautics and Aeronautics series published five new titles, and AIAA's ongoing partnership with The Aerospace Corporation contributed one new title.

In terms of units sold the AIAA books program has experienced 15% growth since 2005, with 8% growth in fiscal 2008 after a very flat 2007. The Library of Flight experienced 40% growth in unit sales, its highest showing since the centennial of the Wright Brothers flight, which sparked a number of popular commemorative works. The program's revenue grew 17%, with the Library of Flight and Progress series exhibiting healthier margins overall.

As noted earlier, the past three years have been a period of great change. Our products have become increasingly electronic; our active volunteers, both committee members and editors, have changed substantially; our manuscript system is changing from in-house to commercial; and our publications

staff has been completely revamped. I am very thankful for the smooth transition from Norma Brennan, the heart of AIAA Publications for many years, to Rodger Williams, who has done an excellent job in reorganizing the publications staff as its new leader. I am indebted to both Norma and Rodger for their outstanding leadership, professionalism, and dedication to the Publications enterprise. Mike Bragg has done an excellent job as VP-elect, Publications, and I am sure he will be a great Vice President. My best wishes go to Mike, Rodger, volunteers, and staff for the future.

## NEW BOOKS FROM AIAA

<b>Library of Flight</b>	George Donohue and Russell Shaver	<i>Terminal Chaos: Why U.S. Air Travel is Broken and How to Fix It</i>
	Peter Merlin	<i>From Archangel to Senior Crown: Design and Development of the Blackbird</i>
	Curtis Peebles	<i>Road to Mach 10: Lessons Learned from the X-43A Flight Research Program</i>
	Rene Rendon and Keith Snider, eds.	<i>Management of Defense Acquisition Projects</i>
	Mark Sullivan	<i>Dependable Engines: The Story of Pratt &amp; Whitney</i>
Peter Zipfel		<i>Building Aerospace Simulations in C++, Second Edition</i>
<b>AIAA Education Series</b>	Ian Moir and Allan Seabridge	<i>Aircraft Systems: Mechanical, Electrical, and Avionics Subsystems Integration, Third Edition</i>
	Vincent Pisacane	<i>The Space Environment and Its Effects on Space Systems</i>
	Jan Wright and Jonathan Cooper	<i>Introduction to Aircraft Aeroelasticity and Loads</i>
Bong Wie		<i>Space Vehicle Dynamics and Control, Second Edition</i>
<b>Progress in Astronautics and Aeronautics</b>	Marc Allen	<i>NASA Space Science Vision Missions</i>
	Claudio Bruno and Antonio Accettura	<i>Advanced Propulsion Systems and Technologies, Today to 2020</i>
	Claudio Bruno	<i>Nuclear Space Power and Propulsion Systems</i>
Alexander I. Forrester, Andras Sobester, and Andy J. Keane		<i>Engineering Design via Surrogate Modelling: A Practical Guide</i>
Meiron Natanzon		<i>Combustion Instability</i>
<b>Aerospace Press</b>	F. Kenneth Chan	<i>Spacecraft Collision Probability</i>

## JOURNAL SPECIAL SECTIONS

<b>AIAAJ</b>	"Biologically Inspired Aerodynamics"	guest editors G. Abate, M. Ol, and W. Shyy
<b>JA</b>	"Drag Prediction" "Supersonic Airplane"	guest editor J. Vassberg
<b>JACIC</b>	"DARPA: Urban Challenge"	
<b>JPP</b>	"Aircraft Particulate Matter Experiments"	guest editor Lourdes Maurice
	"Weakly Ionized Plasmas for Propulsion Applications"	guest editor Sergey Macheret
<b>JSR</b>	"New Perspectives on Satellite Drag Environments of Earth, Mars, and Venus"	guest editor Andrew Ketsdever

## TECHNICAL ACTIVITIES



**Laura J. McGill**  
Vice President

Over the past year, the AIAA Technical Activities Committee (TAC) has continued to build on the increased integration of our Technical Committees (TCs) and Program Committees (PCs), under the strong leadership of the Group Directors of our four Technical Discipline Groups and three Technology Integration Groups, and our Program Committee Coordinator. This collaboration contributes to our conference programs and other technical offerings with added topics and new perspectives.

In 2008, TAC initiated a Conference Strategic Planning activity to develop an integrated approach for planning conferences that provides the best value for AIAA's membership, with special focus on the breadth, quality, and cost of our technical programs. This effort will include the evaluation of alternative methods for providing technical information. This pursuit has increased relevance in light of the current global economic crisis, and we are committed to continued focus in this area for 2009–10. We are also expanding our technical focus in areas that are increasingly relevant to our members, including workforce development and an emphasis on the application of green technologies.

As the "World's Forum for Aerospace Leadership," AIAA is increasingly seen as a technical resource by government officials and the media. We have increased our public policy focus, working with that arm of the Institute to promptly answer technical inquiries with responses reflecting the interests and work of our TCs/PCs. We thank Tom Duerr for his continued energy in developing our capability to support the increasing level of this important activity.

I have been extremely pleased to work with the members of TAC and AIAA staff, who bring such great energy and dedication to our technical activities. I look forward to continued growth and innovation in the coming year.

### TECHNICAL DISCIPLINE GROUPS

#### AEROSPACE SCIENCES GROUP

**Director:** David Riley

**Deputy Directors:** Allen Arrington, Tom Beutner, Jim Keenan, William West

The Aerospace Sciences Group (ASG) TCs and PCs continued to support AIAA's many diverse technical conferences, short courses, working groups, the Design/Build/Fly competition (in cooperation with the Aircraft Design TC in the Aircraft and Atmospheric Systems Group), and multiple co-sponsored conferences that literally met around the world. The ASG TCs selected 11 distinguished recipients for major awards, hosted or supported 17 conferences in the United States and abroad, supported 8 professional short courses, awarded 9 professional and 5 student Best Paper Awards, held numerous special sessions plus three workshops on various topics. TC international membership and associate membership continue to grow, resulting in diverse TCs with expanded membership from academia, government, and industry. Other TC activities included: publishing of "The Extra-Terrestrial Space Environment – A Reference Chart" by the Atmospheric and Space Environment TC, in cooperation with NASA; and sponsoring a "Women in GN&C" luncheon by the Guidance, Navigation, and Control TC.

Two public policy position papers were prepared and submitted: "Aerodynamic Measurement Technology" by the Aerodynamic Measurement Technology TC; and "Infrastructure Recommendations for Implementation of Executive Order 13419—National Aeronautics Research and Development Policy" by the U.S. Industry Test Facilities Working Group with support from the Ground Test TC.

ASG's composition changed this year; the Ground Testing and Modeling and Simulation TCs moved from the Aerospace Design & Structures Group, while the Aerodynamic Deceleration Systems TC moved to the Aircraft & Atmospheric Systems Group.

The Aerospace Sciences Meeting (ASM), held with great success in Orlando, FL last January after having been hosted in Reno, NV for 26 years, was enhanced with a New Horizons Forum and greatly expanded exhibits. The New Horizons Forum featured prominent keynote speakers and panel sessions with industry leaders who addressed six current aerospace topics. The expanded exhibits and the New Horizons Forum helped attract more international attendees, and total conference attendance was the highest ever for ASM, despite the economic downturn. Many thanks to the organizing committee of Paul Nielsen, Tom Beutner, Abdi Khodadoust, David Welch, and the AIAA staff. The 2010 organizing committee is planning another great conference, so please plan to attend.

#### INFORMATION SYSTEMS GROUP

**Director:** James Neidhoefer

**Deputy Directors:** James Dieudonne, Allan T. Morris, Elizabeth Klein-Lebbink

The Information Systems Group (ISG) TCs were involved throughout 2008 in planning the April 2009 Infotech@Aerospace Conference, the premier forum addressing the information-enabled aerospace technologies, systems, and capabilities that are shaping the 21st century. ISG TCs also supported six other major conferences.

The ISG TCs continued to recognize outstanding work, including a Best Intelligent Systems Paper of Infotech@Aerospace 2007 award, the Aerospace Software Engineering

Award, the Aerospace Communications Award for an outstanding contribution in the field of aerospace communications, the Distinguished Institution Award, and the David Lubkowski Memorial Award for Advancement in Digital Avionics.

