

ENGINEERING OUR FUTURE

AIAA ANNUAL REPORT 2007–2008



The World's Forum for Aerospace Leadership

AIAA HONORS AND AWARDS

Recognizing Excellence

AIAA is proud to honor those who have taken aerospace technology to the next level, advanced the quality and depth of the aerospace profession, and 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. To date, there are over 80 different awards. The oldest date to the 1930s and 1940s, and today two awards —the Reed Award for Aeronautics and Goddard Award for Astronautics— represent the highest honors that AIAA can bestow. In 2007, more than 120 awards were presented.

Five hundred guests gathered to salute honorees from academia, government and industry on 15 May 2007 at the **Aerospace Spotlight Awards Gala**, at which AIAA President Paul Nielsen presented the Institute's highest awards, including: the **2007 AIAA Foundation Award for Excellence**, to Gordon Bethune, former Chairman and CEO, Continental Airlines (top left photo); the **2007 Goddard Astronautics Award**, to NASA Administrator Michael D. Griffin (top right); the **2007 Reed Astronautics Award**, to Meyer (Mike) Benzakein, Wright Brothers Institute Professor and Chair of Aerospace Engineering, The Ohio State University (middle left); the **2007 International Cooperation Award**, to Graham Gibbs, Counsellor for Space Affairs, Canadian Space Agency, Canadian Embassy to the United States (middle right); the **2007 Public Service Award**, to Congressman David L. Hobson (Ohio – 7th Dist.) (lower left); and the **2007 Distinguished Service Award**, to William W. Vaughan, Professor, University of Alabama in Huntsville (lower right).

Bringing the aerospace community together, and encouraging and recognizing outstanding achievement, are among the primary goals of AIAA, and nominating worthy candidates for awards or membership



upgrade is an important task for AIAA members. Every AIAA member should consider which of their colleagues and peers are most deserving of nomination for special recognition of their achievements.

Among other award recipients at the Gala were, at left, the winners of the **2007 AIAA Foundation Educator Achievement Awards** (front row, L-R: Nancy Tashima, Konawaena High School/Onizuka Space Center, Kailua-Kona, HI, Karen Borders, Key Peninsula Middle School, Lakebay, WA, Lori Derf, Sol C. Johnson High School, Savannah, GA; back row, L-R: Russell Billings, Kearsley High School, Flint, MI, Richard Glueck, Orono Middle School, Orono, ME, Ricardo Soria, Chocawhatchee High School, Fort Walton Beach, FL, Timothy Spuck, Oil City Area Senior High School, Oil City, PA).

Below, the **2007 AIAA Honorary Fellows** and the **2007 AIAA Fellows**, with AIAA President Paul Nielsen at the Aerospace Spotlight Awards Gala. 



AIAA PRESIDENT'S REPORT



Paul S. Nielsen

AIAA President

ENGINEERING OUR FUTURE

Engineering, like politics, is the art of the possible. Within the real-world constraints of time and budget, engineers work to create something remarkable, that elegantly meets all the challenges presented.

So it is with organizations. AIAA is wonderfully rich in tradition, with many proud accomplishments. But while we celebrate the past, we need to squarely face the challenges of the future, mindful of the tectonic changes underway that will profoundly affect the aerospace endeavor.

AIAA has many advantages in addressing these challenges. Its finances are in good order, it has a large, diverse, and active membership, it has a highly involved volunteer leadership fully aware of the challenges ahead, and it has a dedicated and creative staff helping to put in place the building blocks of our future success. Our touchstones are the *AIAA Mission*, of advancing the state of aerospace science, engineering, and technological leadership, and the *AIAA Vision*, of being the shaping, dynamic force in aerospace—THE forum for innovation, excellence, and global leadership.

Guided by these foundational touchstones, the past year has seen the final steps of a multi-year effort to revitalize and re-engineer our Strategic Plan, making it truly a “living” document, which will be regularly updated, preparing us for the changes that will emerge over the next ten years, and focusing our efforts to move forward in the twenty-first century. The Strategic Plan sets forth, and is a result of, the core values that drive the professional aerospace community at AIAA: *Excellence, Community, Leadership, Knowledge, and Integrity*. These values are reflected in the various initiatives described in these pages.

Communications and Branding

One area often overlooked but which affects all our activities is our continuing focus on communications and branding activities. Our new branding initiative is in full swing, and a recently finalized Brand Standards Manual guides the consistent use of the AIAA brand to maximize its impact. Supporting this newly sharpened focus is the “When Did You Know?” campaign, unveiled at the AIAA Space 2007 Conference. “When Did You Know?” refers to the moment that space and flight “captured your imagination and wouldn’t let go,” the “aha!” moment when you knew you wanted an aerospace career. An integrated marketing and communications campaign based on this theme includes print ads, updated Web site graphics, a new glossy brochure about AIAA and its core activities, graphics at conferences, and membership direct marketing activities.

A “When Did You Know?” Web page (www.aiaa.org/ShareYourStory) lets members share their particular stories with others and upload photos. In the first 24 hours after announcing the campaign to our members, more than three dozen stories had been submitted, and within the first three weeks, more than 70 members had posted their stories. Inspiring accounts were shared by AIAA members ranging from the NASA Administrator and prior aviation-related DOD officials to several astronauts to countless professionals and to a teacher who motivates fifth-grade girls to “reach for the stars.” At the 2008 Aerospace Sciences Meeting, some 50 members were videotaped sharing their “When Did You Know?” moments. Edited versions of these vignettes and others will be featured on the Web site and turned into a video.

In concert with these efforts, we are increasing our outreach—to the media, to the profession at large, and to those outside our profession. In the fall of last year, AIAA initiated a daily news service, the *AIAA Daily Launch*, in collaboration with U.S. News and World Report’s Custom Briefings. Specifically created for AIAA members, the *Daily Launch* is a digest of the most important news reported in aeronautics and astronautics during the preceding 24 hours. It is produced at no cost to AIAA or its members, via advertising provided by Custom Briefings. The member response has been overwhelmingly positive; the percentage of those receiving the *Daily Launch* who have chosen to unsubscribe is in the low single digits.

Promoting the Aerospace Endeavor

As a member-oriented professional organization, the changes described above will help us to deliver increasing value to our members. Maintaining the long view, as well as a broad perspective, is important in assessing what activities will best serve our diverse membership. I want to touch on some of the important ways we serve our members, and the entire aerospace endeavor.

Education: One way we do so is by our support of education, including K-12 programs, college and graduate level programs, and continuing professional development. In the last year, the AIAA Foundation awarded more than \$150,000 in scholarships to undergraduate and graduate aerospace students, and some \$20,000 in Classroom Grants to K-12 teachers to support hands-on math and science activities. The Institute recognized outstanding students and their advisors with the Abe M. Zarem Awards for Distinguished Achievement. Design competitions helped excite the imagination and reward hard work and inspiration, and drew international participation from as far away as Israel, Scotland and Turkey. Student membership in AIAA increased last year, and the number of student branches grew. The AIAA Regions hosted seven Student Conferences in the U.S. and one in Naples, Italy.

Our “Education Alley” initiative for schoolchildren continues to be a winner. At Space 2007, more than 2,000 Los Angeles-area students experienced exciting hands-on activities showcasing the thrill of aerospace, and almost as many Denver-area students participated at the Space Exploration Conference. Our efforts will hopefully give some of these students their own “When Did You Know?” experience.

