



# ALL SYSTEMS GO

AIAA ANNUAL REPORT 2009–2010

Supplement to *Aerospace America* June 2010

# 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, and there are now over 80 different awards. The oldest date to the 1930s and 1940s, and today two awards – the Reed Award for Aeronautics and the 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 – not only for technical excellence, but also for public service, publications, section participation, and sustained service to AIAA.

On May 13, 2009, five hundred guests gathered to salute distinguished honorees from academia, government, and industry at the Aerospace Spotlight Awards Gala – a grand event that showcased the 2009 AIAA Honorary Fellows, the 2009 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 upgrades is an important task for AIAA members. Every AIAA member should consider which of their colleagues and peers most deserve nomination for special recognition of their achievements.



**Top left:** AIAA President David W. Thompson presents the **Reed Aeronautics Award** to Professor Anatol Roshko, California Institute of Technology. **Top right:** AIAA President Thompson presents the **Goddard Astronautics Award** to Michael Hamel, Lt. Gen. USAF (Retired). **Below:** On behalf of the Challenger Center for Space Science Education, Founding Director and Founding Chairman June Scobee Rogers accepts the **AIAA Foundation Award for Excellence** from Roger Simpson, Chair of the AIAA Foundation Board of Trustees, and AIAA President David W. Thompson.



**Above, L-R:** **International Cooperation Award** recipients Dr. Ing. Dietrich Hummel (L), Institute of Fluid Mechanics, TU Braunschweig, and Dr. John Lamar, NASA Langley Research Center; AIAA President David W. Thompson with **Public Service Award** winner Duncan Copp, Producer/Director/Science Writer; with **Distinguished Service Award** winner David Knowlen, The Boeing Company; and with **Daniel Guggenheim Medalist** Earl Dowell. **Left:** NASA Goddard Space Flight Center Deputy Director Rick Oberschain (L) accepts the National Capital Section **Barry M. Goldwater Educator Award** from AIAA Capital Section Chair Ed Yarbrough. **Right:** **AIAA Foundation Educator Achievement Award** winners (L-R) Richard Crawford, Rachael Lee Manzer, Susan Jukosky, Lynn Marie Kollar, Jeri Ann Martin, and Jessica van Son (award winner Kenneth Huff not shown). **Below:** The **2009 AIAA Fellows** and **2009 AIAA Honorary Fellows** at the AIAA Aerospace Spotlight Awards Gala.



## AIAA PRESIDENT'S REPORT



**David W. Thompson**  
AIAA President

### ALL SYSTEMS GO

Despite tough conditions in the global economy and several weak areas in the aerospace industry, AIAA had a solid year in 2009. Reflecting the commitment and hard work of our professional, student, and corporate members, we advanced our fundamental mission to address the needs and interests of the current and future aerospace workforce and to apply aerospace technology

to benefit society as a whole. Thanks to the leadership of George Muellner, my immediate predecessor as AIAA President, and Bob Dickman, the Institute's Executive Director, we began 2009 with a strong foundation of volunteer involvement and a highly-capable professional staff. As outlined below, all sectors of the Institute made important contributions during the year, positioning us well to achieve even greater progress in the years ahead.

**Membership** – AIAA's individual membership held up well last year, unlike various other technical societies, whose membership declined 10–20%. Our fiscal 2009 year-end membership of approximately 36,000 professionals and students was essentially the same as the previous year's level. The continuing dedication of our 62 local sections and 176 student branches contributed in critical ways to AIAA's relevance to our members.

Another reason for our relatively strong member retention is the increased emphasis placed by Vice President for Member Services Mary Snitch and her colleagues on understanding and strengthening the Institute programs that our members value most highly. With the assistance of our professional staff, Mary and her team conducted a Member Satisfaction Survey which provided an up-to-date assessment of member priorities, allowing us to target activities and resources in the most useful areas.

Member services volunteers also recommended, and the Board of Directors approved, the Lifetime Emeritus Member grade, which honors our long-term volunteers having 50 years or more of AIAA service; almost 700 of our colleagues were in the first class of this emeritus grade. We also implemented a dues increase, the first in 10 years and well below the inflation rate over that period. To continue our current programs and offer even better services to our members, we determined that this modest increase was necessary, which members are seeing now as renewals come due.

Due to the energetic work of AIAA's Executive Director and his senior staff, corporate membership expanded last year, reaching a total of 93 company members. In addition to four new U.S. corporate members, we also welcomed three new international companies to AIAA membership during 2009, including our first corporate representatives from India. As part of our services to corporate members, the Institute held several exclusive events with aerospace leaders including the Secretary of the U.S. Air Force, the Administrator of NASA, and the Administrator of NOAA.

AIAA volunteers and staff also worked hard last year to expand and enhance member services. One focus of these efforts was on providing electronic access to Institute publications, including *Aerospace America*, and on completing the transition to broader online member services through our new Association Management System (AMS) and the ScholarOne peer review and publications software. In addition, we revamped the monthly newsletter (now named "*Momentum*") and established an Institute presence on popular new media outlets such as Facebook, YouTube, and Twitter.

**Technical Activities** – With strong leadership from Laura McGill, Vice President for Technical Activities, AIAA continues to provide the world's premier forum for aerospace technical collaboration and information exchange. Our 82 technical and program committees, consisting of some 2,000 of the Institute's most active volunteers, represent a wide range of engineering, scientific and operational disciplines in aeronautics and space. Driven by their energy and commitment, we registered nearly 9,000 attendees and published over 4,500 technical papers at 26 TAC-sponsored and other AIAA-managed conferences in 2009.

During the first full year of our new Strategic Plan's implementation, AIAA began to build momentum in pursuing several major new initiatives. For example, consistent with one of our top three strategic initiatives in the long-range plan – advancing aerospace technologies to monitor climate change and reduce environmental impacts – TAC led the way in acquiring a targeted mid-sized environmental conference from SAE, the International Conference on Environmental Systems (ICES). The ICES meeting will become a permanent annual event for us beginning with this year's conference, scheduled for July in Barcelona, Spain.

**Publications** – AIAA members benefited from the great work of Mike Bragg, Vice President for Publications, and his excellent team of nearly 500 dedicated editors and reviewers last year. Our journals accepted over 1,100 manuscripts and our authors published 24 new or revised books in 2009, while we also accelerated the conversion of many of our publications to electronic formats. Working with the International Activities Committee, our publications group also launched the Institute's first sustained translation effort in partnership with the Aviation Institute Press of China.

**Standards** – During 2009, Wilson Felder, Vice President for Standards, and his team focused on an assessment of AIAA's technical standards program, covering both documents currently published and new projects under development. Consistent with the Institute's goal to be the standards development organization of choice among aerospace professionals, our members and staff conducted several training sessions on the value of standards to both individual and corporate members. In addition, our standards committee held workshops at two of our largest conferences to demonstrate how participation in standards development can create competitive advantages for industry.

**Educational Programs and Foundation Activities** – Under Vice President for Education Merri Sanchez's energetic direction, AIAA's educational activities expanded across a broad front last year: student memberships increased by more than 3%; educator associates reached a record level of nearly 2,500 pre-college teachers; professional development courses attracted nearly 500 members; and we launched the AIAA Education Partner Program, entitling AIAA members to reduced-tuition courses through other institutions. From student members at more than 75 colleges and universities, over 250 paper presentations were given at ten student conferences, more than 50 proposals were received in six "paper" design competitions, and nearly 40 teams participated in our Design/Build/Fly competition.

As an important part of our initiative to inspire and develop next-generation aerospace professionals, the AIAA Foundation awarded 43 scholarships to undergraduate and graduate students and sponsored the above-noted design competitions and student conferences last year. The Foundation also provided grants to 100 K–12 teachers to promote STEM education at the pre-college level. In order to support these and other expanded educational initiatives in the future, the Foundation launched its first major fundraising campaign in more than a decade, with the goal of doubling its endowment within three to four years. Progress is already being made toward this objective.

**Professional Honors and Recognition** – The Institute was pleased to honor 225 of our colleagues with advancement to Associate Fellow (195 members) and Fellow (30 members) grade this year. We also installed three new Honorary Fellows – John Casani, Earl Murman, and Donald Richardson – in ceremonies at our Awards Gala last May. In addition, our Honors and Awards Committee, now headed by Mike Yarmovych, AIAA Honorary Fellow and Past President, and working closely with Laura and her TAC colleagues, was proud to recognize 55 outstanding individuals and teams with well-earned awards that were presented at conferences throughout the year.

**International Activities** – Last year was a busy and productive time for Mark Maurice, Vice President for International Activities, and his volunteer and staff colleagues, as AIAA marked several noteworthy accomplishments in our international programs. First, we increased both international professional and student members by 2% and 6% respectively, ending the year with a total of some 6,500 non-U.S. colleagues. Second, we welcomed three new international corporate members, including our first two from India. And third, we initiated or expanded partnerships with aerospace engineering associations in Europe and China, as follows:

- Council of European Aerospace Societies (CEAS), with which AIAA explored expanded collaboration on a range of projects during discussions last fall in England and Germany
- Association Aéronautique et Astronautique de France (3AF), with which, in addition to co-hosting a biennial conference, we focused on initiating a young professional exchange program later this year
- Chinese Society of Astronautics (CSA), with which we concluded a general agreement signed in Beijing earlier this year, involving joint conferences, co-publishing and translations, and corporate executive exchanges

**Public Policy Initiatives** – Vice President for Public Policy Phil Hattis and his team made outstanding progress last year in expanding the scope of AIAA's efforts to address national policy challenges facing the aerospace profession, and in broadening our members' participation in these efforts. We prepared a well-received report containing actionable recommendations for aerospace workforce development and retention, based on discussions at the May 2009 Inside Aerospace conference,

(continued overleaf)

for which we have since received thousands of copy requests. We also provided Congressional testimony on next-generation workforce matters based on recent research carried out by AIAA members at M.I.T. In addition, Phil and his colleagues initiated and conducted a new series of popular and well attended half-day seminars on Capitol Hill to educate our elected representatives on aviation and space challenges and capabilities.

Our grassroots public policy activities also have substantial influence regarding these critical aerospace issues. For example, 20 sections (a new record) participated in last year's "August is for Aerospace" meetings with Congressional representatives in local district events using a variety of creative formats. Meanwhile, our most recent "Congressional Visits Day" had record attendance, carrying forward recommendations to national leaders on eight aerospace issues that were supported by information papers prepared by our technical, publications, education, and policy volunteers.

**Financial Results and Conditions** – Under the diligent oversight of Tom Smith, Vice President for Finance, and our capable professional staff, AIAA turned in a solid financial performance for 2009 and is well on the way to even better results in the year ahead. For the first time in nearly a decade, our 2010 operations budget will absorb all information technology costs, including those associated with the newly-implemented AMS project. To aid in formulating this fully-balanced budget, AIAA staff developed a comprehensive financial management system that now allows us to clearly understand the revenue vs. cost relationships in some 75 individual Institute "products" (e.g., conferences, journals, books, educational programs). This tool will help our volunteer leaders to establish the relative priorities of different ongoing activities and to assess the value of proposed future initiatives. In addition, hearty thanks are due to our great staff, who worked wonders time and again last year in tightly managing expenses without diluting member services or shortchanging other critical activities.