In support of educational activities, the Digital Avionics TC (DATC) named three new AIAA Scholarships: the AIAA Dr. James Rankin DATC Scholarship, the AIAA Dr. Amy Pritchett DATC Scholarship, and the AIAA Mr. Ellis Hitt DATC Scholarship. The Intelligent Systems TC (ISTC) established a student paper competition at the Infotech@Aerospace conference, and a Best Student Paper award was presented by the Sensor Systems TC.

In the area of publications, the ISTC identified a set of "best intelligent systems" papers from the 2007 Infotech@Aerospace conference, and organized another *Journal of Aerospace Computing, Information, and Communications* (JACIC) Special Issue on Intelligent Systems for publication in Spring 2009. The Sensor Systems TC completed a special issue of JACIC on Sensor Technology for Aerospace Systems, published in October 2008. The ISG TCs continue to be the primary source for JACIC.

### PROPULSION AND ENERGY GROUP

**Director:** Ashwani K. Gupta

**Deputy Directors:** I-Shih Chang, Selma Goldstein, Jeffrey Hamstra, David Lilley

The Gas Turbine, Propulsion Integration, and High Speed Propulsion TCs that expanded from the Air Breathing Propulsion (ABP) TC of the Propulsion & Energy (P&E) Group are now well populated with balanced representation from academia and industry. The operation of these three new TCs became effective on May 1, 2008. The P&E group consists of 10 TCs in the propulsion area and two in the energy area. In addition, a new working group on Green Energy Technology was formed, headed by Dr. Valerie Lyons of NASA GRC. The timely formation of the green energy working group will help foster current member interests by addressing pivotal issues of common interest on energy and environment in the international aerospace propulsion and power community.

The P&E Group supports three major successful conferences: the Aerospace Sciences Meeting (ASM), the Joint Propulsion Conference (JPC), and the International Energy Conversion Engineering Conference (IECEC). All the propulsion TCs/PCs supported a very successful JPC sponsored by Pratt & Whitney with panel sessions contributing to its success. The two energy group TCs supported the very successful IECEC, that had 49 sessions extended over 3 days. The IECEC was joined by three participating organizations: the Heat Transfer Society of Japan Advanced Energy Conversion Group, the IEEE Aerospace and Electronic Systems Society, and the Egyptian Society of Mechanical Engineers. The P&E TC members also supported a significant number of sessions at ASM. The Terrestrial Energy Systems TC (TES) had a record number of papers presented at ASM. The P&E Group members also sponsored a number of other meetings.

Members from the Energetic Components and Systems (ECS) and Aerospace Power (AP) TCs are working with the AIAA Committee on Standards to help foster new standards for the aerospace industry. The Solid Rocket (SR) and Liquid Propulsion TCs offered short courses at JPC. With support from Aerojet and ATK, the SR TC deployed educational road-show kits on solid rocketry for elementary-middle school science class presentation in the U.S. and abroad (Taiwan), containing a DVD on solid rocketry, inert samples of propellant ingredients (simulants), and a reproducible workbook for students.

The P&E Group presented several prestigious awards in 2008, including the Air Breathing Propulsion Award, the Propellants and Combustion award, the Wyld Propulsion Award, the Aerospace Power Systems Award, and the Energy Systems award. The P&C, TES, and AP TCs also presented best paper awards.

### AEROSPACE DESIGN AND STRUCTURES GROUP

**Director:** David W. Jensen

**Deputy Directors:** George A. Lesieutre, Kathleen Atkins

Major technical advancements within the areas represented by the Aerospace Design and Structures Group (ADSG) during 2008–09 are summarized in the December issue of *Aerospace America*. Impressive contributions to their fields were made by each of ADSG's seven technical committees (Structures, Structural Dynamics, Materials, Adaptive Structures, Non-Deterministic Approaches, Survivability, and Design Engineering). From the 1<sup>st</sup> Adaptive Structures Shootout held at the 49<sup>th</sup> SDM Conference, to the preparation of educational outreach materials, white papers, standards, reference books, and the latest edition of the infamous "Aerospace Engineering Design Guide," our TCs have been anything but idle. To round out their activities, they sponsored several short courses, published timely and informative articles, presented multiple awards to distinguished recipients, and supported major conferences sponsored or co-sponsored by AIAA, as well as others. To top it off, two new AIAA technical awards will be presented to deserving recipients this year: the AIAA-ASC James H. Starnes, Jr. Award; and the AIAA Ashley Award for Aeroelasticity.

The group has been preparing for the 50<sup>th</sup> anniversary of the highly successful annual Structures, Structural Dynamics, and Materials Conference and associated events, to be held in May 2009. The 50<sup>th</sup> AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, the 17<sup>th</sup> AIAA/ASME/AHS Adaptive Structures Conference, the 11<sup>th</sup> AIAA Non-Deterministic Approaches Conference, the 10<sup>th</sup> AIAA Gossamer Spacecraft Forum, and the 5<sup>th</sup> AIAA Multidisciplinary Design Optimization Specialists Conference will be held at the historic site of Palm Springs, CA, where the SDM conference originated. The group also supported seven other major conferences this past year.

Other notable accomplishments and activities within the ADSG include: a special 60-minute overview and tutorial at the 2009 ASM in Orlando titled, "A Review of Uncertainty



Quantification Techniques for Aerospace Systems,” sponsored by the Non-Deterministic Approaches TC; and the Survivability TC’s use of a webcast for one of their regular meetings this year, a successful means of communication that will be expanded to two webcasts this year, enabling four annual meetings without excessive travel expense.

ADSG also presented a number of prestigious awards including the Survivability Achievement Award, the AIAA Design Engineering Award, the ASME Annual Best Paper in Adaptive Structures, and the ASME Adaptive Structures and Material Systems Prize.

## TECHNOLOGY INTEGRATION GROUPS

### AIRCRAFT AND ATMOSPHERIC SYSTEMS GROUP

**Director:** Neal Pfeiffer

**Deputy Directors:** Dimitri Mavris, Satish Mohleji

The major Aircraft and Atmospheric Systems Group (AASG) conference was the Aircraft Technology, Integration, and Operations (ATIO) / International Council of the Aeronautical Sciences (ICAS) 2008 in Anchorage, AK in September. The integration of ATIO and ICAS was very successful and overall attendee response was extremely positive. The ICAS poster session idea was adopted for future ATIO conferences, especially to encourage students.

The AASG TCs conducted a number of successful activities throughout the year. The **Aerodynamic Decelerator Systems TC** held a biennial short course dedicated to Helmut Heinrich in May 2008 at Yuma Proving Grounds attended by 64 students. The ADS TC is committed to preserving archival information with collections donated from Sandia National Laboratories, Natick Laboratories, DLR Germany, and the personal collection of Theodor Knacke, which has been donated for facsimile by the Naval Air Warfare Center, China Lake. Income earned from short courses, seminars, and conferences enabled the TC to fund the Linda Hall Library to make these collections of technical papers available free of charge online. The **Aircraft Design TC** participated in the Design/Build/Fly and Undergraduate Design competitions. TC meetings included a Hawker Beechcraft factory tour, a talk on Lean Engineering Principles, and a presentation on the design of the HondaJet. The TC also sponsors a subcommittee, CADWG21, Conceptual Aircraft Design Working Group for the 21st Century. The **Balloon Systems TC** participated in the COSPAR (Committee on Space Research) Conference in Montreal in July 2008. The **Lighter-than-Air (LTA) TC** is continuing their efforts to translate a German Airship Engineering book into English as a resource for university LTA courses, is developing an LTA Short Course, an “LTA Technical Encyclopedia,” and a publication for AIAA’s *Progress* series, “Recent Advances in Modern Airship and Aerostat Systems.” The TC is also working to develop two LTA competitions: Zero Emissions Transport Airship (or Z-Prize) ([www.airshipprize.org](http://www.airshipprize.org)) and the World Sky Race ([www.worldskyrace.com](http://www.worldskyrace.com)). The **V/STOL Aircraft Systems TC** participated in the International Powered Lift (IPL) Conference in July 2008 in London, led by the Royal Aeronautical Society and cosponsored by AIAA. It nominated two historic sites, the Getafe Airfield in Spain and the Dunsfold Aerodrome in England, and updated the V/STOL short course in preparation for its use in May 2009. The TC also presented the F. E. Newbold Award at the IPL Conference. The **Air Transportation Systems TC** participated in three major conferences. The TC is also developing a “Knowledge Map” to identify future air traffic management system problems and explore opportunities for tutorials and workshops. The **Flight Test TC** co-sponsored the February 2008 USAF T&E Days conference in Los Angeles and the May 2008 SETP/SFTE/AIAA Flight Test Safety Workshop in Melbourne, FL. The **Product Support TC** has created a Historic and Vintage Interest Group that is working to build a consortium of interested parties, develop a set of standards for restoration, and assist in establishing limitations of liability for historic and antique aircraft.