We are also focusing on education in an even more fundamental way. As many of the Apollo-era scientists and engineers who led the effort to the moon and back reach retirement age (one of the tectonic changes I alluded to earlier), we are working with academia, government and industry to determine how to ensure a robust and competitive aerospace workforce in the years ahead. With this in mind, the May 2008 Inside Aerospace Forum, organized by AIAA and co-sponsored with the Aerospace Industries Association and the Aerospace Department Chairs Association, was organized around the theme of “Working Together to Build the Aerospace Workforce of Tomorrow.” The program content is superb. Leading authorities and affected Generation Y individuals are sharing their perceptions and strategies in a true community-wide endeavor to pull together the ideas that will excite our future aerospace professionals with career opportunities greater than the ones my generation experienced.

Public Policy: Inside Aerospace is a good example of another way AIAA serves its members and the aerospace endeavor—through active involvement in public policy. Aerospace activities of every kind, including space exploration, defense, and commercial aviation, are under increased pressure from many sides—from debates about budgets, deficits and the national debt, to concerns about the cost and availability of fuels and strategic raw materials, to the need to address issues of global climate change and trans-generational responsibility, to questions about how our ongoing relationships with other countries may evolve as economic growth empowers potential competitors—at a time when technical challenges and opportunities are as great as they have ever been, from cyber warfare and security, to personal spaceflight and commercial spaceports, to micro UAVs, among many other waves of innovation. The changes we will see in the coming years amount to several more of the tectonic changes we need to prepare for.

Aerospace professionals need a seat at the table when policies are debated that can affect the future of aerospace; they need a vision and a voice, and AIAA can provide both. Through our public policy activities, we provide decision makers and opinion leaders with accurate information, we raise awareness of the key policy issues affecting our membership and how to resolve them, and we help individual AIAA members be effective advocates in the public policy arena. For example, at our Congressional Visits Day more than 125 AIAA members from 26 states shared their passion and their insights about key aerospace issues with members of Congress. Many of these conversations continued at the subsequent AIAA Congressional Reception. The annual “August is for Aerospace” grassroots campaign helped show Congressmen, during their August recess, how aerospace research and technology impacts their district. Regional colloquia on public policy helped sharpen our “grassroots” focus on key issues. AIAA policy papers, such as our February 2008 position paper on the infrastructure needed to achieve the goals of the new national aerospace R&D plan, assist policymakers in reaching wise decisions. Our public policy efforts are a crucial aspect of being “the shaping, dynamic force in aerospace.”

(continued overleaf)

Publishing: Among the most fundamental ways we serve our members and aerospace as a whole is through our publications. Important and exciting changes are underway in that arena as well. The journal archives of AIAA's predecessor organizations, the American Rocket Society and the Institute of the Aerospace Sciences (originally the Institute of the Aeronautical Sciences), are being added to AIAA's Electronic Library, allowing a fascinating glimpse into our history and legacy. Meanwhile, looking to the future, AIAA has embarked on an ambitious new project to make the books we publish—legacy titles as well as new works—available as digital content. As an example of the synergies that will develop from projects like these, we will now be able to make content available at the chapter level as well as the book level, allowing content on a given theme to be bundled together from many different sources.

Many other exciting initiatives are also bearing fruit. The Technical Activities Committee has completed an ambitious restructuring to allow more flexible and cross-disciplinary responses to new developments, and is taking steps to further improve conference quality and timeliness. The AIAA standards documents we publish are reaching ever-wider audiences through the free online downloading we initiated in late 2006. Our international involvement continues to grow and deepen, as exemplified by cooperative agreements we signed this year with the Association Aéronautique et Astronautique de France, the Council of European Aerospace Societies, and the Korean Society for Aeronautical and Space Sciences. Membership activity continues to be creative and forward looking, such as in converting the Young Professionals Committee newsletter into a weblog format to allow very timely posting of information about activities and opportunities.

In all these and many other ways, AIAA is focused on meeting the challenges and opportunities of the future, while remaining true to our mission, vision, and values. I invite you to read more about our progress in the following pages.

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It has been a great honor and privilege to serve as President of AIAA, and to work with so many talented individuals. I urge all of our members to become more involved in the work of the Institute. Those who do will soon find that there is a second kind of "When Did You Know?" experience—the realization of what a personal and professional boon it is to volunteer one's time and energy to AIAA activities. The Institute offers an unparalleled opportunity *not only* to grow professionally, *not only* to network and develop lasting peer relationships, *not only* to stay on top of leading-edge developments in aerospace, but also to help ensure the continuing vitality of the aerospace endeavor, and to help shape national and global policy in matters of technology, education, economic growth, national security, and worldwide cooperation.

AIAA offers all of its members the tools to embark on that richly rewarding path, from professional development courses, to technical and program committees, to section activities and training sessions for new section leaders, to opportunities to publish books and articles and to present papers at prestigious conferences.

I urge all of our diverse membership, from academia, industry, and government, all around the world, to seize the opportunity to deepen your involvement in AIAA—nominate your worthy peers for an award, join a technical, program or standing committee, join or start a local section. Seek out that second kind of "When Did You Know?" realization, for the benefit of the worldwide aerospace endeavor, and of your own personal and professional growth and fulfillment. I promise you, you will not be disappointed.



Above: An AIAA member says her "When Did You Know?" moment took place when she was in seventh grade. Her uncle, a bush pilot flying a float plane in Alaska, let her take off.

EDUCATION



Merri J. Sanchez
Vice President

AIAA's educational programs impact thousands of students, educators, and professional members across the world. We contribute to the future workforce development of the aerospace industry, and to the professional growth of our members. Throughout FY07 we continued to strengthen our educational program offerings, focusing in the areas of pre-college, college, and continuing education.

Professional Member Education

FY07 was another strong year for the AIAA Professional Development Program. The program offered over 60 courses, and over 570 professionals attended these courses. Our courses cover a range of technical topics, from propulsion systems to structures design to missile guidance, and are offered in an array of formats, such as traditional short courses, home study opportunities, and online tutorials.

The involvement of AIAA's Technical Committees (TCs) has been instrumental both in expanding the breadth of our professional development offerings, and in preserving their high quality. Last year, ten TCs proposed and/or sponsored AIAA short courses, while many others provided the invaluable service of evaluating proposed courses for content and member interest.

The On-Site Course Program was once again successful. Although many of our courses are held at AIAA's technical conferences, many companies and government agencies opt to train their employees at their own facilities. On-site courses can save time and money for these organizations and their employees. Many NASA Centers, Northrop Grumman, The Boeing Company, and Raytheon Corporation, to name a few, brought AIAA short courses to their facilities to train their employees in a closed, secure training session.

Under the direction of Brett Anderson, and now under the leadership of Steve Gorrell, the Professional Member Education Committee (PMEC) membership has grown to 17. Several major projects were completed this past year, including establishing a governance handbook, approving the committee's charter, and improving the evaluation process for new courses.

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 2007, there were 6,902 Student Members. Of these, 756 upgraded to Professional membership, 3,652 were new Student Members, and 1,090 were international Student Members. Student membership increased over 2% from the previous year. The number of Student Branches grew to 177, as one international and four domestic Student Branches (including one high school) were granted charters.

Seven AIAA Foundation design competitions were held in different design disciplines at both the undergraduate and the graduate level. Topics and engineering specifications for these competitions are solicited from AIAA TCs. The undergraduate team aircraft and undergraduate team space transportation competitions had the greatest number of entries, with twenty-eight and nine entries respectively. The Student Design/Build/Fly Competition—in which students build and fly a small electric-powered, remote-controlled plane over a predefined course in a limited time—continued, with 36 flying entries out of the 50 teams that submitted reports. International participation came from Israel, Scotland and Turkey.