Tom and his finance team were also able to report a substantial recovery in the value of the Institute's endowment fund during the past year, as the stock market bounced back from its early-2009 lows. This investment portfolio provides a source of funds for strategic initiatives aimed at long-term Institute growth, while also serving as a "rainy day" reserve should the Institute encounter unexpected adverse conditions in the future. To be sure it is available for these purposes in decades to come, the Board of Directors adopted a formal policy that sets a minimum level for the fund's balances and establishes clear guidelines for how long new initiatives can be supported by fund sources. We are in compliance with these guidelines as well as the de facto standards for reserve accounts used by similar professional societies.

**Corporate Communications and Institute Operations** – I appointed one of our elected Directors-at-Large, Bob Lindberg, to a new and important responsibility of providing oversight and strategy development for several critical Institute areas, including corporate communications, *Aerospace America*, and external partnerships. These areas, while vital to the Institute's operations and growth, do not explicitly fall within the purview of any of the elected Vice Presidents. The assignment of senior volunteer leadership is an important step forward, and Bob has stepped up quickly to add his market and industry insights to these critical areas.

Our "When Did You Know?" campaign continued its successes from the previous year, helping to connect members at all levels to AIAA and to our common passion for aerospace endeavors. We also boosted AIAA's general media interactions, with a 60% jump in press citations and more frequent information requests from mainstream news media like ABC News, BBC television, and National Public Radio.

The professional staff's work in upgrading the Institute's information technology (IT) infrastructure produced a banner year in 2009, with the establishment of new hardware and software capabilities, improvements in the office automation environment, and completion of long-running IT investments now covered within the annual operations budget. These accomplishments moved us a long way towards our long-term goals of providing state-of-the-art technology to meet the expectations of our sophisticated volunteer users and enabling efficient business practices for the staff.

**Concluding Thoughts** – By the time you read this, I will have passed the torch to Mark Lewis as the Institute's President for the 2010–2011 year. Looking back over my term in office, I am grateful for the terrific opportunity to work with so many dedicated volunteers and staff members to advance the mission of AIAA. I am encouraged by how much you all accomplished this past year and even more impressed by the brainpower and experience which you will apply to our future endeavors.

Looking ahead, despite near-term challenges in some aerospace markets and continuing concerns about next-generation professional workforce development and other long-term trends, I am very enthusiastic about the prospects for AIAA and its members. I hope each of you will become more involved in Institute programs this year and in the future, making our society even better for each of us and more relevant to the future of our profession.

## EDUCATION



**Merri J. Sanchez**

*Vice President*

AIAA's educational programs impact tens of 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 FY10 we will continue to strengthen our educational program offerings, focusing in the areas of continuing professional education, precollege, and college.

An Institute highlight was the Inside Aerospace Forum in May 2009, organized by AIAA and sponsored by the Aerospace Industries Association and the Aerospace Department Chairs Association. This was the second AIAA conference focused specifically on education and policy issues and the 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. Several AIAA conferences in 2009 included a panel that continued the focus on these crucial issues.

### Professional Member Education

FY09 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 30 courses at our technical conferences and through our home study program. Almost 500 professionals attended these educational 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 16 members under the leadership of Dr. Steve Gorrell. Several major projects were completed this past year, including improving the evaluation and approval process for new courses and launching the Education Partnership Program.

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, nine 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 ten new courses have been added to the program through this peer review of the TCs and PMEC.

The AIAA Education Partner Program was launched in March 2009. Auburn University, University of Colorado (Boulder), Stevens Institute of Technology, University of Tennessee Space Institute, National Agency for Finite Element Methods and Standards (NAFEMS), LeaderPoint, and Practical Aeronautics have been approved for this program, through which they offer AIAA members up to a 10% discount on tuition for their courses.

The On-Site Course Program continues to be successful. Though many of our courses are held at AIAA technical conferences, many companies and government agencies opt to train their employees on site, saving time and money. Many NASA Centers, Northrop Grumman Corporation, 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 environment.

As we move forward, the Professional Development Program will continue to look for avenues and alliances with which to expand our traditional professional development courses, while keeping an eye to the future.

### Student Programs

In 2009, there were 6,798 student members, including both college and high school students. Of these, 574 upgraded to professional membership, 4,018 were new student members, and 1,244 were international student members. There are currently 176 student branches. Mr. Chris Tavares, newly appointed Student Activities Committee Chair, was active in reshaping the Institute's student programs.

With support from the AIAA Foundation and the AIAA Technical Committees, the Institute 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 twenty-six and seven 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 32 flying entries out of the 39 teams that submitted reports. International participation came from Colombia, Israel, Scotland, Slovenia, and Turkey.

The AIAA Foundation Scholarship Program awarded 30 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 2010 Aerospace Sciences Meeting. The Abe M. Zarem Awards for Distinguished Achievement were presented to outstanding candidates and their academic advisors: in Aeronautics, Richard Callahan, from Cornell University, and his academic advisor, Ephraim Garcia; in Astronautics, Adam Cowling, from Virginia Polytechnic Institute and State University, and his research advisor, Jeff Robinson. AIAA sponsors their travel to an appropriate national or international conference to present their work. The Orville and Wilbur Wright Graduate Awards for 2009 went to Daniel Grebow of Purdue University, Jacqueline O'Connor of Georgia Tech, Jason Roadman of the University of Colorado (Boulder), and David Wiese of the University of Colorado (Boulder).

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. 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. New this year was a funded Team Category at each regional student conference and the International Student Conference. The winners were: Undergraduate – Daniel Gerber (University of Alabama); Graduate – Giulio Romanelli (Politecnico di Milano); Team – Arizona State University DAEDALUS Team (Jacob Dennis, Felipe Hernandez, Steven Shark, James Villarreal).

AIAA maintained its alliance with ABET. This year, 15 schools requested visitation for accreditation. The AIAA Academic Affairs Committee, under the leadership of Dr. William Garrard and Dr. Jeff Forbes, 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

FY09 was another outstanding year for the Pre-College Outreach Committee, chaired by Dr. Julie Albertson, as we conducted our signature events – Education Alley and the Passport to the Future Teacher Workshop – and awarded the AIAA Foundation Educator Achievement Awards. 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 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 2009 Conference, drew more than 2,000 students from the Pasadena, CA area. Sponsors for the event were The Aerospace Corporation, The Boeing Company, The National Institute of Aerospace, Raytheon, Space X, the X Prize Foundation, and Wyle. Featured presentations – from the NASA Deserts RATS program in Arizona to astronaut Scott Parazynski describing his trek to Mt. Everest and his flights to the International Space Station – transported students to extreme environments to learn how NASA is designing the equipment of the future. Education Alley, now in its ninth 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 new initiative, the Engineers as Educators Workshop, was debuted at this year’s conference. Engineers, partnered with a master teacher, learned tips on how to work with students and teachers. This workshop was so successful that it was repeated at the 2010 Aerospace Sciences Meeting. The 6th Passport to the Future Teacher Workshop, held in Denver in conjunction with the Joint Propulsion Conference, was sponsored by the Lockheed Martin Corporation. 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 the keynote address by AIAA President-elect Dr. Mark Lewis, and an evening event with astronaut Bruce McCandless. 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. The AIAA Foundation Educator Achievement Awards were given to seven outstanding K–12 teachers at the AIAA Aerospace Spotlight Gala. Highlights of their tour include visits to the Ronald Reagan National Airport Tower, the FAA Command Center, Lockheed Martin to watch the launch of STS 125, the Orbital

Sciences Corporation facility, and the Air Force Memorial. 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. “Ask Polaris,” a new Web site for high school students and their parents provides details on aerospace as an educational choice, along with information about how to select a school and possible sources of scholarships.

At the January 2010 Board Meeting, the committee asked that the name of the committee be changed to the STEM K–12 Outreach Committee to more accurately reflect the mission. With many science, technology, engineering, and math (STEM) initiatives coming out of the White House objectives for education, the new year will bring many exciting opportunities.



*Clockwise from left: An “Engineers as Educators Workshop”; “Ask a Rocket Engineer”; potential future scientists and engineers at Education Alley activities.*



## PUBLIC POLICY



**Philip D. Hattis**  
Vice President

It is a challenging time for our profession. Overcoming global security threats demands continued development and effective application of advanced aerospace technologies. Energy supply and cost challenges threaten the viability of the international air transportation system, while the infrastructure that supports the safe operation of that system, and the technologies within it, are in desperate need of major upgrade. Only with the use of aerospace system capabilities will the

true nature of climate change and its implications be fully understood. Also, major changes in our civil space programs have been proposed, leading to uncertainty as to their future direction. Furthermore, while facing all these technical and programmatic challenges, the profession has an aging work force that must be renewed by young professionals who will graduate from an educational system that is having difficulty assuring that its graduates have adequate technical skills. However, as daunting as all these challenges may seem, from challenge comes opportunity. AIAA has been working to seize that opportunity by using the combined expertise and resources of its membership to lead public policy initiatives that help to direct our nation's leaders toward the implementation of wise policies that effectively address the challenges. I am pleased to report below on many of the Institute public policy programs pursued over the past year that achieved much success because of the active participation of so many of our members.

### Addressing Strategic Imperatives

The current AIAA Strategic Plan has three Strategic Imperatives:

- 1) **Sustain a Robust Aerospace Workforce and Develop Next-Generation Professionals;**
- 2) **Improve Aerospace Energy Efficiency and Advance New Energy Technologies;** and
- 3) **Advance Technologies to Monitor and Reduce Environmental Impacts.**

Many of our public policy activities are aimed at addressing these imperatives.

The 2009 Inside Aerospace conference was dedicated to the aerospace-related workforce and education issues, developing specific recommendations that were documented in a final report that has been downloaded thousands of times. The 2010 Inside Aerospace conference addressed the other two strategic imperatives, specifically tackling "Energy and the Greening of Aviation" on its first day and "Aerospace Leadership for Climate Change Understanding, Mitigation, and Adaptation" on the second day. The 2009 Inside Aerospace conference had follow-up panels at the AIAA SPACE 2009 and 2009 SAE AeroTech conferences. The 2010 Inside Aerospace conference will have follow-up panels on energy issues at the 2010 Joint Propulsion Conference, and on climate monitoring at SPACE 2010. Other dedicated events to address our Strategic Imperatives are also being held to help educate legislative leaders and staff.