### ENGINEERING AND TECHNOLOGY MANAGEMENT GROUP

**Director:** Basil Hassan

**Deputy Directors:** James Afarin, Nancy Andersen

The Engineering and Technology Management Group (ETMG) TCs cover the aerospace enterprise framework. TC activities continued to be varied and strong this past year. TCs were very active in managing and/or supporting a broad range of conferences and meetings, including the Multidisciplinary Design Optimization Specialist Conference, the Aerospace Sciences Meeting, the Joint Propulsion Conference, and SPACE 2008. The TCs also continued their excellent joint venture effort to present the Delta Forum. Venues for the numerous TC meetings were widely varied, ranging from AIAA conferences to industrial and government locations, and included valuable presentations and informational tours. Several major AIAA awards were given during the year. The group was also instrumental in providing the annual training for TAC directors and deputy directors. The ETMG participated in seven major conferences throughout the past year.

ETMG continued to recognize outstanding work, including through the Hap Arnold Award for Excellence in Aerospace Program Management, the AIAA History Manuscript Award, the AIAA Gardner-Lasser History Aerospace literature award, the AIAA Children’s Literature Award, and the MDO Award.

In the area of publications, ANSI/AIAA G-043-200x, “Guide for the Preparation of Operational Concept Documents,” is in work. The Systems Engineering TC is working with the *Journal of Aircraft* to publish a special section on systems engineering topics. A space systems verification standard is in the works, to adapt an Aerospace Corporation space systems verification standard into an AIAA standard.

The Legal TC held its annual meeting and roundtable discussion at the Cosmos Club in Washington, D.C. Government speakers included the General Counsel of NASA, the FCC

Bureau Chief in charge of regulating satellite communications, the Staff Director of the House Space & Aeronautics Subcommittee, the Deputy Director of the State Department office responsible for space, and many others.

## SPACE AND MISSILES GROUP

**Director:** Trevor C. Sorensen

**Deputy Directors:** Grant Anderson, Tony Williams

The Space and Missiles Group (SMG) provided substantial value to AIAA members in 2008.

In 2008 the SMG renamed their previous award recognizing outstanding TC members to be the “SMG Exceptional Service Award,” with expanded criteria to allow for the recognition of outstanding TC Chairs.

Increased TC integration benefitted the Group in the form of joint tracks or sessions at conferences, and the Space Resources TC (SRITC) volunteered to co-sponsor the annual Space Operations and Support TCs (SOSTC) Improving Space Operations Workshop, starting in 2009. Several TCs are also participating in a new Human Factors Workshop.

The keystone SMG event, the SPACE 2008 Conference, was a great success, with the number of paid attendees exceeding expectations. The SMG TCs also hosted, helped organize, or provided track/session chairs and/or reviewers for 13 major conferences.

The SMG continued to recognize outstanding work through several awards, including the Jeffries Biomedical Award, the SAE Forest R. McFarland Award, the International Conference on Environmental Systems (ICES) Award, the Missile Systems Technical Award, the Space Systems Award, the Space Science Award, the SMG Special Service Citation, and the SMG Exceptional Service Award.

The *Space Operations Communicator*, in its fifth year of publication, is now read in 25 countries. Other SMG publications activities included the release of “Robust Implementation of Lunar Settlements with Commercial and International Enterprise [Moonbase 2015],” produced by SCTC, and content from the *Space Operations Communicator* journal was added to many issues of the *Daily Launch* by the SOSTC.

Among the most notable SMG educational and outreach activities: the Missile Systems TC participated in the Graduate Missile Student Design Competition; the Space Systems TC is working with the Space Foundation on the Science, Technology, Engineering and Math Middle School Teacher Outreach; SSTC is supporting STEM Awards to Middle School Teachers in conjunction with the Space Foundation Summer School program; the Space Colonization TC (SCTC) actively participates in the annual International Space Settlement Design Competition for high school students (where over 1000 students worldwide designed a large [population 18,000] settlement for Earth orbit); the SOSTC supports the Annual CanSat student design/build/fly competition, and SOSTC members made a presentation to approximately 50 persons at the Homewood at Plum Creek Retirement Center NASA’s 50th Anniversary, and gave a “Careers in Space” presentation to middle and high school students; and the Weapon System Effectiveness TC conducted an international short course in Rome, Italy, titled “Effectiveness of Direct Hit and Warhead Technologies.”

## PROGRAM COMMITTEES

**Coordinator:** Anthony Gross

AIAA Program Committees (PCs) are chartered to connect the AIAA membership to ongoing national and industry aerospace programs, through their committee activities and their close connection to the relevant TCs. PCs include Unmanned Systems, Gossamer Spacecraft, HyTASP, Aerospace Traffic Management, Space Station, Reusable Launch Vehicles, NetCentric Operations, Space Exploration, Energy Optimized Aircraft and Equipment Systems, Value-Driven Design, and Homeland Security. Selected activities included: the Infotech@Aerospace Conference, organized by the Unmanned Systems PC; technical co-sponsorship of the NDIA Net-Centric Operations Conference by the NetCentric Operations PC, the bi-annual HyTASP Conference; and several PC workshops and focused meetings.

Three PCs contributed to the success of the SPACE 2008 Conference: the Value-Driven Design PC (VDDPC) provided a tutorial and panel discussion; the Space Exploration PC (SEPC) hosted a track; and the Reusable Launch Vehicle PC (RLVPC) held a special session. The participation of these three PCs in the planning sessions of the Space and Missiles Group TCs has been particularly effective.

PCs advocate for new programs and the development of new capabilities within the aerospace community. The VDDPC, as an example, made advocacy presentations to such organizations as DARPA, OSD/ATL/SE, NASA/ARMD/NAP, NASA Langley Systems Analysis staff, and NSF/CMMI for this new approach to design effectiveness.

Several PCs are developing position papers on timely issues, such as a paper being developed by the Aerospace Traffic Management PC (ATMPC) on the technology and other issues of the next generation national air traffic management system. The ATMPC’s paper will focus on the technology needs that will underlie any new system, thus bringing the technological expertise of AIAA to this important national challenge.

Two new working groups were started this year in the areas of Directed Energy Systems and Green Energy Technology, to explore the technical and programmatic context and content of their proposed new organizations and evaluate current PC activities. It is expected that one or both working groups will come forward during the 2009 program year with a proposal for a new Program Committee or a Technical Committee.

Finally, continuing close working relationships with the AIAA Emerging Technology Committee are expected to identify further new opportunities for new PCs and TCs. 

## PUBLIC POLICY



**Philip Hattis**  
Vice President

The past year resulted in the election of a new Administration in Washington and adoption of the new AIAA Strategic Plan (SP). Both these events strongly influenced the focus of the Institute Public Policy activities.

It was clear that the winner of the 2008 Presidential election would be responsible for making aeronautics and space policy decisions on issues that would have impact for decades to come.

Consequently, the Public Policy Committee (PPC) and Technical Activities Committee (TAC) worked together to formulate a questionnaire for the nominated Presidential candidates that covered the issues that would most affect the future of the aerospace enterprise. These questions, detailed background material prepared by PPC, TAC, Technical Committees (TCs), and Program Committees (PCs), as well as the applicable candidate positions were published in a special insert with the October *Aerospace America*. The insert provided a guide to our members and other *Aerospace America* readers to make more informed decisions when they voted in November. Based on a detailed aerospace policy position paper released by the Obama campaign in August, a month after AIAA provided its questionnaire to both the major party candidates' campaigns, it is clear that the AIAA questions influenced the scope and content of the Obama campaign position statement.