The AIAA Foundation Undergraduate Scholarship Program received almost 60 undergraduate scholarship applicants. Thirty students received a combined total of \$61,000. The AIAA Foundation Graduate Student Awards received 21 applications. Ten graduate awards in the amount of \$5,000 were awarded, and four graduate students received awards of \$10,000 each. The winners of these awards were acknowledged at the 2008 Aerospace Sciences Meeting (ASM). The Abe M. Zarem Awards for Distinguished Achievement were presented to outstanding candidates and their academic advisors, in the areas of astronautics and aeronautics. Phillip M. Cunio, recipient of the Zarem astronautics award, presented his work at the 58th

International Astronautical Congress held in Hyderabad, India. Roelof Vos was the winner of the Zarem aeronautics award, and will present his paper at the 28th Congress of the International Council of Aeronautical Sciences.

The Regions hosted seven U.S. Regional Student Conferences and one International Student Conference in Naples, Italy, all of which were successful. The AIAA Foundation provides \$2,100 in prize money to each conference, and \$50 in assistance for each student member attending the conferences. Regional fundraising and local sections provide the balance of the support. Professional members engage in the conference as judges, organizers, speakers, and panelists. The Young Professional Committee assists with the career panels.

The AIAA Foundation International Student Conference included the seven U.S. Regional Student Conference winners and the winners of the European and Australian Student Conferences. The 2008 Conference winners were Brittany Oligney and Margaret Frash of the U.S. Air Force Academy and Lauren Kanner of the University of Colorado, Boulder.

AIAA maintained its alliance with ABET, the accreditation board for engineering and technology. This year, 15 schools requested visitation for accreditation. The AIAA Academic Affairs Committee 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

FY07 was another outstanding year for Pre-College Outreach, as we held both of our signature events: Education Alley and Passport to the Future Teacher Workshop. Education Alley, and the complementary event, Space Exploration Alley, are constructed to inspire 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 is a workshop for educators, designed to empower science and math teachers from K-12 to share the revelations and rewards of aerospace related curriculum. These two events are the cornerstone of the pre-college outreach portfolio, which is augmented by classroom grants, "Ask an Engineer," and various online aerospace activities for all ages.

Education Alley at Space 2007 in September had over 2,000 students from the Los Angeles, California area. The event this year was sponsored by The Boeing

Company and featured classroom presentations by NASA, the Challenger Learning Center, The Boeing Company and others. Education Alley, now in its seventh year, provides students and teachers with out-of-this-world experiences through hands-on activities as part of the ultimate field trip.

The 3rd Space Exploration Conference and Exhibit hosted another Education Alley in Denver, Colorado. Over 1,800 students visited this event, sponsored by Lockheed Martin. Student reporters had an opportunity to interview astronauts Bruce McCandless, Brian Duffy and Clayton Anderson and NASA engineer Heather Paul at the "What's Up in Space?" press conference, in addition to visiting the NASA Trailer, special hands-on exhibits, additional presentations, and the main exhibit hall.

The 4th Passport to the Future Teacher Workshop, held in conjunction with the Joint Propulsion Conference (JPC) in Cincinnati, Ohio, provided teachers with the opportunity to learn firsthand about the aerospace industry. Highlights included a keynote address by NASA astronaut Heidemarie M. Stefanyshyn-Piper and NASA Flight Surgeon Joseph Schmid, an evening event at the John Hopkins University Applied Physics Laboratory, many concurrent sessions, and several hundred dollars' worth of curriculum materials to share with their students.

AIAA Foundation Classroom Grants amounting to \$20,000 were given to over 200 teachers, reaching over 18,000 students, for hands-on math and science classroom activities. We have had many teachers apply for, and benefit from, these grants. This year the Pre-College Outreach Committee modified the qualifying rules for the grants to focus funding more specifically on activities that support AIAA's mission and develop fundamental math and science skills.

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 Pre-College Outreach Committee add content of value for students and educators.

Our growing list of Educational Partners has continued to make the AIAA pre-college program a valued asset in the classroom. The collaboration of our partners makes the AIAA educational programs successful, and we look forward to new opportunities in 2008.



Scenes from Education Alley at the Space Exploration Conference in Denver (clockwise from upper left): The "What's Up in Space?" student press conference; a gyroscope experiment; demonstrating how forces balance; NASA Engineer Heather Paul with students; protective clothing; students with Sprockit the Robot; Astronaut Clayton Anderson answering a student's question; a "student reporter" questioning the panel.



TECHNICAL ACTIVITIES



Charles R. Saff
Vice President

This is my third and final year at the helm of the AIAA Technical Activities Committee (TAC) and it is a great feeling to have completed all that we set out to do three years ago. We have completed the reorganization of TAC into a matrix organization of Technology Integration Groups and Technical Groups that provide a home for all of our Technical Committees (TCs) and Program Committees (PCs) and provide for growth and expansion in the coming years. We thank Basil Hassan for his patience and the determined effort required to bring this new organization into existence.

We have improved our technical conferences by including workshops that can be initiated in weeks instead of months, so that we can react to emerging technologies. We have begun a process to improve our conference quality by inviting papers and accepting fewer general paper submittals. Invited papers ensure that AIAA sees the content and quality we need to have, and fewer acceptances make presentation at our conferences a greater honor for the presenter. We are also working toward resolving the continuing problem of those whose papers were selected, but who choose not to present them. The quality of our conferences is reflected in the increased paper sales we have had for the past few years. My first initiative was to broadcast the Vision for what AIAA could be to the technical community of the aerospace profession, in the video "From the Sands to the Stars," which won a Telly Award in 2005. Since then we have had two other videos win this award as well. I am proud of the accomplishments TAC has made during my term and I could not be leaving TAC in better hands than those of Laura McGill in May 2008.

TECHNICAL GROUPS

AEROSPACE SCIENCES GROUP

Director: David Riley

Deputy Directors: Allen Arrington, Tom Beutner, Neal Pfeiffer, William West

The Aerospace Sciences Group (ASG) had another productive year. The ASG TCs and PCs continued to actively 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 Air Transportation Group), and multiple co-sponsored conferences that literally met around the world. Distinguished recipients were selected for five major AIAA awards, as were multiple best paper recipients by all the ASG TCs. The ASG TCs collectively supported the annual *Aerospace America* highlights issue with all TCs submitting articles. TC international membership and associate membership continue to grow, resulting in diverse TCs with expanded membership from academia, government, and industry.

With the Aerospace Sciences Meeting (ASM) moving from Reno to Orlando, the ASM Planning Committee has decided to enhance the conference with a New Horizons Forum and greatly expanded exhibits. The new location at the Orlando World Center Marriott offers us more room to grow by adding more meeting rooms and the New Horizons Forum, and expanding the exhibits into an Exposition. This should give members more access to top aerospace officials for policy-based presentations, and, we hope, greater access to NASA, and southeast aerospace companies. Please plan to join us in January 2009 for the new and improved ASM!