### Expanding Grassroots Activities

Grassroots AIAA public policy activities continue to expand in number of events and participants. The 2010 Congressional Visits Day (CVD) events on March 16–17, 2010 drew 166 attendees, making many congressional office visits to discuss seven Board-approved 2010 Key Issues (KIs), including four covering our Strategic Imperatives. These 166 AIAA members mark the continued growth of this advocacy program. This year, each issue was addressed by both a short KI statement and a two-page background paper prepared jointly by representatives of the AIAA technical and policy organizations. An eighth KI addressing peer-review issues raised by new government mandates for early, unrestricted release of government funded research results was presented to congressional office representatives during CVD by the AIAA leadership. Efforts to increase the impact of CVD aim to expand the participation from both Sections and Technical Committees. New preparation events using a "webinar" format in the weeks leading up to CVD were utilized this year to enable CVD registrants to be more informed regarding the KIs. In addition, there was a full day of visit team organization and training in Washington the day before the actual Congressional visits.

"August is for Aerospace" (A4A) was started several years ago to enable the AIAA Sections to organize local events involving elected policy leaders to build on the early-spring CVD results. In 2009 A4A included 19 events, with participation by 20 Sections. Also, several of the Regions are now holding annual Public Policy Colloquia that are getting significant Section participation to learn how to organize more public policy activities. The goal is to continue to increase the number of A4A events each year, and to extend the annual colloquia to all six U.S. Regions.



*AIAA 2010 Congressional Visits Day participants, clockwise from top left: Douglas Bennet with Rep. Rob Bishop (Utah–1st); Team Texas members at the office of Rep. Ron Paul (Texas–14th); Team Pennsylvania members at the office of Rep. Robert A. Brady (Pa.–1st); Team Georgia with Rep. John Barrow (Ga.–12th); Team California with Rep. Dana Rohrabacher (Calif.–46th). A record number of AIAA members participated in this year's event.*



## Providing Aerospace Policy, Testimony, Panels, and Workshops for Our Nation's Leaders

One of the primary goals of AIAA's public policy activities is to help assure that national policies affecting the aerospace profession are formulated with wisdom and knowledge of the facts. While CVD and A4A help serve this purpose, AIAA is proactive in addressing this challenge at additional venues. Panel discussions have been presented on Capitol Hill to provide perspective on important aerospace issues, including a September 21 session addressing climate monitoring challenges. AIAA organized an October 5 live broadcast of a panel discussion about the recommendations of the Review of U.S. Human Space Flight Plans Committee that had been appointed by the Obama Administration. Broadcast live on cable, the discussion remains available for viewing on the Web. This was followed up with a Capitol Hill forum on the presidential panel's recommendations on November 29. On



AIAA public policy events on Capitol Hill addressed the crucial role of space technology in stimulating economic growth and in gathering reliable data on climate change.

December 10, AIAA President David Thompson provided testimony to the House Committee on Science and Technology regarding the possible implications of future NASA human spaceflight program policies on the U.S. aerospace workforce and industrial base. Part of Mr. Thompson's presentation included a video of several AIAA members discussing what had inspired them to pursue a career in aerospace.

## Making Public Policy Part of Our Technical Conferences

To be fully effective in public policy activities, AIAA members must be well informed about the important issues impacting aerospace, and must have easily accessible opportunities to interact on these issues. To accomplish this, the number of dedicated public policy events at the major AIAA technical conferences has been increased, with many of the events scheduled to maximize the opportunities for AIAA member participation. These have included policy panels, luncheon presentations by national aerospace policy leaders, and interactive briefings by government agencies regarding aerospace policy planning, which were held at the 2009 Joint Propulsion Conference, SPACE 2009, the 2009 Aviation Technology, Integration, and Operations Conference, the 2010 Aerospace Science Meeting, and the FAA/AIAA 2010 Commercial Space Transportation Conference. The goal is to further build upon, and to institutionalize these policy events at the major AIAA conferences, not only to provide an opportunity for the AIAA membership to become better informed on the issues, but also to expose the local and national media to substantive discussions of major policy issues impacting our profession and society at large.

## Reassessing the Government Fellow Program

In 2008 AIAA began an experimental Government Fellow program that competitively selected an aerospace professional to provide a year of service in a federal government aerospace policy formulating agency or Congressional committee. The goal of the program was to get the expertise of knowledgeable AIAA members into the policy planning process. Unfortunately, while selecting and placing a second AIAA Government Fellow in 2009, new interpretations of conflict of interest rules were applied by the Administration and the Congress that would require reformulating the rules under which the AIAA Government Fellow would work, and restricting the sectors of the profession from which the Fellow could be selected. Based on these circumstances, the AIAA Institute Development Committee decided to suspend the program indefinitely, pending the formulation of acceptable new program guidelines or the demonstration that the expected policy impact from a more restricted program would merit the necessary financial investment by the Institute.

## Moving Forward

For the last three years, it has been my privilege to be your Vice President—Public Policy. I end my term knowing that we are a more engaged organization on the critical public policy issues that impact our members, our profession, and the future of the aerospace enterprise. My successor, Carol Cash, is eager and well prepared to build on our current public policy programs and to pursue new opportunities that will lead to greater AIAA accomplishments in the public policy arena. For her to succeed, she will need the full support of our members and their broad participation in all AIAA public policy events. I urge you to be actively involved in public policy, and I know I can count on you to help assure future AIAA public policy achievements under Carol's leadership. I plan to join you in doing that.

## STANDARDS



**Wilson N. Felder**

Vice President

I have often said there are three core missions of a professional society like AIAA: to organize and host premier technical conferences for the interchange of ideas and interaction of professionals; to publish and preserve archival research on behalf of that community; and to facilitate the development and publication of the community's technical standards. Being true to this vision requires us to be serious about our support of space and aviation standards, which we have not always done as well as we should.

As VP—Standards I am encouraging staff and fellow members to help this endeavor in two key ways: through education and outreach, and with a general recommitment of effort.

As VP-elect, I tried to visit as many technical committees (TCs) as possible to discuss the standards program's goals and services and solicit as much feedback as possible. Also, after taking over the VP role formally from Amr ElSawy, I sought to engage AIAA's technical constituencies as well as rank and file members. With Fred Slane, Standards Executive Council (SEC) member and executive director of the Space Infrastructure Foundation, and with AIAA staff support, two "ABCs of Standards" sessions were conducted, in July and September, focusing on the role standardization plays in a technical field like aerospace engineering and on the mechanics of developing a consensus-based document within AIAA's standards program. Also in September, Slane chaired a panel session at the SPACE 2009 Conference, "Competitive Challenges in Space Standards Development." Panelists included Rob Andzik of RT Logic and Erik Barkley of the Jet Propulsion Laboratory. The panel discussed how standards development can give U.S. industry competitive advantages while creating opportunities for collaboration and interoperability, and how U.S. industry can gain a competitive edge in domestic and international markets by using internationally developed standards, giving examples of the successful implementation of internationally developed interoperability standards and the role U.S. industry played in developing them.

In January 2010 the SEC collaborated with the Technical Activities Committee (TAC) on its annual workshop, at which David Finkleman, senior scientist at the Center for Space Standards and Innovation (the research arm of Analytical Graphics), conducted an abbreviated version of "The ABCs of Standards." Participants then broke into groups to consider issues confronting the AIAA standards program and how TAC and the TCs can help advance the program. The two major themes in their recommendations were: (a) communication of the value of standards; and (b) education about the process and how to become involved. In the coming months the SEC and staff will focus on how to more broadly communicate ongoing activities and the status of documents in development, and will also work toward defining a consistent and regular educational activity to foster broader participation in existing standards activities and in initiating new projects.

The second key way for volunteers and staff to bolster the standards program is through a concerted recommitment of effort. This reflects a challenge the SEC and standards staff face on documents nearing or beyond the five-year anniversary of their publication. Under policies and procedures that AIAA must follow, these documents must be reviewed by the committee that developed them to determine if the standard, recommended practice, or guide should be reaffirmed, revised, or withdrawn. AIAA staff has spent considerable time assembling an inventory of existing documents and identifying the responsible CoS, and where possible, an affiliated TC. In the near future there will be outreach from staff to determine the fate of these documents. This is a critical component to maintaining AIAA as the lead standards development organization for our profession. This effort, coupled with a renewed commitment to a streamlined, efficient yet thorough and compliant process for new documents, is the foundation upon which the entire standards program is built.

## AIAA 2009–2010 STANDARDS

- G-003C: **Guide to Reference and Standard Atmosphere Models** (Complete; waiting for release in 2010)
- S-102-1-4: **Performance-Based Failure Reporting, Analysis and Corrective Action Systems (FRACAS) Requirements** (2009)
- S-102-1-5: **Performance-Based Failure Board Requirements** (2009)
- S-102-2-2: **System Reliability Modeling Requirements** (2009)
- S-102-2-4: **Product Failure Mode, Effects, and Critical Analysis** (2009)
- S-102-2-5: **Performance-Based Sneak Circuit Analysis (SCA) Requirements** (2009)
- S-102-2-11: **Anomaly, Detection, and Response Analysis** (2009)
- S-102-2-18: **Performance-Based Fault Tree Analysis Requirements** (2009)
- S-121: **Electromagnetic Compatibility Requirements for Space Equipment and Systems** (2009)

## TECHNICAL ACTIVITIES



**Laura J. McGill**  
Vice President

Over the past year, AIAA's Technical Activities Committee (TAC) has continued to build on the strength of our 70 Technical Committees (TCs) and 12 Program Committees (PCs) to serve the AIAA membership with diverse technical forums, new courses for professional development, and by recognizing the outstanding technical work of the industry's leading scientists and engineers. We are also pleased to see our committees increasingly engaged in supporting the other arms of AIAA by

helping develop public policy papers, new aerospace standards, projects to further AIAA's educational outreach, and activities that engage our international members.

Through the outstanding leadership of our seven Group Directors, our Program Committee Coordinator, and the incredible efforts of the 2,200+ members of our technical and program committees, AIAA continues to deliver high quality conferences, seminars, and workshops to meet the technical needs of the global aerospace community. In 2009, TAC has focused on improving the quality and diversity of our technical products while controlling costs in a difficult economic environment. In addition to our traditional aerospace disciplines, we continue to expand our technical focus in areas that are increasingly relevant to our members, including Systems Integration, Directed Energy, and the application of Green Technologies. We are also evaluating new formats for the exchange of technical information that will increase collaboration to benefit our membership, their home organizations, and ultimately accelerate the advancement of aerospace sciences and systems.

We appreciate the members of TAC and the AIAA staff, who bring such great energy and dedication to our technical activities, and we look forward to continued growth and innovation in the coming year.

### TECHNICAL DISCIPLINE GROUPS

#### Aerospace Design and Structures Group

**Director:** Kathleen Atkins

**Deputy Directors:** Carlos Cesnick, Achille Messac

The **Aerospace Design and Structures Group** (ADSG) expanded this year to include an eighth Technical Committee with the **Multidisciplinary Design Optimization TC** moving into the group from the Engineering and Technology Management Group. The group had another outstanding year with all eight TCs (**Structures, Structural Dynamics, Materials, Adaptive Structures, Multidisciplinary Design Optimization, Non-Deterministic Approaches, Survivability, and Design Engineering**) contributing to the December *Aerospace America* issue highlighting contributions to their respective fields during the year. The premier event hosted by the group this year was the milestone 50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials (SDM) Conference, held 4–8 May 2009 in Palm Springs, CA, the site of the original SDM Conference, along with several key events during the week highlighting the anniversary. All TCs within the group participated in the conference, which was collocated with the 17th AIAA/ASME/AHS Adaptive Structures Conference, the 11th AIAA Non-Deterministic Approaches Conference, the 10th AIAA Gossamer Spacecraft Forum, and the 5th AIAA Multidisciplinary Design Optimization Specialists Conference. Two high profile awards made their debut at the 50th SDM Conference: the first AIAA-ASC James H. Starnes, Jr. Award in Structures, and the first AIAA Ashley Award for Aeroelasticity.