As follow-on to the AIAA Presidential election initiative, AIAA leadership representatives were provided an opportunity in January 2009 to brief the NASA Transition Team for the incoming Obama Administration regarding the Institute's aeronautics and civil space policy positions. The background material prepared for the *Aerospace America* pre-election insert and the Board of Directors-approved Key Issues for Congressional Visits Day (discussed more below) provided the substantive context for that briefing.

One of the key Strategic Plan initiatives is to address the education and sustained capabilities of the future aerospace workforce. This was the focus of the May 2008 Inside Aerospace conference that brought in over 200 aerospace leaders and topical experts from around the world to identify the applicable workforce and education issues and to make recommendations regarding those issues. A published report covering the key issues identified at the conference and recommendations for their mitigation got considerable media attention. The 2009 Inside Aerospace conference will provide opportunity to follow up on the 2008 recommendations.

Congressional Visits Day (CVD) is the flagship AIAA Public Policy outreach event, bringing AIAA members to meet Congressional representatives and staff in order to exchange views on issues of importance to AIAA members. Key Issues (KIs) are brought forth from AIAA membership through the efforts of the PPC and TAC. After being screened and ranked, the most important KIs are drafted with a brief definition of the issue and recommendations to address the issue. The top-ranked KI drafts go to the Board of Directors for review. Thirteen were adopted for the March 2009 CVD, including issues that address all three key initiatives in the Strategic Plan, covering aerospace energy and environment policy issues as well as the future of the aerospace workforce. The April 2008 CVD had 111 AIAA member attendees. The AIAA grass roots organizational staff put much effort into increasing the March 2009 CVD participation. To facilitate more participation as well as greater attendee geographic and technical/policy expertise diversity at CVD in recent years, a Member Participation Program was established to provide a partial subsidy for first-time CVD attendees. That program has been expanded in recent years to now cover Section members, graduate student members, and TC/PC members.

To leverage the success of the annual CVD event in springtime, AIAA began the August is for Aerospace (A4A) event a couple of years ago. A4A aims to further highlight AIAA KIs in the home districts of the congressional representatives while Congress is in recess and the representatives meet locally with constituents. In 2008, 11 A4A events were held involving 12 sections and student chapters, a significant participation gain over previous A4As. Also, several of the regions continued to hold annual public policy colloquia.

Regional colloquia enable coordination of national and local policy event planning, and help to organize additional local grass roots policy activity by AIAA members. It is a goal that all U.S. Regions should hold annual public policy colloquia.

To provide more paths for AIAA membership participation in public policy, major policy forums and events have been added at the large AIAA conferences. Both the Joint Propulsion Conference (JPC) and the Aerospace Sciences Meeting (ASM) have become venues for multiple public policy events that include forums tackling the key Strategic Plan initiatives. At the July 2008 JPC in Hartford, a PPC meeting was held, a panel discussion open to all conference attendees was conducted (addressing "The Implications of Aviation's Role in Global Climate Change"), and the PPC leadership participated in the follow-on Regional Leadership Conference to help introduce local AIAA leaders to AIAA public policy programs and initiatives. At the January 2009 ASM in Orlando, a PPC meeting and a policy forum were held. The ASM PPC meeting provided an opportunity for a joint dialogue and coordination session between PPC members and Education Activity Committee members. At the ASM policy forum, a senior Obama campaign advisor on environmental issues, Howard Learner, briefed conference attendees on important factors that will be considered by the Obama Administration on transportation-related energy and environmental policy. Also, the September SPACE 2008 conference held an aerospace workforce



A special supplement to *Aerospace America* explored the views of the candidates on topics such as aerospace infrastructure, threats to U.S. space assets, workforce issues, and monitoring climate change.



Clockwise from left: Carol Cash, Vice President-Elect, Public Policy, and other members of Region III meet with Rep. Steve Driehaus of Ohio; CVD participants with Rep. Dana Rohrabacher of California; Region VI members with Rep. Gabrielle Giffords of Arizona.

policy forum to sustain policy discussion of that issue between the Inside Aerospace conferences in 2008 and 2009.

At the September 2008 PPC meeting in Reston, Dr. Duncan Copp was selected as the 2009 Public Service Award recipient. Dr. Copp has produced many space and science-related documentaries including the movie "In the Shadow of the Moon," and the *Discovery Channel* series "Moon Machines." Dr. Copp's work is seen as inspiring interest in aerospace technology among young people, which may motivate them to gain the technical education necessary to become future members of the aerospace workforce.

The PPC also held forums in Washington to inform our elected leadership about issues affecting aerospace and to provide policy recommendations developed by our membership. In April 2008 AIAA held a forum titled, "Workforce Development, Global Competition and the Future of the U.S. Aerospace Sector" in conjunction with the Science Technology Engineering and Mathematics Education Caucus on Capitol Hill. In July 2008 an event on Capitol Hill was held that focused on the current state of air transportation in the U.S., and the design needs for a more efficient and effective Next Generation air transportation system.

Successful AIAA public policy outreach to the public must include access to the media as a path to get the AIAA message disseminated. To serve this goal, AIAA began holding an annual press conference in 2007. The second AIAA press conference was held in May 2008, with AIAA leadership discussing both workforce/education issues and the adverse effects of the current International Traffic in Arms Regulations (ITAR) regime on key sectors of the aerospace industry. At least six aerospace media outlets attended, some with multiple reporters present. Significant subsequent media coverage of the highlighted issues was directly traceable to the press conference. Also, the Congress began to hold hearings in February 2009 on the ITAR issues, with applicable testimony provided by AIAA's Executive Director, Bob Dickman.

With the help of resources provided by the Institute Development Committee, and the approval of the Board, AIAA began a Government Fellow program in January 2008. The goal of this program is to impart AIAA policy expertise directly into government agencies by providing them with the services of an aerospace technical and policy expert for a year. The program seeks a mid-career professional each year who will be sponsored by AIAA for placement in a key government agency or congressional staff position. In their placement, AIAA Government Fellows serve their assigned agency or office under AIAA sponsorship, providing their own aerospace expertise along with ready access to other AIAA members for much broader technical expertise as needed. The selection process is based on each individual's knowledge and skills, as well as the current public policy priorities of the Institute. Karen Barker, the 2008 Government Fellow, served most of her term within the Department of Commerce, with a highly responsible assignment to address future navigation satellite issues. In the final three months of her Fellow term she worked within the Department of State to address international aerospace issues. Her successor will be selected in spring 2009.

While the past year was a pivotal time for AIAA public policy, given the political changes in Washington and the new AIAA Strategic Plan imperatives, the direction of new policies and their impact will be determined in the next year and after. AIAA public policy activities must increase in number, and greater member participation in applicable events must be realized both to make progress on the Strategic Plan policy goals, and to assure that the nation gets the full benefit of the problem solving capabilities uniquely available from within the AIAA membership.

## STANDARDS



**Amr A. ElSawy**  
Vice President

The recently approved Institute Strategic Plan lays out three goals for our standards program over the next five years. These goals focus on increasing the knowledge of the standards program across the Institute membership, engaging in new and emerging areas to support standardization needs, and ensuring a sustainable financial model for the products and services offered by the program. Each of these goals will require a great deal of effort from the dedicated

members of the SEC, some hopefully new recruits that we intend to engage, and the Institute staff.

For many years the Standards Program seems to have remained somewhat off the radar of the majority of AIAA members. We intend to change this dynamic over the next five years and hope to bring more attention to the work and outcomes of the program. Work has already begun on this goal under the leadership of VP-Elect, Standards Wilson Felder. Dr. Felder has begun meeting with AIAA TCs to communicate the goals and services of the standards program and to solicit their feedback in strengthening our products. He has set an ambitious goal to personally visit each TC at least once during his tenure as VP. In addition to this personal outreach, over the last year the staff has begun to provide written reports on various standards activities and committees through *Aerospace America* and the *Daily Launch*. Through this outreach we hope to meet our goal of increasing participation in our standards activities by at least 25% during the next five years.

Embracing emerging technologies and capabilities within the aerospace sector will promote growth of our standards program and allow us to sustain our prominent role in the industry. We have begun to initiate discussions with the unmanned systems community to determine if there is a standardization need that is not currently being met. Our first responses seem to indicate that there is a role that AIAA can and should be playing in this arena. We are also monitoring other emerging areas to ensure that we are aware of any standardization needs should they arise.