INFORMATION SYSTEMS GROUP

Director: James Neidhoefer

Deputy Directors: James Dieudonne, Allan T. Morris

The IS Group is working towards establishing the Infotech@Aerospace (*I@A*) Conference as the primary AIAA forum for Information Systems. Many of the Group's TCs continue work toward producing a set of formal "Procedures" for *I@A* organization. The Group supported seven conferences in 2007 including: *I@A*, Rohnert Park, CA, May 7–10, 2007; ASM in Reno, NV, January 8–11, 2007; Guidance, Navigation and Control Conference and Exhibit, Hilton Head, SC, Aug. 20–23, 2007; 26th Digital Avionics Systems Conference, Dallas, TX, Oct. 21–25, 2007; Integrated Communications Navigation Surveillance (ICNS) Conference, Herndon, VA, May 1–3, 2007; 25th AIAA International Communications Satellite Systems Conference, Seoul, South Korea, Apr. 10–13, 2007; and the IEEE/AIAA Avionics Fiber Optics and Photonics Workshop (AVFOP 2007), Victoria, BC, Canada, Oct. 2–4, 2007.

The Group presented several awards in 2007. The ISTC presented a "Best Intelligent Systems paper of *I@A* 2005" award at the 2007 *I@A* conference. The TAC has also selected the "Best Intelligent Systems paper of *I@A* 2007." The ISTC established a

"Student Paper Competition" at the 2007 *I@A* conference. There was a special session established for this competition early in the conference, and the award (sponsored by BAE Systems) was presented later in the conference. BAE Systems has agreed to again sponsor a student paper competition for the 2009 *I@A* conference. The ISTC is working with the TAC and the HAC to establish an Intelligent Systems Award. The SSTC presented the Aerospace Software Engineering Award at *I@A* 2007. The TCCS presented the Aerospace Communications Award for an outstanding contribution in the field of aerospace communications. Robert Briskman was the award recipient for 2007. The DATC presented the John C. Ruth Digital Avionics Award to Dr. Andrew Zeitlin at the 26th Digital Avionics Systems Conference. The DATC presented the Distinguished Institution Award to the MITRE-Center for Advanced Aviation System Development (CAASD) at the 26th Digital Avionics Systems Conference.

The DATC sponsored its fourth AIAA undergraduate scholarship this year, with funds generated by its successful conferences, the Digital Avionics Systems Conference (DASC) and the Integrated Communications, Navigation, and Surveillance (I-CNS) conference. The IC2TC completed work on Conceptual Framework for System of Systems Engineering, and presented it at OSD and to CSIS – MIT Study Group.

PROPULSION AND ENERGY GROUP

Director: Ashwani K. Gupta

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

The reorganization of Air Breathing Propulsion (ABP) TC in the Propulsion and Energy (P&E) Group is now fully expanded into Gas Turbine, Propulsion Integration and High Speed Propulsion TCs. The membership has a good balance from academia, industry and government, and nearly full TC membership is expected in all the new TCs by their May 1 birthday. The newly reorganized P&E group has 10 TCs in the propulsion area (up from eight) and two in the energy area. The P&E group supports three major conferences: ASM, the Joint Propulsion Conference (JPC) and the International Energy Conversion Engineering Conference (IECEC). All the propulsion TCs/PCs supported a very successful JPC held in Cincinnati in July.

The Energy group TCs supported the IECEC held in St. Louis in June, that had 44 sessions extended over three days. The IECEC was joined by three participating organizations: the advanced energy conversion group of the Heat Transfer Society of Japan, the IEEE Aerospace and Electronic Systems Society, and the Egyptian Society of Mechanical Engineers. Terrestrial Energy TC had a record number of papers presented at ASM. The P&E group members also supported a number of other meetings, including the AIAA Fluid Dynamics Conference held in Miami, the AIAA Aeroacoustics Conference held in Rome, the ASME/IGTI Turbo Expo held in Montreal, the International Symposium on EcoTopia Science held in Nagoya, Japan, and Aerospace Space Power Workshop held in April in Los Angeles. The ABPTC also supported ASME, IGTI, JANNAF, ASEE, and INCOSE (Systems Engineering). The Energetic Components and Systems (ECS) TC members also supported the CAD/PAD Technical Exchange Workshop and the SAFE National symposium.

The 2007 Air Breathing Propulsion Award was presented to Dilip Ballal of the University of Dayton; the Aerospace Power Systems Award was presented to James Haines of the European Space Agency; the Energy Systems award was presented to Dr. Mark Lewis, Chief Scientist of the U.S. Air Force; and the Lawrence Sperry Award was presented to Dr. Ryan Starkey of the University of Colorado, Boulder.

STRUCTURES, DESIGN, AND TEST GROUP

Director: David W. Jensen

Deputy Directors: George A. Lesieutre, Kathleen Atkins, Karl C. Wentzel III

Many of the major technical advancements within the areas represented by the Structures, Design and Test Group (SDT) during 2007-2008 are summarized in the December issue of *Aerospace America*, and so will not be repeated here. Organizational changes are underway within the group, with two successful technical committees migrating to other groups to enhance their connections to their primary conferences. Specifically, the Modeling and Simulation TC and the Ground Test TC both became part of the Aerospace Sciences Group in January 2008. The Space Architecture TC was created from a working group within the Design Engineering TC, and also moved out of our group, leaving us with seven fully-functional TCs.

The SDT technical committees sponsored many successful short courses, published timely and informative articles, presented numerous awards to distinguished recipients, and supported several major conferences this year, including those sponsored or co-sponsored by AIAA, as well as others. The SDM Conference (49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference) along with the associated forums and conferences (16th AIAA/ASME/AHS Adaptive Structures Conference, 10th AIAA Non-Deterministic Approaches Conference, 9th AIAA Gossamer Spacecraft Forum, and 4th AIAA Multidisciplinary Design Optimization Specialist Conference) was held in Schaumburg, Illinois in April 2008 to conclude another highly successful year.

The initial release of the educational outreach multimedia DVD project "A World of Structural Dynamics" garnered two external awards: a 2006 Telly Award for Multimedia and a 2006 Communicator Award for Video. Work was completed on the second release (version 1.1) of the DVD and 3,000 copies were produced, with initial distribution occurring at the 2007 SDM. The new version adds a couple new sections to the presentation and fixes some bugs in the initial release. A two-disc 2.0 version with expanded content is being discussed and funding options are being pursued. The DVD is available free of charge to AIAA members and educators.

TECHNOLOGY INTEGRATION GROUPS

AIRCRAFT AND ATMOSPHERIC SYSTEMS GROUP

Director: Wilson N. Felder

Deputy Directors: Dimitri Mavris, Satish Mohleji

The Group enjoyed a very successful year, highlighted by the first ever Aircraft Technology Integration and Operations conference to be held outside the U.S., in Belfast, Northern Ireland, in September 2007. It was very well attended, and the technical quality of the papers was judged to be superior by all concerned. The Group has five new TC Chairs, who all completed TC Chair training in Reno in January. The Flight Test TC sponsored another successful Air Force T&E Days conference, and the Balloon Systems Technologies TC was a sponsor of the Atmospheric Decelerators/Balloons conference. The V/STOL TC was an active organizer of the International Powered Lift Conference, and the Product Support TC held a successful IMAPP meeting in San Diego. The Group looks forward to representing AIAA as we host the biennial ICAS congress in Anchorage in August. We continue to look for opportunities for synergy, not only among the TCs/PCs in the Group, but also across other Groups, and that will be a strong focus for the Group in 2008.

ENGINEERING AND TECHNOLOGY MANAGEMENT GROUP

Director: A. Tom Smith

Deputy Director: James Afarin

The Engineering and Technology Management Directorate is comprised of TCs and PCs that cover the aerospace enterprise framework. TC/PC activities continued to be varied and strong during the past year. The TCs/PCs were very active in managing and/or supporting a broad range of conferences, including the Multidisciplinary Design Optimization Specialist Conference, ASM, JPC, and Space 2007. The TCs and PCs are actively preparing for conferences in the year ahead. Additionally, the TCs/PCs continued their excellent joint venture effort to present the Delta Forum. Venues for the numerous TC/PC meetings were widely varied, ranging from AIAA conferences to both industrial and government locations, and included valuable presentations and informational tours.