Other notable activities within the ADSG include work on the 6th edition of the *Aerospace Engineer's Design Guide*, collaboration with the International Organization for Standardization (ISO) on a standard for assessing the survivability of spacecraft subjected to micrometeoroid and orbital debris environments, educational outreach activities, and various technical committee awards.

#### Aerospace Sciences Group

**Director:** David Riley

**Deputy Directors:** Allen Arrington, Thomas Beutner, James Keenan, William West

The **Aerospace Sciences Group** (ASG) had another extremely productive year with accomplishments in many areas. The 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 12 distinguished recipients for their major AIAA awards, they hosted 14 conferences and supported 13 conferences in the U.S. and abroad, supported two professional short courses, awarded eight professional and seven student Best Paper Awards, and three awards for outstanding papers presented at the TC-hosted

conferences, and held numerous special sessions plus three workshops on various topics at the ASG-sponsored conferences. TC international membership and associate membership continue to grow, resulting in diverse TCs with expanded membership representing academia, government, and industry.

The ASG TCs continue to actively support the AIAA Journals. The **Aerodynamic Measurement Technology TC** organized seven articles for a special *AIAA Journal* issue in April 2009 highlighting Aerodynamic Measurement Technology. The **Thermophysics TC** continues to sponsor AIAA's *Journal of Thermophysics and Heat Transfer* and all the ASG TCs collectively supported the annual *Aerospace America* highlights issue with articles.

The Aerospace Sciences Meeting (ASM) was held in Orlando, FL in January 2010 for a second year and was again a great success. The New Horizons Forum, added last year to enhance ASM, addressed four current aerospace topics, with prominent keynote speakers and panel sessions with industry leaders. The expanded exhibits were very impressive, and along with the New Horizons Forum, helped attract international attendees to the conference. Many thanks to the organizing committee of George Mueller, Mike Francis, Fernando Grinstein, Jeannie Kranz, and AIAA staff who made the conference a success. The ASM organizing committee is planning another exciting conference for 2011.

#### Aircraft and Atmospheric Systems Group

**Director:** Neal Pfeiffer

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

The **Aircraft and Atmospheric Systems Group** (AASG) TCs had a great year, sponsoring four technical conferences with 192 papers, and many other projects. The major Group activity was the 9th Aviation Technology, Integration, and Operations (ATIO) Conference in Hilton Head, SC in September 2009. The Group also supported the AIAA/TAC strategic plans and initiatives by promoting publications to AIAA's *Journal of Aircraft*, dedicating one of its TC members as an associate editor to the *Journal*, and providing numerous volunteers from the Group's membership to act as reviewers for the *Journal*.

The AASG TCs conducted a number of successful activities throughout the year. The **Aerodynamic Decelerator Systems TC** held its biennial conference along with **Balloon Systems** and **Lighter-than-Air TCs** in Seattle in May 2009. They are progressing on their multi-year publications archival project to collect literature from multiple sources. The **Aircraft Design TC** continued as the major contributor to the Design/Build/Fly student competition where 39 university teams participated in 2009. They awarded the Aircraft Design Award to Joseph J. Lusczek, Jr. from the Air Force Aeronautical Systems Center, and also sponsored the Conceptual Aircraft Design Working Group for the 21st Century. The **Aircraft Operations TC** participated in the ATIO Conference and is developing a white paper on the Integration of Unmanned Aircraft Systems (UAS) into the National Airspace System. The **Air Transportation Systems TC** participated in the ATIO Conference and three TC members participated in AIAA's Congressional Visits Day in March 2009. At their conference in May, the **Balloon Systems TC** awarded the Otto C. Winzen Lifetime Achievement Award to Loren G. Sealey for his work to "increase the reliability of scientific balloons." They are currently planning for the 2011 Balloon Systems Conference that will co-locate with the Centennial of Naval Aviation, ATIO, and Lighter-than-Air in the Hampton Roads area in September 2011. The **Flight Test TC** participated in the Air Force T&E Days conference in Albuquerque in February 2009. The **General Aviation TC** developed a strong public policy position paper to address the severe issues that have affected this segment of our industry, and the TC also provided supporting material for the 2010 Congressional Visits Day. The **Lighter-than-Air TC** is continuing its multi-year effort to translate a German airship engineering book into English as a resource for university courses. It is also developing two Lighter Than Air competitions: Zero Emissions Transport Airship (or Z-Prize) ([www.airshipzprize.org](http://www.airshipzprize.org)) and the World Sky Race ([www.worldskyrace.com](http://www.worldskyrace.com)). The **Product Support TC** along with Delft and Dublin University carried out a survey on "No Fault Found and Rogue Units" to develop cost-saving solutions for aircraft operations. The **V/STOL Aircraft Systems TC** participated in the American Helicopter Society Forum at Dallas in May 2009 and the ATIO Conference. The TC also successfully nominated two Historical Sites for recognition: NASA Ames Research Center, and Igor I. Sikorsky Memorial Airport.

#### Engineering and Technology Management Group

**Director:** Basil Hassan

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

The **Engineering and Technology Management** (ETM) Group now includes seven TCs (and one affiliated program committee, the **Value Driven Design PC**) covering the aerospace enterprise framework. TC activities continued to be varied and strong during the past year. The ETM Group was very active in managing and/or supporting a broad range of conferences and meetings. The supported conferences included several sessions at the Aerospace Sciences Meeting, the Joint Propulsion Conference, SPACE 2009, and ATIO. Many representatives of the ETM Group were active in organizing the Inside Aerospace meeting for 2009 and 2010. The **Management TC** also held three meetings on the topics of Very Light Jet Industry, Supply Chain Management, and Homeland Security.

The ETM Group was active in recognizing technical and programmatic excellence by

sponsoring the following awards: the Hap Arnold Award for Excellence in Aerospace Program Management, the Von Braun Award for Excellence in Space Program Management, the AIAA History Manuscript Award, the AIAA Gardner-Lasser History Aerospace Literature Award, and the AIAA Children's Literature Award.

The ETM Group supported AIAA publications and standards. Five TCs contributed highlight articles to the Annual Year in Review issue of *Aerospace America*. The **Systems Engineering TC** is sponsoring a special section on systems engineering in the *Journal of Aircraft*. Building off of this initial project, the **Systems Engineering TC** and the **Economics TC** are partnering with the AIAA Publications Committee to publish volumes in the AIAA *Progress in Astronautics and Aeronautics* book series on the topics of systems engineering and economics. The ultimate goal is the formation of an AIAA journal that is devoted to systems engineering and economics focused topics in the aerospace industry. The **Systems Engineering TC** is also in the process of developing two standards, one in the area of Operations Concepts and the other in Space Systems Verification, that should be published later this year.

Finally, the ETM Group supported a variety of AIAA section, education, and public policy activities with the participation of several members, including Congressional Visits Day and the AIAA Distinguished Lecturer program. The group's leaders conducted two training sessions for new Technical Activities Committee Directors and Deputy Directors.

## Information Systems Group

**Director:** James Neidhoefer

**Deputy Directors:** Elizabeth Klein-Lebbink, Alan "Terry" Morris, James Rankin

The **Information Systems Group (ISG)** TCs were involved throughout 2009 in planning the April 2010 Infotech@Aerospace Conference, AIAA's premier forum addressing the information-enabled aerospace technologies, systems, and capabilities that are shaping the 21st century. The various ISG TCs also supported ten other major conferences.

The ISG TCs continued to recognize outstanding work across their technologies, including The Information Systems award, The John C. Ruth Digital Avionics Award, and The Aerospace Communications Award. The Best Intelligent Systems paper of Infotech@Aerospace 2009 will be presented at Infotech@Aerospace 2010 and the 2009 David Lubkowsky Memorial Award for Advancement in Digital Avionics will be presented at the 2010 DASC. Also, the **Intelligent Systems TC**, working with the TAC and the Honors and Awards Committee, established The AIAA Intelligent Systems Award.

In support of educational activities, the **Digital Avionics TC (DATC)** named the AIAA Cary Spitzer DATC Scholarship. The **Intelligent Systems TC (ISTC)** established a Student Paper Competition at the 2009 Infotech@Aerospace conference. There was a special session established for this competition early in the conference. The ISTC also identified a set of "best intelligent systems" papers from the 2009 Infotech@Aerospace conference and is organizing another *JACIC* Special Issue on Intelligent Systems (scheduled for publication in Summer 2010). The ISG TCs continue to be a primary source for *JACIC*.

Finally, with all seven TCs contributing, the ISG developed its first strategic plan, that outlines short- and long-term goals and a roadmap for achieving those goals. In working toward specific strategic goals, the ISG increased TC membership and active participation, helped each TC define independent strategic plans and formalize procedures, raised levels of TC interaction for increased cross-pollination and mutual support, and strengthened collaboration within and outside the Group on conferences and other events.

## Propulsion and Energy Group

**Director:** Ashwani K. Gupta

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

The expanded air breathing propulsion branch of the **Propulsion & Energy (P&E)** group continued to grow with well populated and well balanced membership from academia, industry, and government in their **Gas Turbine, Propulsion Integration, and High Speed Propulsion TCs**. All 10 TCs in the propulsion area, **HyTASP PC**, and 2 TCs in the energy area continued to be very active. The group is well structured in the organization of technical sessions at JPC and ASM, honors and awards, and educational outreach activities. The three major conferences supported by the P&E group include: Aerospace Sciences Meeting, Joint Propulsion Conference (JPC) and International Energy Conversion Engineering Conference (IECEC). The **Aerospace Power TC** supported the Space Power Workshop held in Los Angeles in April. The **Working Group on Green Energy Technology** is progressing towards its transition to a TC or PC in the near future. The group also participated in Congressional Visits Day in Washington, DC.

The JPC and IECEC were co-located events, held in Denver in early August 2009. The conference opened with the Apollo 40th Anniversary Panel and also included two keynote sessions, 10 panels, 580 technical papers in 150 sessions, and a teacher's educational workshop. The IECEC had 11 panels and 30 sessions at the conference. The joint IECEC/JPC panel session on biofuels for propulsion and terrestrial power generation was especially well received, and the IECEC Awards Luncheon featured Colorado Governor Bill Ritter Jr. as the invited speaker.