In 2006 we began offering our AIAA standards documents to the membership at no cost. This decision was made by the SEC and endorsed by the Board of Directors after a great deal of research and analysis and has received very positive feedback from the members. While this is certainly a worthwhile program and one we intend to continue indefinitely, the change did result in a small loss of revenue in the overall budget. To compensate for this and, more importantly, to ensure continued strong support of our numerous standards activities and programs, the strategic plan outlines a number of initiatives aimed at developing new product lines. These new products and services will build on the technical content of our standards documents to add value to the work of engineers and scientists engaged in aerospace. We have a number of preliminary ideas on how some of these products might look, such as training courses and multimedia support products. We will continue to define these ideas as we move forward with implementation.

Our new Strategic Plan also includes three high level strategic imperatives that are critical to the future of the profession. These imperatives are intended to shape the activities of the Institute as we begin to address these challenges over the next five years. Our standards program is taking on these imperatives and developing plans to increase our impact in these areas. For instance, in the area of workforce development, we are communicating with the Student Activities Committee to determine if there is a way to bring greater emphasis on the role that specifications and standards play in aerospace design into the classroom. On the environmental impact side, we continue to provide strong support to the international space systems and operations standards committee through ISO. This group is engaged in developing a suite of standards aimed at decreasing the creation of, and mitigating the effects of, orbital space debris. We will also be exploring the potential impacts standardization can play in increasing the energy efficiency of aerospace systems as well as monitoring and reducing the environmental impacts of aerospace activities here on the ground. It is our hope that our increased engagement with the AIAA technical, program, and standing committees will lead to better recognition of potential new directions for our standards activities in these vital areas.

AIAA's new strategic plan provides the Institute with meaningful goals for the next five years that will lead to a stronger organization once realized. The strategic imperatives it identifies ensure that our priorities and activities are well-aligned with the most pressing challenges facing the future of our profession. The Institute's standards program is working toward these goals and imperatives and is positioned to provide support to the community as we move out on implementing our plans.



At a public policy forum at the Aerospace Sciences Meeting, Obama advisor Howard Learner discussed factors the new administration would consider in redesigning the national transportation system.

## MEMBER SERVICES



**Mary Lassiter Snitch**  
Vice President

This has been a very active year for Member Services and its three committees, with key activities and initiatives that were achieved through setting ambitious goals and engaging many active members at all levels of their AIAA and professional careers. Outstanding members received section and region awards, and in January 2009 AIAA recognized 195 new Associate Fellows, the highest number ever. This has also been a year to reflect on how to serve AIAA membership more effectively in the

current economic environment, and how to engage more actively in aerospace workforce development issues and other issues critical to the aerospace industry at large. If you are not currently an active member of one of the Member Services committees, please review our activities and consider joining a committee in the coming year.

The Membership Committee, led by Tom Milnes of Johns Hopkins University/Applied Physics Laboratory, reports fairly stable membership levels and continued growth in international membership. In 2008, the Institute had 29,043 professional members, of which 5,077 were international. A total of 900 people have committed to be lifetime members. Of particular significance, at the January Board meeting, the Membership Committee recommended and the Board approved a motion to waive further dues for members with over 50 continuous years' membership, making them Lifetime Members. At the AIAA Aerospace Spotlight Awards Gala we are also honoring 30 new Fellows and three new Honorary Fellows.

The Career Enhancement Committee has seen a very direct change in focus this past year. Now titled the Career and Workforce Development Committee, and under the leadership of Dr. Patricia Sanders, the CWDC continues to identify opportunities and educational information to assist members in realizing their maximum career potential. This would include such matters as pensions, ethics, diversity, employment, conditions of employment and benefits.

The committee conducted successful workshops at SPACE 2008 in San Diego and at the Aerospace Sciences Meeting in Orlando, and completed a highly valuable and well-received salary survey of AIAA members in 2008. Now as the broadened CWDC, the group will recommend specific actions focused on recruitment, engagement, and career-long retention of a highly-qualified technical workforce. Committee membership is open to all interested AIAA members.

The Young Professional Committee, led by Darin Haudrich of The Boeing Company, continues to serve the interests of professional members under the age of 35. Over the past year with the support of TAC, the committee has given out more than \$3000 in door prizes at YPC hosted networking events at select AIAA conferences. The committee has also started an initiative requested and approved by Member Services by which local sections that do not currently have budgeted funds to support YP activities can request funds from the YPC. A survey went out at the end of 2008 that will provide more insight into opportunities for programs and activities to better serve AIAA young professional members. The latest activities and survey information will be posted for access by all members at <http://aiayoungprofessional.blogspot.com/>.

Region I includes 15 sections from Hampton Roads to New England. Most sections have monthly programs, and some sections, including Delaware and Northern New Jersey, hold Lunch and Learn programs as well. Fall activities ramped up starting in September, when the National Capital section provided sponsorship for a hugely successful "Launchfest" open

house for the Goddard Space Flight Center that welcomed over 13,000 members of the public. The Hampton Roads section held their annual Oyster Roast in October, and the Philadelphia section held a successful mini-symposium in November. Also in November, the Baltimore section again hosted the Region I Young Professional, Student, and Educator Conference at JHU/APL.

Region II constitutes the southeastern United States, an area of diverse aerospace activity from general, commercial, and military aviation to commercial and government launch systems and spacecraft. With a professional membership of over 3200, the region's participants enjoy regular and informative section-sponsored lectures, seminars, tours, and interactive events. The often monthly scheduled luncheon and dinner meetings promote professional development, with presentations given by leaders in their discipline. For many such events, the public is invited to attend. Reflecting strong local participation, numerous Section Awards, including Membership, Communication and Career Enhancement were recently received by the Savannah Section and the Northwest Florida Section, while the Alabama-Mississippi received the Outstanding Activity Award. And 16 were selected as 2009 Associate Fellows from Region II. Furthermore, Region II is a strong supporter of education, with over 300 Educator Associates and over 1000 student members. The region is host to AIAA's largest collegiate student conference and awards several thousands of dollars annually for undergraduate scholarships, technical paper competitions, engineering projects, and various grade K-12 endeavors.

Region III includes the states of Ohio, Indiana, Michigan, Illinois, Wisconsin, and Kentucky. Seven professional Sections and twenty-seven Student Branches serve the AIAA members across the Region. All seven of the professional Sections in Region III have been active, with a particular emphasis on developing new leadership and pursuing synergy and best practice opportunities across sections. The Dayton-Cincinnati Aerospace Sciences Symposium (DCASS) on March 3, 2009 continues to set new standards for excellence and innovation. The Student Conference is being hosted by University of Illinois at Urbana-Champaign during April 4-5, 2009. Distinguished lectures, special events, and K-12 educational outreach activities (e.g., Techfest in Dayton, OH) are continuously being supported by most of the Sections in Region III. It is also well represented on AIAA Technical & Standing Committees, public policy issues, and has a continuing prominent role at Congressional Visits Day.

Region IV is comprised of members residing in the south central U.S. The sections hold great local programs for members. The Holloman/Alamogordo Section hosted an annual Southern New Mexico Technology Symposium in partnership with New Mexico State University and included a luncheon speaker from the Smithsonian Air and Space Museum. Oklahoma Section supported an Oklahoma state UAV Summit and held a meeting discussing "green" technologies for tires of ground vehicles. Southwest Texas (San Antonio and Austin) had AIAA Distinguished Lectures on automobile aerodynamics and on mistakes and deceptions in aircraft accident reconstructions. The Albuquerque Section had a meeting on the history of the CV-22 Osprey and met with the Commander of the Space Development Group at Kirtland AFB to get an update on recent and upcoming launches related to DoD's Space Test Program. The North Texas section (Dallas-Ft. Worth) held meetings with a test pilot for both the Harrier and F-35 STOVL, an aviation photographer, and with a congressional staffer discussing aerospace-related legislation. The Houston Section held meetings with an astronaut speaking about the solar system as well as Lunch and Learn technical seminars. They also produced a number of great newsletters, available at their Web site, including an issue on the 40th Anniversary of Apollo 8.