Several major AIAA awards were given during the year. The History Manuscript Award went to Douglas Mudgway of Sonoma, California for "William H. Pickering, America's Deep Space Pioneer." The Von Braun Award went to Glen Fountain of the Johns Hopkins University Applied Physics Laboratory "For 40 years of outstanding contributions to space flight missions to advance the fundamental understanding of the earth's environment and solar system." The Hap Arnold Award went to Lowell Keel of ATK Systems Group "For leadership and management contributions to the NASA Hyper-X Program while acting as the Program Manager for the X-43A prime contractor." Several internal TC awards were also presented. The group continued its strong support for the annual *Aerospace America* highlights issue with six TCs providing articles. The group was also instrumental in providing the annual training for TAC directors and deputy directors.

SPACE AND MISSILES GROUP

Director: Thomas Duerr

Deputy Directors: Grant Anderson, Randy Parsley, James Walker, Tony Williams

The Space and Missiles Group (SMG) provided considerable value to AIAA members in 2007 through a strong conference portfolio, proactive coordination with external organizations, and robust education and awards programs. At the Group level, we reorganized in 2007 to give each Deputy Director specific functional responsibilities across all TCs in the Group, improving internal and external collaboration. The TC performance metrics and accompanying TC of the Year award appear to be increasingly effective tools for monitoring and guiding TC activities.

Going forward, SMG will work to further improve our core conferences. Space 2008 could be the best Space conference ever, with growth opportunities for 2009 and beyond. Conferences SMG supported in 2007 included: 5th Annual U.S. Missile Defense Conference, 13th Annual Space Operations Workshop, Responsive Space 5, Los Angeles, CA, April 2007; 7th International Symposium of Reducing the Cost of Spacecraft Ground Systems and Operations (RCSGSO), Moscow, Russia, June 2007;

JPC 2007, Cincinnati, OH, July 2007; Space 2007 Conference and Exhibition, Long Beach, CA, September 2007; International Symposium on Personal Spaceflight, Las Cruces, NM, October 2007; 5th AIAA Biennial National Forum on Weapon System Effectiveness, Huntsville, AL, October 2007; and the 10th International Space Operations Conference, Heidelberg, Germany, 2008.

Honors and awards presented by SMG included: International Space Operations and Support Award, presented to the Space Shuttle Thermal Protection System (TPS) Repair Team for their work in developing repair materials and techniques for the Space Shuttle; Jeffries Biomedical Award, awarded to Dr. Mark Kliss, Chief of the Bioengineering Branch at NASA Ames Research Center, Moffett Field, CA, for dedication and technology focus toward creating a healthy environment for humans as the Vision for Exploration goes forward; Space Automation and Robotics Award, presented to Dr. Antal (Tony) Bieczny at Space 2007; Space Systems Award, presented to the USAF/Industry XSS11 team for their work in development and operation of the XSS11 satellite; and Von Braun Award, as noted above.

SMG welcomed two new TCs in 2007. The Space Resources Working Group of the Space Colonization TC was promoted to TC status. The Space Architecture TC joined SMG after starting as a working group under the Design Engineering TC.

PROGRAM COMMITTEES

Coordinator: Anthony Gross

AIAA Program Committees (PCs) are chartered to connect the AIAA membership to ongoing national and industry aerospace programs, through their committee activities and their close connection to the relevant Technical Committees. In 2007 there were a total of 11 PCs covering a broad range of aerospace programs, including Unmanned Systems, Gossamer Spacecraft, HyTASP, Aerospace Traffic Management, Space Station, Reusable Launch Vehicles, Net-Centric Operations, Space Exploration, Energy Optimized Aircraft and Equipment Systems, Value-Driven Design, and Homeland Security. Selected activities included the Infotech@Aerospace Conference, Workshop and Exhibit that was jointly organized by the Unmanned Systems PC and several TCs, technical co-sponsorship of the NDIA Net-Centric Operations Conference by the Net-Centric Operations PC, the Gossamer Spacecraft Forum (GSF) at the 2007 SDM Conference, as well as several PC workshops and focused meetings.

In addition, this year saw the identification of each PC with one or more TC Groups as a principal outcome of the TAC Reorganization Project. The principal objective of this system is to integrate the PCs with the technical conferences organized and implemented by the TCs. Thus the conferences will have a broader and more inclusive program that should broaden their appeal to the attendees.

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

NEW INITIATIVES SUBCOMMITTEE

Chairman: Basil M. Hassan

Deputy Chair: Kathleen Atkins

In 2007 TAC's New Initiatives Subcommittee (NIS) recommended formation of a new TC, the Space Architecture TC which resides in the Space and Missiles Group.

TAC has historically conducted a workshop at the January ASM to discuss topics of interest to its committee chairs and chairs-elect. In January 2008 NIS conducted a very successful workshop, jointly sponsored with AIAA's Public Policy Committee, that focused on how AIAA's technical activities could have broader impact on AIAA's public policy mission. The workshop had almost 100 participants, and produced several excellent ideas that AIAA will look to implement in the coming year. The 2009 workshop will partner with AIAA's Education Committee.

In 2007 NIS also worked on several issues of interest to technical activities and the Institute's membership in general. These areas include looking at improving Young Professionals' exposure to technical activities and the services they receive at conferences, continuing to look at computer programming requirements in aerospace engineering curricula via focused surveys, and continuing to monitor our presentation "no shows" at conferences and look at ways to alleviate the problem. NIS members are continuing to work many of these issues.

Finally, NIS has wrapped up its two-year-long activity to study how the Technical Activities Committee should best be organized to deliver technical activities to the membership. TAC has reorganized its groups into two major groupings: Discipline Focused Groups and Systems/Integration Focused Groups. TAC will form a Strategic Conferences Subcommittee to help improve collaboration between the Technical Groups and the PCs and effectively manage costs and planning. These changes should aid AIAA's growth, and support innovative partnerships with other societies.

INTERNATIONAL ACTIVITIES



Vincent C. Boles

Vice President

Initiatives

On 21 June 2007, the Association Aéronautique et Astronautique de France (3AF) and AIAA signed a Memorandum of Understanding (MOU) in Paris, France. The MOU outlines cooperation and collaboration in information exchange, organization and hosting of various conferences and workshops, participation in student events, and other topics of mutual interest. 3AF and AIAA currently rotate organization of the Aircraft Noise and Emissions Reduction Symposium (ANERS). In 2007, the symposium was held in La Baule, France, 25–27 June. The event focused on the challenges and opportunities faced by the manufacturers, local communities, air carriers, airports, government institutions, non-government organizations, and communities in addressing noise and emissions abatement. The next ANERS will be held in conjunction with the Aviation Technology, Integration and Operations (ATIO) Conference in 2009.

On 10 September 2007, AIAA signed an MOU with the Council of European Aerospace Societies (CEAS) during the 1st CEAS European Air and Space Conference in Berlin, Germany. The objective of the MOU is to better serve the common interests and welfare of the organizations' respective memberships.

On 15 November 2007, AIAA signed an MOU with the Korean Society for Aeronautical and Space Sciences (KSAS) during the KSAS Fall Conference in Jeju Island, Korea, to advance international cooperation and to foster collaborative activities between the two societies. The MOU signing ceremony was presided over by KSAS President Prof. and Dr. In Lee and AIAA President Dr. Paul D. Nielsen. AIAA Vice President-International Vincent C. Boles also participated in the activity.