The **Solid Rockets TC** continued to support the solid rocket traveling road-show kit for elementary and middle-school science class presentation. The kit distributed to TC members is used to promote solid rocketry at local section meetings, elementary and middle-school classes, and science-related events nationally and internationally. The **Electric Propulsion TC** remained active to update the MIL-Z-399 Zirconium Standard and is also evaluating the criteria for explosives systems. The **Aerospace Power TC** is involved with the ISO standard on solar cells and panels, and is reviewing the aerospace battery qualification standard. The **Nuclear and Future Flight Propulsion TC**, the **Terrestrial Energy Systems TC**, and the **Air Breathing Propulsion TCs** organized summer camps for K–12, providing enriching experiences to promote the aerospace profession.

The P&E Group presented several prestigious awards in 2009, including the Propellants and Combustion Award, the Wyld Propulsion Award, the Aerospace Power Systems Award, the Energy Systems Award, and the Gordon C. Oates Graduate Student Award. Best technical paper awards were presented by several TCs, including **Propellants & Combustion, Solid Rockets, Energetic Components & Systems, Terrestrial Energy Systems, Aerospace Power**, and the expanded **Air Breathing Propulsion TCs**.

## Space and Missiles Group

**Director:** Trevor Sorensen

**Deputy Directors:** Antony Williams, Grant Anderson, Peter Montgomery, Karen Barker

The **Space and Missiles Group (SMG)**, consisting of 13 TCs and 4 associated PCs had a great year in 2009, including major participation in 14 conferences, three of which were AIAA conferences organized by SMG TCs. All three of the SMG conferences (SPACE 2009, Weapon Systems Effectiveness (WSE) Forum, and Missile Systems Conference) exceeded their projected attendance. Five AIAA national awards were presented by four SMG TCs, three SMG TCs sent delegations to the Congressional Visits Day, three TCs participated in student design competitions, 10 TCs provided articles to *Aerospace America*, and several journal articles were developed. In September 2009, the **Space Architecture TC** published a book in the AIAA *Library of Flight* series: *Out of This World: The New Field of Space Architecture*. The **Space Logistics TC (SLTC)** released SpaceNet 2.5 to the public, an open source software dedicated to modeling and simulation of space exploration missions and campaigns from a logistics perspective. The *Space Operations Communicator* online journal, which is produced by the **Space Operations and Support TC (SOSTC)** and co-produced by the International SpaceOps Organization, continued to grow in prestige within the international space operations field.

Other accomplishments include renewing the cooperation agreement between the SOSTC and the International SpaceOps Organization; providing speakers, judges, and other support to K–12 schools in association with STEM initiatives; and participation in site tours and joint events with AIAA Sections. The **Weapon System Effectiveness TC** held a short course in Italy. Cooperation between TCs and PCs is a primary objective of SMG and is increasing. The SOSTC and SLTC co-sponsored the SOSTC/SpaceOps "Improving Space and Launch Operations Workshop" in Hawaii in April. Several TCs and PCs sponsored joint sessions at a number of technical conferences, and TCs are combining for "greybeard" sessions that were started by the **Space Transportation TC**.

The SMG Exceptional Award was presented to two members in 2009–10, Tony Williams and Robert Wilson, for their outstanding work as the Technical Program Chairs for the SPACE 2008 and SPACE 2009 Conferences respectively. The SMG Best TC Competition identified the following winners for 2009 based on numerical scoring in a number of activity areas: 1st Place – **Weapon Systems Effectiveness TC**, 2nd Place (tie) – **Space Operations and Support TC** and **Life Sciences and Systems TC**.

Communication within SMG is benefitting from the revitalization of the SMG Web site after moving to SharePoint, and the launching of the *SMG Newsletter*, with editor Peter Montgomery.

## PROGRAM COMMITTEES

**Coordinator:** Anthony R. Gross

The **Program Committees (PC)** Group of 12 PCs, covering a broad range of aerospace programs, was again very active in 2010. Per their individual and collective charters, each was focused on maintaining detailed knowledge of their respective areas and keeping the AIAA membership apprised of programmatic developments and future trends. This was accomplished by participation in AIAA conferences, articles in the December Highlights issue of *Aerospace America*, and other activities specific to their programs.

Examples of specific Program Committee activities this year included the **HyTASP PC** organizing and holding the 16th AIAA/DLR/DGLR International Space Planes and Hypersonic Systems and Technologies Conference in Bremen, Germany, the **Gossamer Spacecraft PC** participating in the SDM/GSF Conference, and the annual Homeland Security Conference, sponsored by the **Homeland Security PC**.

This year the Group expanded into the area of directed energy and systems, with a new Program Committee, the **Directed Energy Systems PC**. In the coming year the PC Group will seek to expand into the important area of green energy systems and technology applied to aerospace systems.



## MEMBER SERVICES



**Mary Lassiter Snitch**  
Vice President

It has been another busy year for Member Services and our three Committees. We continue to strive to understand and answer Member needs on what activities and programs are of highest value – what leads a prospective member to join AIAA, and what retains a Member throughout their career and into retirement. This year outstanding Members received special citations and awards, and all Regions had a very strong report card – positive growth and strong member programs. We saw 195 Members upgraded

to Associate Fellow this year, and the number of nominees keeps growing. All three Member Services committees – Career and Workforce Development, Membership, and Young Professional – are committed to engaging members to broaden their own personal involvement and advance AIAA as the premier aerospace “member centric” association.

**The Membership Committee**, led by Tom Milnes of Johns Hopkins University/Applied Physics Laboratory, reports that despite the enduring recession professional membership only dropped slightly, and that both student and K–12 Educator Associate Membership increased. We ended the fiscal year with 29,121 professional members, of which 5,308 were international. Last fall we conducted a Membership Survey – the first in several years. Having established a very aggressive member growth plan, we needed a benchmark of Member views and what you would like to see going forward. We were glad to see that our membership is generally happy with current programs and initiatives. We were also pleased to see that the percentage of female members has increased over the past five years. I appreciate all of our members who participated in this survey. After much consideration the Ad Hoc Dues subcommittee recommended a long overdue dues increase of \$20. The dues increase, the first in 10 years, will allow AIAA to stay at the forefront of innovation and membership services, while still being one of the lower priced professional organizations in the entire engineering and science community.

**The Career and Workforce Development Committee**, led by Karen Copper of The Boeing Company, expanded its focus to also include developing, educating, and providing assistance to AIAA engineering members for their participation in STEM K–12 outreach objectives. The CWDC continued its annual career development workshop, and expanded the topics to include sessions on how engineers can become involved in outreach opportunities to introduce K–12 students to engineering as a future career path. The workshop, “Laying the Foundation for the Future of Aerospace,” was held during the Aerospace Sciences conference in January 2010. Opportunities to present a session at other conferences are being considered, based on member availability to present.

**The Young Professional Committee**, led by Darin Haudrich of The Boeing Company, continues to serve the interests of our members who are 35 and under. The YPC initiated a monthly YP newsletter that includes articles of interest to this demographic, upcoming events, and other AIAA related activities. This initiative was a direct response to comments received from the YP survey in which YPs indicated a desire for more communication. Over the past year, with the support of TAC, the committee has given out more than \$3,000 in door prizes at YPC-hosted networking events. The committee also started a program, funded by Member Services, to help local sections that do not have budgeted funds to support YP activities. Four sections have used the funding to support section YP activities. The latest activities and YP information may be accessed by all members at <https://info.aiaa.org/SC/YPC/default.aspx> and in our monthly newsletter.

Finally, as I enter my final year as VP, Member Services, my successor has been elected: in May, Merri Sanchez assumed the duties of VP-elect, Member Services. This is a position that I have greatly enjoyed as I have the opportunity to interface with all Regions and Sections – the heart of AIAA. Following are the annual reports from all our Regions.

**Region I** includes 15 sections from Hampton Roads to New England. This year the de-chartered Allegheny-Pittsburgh Section officially became a part of the Baltimore Section, which changed its name to the Mid-Atlantic Section to represent the larger area now covered. The revitalized Niagara Frontier Section is now up and running, and the National Capital Section has revitalized its Southern Maryland Chapter. The Long Island Section and the Northern New Jersey Section each held essay contests for students; and several sections participated in Engineers’ Week in February, including the Delaware Section with a week of events, and the Northeastern New York Section with a banquet and speaker. In September, the Hampton Roads Section held a very successful golf tournament to raise money for its “Futures in Aerospace Scholarship” fund, and in March the Greater Philadelphia Section participated in a tri-state “Innovations in STEM” event.

**Region II** represents the southeastern United States, with a professional membership of nearly 3,200, a student membership of over 1,000, and a growing number (over 450) of Educator Associates. The membership enjoys regular and informative section-sponsored

lectures, seminars, tours, and interactive events. Reflecting a strong and active membership, the Cape Canaveral Section received five section awards this year. The Northwest Florida Section received four section awards and the Savannah Section received the first place Harry Staubs Precollege Outreach Award. The Northwest Florida Section helped establish Eglin Air Force Base as an AIAA Historic Aerospace Site. Region II is host to the largest collegiate student conference in the AIAA, and awards several thousands of dollars each year to support undergraduate scholarships, technical paper competitions, engineering projects, and various grade K–12 endeavors. The 2009 AIAA Southeastern Regional Student Conference was held in Huntsville, AL, co-hosted by the University of Alabama/Huntsville and the University of Tennessee Space Institute. The 2010 Student Conference, held April 8–9 in Destin, FL, was co-hosted by Auburn University and Tuskegee University. Region II also had 18 members selected to the Associated Fellows class of 2010.

**Region III** includes the states of Ohio, Indiana, Michigan, Illinois, Wisconsin, and Kentucky. Seven professional sections and 27 student branches serve the AIAA members across the Region. All seven sections have been extremely active during the past year and have delivered a variety of technical activities and events ranging from major conferences to lunch-and-learn lectures. The Dayton-Cincinnati Aerospace Sciences Symposium (DCASS), an annual event, took place on March 9, 2010. The student conference took place at Purdue University on April 10–11, 2010. Thirty Associate Fellows were selected from Region III and were recognized in January 2010 at ASM. Region III also made a good showing in the Section Awards.

**Region IV** encompasses the south central U.S. Southwest Texas Section (San Antonio and Austin) hosted an open-to-the-public Distinguished Lecture celebrating 100 years of military flight in San Antonio, marked on March 2, when in 1910 a Wright Flyer was flown from Ft. Sam Houston. This event was coordinated with the Chamber of Commerce and other events in San Antonio celebrating the centennial, including the flight of a Wright B flyer at the fort. The Houston Section hosted a 40th Anniversary celebration for Apollo 12, a meeting with a shuttle astronaut who spent six months on the International Space Station, and a meeting with their congressman to discuss the future of manned spaceflight, a crucial topic given the proposed changes at NASA. The Albuquerque Section held meetings on pressure suits and parachutes and a mission overview of the USAF Nuclear Weapons Center in Albuquerque. The North Texas Section (Dallas-Ft. Worth) held meetings with presentations by SpaceX, meeting an SR-71 pilot, and an engineering program update on the F-35 program. The Oklahoma Section supported an Unmanned Aerial Systems Summit and again held the AIAA/ASME Symposium, this year at Oklahoma State University. The Holloman/Alamogordo Section hosted another annual Southern New Mexico Technology Symposium in partnership with New Mexico State University. This year’s Region IV student paper conference was hosted by Texas A&M Kingsville and the Houston Section, and was held at NASA/JSC.