Region V continues their monthly telecons for increased coordination and integration. The Iowa Section and Student Branches keep growing in the breadth and depth of the programs offered to their members. Rocky Mountain remains our largest section with a strong and vibrant



*The activities with which the Delaware Section of Region I celebrated Engineers' Week included a paper airplane contest and a gummy-bear-and-toothpick tower contest.*



## INTERNATIONAL



**Vincent C. Boles**  
Vice President

As my tenure as Vice President–International draws to a close, I would like to describe the international activities over the past year and to reflect on the accomplishments during my term, and postulate on the future direction of the Institute’s international program.

The SpaceOps 2008 Conference was held successfully 12–16 May in Heidelberg, Germany. Attracting more than 600 delegates, it focused on operational activities and methods

for earth observation, global monitoring, environment and security, and space meteorology. The event was hosted and organized by the European Space Agency and the European Organisation for the Exploitation of Meteorological Satellites, in association with AIAA.

AIAA organized the 26<sup>th</sup> Congress of the International Council of the Aeronautical Sciences (ICAS), including the 8th AIAA Aviation Technology, Integration, and Operations Conference, 14–19 September 2008 in Anchorage, Alaska. There were over 800 participants at this event. AIAA is a member organization of ICAS and hosts this biennial event every 12 years.

As a result of long-standing discussions and the strong desire to collaborate on technical exchange, AIAA and the Deutsche Gesellschaft für Luft- und Raumfahrt (DGLR) agreed to jointly co-organize the International Meeting for Aviation Product Support Processes (IMAPP). For the past several years, this conference has been organized by the AIAA Product Support Technical Committee.

In July 2008, AIAA and the Canadian Aeronautics and Space Institute (CASI) signed a Memorandum of Understanding. The MOU codifies a long-standing informal agreement between the organizations, and calls for joint collaboration on events, publications, student activities, and professional development offerings.

Following a briefing to the Council of the Royal Aeronautical Society (RAeS) in November 2008 by former AIAA president Donald Richardson, AIAA and RAeS are currently discussing and planning potential areas of collaboration. These organizations have a long-standing protocol agreement but have not had an active partnership in recent years.

During my term as Vice President–International, my priorities have been to:

- Continue AIAA’s engagement in the international community on a multilateral and bilateral basis
- Develop relationships with other organizations with international collaboration objectives based on natural affinities and synergies
- Foster joint activities that address topics or disciplines of mutual interest
- Formalize the Director–International positions to more effectively engage these valuable positions to support strategic needs and assist with development and implementation of country-specific strategies

One of my goals upon election to the Board was to ensure a working balance of our international efforts across both the aeronautical and astronautical arms of the organization. The last three years have been productive in that a number of collaborations with sister societies in other countries have been strengthened or established. Among notable events, the International Activities Committee (IAC) co-organized a workshop and seminar on global space exploration strategies and Embassy receptions to help promote cooperation in aeronautics and space between the U.S. and other countries. Although we have not been able to achieve full organizational clarity and utility with regard to the Director–International positions, there will be more opportunities for these positions to participate in determining the means to implement the strategies for AIAA’s engagement in targeted countries.

As I transition out of my Vice President role, I have been working with incoming Vice President Mark Maurice to:

- Align the structure of the International Activities Committee and to identify and apply resources to support implementation of the 2009–2013 strategic plan
- Ensure sustainability of international outreach and activities
- Assist in determining and implementing priorities for international strategic goals

My only regret is that I am stepping down as we begin to implement a challenging but exciting strategic plan, and away from wonderful Board members who collaborated so effectively to achieve this result. I personally wish to thank all members who have contributed and volunteered their time and efforts to the successes we’ve accomplished within the Board and the IAC.

community of professional and student members. St. Louis maintains its active mix of dinner and technical meetings with involved participation with their Student Branches. Twin Cities’ professional member participation continues to increase as they expand their section council and prepare to host the Student Paper Conference. Wichita’s solid commitment to their members remains, and they continue to offer vital and diverse programs throughout the year

Region VI increased focus on workforce development and public policy outreach, in addition to regular section meetings and special technical symposia. Los Angeles (LA) section sponsored an “August is for Aerospace” event at LAAFB in September focusing on Workforce Development. Tucson’s Aviation Art program displayed elementary school artists’ work at the local airport as well as at the town hall. Orange County (OC) and China Lake held precollege rocket launches. LA, OC, Pacific Northwest (PNW), San Francisco (SF), and Utah sections sponsored FIRST Robotics teams, and LA, San Diego (SD) and PNW sponsored “Project Lead the Way” engineering pre-college programs.

YPs kept busy with a PNW Technical Symposium and a LA Career Workshop. Among many SF professional development programs, a program on “Engineering or Management” highlighted the year. Antelope Valley section sponsored eight YP teams in a rocket competition. The revitalized Point Lobos section led membership gains with a 50% increase (to 76 members!). Their popular flying festival was topped only by a lecture by Nobel Prize winning mathematician John Nash.



AIAA Associate Fellow Rick Stanley, with former NASA Administrator Sean O’Keefe and Associate Fellow John Blanton (L-R), all of GE Energy Division, at the Carolina Section’s event to celebrate NASA’s 50th Anniversary. Mr. O’Keefe was the featured speaker for the evening.

Region VII represents all AIAA members outside of the U.S. and includes two sections. The Sydney section recently revitalized and had a busy year with several events, including several speaker programs, a public seminar on the science of flight testing, and a pizza and film evening with the movie “The Right Stuff.” The Adelaide section also hosted some speakers, supported South Australian Space School students, and helped the University of Adelaide student branch with a career night in May and a trip to the Woomera launch facility in October. AIAA members from all over Australia supported the AIAA Student Conference in Melbourne by serving as online judges for students’ papers.

In the spring, AIAA held a reception for members in The Netherlands, hosted by Region VII director Jürgen Quest. And AIAA welcomes Concordia University, in Montreal, as a Student Branch. There are now 26 student branches in Region VII.



AIAA Associate Fellow Lt. Gen. Larry James speaking at the Vandenberg Air Force Base Historic Site ceremony, 30 March 2009. To the right is Vandenberg section chair Lt. Michael Hoadley.

## FINANCE



**David R. Shaw**  
Vice President

The Institute finished with a very positive financial performance for FY08 as with the previous fiscal year. Operational revenues increased 5.8%. In addition, we invested in the membership through continued funding of the Strategic Plan activities and the Institute's Electronic Information Services (EIS). For FY08, EIS includes costs associated with the conversion to a new Association Management System. This added expense required us to use some of our investment portfolio as we have in prior years.

We will continue to do so for the foreseeable future in support of our Strategic Initiatives.

In FY08, we completed implementation of a "total cost" approach to accounting for our support activities and assigned those costs to each program area to provide a more precise picture of each program's financial impact on the Institute.

The challenge of the declining stock market and the global economic crisis impacted our investment portfolio. Due to the current and forecast general economic and stock market conditions, AIAA Senior Staff and the Finance Committee developed an FY09 Budget Contingency Plan. The Plan will be used to adjust our budget activities and use of our investment portfolio as a result of any unplanned impact on our core business lines. The Plan was presented and approved at the August 2008 Board meeting and is in effect for our FY09 budget cycle.

As the following summary of the audited financial performance of the Institute shows, conferences and publications were major contributors to our financial results this past year (Dollars shown with K are in Thousands):

### Serving Our Membership

We charged members for services at a total price of:	\$5,714K
We sold publications with a value of:	\$6,860K
We conducted conferences with a value of:	\$12,107K
<b>Our total revenues were:</b>	<b>\$24,681K</b>

### Associated Costs

The cost of providing support to the members was:	\$7,864K
The cost of publishing our products was:	\$7,386K
The cost of conducting the conferences was:	\$9,521K
The cost of initiatives for the future was:	\$1,003K
<b>Our total expenses were:</b>	<b>\$25,774K</b>

The difference between these results is an operational decrease in net assets of \$1,094K.

Our investment portfolio finished the 12-month period with a balance of \$23,238K, which is \$9,581K below where it started at the beginning of the year. The investment portfolio is the financial reserve of the Institute used for investing in future development to support membership related initiatives. We will continue to transfer certain Strategic Plan activities as they mature into operations expenses and non-strategic related EIS costs into the operational budget by FY10, limiting their funding from the Institute's investment portfolio and ensuring that there are funds for future opportunities and initiatives. This goal becomes more formidable in light of the current global market economy.