On 16 November 2007, AIAA, Roscosmos, American Association for the Advancement of Science (AAAS), American Astronautical Society (AAS), Eisenhower Institute, National Institute of Aerospace (NIA), and the Embassy of the Russian Federation held a Symposium: 50 Years of the Space Age, "From Competition to Cooperation" at the AAAS Auditorium in Washington, D.C. The event had three panel sessions followed by a reception at the Russian Embassy.

The 58th International Astronautical Congress was held in Hyderabad, India, from 24–28 September 2007. The International Astronautical Federation in cooperation with the International Academy of Astronautics and the International Institute of Space Law organized the 58th Congress. An AIAA / IAC meeting was held in conjunction with the IAF Congress. The 59th International Astronautical Congress will be held in Glasgow, Scotland from 28 September to 3 October 2008.

In addition, AIAA is supporting the 50th anniversary of the International Geophysical Year (IGY) by publicizing and promoting events like the Space Studies Board (SSB) seminar series, which takes this opportunity to engage with the public and the scientific community about the advances that have been achieved over the past 50 years in space science, and the discoveries that await us in the next 50 years.



Above: Korean Society for Aeronautical and Space Sciences President Dr. In Lee (right) and AIAA President Dr. Paul Nielsen at the signing of the AIAA / KSAS MOU in November.

Meetings

Planning is nearing an end for the 10th International Space Operations Conference, 12–16 May 2008 in Heidelberg, Germany. The conference will focus on operational activities and methods for earth observation, global monitoring, environment and security, and space meteorology. The event will be hosted and organized by the European Space Agency (ESA) and the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), and AIAA will provide services in support of the conference organization. AIAA also serves as the Secretariat for the SpaceOps Organization.

The 26th Congress of the International Council of Aeronautical Sciences (ICAS), with the ATIO conference, will be held 14–19 September 2008 in Anchorage, Alaska. AIAA, an ICAS member society, will host and organize the conference, which honors ICAS' 50th anniversary. The program will focus on aircraft design, systems and systems integration, air transport systems efficiency, safety and security, and the environment.



Above: 3AF President Michel Scheller (left) and AIAA Vice President-International Vincent C. Boles at the signing of the AIAA/3AF Memorandum of Understanding in June.

Awards

AIAA continues to recognize exemplary professionals from around the world for their accomplishments in engineering or scientific work:

- In 2007, five international fellows were recognized: Frederik Abbink, General Director of the National Aerospace Laboratory NLR, Amsterdam, The Netherlands; Eveline Gottzein of Aerospace Systems, Dynamics, and Control, EADS Astrium, Munich, Germany; Monika Auweter-Kurtz, President of the University of Hamburg, Hamburg, Germany; Christian Mari, Chairman and CEO of Teuchos, Montigny le Bretonneaux, France; Alon Gany, Professor, Lena and Ben Fohrman Chair in Aeronautical Engineering, Technion–Israel Institute of Technology, Haifa, Israel.
- The following members from Region VII achieved the Associate Fellow grade in 2007: Luc Bauwens, University of Calgary, Canada; Franck Cauty, ONERA, and Argiris Kamoulakos, ESI Group, France; Hermann Scheugenpflug, MTU Aero Engines, Germany; Holger Babinsky, University of Cambridge, Frank N. Coton, University of Glasgow, and Geoffrey M. Lilley, University of Southampton, Great Britain; Itzhak Barkana, Kulicic & Sofa Industries, Inc., Israel; and Yury N. Razoumny, Bauman Moscow State Technical University, Russia.
- The 2007 von Kármán Lectureship in Astronautics went to Jean-Jacques Dordain, Director-General, European Space Agency, for "Creating and Managing an Effective International Space Program in a Constrained Budgetary Environment."
- The 2007 International Cooperation Award recipient was Graham Gibbs, Counsellor for Space Affairs, Canadian Space Agency, Canadian Embassy, Washington, D.C., "in recognition of more than 40 years of promoting international aerospace cooperation through industrial international contributions in avionics systems, leadership in forging international intergovernmental space cooperation agreements, and extensive professional society activity."
- The 2007 Aerospace Power Systems Award went to James Haines, Power Systems Section Head (Retired), ESA-ESTEC, Noordwijk, The Netherlands, "for sustained outstanding contributions toward the advancement of the state of the art in spacecraft electrical power systems on European and international space programs and leadership as a mentor for many young engineers."
- The 2007 AIAA Sustained Service Award went to Ravindra Jategaonkar of DLR German Aerospace Center, Institute of Flight Systems in Braunschweig Germany, for unparalleled commitment to AIAA, aerospace education, and to the atmospheric flight mechanics community.



PUBLIC POLICY



Philip Hattis
Vice President

AIAA's Public Policy arm has three purposes: 1) to empower AIAA members to be effective individual participants in aerospace public policy formulation; 2) to provide government decision makers and the media with accurate aerospace-related information to facilitate wise policy formulation; 3) to raise awareness among policy decision makers regarding the key policy issues important to our membership and provide them

with our members' consensus recommendations for proper resolution of those issues.

A new Public Policy Strategic Plan (PPSP) was put into action this year. An extension of the overarching AIAA Strategic Plan, the PPSP seeks to make AIAA more effective in all three of these areas.

Empowering AIAA Members

As to the first area, the PPSP calls for more public policy forums at our technical conferences, and for expanded public policy activity by AIAA members. The following events over the past year supported these goals:

- AIAA hosted two policy sessions at the July 2007 Joint Propulsion Conference (JPC) in Cincinnati: A panel focused on the future of federal aeronautics research; and Ed Waggoner of the Joint Planning and Development Office gave a keynote address on the design status of the Next Generation Air Transportation System. These two events coincided with a Public Policy workshop that solicited more details and recommendations from AIAA's professionals. Subsequently (in September), draft copies of the aeronautics research plan were shared with aerospace stakeholders, including AIAA, to provide comment before the plan's completion.
- At the annual Public Policy Luncheon held at the January 2008 Aerospace Sciences Meeting (ASM), a presentation on the new National Aeronautics R&D Plan was given by Dr. Robie Samanta-Roy and Bill Davis of the Office of Science and Technology Policy (OSTP), and Dr. Jaiwon Shin, the new Associate Administrator of Aeronautics Research at NASA. Details of the plan were released, and there was a review of how the many facets of the plan would be implemented.
- More regional public policy colloquia were held to increase our grassroots public policy focus. Three domestic regions now hold annual or biannual colloquia; our goal is to have all six U.S. regions host regular colloquia. These events enable Public Policy Committee (PPC) members in each region to build on the Institute's public policy strengths, while promoting an open exchange of ideas between the PPC and the local sections, as well as among the local sections in each region.
- A policy session at the 2008 ASM focused on attracting the best and the brightest of Generation Y, and retraining them for aerospace careers. This session included several young professionals as well as college and graduate students, providing a robust dialogue among the panelists, industry representatives, and academic leaders in the audience about perks, programs, and incentives to motivate "Gen Y."