**Region V** maintains monthly teleconferences to ensure coordination and integration for its Professional, Student, and Educator Associate members. Iowa hosted and/or supported several events, including a continued focus on Young Professionals and STEM K–12 Outreach. Rocky Mountain provides their increasing membership a diverse set of dinner meetings and technical programs. Close and energetic ties between the professional and student membership consistently keeps St. Louis among the AIAA sectional leaders. Twin Cities has expanded its council and increased the breadth and scope of the programs offered to their members. Known as a world center for general aviation, Wichita provides a variety of member activities, including hosting our 2010 Student Paper Conference.

**Region VI** represents the western part of the U.S. The young professionals produced a documentary of the inaugural YP Rocket Launch Competition, which included eight teams from across the Region who built and launched 8-foot rockets in the Mohave Desert. At press time, four teams were preparing rockets to launch in May 2010, and six teams will return to launch 14-foot, two-stage rockets. The Los Angeles Section celebrated the 40th anniversary of the Apollo XI lunar landing, with a panel of speakers including astronaut Buzz Aldrin. The Los Angeles and San Diego sections created the “Engineers as Educators” workshop to train engineers for classroom outreach, which was held in several other sections as well as at the SPACE 2009 conference and the Aerospace Sciences Meeting. The Region recognized Robert Wegeng as Regional Engineer of the Year for his outstanding contributions to microchannel process technology. The Point Lobos Section hosted a lecture by game theorist and Nobel Prize winning mathematician John Nash.

**Region VII** comprises all members outside the U.S. and its protectorates, and includes two sections, Sydney and Adelaide. Region VII Director Juergen Quest visited the two Australian sections in July. The Sydney section worked hard to arrange for a Distinguished Lecturer, Dr. Pascal Lee from NASA Ames, to lecture on “Human Exploration of the Moon and Mars” not only in Adelaide and Sydney but also for AIAA members and the general public in Melbourne, Brisbane, and Canberra. Between the two sections they placed among the top three section award winners in six categories including Outstanding Section for Sydney. In Germany, AIAA sponsored test pilot Rogers Smith as a speaker at TU-Munich to over 500 students and other attendees. Some interest has been expressed by African/Near East members to form AIAA sections in the Persian Gulf region and Nigeria, and information was sent for the first steps.





**Michael B. Bragg**  
Vice President

Last year in this report, John Whitesides noted the significant amount of change facing our publications program. In some respects, an adequate update from me would be “more of the same.” However, given the significance of the changes occurring, the implications of technological innovations on publishing and the consumption of information, and economic factors affecting the publishing industry, a few more details are warranted.

I began my term by contemplating the opportunities and challenges for the publications program, and whether the Publications Committee was optimally structured to meet them. AIAA’s recent focus on strategic planning had garnered the attention and input of the Vice Presidents, but I felt the Publications Committee members and the book and journal editors-in-chief may have been somewhat removed from the process. The Publications Committee has a strong legacy of active, working subcommittees—a legacy I did not want to waste. In consultation with several of my predecessors and current Publications Committee members, I reorganized several of the subcommittees to reinforce the strengths of our core products—journals and books—as well as to enable a grassroots focus on strategic planning. The Publications Review and Publications New Initiatives subcommittees were merged, becoming the Publications Planning and Review Subcommittee. Graciously chaired by Dr. Darryll Pines, this new subcommittee is charged with developing and recommending new initiatives for publications and publication services, supporting the VP and Board of Directors strategic planning process and initiatives, and reviewing the mission and quality of each journal and book series in collaboration with Journal and Book subcommittees as appropriate.

Creating this new committee might risk a potential loss of focus on routine monitoring and continuous quality enhancement of the established journals and book series, a primary responsibility of the Publications Review Subcommittee since its inception. However, the journals and book series are well established and well functioning operations, and I felt it entirely appropriate for the editors-in-chief in concert with a dedicated group of Publications Committee members to assume this more operational focus on quality and performance. In fact, this has been the de facto mode of operation of the Book Subcommittee for many years, and this model was appropriated for a new Journals Subcommittee. Dr. John Daily has agreed to chair this subcommittee, to be composed of the seven journals editors-in-chief and five additional members of the Publications Committee. The journal editors-in-chief will continue to function as a subcommittee as well, chaired by Dr. Alfred Crosbie, editor-in-chief of the *Journal of Thermophysics and Heat Transfer (JTHT)*.

The new and existing subcommittees will collectively face many issues, and the new year brought one immediately to the forefront. In mid-December the White House Office of Science and Technology Policy established an electronic forum to gather public input on the issue of open or public access to federally funded research. This issue is not new, but its direct implications for AIAA have remained unclear for some time. Public access publishing is based on the position that scholarly publications resulting from taxpayer-funded research should be made freely available to the public. There are both voluntary and government-mandated models for this, the most famous of which is the National Institutes of Health mandate that all peer-reviewed articles resulting from NIH-funded research be deposited with PubMed Central within 12 months of publication. For several years there have been congressional initiatives to effectively expand this to all federally funded research. This new call for public input by OSTP triggered action within the Publications Committee, particularly by the two new subcommittees. With the support of AIAA staff, VP-Public Policy Phil Hattis, and VP-elect Public Policy Carol Cash, AIAA submitted input to the OSTP forum. Currently the Publications Committee is developing an AIAA statement on scholarly publishing and the role of public access, and refining AIAA’s policy on author posting. This continues to be a critical issue; at this writing, the Federal Research Public Access Act (FRPAA) has been introduced recently in the U.S. House of Representatives, joining a parallel Senate bill, which would mandate much broader public access.

Three new committee members were appointed during the year: Dr. Michael Popp, Pratt & Whitney; Dr. Karl Bilimoria, NASA Ames Research Center; and after completion of his tenure as editor-in-chief of the *Journal of Propulsion and Power (JPP)*, Dr. Vigor Yang, Georgia Institute of Technology. Last year in this report John Whitesides announced Dr. Yang’s retirement as editor-in-chief, and the search for his replacement. The search committee, chaired by John Daily, worked through the summer and early fall of 2009 to recruit a distinguished pool of applicants and make a recommendation. As announced earlier this year, Dr. Douglas Talley of the U.S. Air Force Research Laboratory was appointed by AIAA President David Thompson to an initial three-year term as editor-in-chief of *JPP*. I have asked Dr. Alfred Crosbie to continue to serve as editor-in-chief of *JTHT* for another three-year term. Dr. Jeffery Schroeder of the FAA agreed to join the Finance Committee as a representative and liaison to the Publications Committee. I thank all of these individuals for their service to the Institute’s publications. I also want to thank Dr. Peter Zipfel of the Air Force Research Laboratory, who in April stepped down from the Publications Committee. Peter has been a member of the Book Subcommittee and has served as the Publications Committee liaison to the Professional Member Education Committee for several years: we thank you for your service and wish you well.

I would also like to update the membership on three ongoing activities. AIAA’s pilot partnership with Aviation Industry Press (AIP) of China to translate three AIAA books was formalized in a signing ceremony held in Beijing in early October. By the time you read this, we expect the first two translations to have been completed.

Conversion of the journals’ peer-review process has been delayed by data conversion challenges. Two of our seven journals, *AIAA Journal* and *Journal of Aircraft*, have moved from WriteTrack to ScholarOne Manuscripts, in July and October respectively. *JPP* is next in line, upon confirmation of a reliable export of the WriteTrack legacy data. We hope the remaining journals will soon follow.

AIAA continues to enhance the eBook collections. Staff is currently at work on including selected titles from the Library of Flight as well as incorporating eBook versions of AIAA Case Studies.

I look forward to the continuing evolution as well as exciting new changes ahead for the AIAA Publications program.

## NEW BOOKS FROM AIAA

### AIAA Education Series

- *Computational Modeling and Simulation, Volume 1*, Dominic J. Diston
- *Aircraft Fuel Systems*, Roy Langton et al.
- *Finite Element Structural Analysis*, J. S. Przemieniecki
- *Aircraft Engine Controls*, Link Jaw with Jack Mattingly
- *Analytical Mechanics of Space Systems, Second Edition*, Hanspeter Schaub and John Junkins
- *Optimal Control Theory with Aerospace Applications*, Joseph Z. Ben-Asher
- *Space Principles of Flight Simulation, Second Edition*, David Allerton

### Progress in Astronautics and Aeronautics

- *Frontiers of Propulsion Science*, Marc G. Millis and Eric W. Davis
- *Hypervelocity Gouging Impacts*, John D. Cinnamon
- *Fundamentals of Ground Combat Ballistic Vulnerability/Lethality*, Paul H. Dietz et al.
- *Selected Aerothermodynamic Design Problems of Hypersonic Flight Vehicles*, Ernst H. Hirschel and Claus Weiland
- *Fundamentals and Applications of Modern Flow Control*, Ronald D. Joslin and Daniel Miller
- *Fundamentals of Kalman Filtering, Third Edition*, Paul Zarchan
- *Advances in Collaborative Civil Aeronautical Multidisciplinary Design Optimization*, Ernst Kesseler and Martin Guenou

### Library of Flight

- *Success Stories in Satellite Systems*, D. K. Sachdev
- *The Global Airline Industry*, Peter Belobaba, Amedeo Odoni, and Cynthia Barnhart
- *Handbook of Space Technology*, Wilfried Ley, Klaus Wittmann, and Willi Hallmann
- *U.S. and Russian Cooperation in Space Biology and Medicine, Volume 5*, Arnaud E. Nicogossian et al.
- *Out of This World: The New Field of Space Architecture*, A. S. Howe, Brent Sherwood, and Sid Mead
- *From RAINBOW to GUSTO: Stealth and the Design of the Lockheed Blackbird*, Paul A. Suhler
- *The Air Transport System*, Mike Hirst
- *The Engines of Pratt & Whitney: A Technical History*, Jack Connors

### Aerospace Press

- *Small Satellites: Past, Present and Future*, H. Helvajian and S. Janson
- *Nickel-Hydrogen Batteries: Principles and Practice*, Albert H. Zimmerman

## JOURNAL SPECIAL SECTIONS

### AIAA Journal

- “Advanced Techniques for Scramjet Simulation,” organized by Foluso Ladeinde
- “Advanced Measurement Techniques in Aerospace,” organized by Ahmed Naguib and Noel Clemens

### Journal of Aircraft

- “Prediction of F-16XL Flight-Flow Physics,” organized by Thomas M. Weeks

### Journal of Spacecraft and Rockets

- “Space Environmental Effects on Materials,” organized by Magdeleine Dinguirard-Regord



## INTERNATIONAL



**Mark Maurice**  
Vice President

In my first year as Vice President-International, I have been impressed with the number of ways that AIAA engages within the international community and its efforts to help address topics of global impact. I have had many opportunities to participate in activities and discussions that broaden AIAA's involvement in other countries and with similar organizations in an effort to further mutual interests.