We have stated our future financial direction in the newly released Strategic Plan, and will help AIAA evaluate and assign program priorities and initiatives as we move forward.

As in past years, these results could never have been achieved without the dedication and vigilance of the Finance Committee, Audit Committee, Board of Directors, and AIAA finance staff. We would also like to recognize new members joining our Finance Committee this past year. A complete listing of the Finance Committee can be found on the AIAA Web site.

Looking forward to FY09, as we face serious economic challenges, we continue to refine and improve our budgeting process and our financial management processes. Thanks to the dedication of our volunteers and staff, AIAA is able to continue growing the Institute to fully serve its vision and mission as aspired to by the membership.

A copy of the Institute's Audited Financial Statements can be obtained by writing to:

Dave Quackenbush, Treasurer  
American Institute of Aeronautics and Astronautics  
1801 Alexander Bell Drive, Suite 500  
Reston, VA 20191-4344

We invite your questions, comments and/or concerns regarding our financial position. As noted above, the Institute is in a strong financial state and we are working diligently to shepherd your monies through this global financial crisis to maintain member services at the top levels of performance.

## AIAA FOUNDATION



**Roger L. Simpson**  
Chairman, AIAA Foundation

The Foundation is now in its twelfth year. Looking back, we can see the positive impact we have had on many professionals, students, and educators through our scholarships and awards. Looking ahead, we hope to greatly expand these beneficial results through a visionary new development campaign.

### Professional Recognition

The AIAA Foundation Award for Excellence, established in 1998, recognizes unique contributions and extraordinary accomplishments by organizations or individuals promoting the aerospace endeavor. Distinguished past recipients include Alan Mulally, Norman Augustine, John Glenn, General John Shalikashvili, and the National Reconnaissance Office.

The Jet Propulsion Laboratory, Pasadena, California, was presented with the 2008 AIAA Foundation Award for Excellence at the Aerospace Spotlight Awards Gala in Washington, D.C., in recognition of 50 years of historic space exploration, from the first Earth-orbiting U.S. satellite—Explorer 1—to missions today throughout the solar system and beyond.

The AIAA Foundation hosts the annual Associate Fellow dinner at the Aerospace Sciences Meeting, and the annual Fellows dinner in conjunction with the Inside Aerospace meeting, to recognize new Associate Fellows, Fellows, and Honorary Fellows with an evening of networking and celebration. This year we welcomed 107 new Associate Fellows, 30 Fellows, and three Honorary Fellows.

### Educational Programs

In FY08, the AIAA Foundation awarded more than \$140,000 in scholarships to aerospace engineering students. Twenty-eight students received \$2,000 and two received \$2,500 undergraduate scholarships, while nine received \$5,000 graduate awards and four received \$10,000 Orville and Wilbur Wright Graduate Awards. Competition continues to increase for the premier awards—the Abe M. Zarem Graduate Awards for Distinguished Achievement in aeronautics and astronautics, the Orville and Wilbur Wright Graduate Awards, and the Willy Z. Sadeh Graduate Student Award in Space Engineering and Space Sciences.

AIAA Foundation Design Competitions give engineering students real-world design experience, and motivate and inspire both the graduate and undergraduate students who participate and all those who observe the results. For example, in the Design/Build/Fly Competition, each student team designs, builds, and flies an unmanned, electric powered, radio controlled aircraft that they think will best achieve the specified mission profile for that contest year. The goal is a balanced design, with good flight handling qualities, high performance, and practical and affordable manufacturing requirements.

AIAA Foundation classroom grants support math and science education, and impact over 11,000 elementary and secondary students and 200 teachers per year. They allow teachers to offer hands-on math and science activities that engage students in creative ways, such as by doing space exploration simulations, building rockets and robots, designing and flying airplanes, conducting science experiments, and plotting airplane flight plans using math, weather Web sites, and maps. School system budget constraints make the AIAA Foundation one of the best sources that teachers can turn to for such assistance.

The AIAA Foundation supports seven regional student conferences and technical paper competitions during the year, with the winners competing in an international competition at the AIAA Aerospace Sciences Meeting. These conferences provide valuable opportunities for students to present their research in a formal technical meeting atmosphere, to discuss ideas and programs with students from other colleges, to receive industry-wide recognition, and to establish professional relationships and friendships that will last a lifetime.

The 2009 AIAA Foundation Educator Achievement Award winners were announced in December, 2008. The K-12 educators being honored are: Richard Crawford, Kenneth Huff, Susan Jukosky, Lynn Marie Kollar, Rachael Lee Manzer, Jeri Ann Martin, and Jessica van Son. The winners and their guests were honored at the Aerospace Spotlight Awards Gala in Washington, D.C. Their trip included visits to Lockheed Martin, Orbital Sciences, the FAA, and the National Air & Space Museum Steven F. Udvar-Hazy Center.

### The AIAA Foundation Development Campaign

The AIAA Foundation inspires generations of students, who learn initiative and "product versus process" in addition to classroom work. The enthusiasm and knowledge they gain, especially at conferences and competitions, carries into the workplace. To expand these benefits—to offer more scholarships and awards, to help more K-12 teachers inspire their students, and to increase support of our design competitions, student conferences, and Associate Fellows program—the AIAA Foundation is launching an endowment campaign, and is accepting gifts, pledges, and planned gifts. For more information on these opportunities, or to inquire about naming a scholarship or program for an individual, family, or corporation, please contact Suzanne Musgrave at 703.264.7518 or [suzannem@aiaa.org](mailto:suzannem@aiaa.org).

By supporting educational programs and celebrating the achievements of our members, the AIAA Foundation continues to influence the future of the aerospace profession.



## HISTORIC AEROSPACE SITES



### Tony Springer

Chair, Historic Aerospace Sites Committee

The Historic Sites Program designated four sites at ceremonies in the last year. In June 2008, Wilson Felder, AIAA Vice President-Elect, Standards, conferred Historic Site designation on the **William J. Hughes FAA Technical Center** in Atlantic City, in a ceremony attended by Acting FAA Administrator Bobby Sturgell. Original known as the National Aviation Facilities Experimentation Center, the facility was created in 1958 to design and develop new air traffic control technologies

to ensure the safety of a rapidly growing air traffic industry. In 1996 it was renamed in honor of the former congressman from New Jersey and U.S. ambassador.

In July 2008, in conjunction with the Joint Propulsion Conference in Hartford, Connecticut, AIAA designated **Rentschler Field**, the original home of the Pratt & Whitney Company, as a Historic Site. In 1925, Frederick Rentschler and his partner George Mead approached Francis Pratt and Amos Whitney for funding to create a new aircraft engine for the Navy. Under the name Pratt & Whitney Aircraft Company, they manufactured the revolutionary "Wasp" engine. Rentschler went on to team with William Boeing to form the United Aircraft and Transport Corporation, which spearheaded the advent of civil aviation.

In March 2009, Maj. Gen. (Ret.) Bob Dickman, Executive Director of AIAA, named **Vandenberg Air Force Base** as a Historic Site. Established in 1941 as Camp Cooke, the facility was used to train armored and infantry troops during World War II. In the 1950s it was converted for use as a combat-ready missile site, and launched its first missile, a Thor Intermediate Range Ballistic Missile, in February 1959, shortly after being renamed in honor of Hoyt



Acting FAA Administrator Bobby Sturgell, Ambassador William J. Hughes, and AIAA Standards VP-elect Wilson Felder (L-R) at the FAA Technical Center Historic Site ceremony on 10 June 2008.

Vandenberg, the Air Force's second chief of staff. Over the years, unmanned satellites of every description and purpose, including international satellites, have been placed in orbit from Vandenberg by a wide variety of boosters including Atlas, Titan, and Delta vehicles. As Gen. Dickman noted at the designation ceremony, while some historic sites are no longer active, Vandenberg continues to make history.

William P. Hobby Airport, Houston's first commercial airport, was established in 1927 as the Houston Municipal Airport. In 1940, the city built a spectacular new terminal building, now known as the **1940 Air Terminal**, designed by Houston architect William Finger. The airport was Houston's primary air terminal until 1968, and in 1967 was renamed in honor of former Texas governor William Hobby. In April 2009, AIAA conferred Historic Site status on the 1940 Air Terminal, a beautiful example of art deco architecture that now serves as an aviation museum.