Providing Accurate Information

To provide government decision makers and the media with accurate information, the PPSP calls for: Effective coordination of the AIAA Public Policy branch with the Technical Activities Committee (TAC), Technical Committees (TCs), and Program Committees (PCs); expedited preparation and release of AIAA information and position papers; and more frequent and direct interaction with government officials, government agencies, and the media. Our work toward these goals is reflected in the following events, paper releases, and initiatives pursued over the past year:

- The PPC joined with TAC in a workshop at the 2008 ASM to formulate strategies for effective public policy collaborations among the PPC, TAC, PCs, and TCs.
- The National Science & Technology Council's Aeronautics Science & Technology Subcommittee held a public meeting in April 2007, to discuss the development cycle of the new aeronautics research plan. From the onset, members of this subcommittee looked to AIAA to lend its technical expertise to this process, and solicited members to become involved and offer their recommendations.
- In April 2007, past AIAA President Roger Simpson, Vice President for Public Policy Phil Hattis, and Executive Director Robert Dickman spoke on AIAA's Key Issues at the National Press Club in Washington, D.C., followed by a question

and answer session with members of the press in attendance. We hope this will become an annual event in parallel with AIAA Congressional Visits Day.

- The AIAA Board of Directors approved a new Public Policy position paper in February 2008 entitled "Infrastructure Recommendations for Implementation of Executive Order 13419 – National Aeronautics Research and Development: An AIAA Position Statement." This paper provides government decision makers with strategic recommendations regarding the aeronautical test facilities needed to support current and future aeronautics development activities in the U.S.
- AIAA recommitted itself in 2007 to a Federal Government Fellow program. In August, the Institute Development Committee and the Board of Directors approved the first year of a three-year trial Fellows program. In a compressed time frame, a group of AIAA vice presidents worked diligently to promote the program, vet applicants, and select a highly qualified candidate to represent AIAA on public policy matters. From a very competitive pool of candidates they selected Ms. Karen Barker, who has been placed in the U.S. Department of Commerce's Office of Space Commercialization. She is providing valuable technical expertise to that office and acting as a spokesperson on technical issues relevant to its core mission. The exercise of the mechanics of this process, and Ms. Barker's efforts, are proving to be important steps towards building and maintaining a healthy and robust Federal Government Fellows Program at AIAA.

Raising Awareness of Key Issues

To raise awareness of AIAA's Key Issues (KIs) among decision makers, the PPSP calls for an improved annual KI vetting process, and expanded, direct interaction of AIAA members with policy-making officials. In the past year this has led to a new KI formulation process that directly involves AIAA's technical and membership branches. The following events and activities helped promote the goals of the resulting KIs:

- In April 2007 the annual AIAA Congressional Visits Day (CVD), our flagship public policy event, drew more than 125 participants from 26 states. AIAA members held over 150 meetings with Congressional representatives and their staff. This allowed them to establish relationships with federal policymakers, and help make AIAA a recognized resource of technical information on policy issues affecting the aerospace sector and aerospace professionals. AIAA members voiced their views on specific issues of interest, and expressed our vision for aerospace policy. These issues then formed the basis for most of our advocacy efforts throughout the year. CVD was followed by our annual AIAA Congressional Reception, where members could continue discussions with Congressmen and their staff, further cementing the bonds created through this important event. Several members of Congress and a large number of congressional staffers participated in the congressional reception, which was hosted by Congressman Virgil Goode (VA-05).
- The "August is for Aerospace" (A4A) Home Visits Program saw significant growth this year. A part of AIAA's grassroots campaign, this program takes advantage of the annual congressional August recess period. During A4A, AIAA members hold activities that show their members of Congress the local impact of aerospace research and technology. Seven sections held A4A activities this year, including: an aerospace night devoted to discussing specific aerospace issues and their local implications; district office visits with local congressional delegations; and events which highlighted the need for improved focus in our educational system on all levels to build and maintain a competitive workforce in a technologically-capable global marketplace. As this program continues to build momentum, we look for the number of supporting section activities to increase.

(continued overleaf)



Above: Congressman Virgil Goode (VA-05), left, discusses aerospace programs with AIAA Past President Roger Simpson, center, and AIAA Vice President for Public Policy Phil Hattis, right, at the 2007 AIAA Congressional Reception.

- AIAA contributed to the Office of Science and Technology Policy's Aeronautics R&D Plan formulation, and in 2008, AIAA adopted a KI focused on the necessary next steps, urging Congress to support the spirit of the plan with appropriate funding levels to reach its goals, while providing continued oversight to insure consistent implementation.
- A variety of AIAA public policy activities focused on creation of the institutional infrastructure needed to attract, train, and maintain a next generation aerospace workforce that will be vibrant, competent, and globally competitive. Two of our 2007 KIs addressed this area: A recommendation for increased emphasis and funding for the technology and engineering areas of Science, Technology, Engineering, and Mathematics (STEM) education programs; and support for integrating disciplines to improve the proficiency of future aerospace professionals. AIAA participated in a number of STEM Coalition activities and plans to stay on the forefront of this issue in 2008. Plans are underway to co-host, with the STEM Coalition, a roundtable discussion on Capitol Hill preceding the 2008 CVD program. The event will highlight this KI and will raise awareness of CVD activities and the 2008 Inside Aerospace Conference.
- The Inside Aerospace conference was restructured to provide a major focus on one KI each year, starting in May 2008 by focusing on building the aerospace workforce of tomorrow. AIAA has partnered with the Aerospace Industries Association and the Aerospace Department Chairs Association to bring together policy leaders, academic leaders, aerospace industry executives, and human resource officers from the U.S. and abroad for a candid, comprehensive examination of next generation workforce issues. The theme of "working together" encompasses all segments of the profession, including domestic and international viewpoints and those of young professionals, educators, and the government.



Above: "Team Ohio" AIAA members during the 2008 AIAA Congressional Visits Day.

Restructuring of the Public Policy Committee itself is underway to make it more effective in executing the PPSP. In 2007 PPC leadership actively recruited members from each domestic region, and looked for stronger ties to TCs and PCs. The PPC's new membership goals are to broaden access, and to gain more buy-in for public policy initiatives and activities both from local membership and from the Institute's technical organization participants. Starting this past year, at least one annual PPC meeting is being held outside the Washington, D.C. area to provide for wider AIAA member participation, and to enable more interaction of the PPC with AIAA region and section activities. In 2007 the committee held a summer meeting that coincided with the JPC and the co-located Regional Leadership Conference. By doing so, the PPC was able to attract members both from the technical side, and from the local and regional leadership, providing them with more insight into PPC activities and processes. Also, membership on the PPC is being expanded to include TAC-Group-Director-appointed Deputy Directors for Public Policy (which was already the case for AIAA Membership's Regional Deputy Directors for Public Policy). In parallel, the PPC subcommittee structure is being adjusted to realize all the goals of the PPSP.

It has been a year of change and growth for AIAA's PPC. We continue to improve processes to give us more impact on public discourse about policy issues affecting the aerospace profession. AIAA members are better able than ever before to participate in public policy activities hosted by AIAA, and to help identify and shape the issues that the Institute will champion during the year, and over the long haul.

All AIAA members have a stake in public policy, and our efforts over the past year seek to involve more of our members, and to better leverage their expertise. Success in these public policy roles contributes to making AIAA "The World's Forum for Aerospace Leadership." I invite our members to get more involved toward this end. 

PUBLICATIONS



John L. Whitesides
Vice President

New and Ongoing Initiatives

Last year in this space I announced an initiative to add the journal content of AIAA's predecessor societies, the American Rocket Society and the Institute of Aerospace Sciences (originally the Institute of the Aeronautical Sciences), to our existing journal archives and AIAA Electronic Library. As I write this report, AIAA has received the first shipment of PDF files, as well as the metadata for those files. Scanning should be complete by the time you read this. Our original estimate of 3,000 articles was too conservative. We believe we will see more than 10,000 articles when complete, indicating an unanticipated richness and depth of content. This exciting project is further enhanced because of the age of the articles.