### Collaboration with China

China is one of the target countries in the AIAA strategic plan and over the past year we have made strides toward establishing relationships and discussing areas of collaboration. Since August 2009, AIAA has been in discussions with the Chinese Society of Astronautics (CSA) about potential partnership. Representatives from the two societies have met a number of times to identify areas for collaboration. As a result of these discussions, a Memorandum of Understanding (MOU) has been developed and was signed by AIAA President David Thompson during his March 2010 trip to Beijing. Areas of collaboration identified in the MOU include: co-sponsoring each others' activities; collaborating on conferences on topics of mutual interest; co-publishing and disseminating information of interest to each others' memberships; and organizing visits of members to each others' countries. The Institute has also had preliminary discussions with representatives from an aeronautics society in China and will follow-up to assess potential collaboration with this group as well.



### Addressing Global Topics

In June 2009, the AIAA International Activities Committee (IAC) co-sponsored an event that focused on Earth Observation and Global Climate Change. The event was organized by the American Astronautical Society (AAS) at the Rayburn House Office Building. Representative Edward Markey (D-MA), Gabrielle Giffords (D-AZ), and Pete Olson (R-TX) attended, and the IAC was represented by former Vice Presidents-International James Zimmerman, Vincent Boles, and myself.

The same month, on behalf of AIAA I participated as part of the U.S. delegation to the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) meeting in Vienna, Austria. COPUOS was established by the General Assembly in 1959 to review the scope of international cooperation in peaceful uses of outer space, to devise programs in this field to be undertaken under UN auspices, to encourage continued research and the dissemination of information on outer space matters, and to study legal problems arising from the exploration of outer space. COPUOS consists of 69 member states. The U.S. delegation is led with the Department of State and included representatives from NASA, NOAA, the Space Foundation, the Center for Strategic and International Studies (CSIS), and the Space Policy Institute. While there, I briefed COPUOS about AIAA and its activities as a professional society supporting the space community. As part of AIAA's continuing engagement with this organization, AIAA is assessing how to contribute to a new topic focused on long-term sustainability of outer space activities that has been undertaken by the Scientific and Technical Subcommittee of COPUOS. This might provide AIAA the opportunity to participate in an international discussion of the topic and provide standards development in support of the topic and related issues.

The second Global Space Development Summit, organized by AIAA, CSIS, CSA, and the Space Foundation, and co-sponsored by AAS, the International Academy of

Astronautics, and the International Astronautical Federation, occurred in Washington, DC 12–13 November 2009. It built on the success of the first Global Space Development Summit, which took place in Beijing, China in April 2008, and on the ideas of the Beijing Declaration, produced following the first summit, which cites two space fields as being ripe for global cooperation – an international lunar base and Earth observations – and has been endorsed by opinion leaders around the world.

### Partnering with Sister Societies

AIAA President David Thompson visited France 12–15 October 2009 for discussions with the Association Aéronautique et Astronautique de France (3AF). The purpose of the visit was to discuss continued collaboration and specific activities on which the two organizations can partner. In 2007, AIAA and 3AF signed an MOU outlining potential areas for collaboration.

AIAA's 16th International Space Planes and Hypersonic Systems and Technology Conference was held 19–22 October 2009 in Bremen, Germany. The conference was supported by the Deutsche Gesellschaft für Luft- und Raumfahrt Lilienthal-Oberth e.V., AIAA's sister society in Germany, and the Deutsches Zentrum für Luft- und Raumfahrt.

As part of its collaboration with the Royal Aeronautical Society (RAeS), AIAA and RAeS co-organized a session at the 2009 European Air and Space Conference of the Council of European Aerospace Societies, occurring in Manchester, UK 26–29 October 2009. The session addressed the role of professional societies and opportunities for collaboration. It was chaired by CEAS president Prof. Joachim Szodroch. President-Elect Mark Lewis participated on behalf of AIAA.

### International Activities Committee

In order to engage the International Activities Committee (IAC) in helping to determine and support the strategic direction of AIAA, in my first year as Vice President-International I have tried to designate liaisons from the committee to other AIAA committees, sister societies, and regions of the world. I will be relying on these liaisons to:

- report to IAC membership on interesting/relevant news and activities of the other country or group;
- look for opportunities for any joint activity between AIAA and other group that will have mutual return on investment (ROI), and give thoughtful consideration to the fact that AIAA's products and services may be valued and prioritized differently for international members; and
- take the lead (or find someone to take the lead) in pursuing, developing, and executing the activity.

The response from the IAC has been overwhelming and I am looking forward to working with the committee on a host of activities over the rest of my tenure as Vice President-International.



A delegation from the Chinese Society of Astronautics (CSA) visited AIAA offices in August 2009 to exchange information and discuss potential areas of collaboration. From left, Klaus Dammberg (AIAA Deputy Executive Director), Xu Tong (Division Chief for International Cooperation for the Chinese Aerospace Science and Technology Corporation), Bob Dickman (AIAA Executive Director), Yang Junhua (CSA Vice President and General Secretary), Mark Maurice (AIAA Vice President-International), Wen Yan (CSA Project Manager), and Reg Smith (AIAA International Activities Committee Member). CSA is a non-governmental nonprofit organization founded in 1979 to expedite the development and popularization of space science and technology. For more information: [www.csaspace.org.cn](http://www.csaspace.org.cn).



**Robert Lindberg**  
Director-At-Large

As “The World’s Forum for Aerospace Leadership” we must continue to strengthen our external communications, and increase visibility and reach to industry, government, academia, and the public at large. We have made great strides this year in updating our communications tools and outreach to strategic sectors.

**Aerospace America**

In September the new *Aerospace America* digital magazine was launched. It offers members searchability, portability, and in-text hyperlinks to more information. The digital magazine provides all members, especially our international members, with more timely delivery, as well as a more environmentally friendly format. Also developed was a new *Aerospace America* Web site, [www.aerospaceamerica.org](http://www.aerospaceamerica.org), which will be the foundation for an expanded online presence. New features include video capability and a member commentary area. Both the digital magazine and the new Web site are first steps in developing more information-rich, timely, and interactive resources for our members, the world’s aerospace community, and the public. In addition, we completed a readership survey, and have implemented certain changes suggested by you, the membership, such as discontinuing the crossword puzzle.

**Communications**

The AIAA Web site, our member newsletter, and our branding efforts all progressed in 2009. The completion and release of our new Brand Standards Manual have resulted in a consistent look across AIAA’s materials, both in print and electronically. Our “When Did You Know?” campaign has been extremely successful at a strategic level, in connecting members at all levels to AIAA as well as in connecting externally throughout our community. A highlight of the many applications of the campaign occurred as AIAA President David Thompson testified on Capitol Hill about the future of the aerospace workforce and led off with a three-minute video of young professionals talking about their moments of inspiration. The video was very well received by members of the House Science and Technology Committee.

The AIAA Web site redesign project is under way. A survey went to all members in late November, and a usability study on the new prototype was conducted at the Aerospace Sciences Meeting (ASM) in January. Our overall goal in the redesign effort is to improve the user experience. We are working to reduce the number of clicks to find information, improve the search function, incorporate Web 2.0 technologies, and implement other planned upgrades. This year, we’ve also improved member e-newsletter and extranet sites for sections and TCs. Our use of social networking tools has already begun in a meaningful way to broaden our reach and improve communications. AIAA is active on Facebook, Twitter, YouTube, Flickr, and LinkedIn. If you haven’t connected to AIAA through your favorite social networking tool, take a moment to do so soon.

**Strategic Business Initiatives**

As the aerospace marketplace continues to evolve, our industry partners and academic institutions have also augmented and modified their product and service offerings. In some cases, this involves maturing business models. In others, it involves technology innovation in new areas. Just as our membership adapts to the changing marketplace, AIAA must also adapt or risk future irrelevance. Towards this end, the Board of Directors approved and began a strategic initiative that targets limited Institute investments in emerging areas important to the aerospace community. This year the Board authorized targeted investments to develop new product and service offerings in two areas: Commercial Space and Earth Observation. We have already sponsored a number of successful activities in both areas, including policy symposia, targeted sessions at conferences, and, in the Commercial Space arena, hosting the FAA Commercial Space Conference. Additional activities are under investigation and should yield new members (both individual and corporate) and additional new activities. These investments directly address the Institute’s three Strategic Imperatives and seek to enhance our presence in emerging areas where AIAA is currently underrepresented.

\* In 2009 AIAA President David Thompson appointed Director--at-Large Robert Lindberg to oversee the Institute’s Outreach areas, providing leadership in the same manner as the Vice Presidents do for their areas. Outreach includes *Aerospace America*, Corporate Membership, Communications, Strategic Business Initiatives, and some smaller projects.

**Corporate Membership**

On behalf of Steve Cortese, Chair of the Corporate Member Committee, I am pleased to report that, in the midst of the worst economic crisis in recent memory, AIAA continues to attract new corporate members. AIAA is truly fortunate to have such a valuable community of corporate members. During 2009 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. Our specific corporate programs included a co-hosted luncheon with NASA Administrator Charlie Bolden and a co-hosted breakfast NOAA Administrator Dr. Jane Lubchenco. In addition, we organized a tour of the Mojave Air and Space Port, XCOR Aerospace, Masten Space Systems, and the NASA Dryden Flight Research Center. We also organized a tour on the east coast around Kennedy Space Center that included the Space Station Processing Facility, the Orbiter Processing Facility, the Vehicle Assembly Building, and Launch Pad B, along with a luncheon event with Kennedy Space Center Deputy Director Janet Petro.

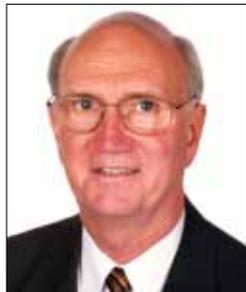
We continue to highlight the contributions of our small business members through specific opportunities to showcase their products and services. Through periodic corporate member committee meetings we receive important feedback that enables us to offer programs that are tailored to the diverse needs of our broadly based corporate membership. We have continued the development of selected programs and events for executive corporate leadership and others provide intimate interactions with key decision makers.

**AIAA Industry Partnership Roster**

AIAA’s Corporate Membership roster represents corporations that lead the world in the advancement of flight. Working together, we are committed to be the shaping, dynamic force in aerospace – *the* forum for innovation, excellence, and global leadership.