The 1940 Air Terminal on Opening Day, at what is now William P. Hobby Airport in Houston.

## CORPORATE MEMBERSHIP



### Dave Newill

Chair, Corporate Member Committee

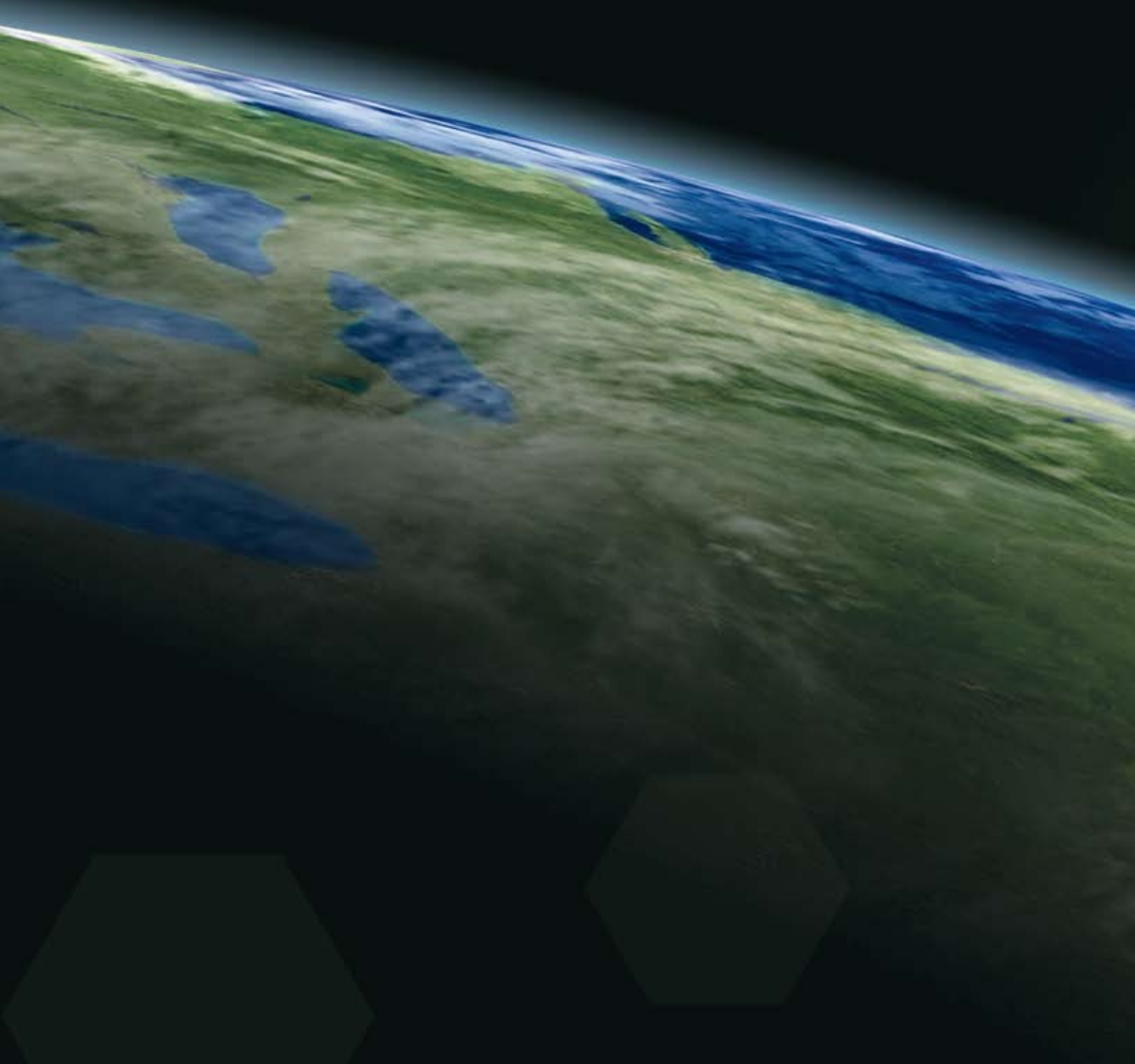
I am pleased to report that AIAA's corporate membership rose last year from 81 to 89, while we increased the number and quality of our corporate member program activities. We hosted high-level government and industry figures, including Richard Aboulafia, Vice President, Analysis, Teal Group Corp.; Pierre Chao, Managing Partner and co-founder, Renaissance Strategic Advisors; The Honorable Michael Donley, USAF Secretary; Philip Finnegan, Director, Corporate Analysis, Teal Group Corp.; The Honorable Michael Griffin, NASA Administrator; Douglas Lloverro, Executive Director, Space & Missile Systems Center, AFSC; Maj. Gen. Ellen Pawlikowski, Deputy Director, NRO; Gen. Victor Renuart Jr., Commander, North American Aerospace Defense Command and U.S. Northern Command, Peterson Air Force Base; and Lt. Gen. Tom Sheridan, Commander, Space & Missile Systems Center, AFSC.

We also hosted a private session with Kennedy Space Center Director Robert Cabana, after which our members received a VIP tour of the Center, including the Space Station Processing Facility, the Orbiter Processing Facility, the Vehicle Assembly Building, and Launch Pad B. AIAA was also entrusted with hosting the NASA and FAA 50th anniversary celebrations, in which we joined with our corporate partners to present two unforgettable gala evenings. During 2008 we made a special effort to recognize our hardworking corporate representatives at various AIAA events, while also hosting a series of networking receptions at various conferences and events.

We continue to grow our small business initiative, as we continue to focus on the needs and visibility of small businesses. To further this initiative, we were able to offer job fairs and to host small business pavilions at select AIAA conferences. We also acted as an online broker between larger contractors and small businesses to create dynamic partnerships for the benefit of the industry. We are constantly seeking feedback in an effort to respond to the needs of our valued and diverse group of corporate members, while we simultaneously focus our programs and events to target executive corporate leadership, to facilitate strategic participation in all of what AIAA offers.

## AIAA Industry Partnership Roster

Acutronic USA	GE Aviation	Orbital
Aerial Delivery Research and Development Establishment	General Dynamics Advanced Information Systems	ORBITEC
Aernnova Engineering, US	GHKN Engineering	Paratus Technology Solutions
Aerojet	Global Business Analysis	PM&AM Research
The Aerospace Corporation	Gulfstream Aerospace Corporation	Pointwise, Inc.
Airbus Americas	Hallgren Associates, Inc.	QinetiQ North America
Air Recon, Inc.	Harris Corporation	QuantifTech, Inc.
Alenia Aeronautica, S.p.A.	Hawker Beechcraft	Raytheon Company
Analytical Graphics, Inc.	Hellas Sat Consortium	Red Canyon Software
Applied University Research	Hindustan Aeronautics Limited	Rincon Research Corporation
ARES Corporation	IBM	Rockwell Collins, Inc.
Assured Space Access Technologies	Insitu, Inc.	Rolls-Royce
ATK	Intelligent Light	Royal Aeronautical Society
Aurora Flight Sciences	Integral Systems	SAFRAN
BAE Systems	International Aviation Supply	SAIC
Battelle Memorial Institute	Jacobs Technology	Sensis Corporation
The Boeing Company	JHU/Applied Physics Laboratory	Software Engineering Institute
Booz Allen Hamilton	Lockheed Martin Corporation	Space Environment Technologies
BRAHE Corporation	MBDA, Inc.	Space Systems/Loral
Calspan	McKinney Associates	SpaceX
CC-OPS	The MITRE Corporation	Spectral Energies, LLC
CDM Federal Programs Corporation	National Aerospace Laboratory/NLR	Spincraft, Inc.
Cessna Aircraft Company	National Institute of Aerospace	Star Technology and Research, Inc.
CSC Defense Group	National Technical Systems	Stellar Solutions
CSSI, Inc.	Nielsen Engineering & Research, Inc.	Systems Technology, Inc.
DARcorporation	Northrop Grumman	Teaching Science and Technology, Inc.
DLR	ONERA	United Launch Alliance
Draper Laboratory		dSPACE
EADS		United Space Alliance
Edge Space Systems, Inc.		United Technologies Corporation
Engineering Systems, Inc.		Wyle



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