Acutronic USA	GE Aviation	ONERA
Aerial Delivery Research and Development Establishment	Georgia Center of Innovation for Aerospace	Orbital ORBITEC
Aernnova Engineering, US	GHKN Engineering	PM&AM Research
Aerojet	Global Business Analysis	Pointwise, Inc.
The Aerospace Corporation	Gulfstream Aerospace	Practical Aeronautics, Inc.
Airborne Systems, Inc.	Harris Corporation	QinetiQ North America
Airbus Americas	Hawker Beechcraft	Raytheon Company
Alenia Aeronautica, S.p.A.	Hellas Sat Consortium	Red Canyon Engineering & Software
Analytical Graphics, Inc.	Honeywell International	Rincon Research Corporation
Applied University Research	IBM	Rockwell Collins, Inc.
ARES Corporation	Insitu, Inc.	Rolls-Royce
Arianespace	Integral Systems, Inc.	Royal Aeronautical Society
Assured Space Access Technologies	Intelligent Decisions, Inc.	SAFRAN
ATK	Intelligent Light	Sensis Corporation
Aurora Flight Sciences	Intelsat General Corporation	Software Engineering Institute
BAE Systems	International Aviation Supply	Space Environment Technologies
Battelle Memorial Institute	Jacobs Technology	Space Systems/Loral
The Boeing Company	JHU/Applied Physics Laboratory	SpaceX
Booz Allen Hamilton	Lockheed Martin	Spectral Energies, LLC
BRAHE Corporation	Lockheed Martin Corporation	Spincraft, Inc.
Cessna Aircraft Company	Masten Space Systems	Star Technology and Research, Inc.
CSSI, Inc.	MBDA, Inc.	Stellar Solutions
DARcorporation	McKinney Associates	Systems Technology, Inc.
Deloitte	The MITRE Corporation	Teaching Science and Technology, Inc.
DLR	National Aerospace Laboratory/NLR	U.S. Space LLC
Draper Laboratory	National Institute of Aerospace	United Launch Alliance
dSPACE	National Technical Systems	United Technologies Corporation
EADS	Nielsen Engineering & Research, Inc.	Wolverine Ventures
Edge Space Systems, Inc.	Northrop Grumman Corporation	Wyle
Engineering Systems, Inc.		
Ephemeris Technology Solutions		
Futron Corporation		

## FINANCE



**A. Tom Smith**  
Vice President

Aerospace industry and general economic conditions impacted the Institute's financial performance for the fiscal year (FY09). To meet the challenge, we developed an FY09 Budget Contingency Plan to allow us to adjust our spending plan if the economy and business results declined enough to have a major impact on our operating budget. Fortunately, we did not have to implement that plan. The Institute finished the year with a \$532K positive financial performance against budget for core operations. Unfortunately, Strategic Initiatives had an FY09 cost overrun of \$617K. We invested \$2,814K from our Investment Portfolio in the membership through transfer of funds to our operations budget and for continued funding of Strategic Plan activities and the Institute's Electronic Information Services (EIS) Initiative. The EIS Initiative included costs associated with the conversion to a new Association Management System. This long needed conversion was completed in FY09.

The table below summarizes the audited financial performance of the Institute for FY09 (dollar amounts shown with K are in Thousands):

<b>Income</b>	
Publications	\$6,182K
Conferences	\$10,888K
Other services to members	\$4,581K
Total operational revenue	\$21,651K
Contributions received	\$71K
<b>Total income for operations &amp; contributions</b>	<b>\$21,722K</b>
<b>Associated Costs</b>	
Cost of publishing our products	\$6,445K
Cost of conducting conferences	\$9,462K
Cost of initiatives for the future	\$1,313K
Cost of providing services to the members	\$7,547K
Total operational expense	\$24,767K
Investment losses and management expenses	\$256K
<b>Total costs</b>	<b>\$25,023K</b>
Combined total change in net assets	(\$3,301K)

Net Assets of the Institute as of 30 September 2009 were \$7,735K.

Our investment portfolio is the financial reserve for the Institute, and is primarily used for investing in future development to support membership related initiatives. It has also been used to supplement the operational budget. Current economic conditions, while improving, continue to be detrimental to the health of this fund, which finished FY09 with a balance of \$21,980K. Unfortunately, this is \$1,258K below where it started the fiscal year. While we must continue to use some of our investment portfolio, as we have in prior years, to support our Strategic Initiatives, the Institute obviously cannot afford to continue to deplete our future resources at the current rate. Therefore, we have taken several steps to alleviate the problem. First, the Board formally adopted a policy in January that establishes a floor below which the portfolio may not be used. While this limits the amount that can be spent on Strategic Initiatives, it assures that we will have the resources necessary to have a vibrant organization in the future. Second, commencing in FY11, the Board policy mandates that for any Strategic Initiative to be carried forward, after an initial period (nominally three years) to mature the initiative and determine its true benefit to AIAA, it must be funded in the operating budget as opposed to by using the portfolio. While this will be difficult for our forthcoming FY11 budget, I am confident we can meet the challenge. Third, AIAA staff has developed an excellent financial management system that will allow the Finance Committee and the Board to understand the cost/margin trade-offs of every product in our budget. Surely, we do need to be judicious in ranking our products to assure we are meeting member needs. However, only about one fourth of these products are currently self sustaining. This tool will help us determine the priority of products and the candidates for replacement as new initiatives are brought into the operational budget.

Looking forward to FY11, we will continue to refine and improve our budgeting and financial management processes. Thanks to the dedication of our volunteers and staff, AIAA will have the resources to grow the Institute to fully serve its vision and mission and provide our individual and corporate members with the services they desire and need.

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

Dave Quackenbush, AIAA Treasurer  
1801 Alexander Bell Drive, Suite 500  
Reston, VA 20191-4344

## HISTORIC AEROSPACE SITES



**Tony Springer**  
Chair, Historic Aerospace Sites Committee

The Historic Sites Program designated two historic sites at ceremonies during the past year, as well as a third where there was not a ceremony.

In August, former AIAA President Skip Fletcher conferred Historic Site designation on the NASA Ames Research Center, in Sunnyvale, California. Ames Center Director Pete Worden accepted the plaque on behalf of NASA. Ames was founded in 1939 as the second laboratory of

the National Advisory Council on Aeronautics, and became a research center of the National Aeronautics and Space Administration in 1958. Some of the many significant developments there included the development of thermal protection systems for reentry vehicles, rotorcraft, VTOL, and V/STOL aircraft; aviation safety and human factors, computational fluid dynamics, supercomputing and information technology, and astrobiology and space life sciences.

In September, AIAA Region II Director Alan Lowrey named Eglin Air Force Base in Florida as a historic site, and former Air Force Chief Historian and AIAA Fellow Dick Hallion spoke on the history of the site. It was activated in 1935 as the Valparaiso Bombing and Gunnery Base, which provided bombing and gunnery training for new pilots and testing of Army Air Corps aircraft and other aircraft systems. It was renamed in 1937 in honor of World War I aviator and test pilot Lt. Col. Frederick Irving Eglin. The Air Proving Ground Command was established there in 1941, to provide suitability testing of Air Force aircraft, armaments, and related systems. Now known as the Air Armament Center, it continues its role in munitions testing, personnel training and other combat support capabilities.



AIAA San Francisco Section Chairman Steven Cerri at the NASA Ames Research Center historic site designation ceremony.

AIAA also designated Baddeck, Nova Scotia as a historic site, providing a plaque to commemorate the centennial of the first powered flight in Canada. On February 23, 1909, piloting the "Silver Dart," J.A. Douglas McCurdy took off from the frozen surface of Bras d'Or Lake at Baddeck Bay, and flew for close to one kilometer. The plane had been created by Mabel and Alexander Graham Bell's Aerial Experiment Association, formed in 1907 to build and fly experimental aircraft.



Above: Servicing planes at Gunnery Camp Valparaiso. Below: The Silver Dart at Baddeck Bay.



# AIAA FOUNDATION



## Paul D. Nielsen

Chairman, AIAA Foundation

Since its establishment in 1996, the AIAA Foundation has made substantial contributions toward inspiring, training, and rewarding the aerospace community's future leaders through STEM (Science, Technology, Engineering, and Math) education programs, scholarships, competitions, student conferences, and professional recognition awards.

Among its activities in 2009, the Foundation:

- Provided STEM education to over 10,000 K–12 students through Classroom Grants and education programs;
- Prepared students for the workforce with 43 merit-based scholarships;
- Promoted professional achievement via our Honors and Awards Programs for industry professionals and educators; and
- Fostered innovation for more than 2,000 university students through design competitions, student conferences, and paper competitions.

This assistance has been critical to many young aerospace professionals who are now in the early years of their careers, as well as to those who will enter the workforce in the near future. By devoting its resources to the education of future aerospace engineers and scientists and to the recognition of outstanding professional achievement, the AIAA Foundation plays a major part in the future of our industry.

## AIAA Foundation Programs – 2009

The AIAA Foundation's programs over the last year included the following:

- Six Student Paper Competitions, with a total of 59 papers submitted, involving 376 student participants from 25 universities.
- The Design/Build/Fly Competition, with a total of 39 teams competing in the fly-off, from an initial pool involving 1,267 student participants from 67 universities.
- Undergraduate Scholarships awarded to 30 undergraduates from a pool of 87 applicants.
- Graduate Awards to 13 graduate students from a pool of 36 applicants.
- Nine Regional Student Conferences, with 648 attendees, and a total of 247 presentations made, including 129 undergraduate, 53 graduate, and 65 team.
- The International Student Conference, featuring 22 student presentations.
- The Abe M. Zarem Awards for Distinguished Achievement in Aeronautics and in Astronautics, awarded to graduate students and their faculty advisors.
- K–12 Educator Classroom Grants, which were awarded to 100 teachers from a pool of 220 applicants.
- The K–12 Educator Achievement Awards, honoring seven teachers from a pool of 65 applicants.



Through initiatives including design competitions, scholarships, and classroom grants, the AIAA Foundation seeks to inspire the next generation with a passion for science and engineering.

## Invest in the Future

Thanks to the generous donors who have made the first commitments to the Foundation, we are off to a fast start with our endowment campaign, "Invest in the Future." Our goal is to raise \$10 million for the Foundation's Endowment Fund, to ensure the continued success of our educational initiatives, and our sustained contributions to the aerospace industry, for the next generation and beyond.

I hope that you'll join us with your own gift or pledge – you may make a gift online at [www.aiaafoundation.org](http://www.aiaafoundation.org) or call 703.264.7518 for more information on making a gift or including the Foundation in your estate plans.

## AIAA Foundation Invest in the Future Endowment Campaign Contributors

The AIAA Foundation is grateful for its donors' investment in the future of aerospace.

### Titanium Society

(\$100,000–\$249,999)

Catherine and David Thompson  
*The David and Catherine Thompson Space Technology Scholarship*  
Vicki and George Muellner  
*The George and Vicki Muellner Scholarship for Aerospace Engineering*

### Gold Society

(\$25,000–\$49,999)

Bob, Barb and Tad Dickman\*

### Silver Society

(\$10,000–\$24,999)

Jane and Bill Ballhaus Jr.  
Klaus Dannenberg  
Harry H. and Lois G. Hilton  
Paul and Dotty Nielsen  
Roger L. and Darlene B. Simpson

### Bronze Society

(\$7,500–\$9,999)

Suzanne and Aynsley Musgrave\*

### Patron

(\$5,000–\$7,499)

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Merri Sanchez  
Mr. Peter B. Teets  
Sheila and William Widnall

### Benefactor

(\$3,500–\$4,999)

Neal and Diana Barlow  
Carol A. Cash, Carol Cash & Assoc., LLC

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