The first was published in 1930, and, for instance, there is an article from 1934 entitled "Use of Air Boats in Transoceanic Flight." Additional materials accompanying the papers include advertisements and job offers from the time of original publications. The information contained in this exceptional archive is fascinating.

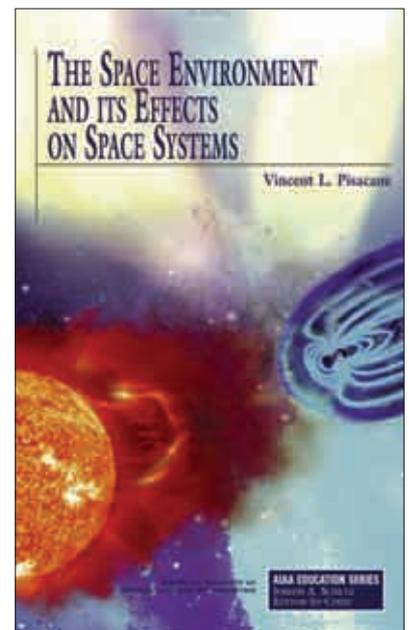
Work toward full and enhanced electronic access to AIAA's book content is proceeding. In early 2007 we anticipated two separate although complementary electronic book efforts: an electronic archive, similar to that for journals and technical papers, and e-books. As the staff investigated and our commercial publishing peers announced their plans, and as the Publications Committee considered options, the lines of distinction blurred and ultimately vanished.

Late last year AIAA began discussions with MPS Technologies about deploying our legacy titles and new titles via their BookStore digital content platform. We will now be able to offer backlist and front-list book content in a consistent, stable and secure digital repository for delivery via multiple channels and in a number of formats.

We continue to control our content in today's fast-moving digital environment, while enjoying the benefits of online accessibility and heightened visibility via search engines and e-commerce sites. We are particularly excited about gaining new exposure for our current works as well as making long out-of-print Progress in Astronautics and Aeronautics series titles widely available once more. The eBook content will be available at the chapter level in addition to the entire eBook. This unprecedented flexibility will enable us to offer bundled, subject-related content.

The staff and our partner are working toward a June 2008 beta-site launch with approximately 150 titles. The goal for a full launch is October 2008. Watch for further developments in the *AIAA Bulletin* and in the electronic publications newsletter.

An additional enhancement championed by AIAA Education Series editor-in-chief Joseph Schetz has been the creation of AIAA Education Series textbooks with color illustrations. Although color ink-jet and laser printers are now quite common and relatively inexpensive, high-quality color printing for books can still present a financial challenge to small and mid-size specialty publishers such as AIAA. However, the staff has identified printers



The Space Environment and Its Effects on Space Systems will be published in June, in full color.

who can provide good quality at affordable rates, so I am pleased to announce the first Education Series title to be published in full living color: *The Space Environment and Its Effects on Space Systems*, by Vincent L. Pisacane of the United States Naval Academy, will be published in June 2008.

Honors and Milestones

The Publications Committee, together with the Honors and Awards Committee, has the honor and privilege of recognizing excellence in aerospace publishing. In 2008 the Pendray Aerospace Literature Award was presented to Vigor Yang of Pennsylvania State University, the editor-in-chief of AIAA's *Journal of Propulsion and Power*, for "significant contributions as both an author and an editor to aerospace literature, particularly in the areas of propulsion, combustion and energetics." Michael D. Griffin of NASA and James R. French Jr. of JRF Engineering Services were named the 2008 recipients of the Summerfield Book Award for the second edition of their bestseller, *Space Vehicle Design*.

Frank K. Lu was reappointed as the editor-in-chief of the Progress in Astronautics and Aeronautics book series. George T. Schmidt and E. Vincent Zoby were reappointed as editors-in-chief of *Journal of Guidance, Control, and Dynamics* and of *Journal of Spacecraft and Rockets*, respectively.

As I noted last year, there are always changes to the committee's make-up. It is with much appreciation that the Committee and I thank Dr. William H. Heiser for his long and varied service to AIAA's publications. Bill has served as founding editor-in-chief of the *Journal of Energy*, Vice President of Publications, and member of the Publications Committee since 1987. As chair of the Publication Ethical Standards Subcommittee in recent years, Bill had been our go-to person, as AIAA has had to confront an increased number of ethical complaints. Bill has been a guiding force for publications volunteers and staff, and he leaves the Committee a tremendous legacy and firm foundation for the future. In short, AIAA thanks you, Bill.

Publication Statistics and Highlights

Journals: A total of 11,424 pages were published in AIAA's six print journals in FY07, an approximate 20 percent increase over last year. This increase was designed to decrease time to publication. AIAA's electronic journal, *Journal of Aerospace Computing, Information, and Communication*, published 32 papers, down slightly from the previous year. We are taking several initiatives to bolster the journal, including the recent publication of a year-end print compendium. Also, editor-in-chief Michael Hinchey has a number of special sections in development.

Institutional (library) subscriptions continued to experience gains, and we saw additional losses in member subscriptions, continuing the trend seen recently as members take advantage of their libraries' online access.

The journals published a number of special topical sections this year, including "Nano Energetic Materials," organized by Associate Editor Steven Son, and "Aircraft Particulate

JOURNAL OF AEROSPACE COMPUTING, INFORMATION, AND COMMUNICATION	
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EDITORIAL	A Year of Aerospace Computing M. Hinchey 1
JANUARY	Experience with Risk-Based Software Defect Prediction Models N. F. Sotoudehband 619
	Soft Computing Approach for Data Imbalance H. Chabou, G. Habbas, N. Langlois, S. Le Coroller, J. Flageot 628
FEBRUARY	System Management Services for High-Performance In-flight Aerospace Computing J. A. Trossi, E. Gribelley, A. Di Giorgio 636
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MARCH	Calculator Verification: Promise Estimation of Solutions and Their Method-Associated Numerical Error D. P. Senthuman, J. R. Kamm, J. S. Brock 676
	Multi-Purpose Multi-Evaluated Pursuit-Evasion Games with Jamming Contention M. Wu, G. Chen, J. R. Cruz, L. Hayes, K. Pham, E. Basse 693
APRIL	Real-Time Vision-Based Relative Aircraft Navigation J. N. Johnson, A. J. Cella, Y. Watanabe, J. He, J. C. Heitboer 707
	Software Defect Process and Product Model for High Assurance Applications N. F. Sotoudehband 739
MAY	Introduction: Achieving Intelligence in Aerospace Systems F. Figueroa 751
	Effectiveness of Digital Phenomena Controlling Queuing Networks in Military Contexts J. A. Bauer, R. Matthews, H. Van D. Peltus, S. A. Bruchner 763
	Autonomous Landing of Miniature Aerial Vehicles D. B. Staver, S. R. Griffith, T. M. McCall, R. W. Beard 770
	Towards Vision-Based Autonomous Landing for Small UAVs - First Experimental Results of the Vision System H. W. Schulz, M. Buchmann, L. Krüger, S. Wessler, P. Vösemann 785
	Real-Time Planning and Control of Army UAVs Under Uncertainty D. K. Almer 798
	Highly Intelligent Air Vehicle Flight Systems J. A. Miller, P. G. Meier, A. F. Heister, A. M. Qualls, B. R. Gieger, L. N. Long, J. F. Horn 816

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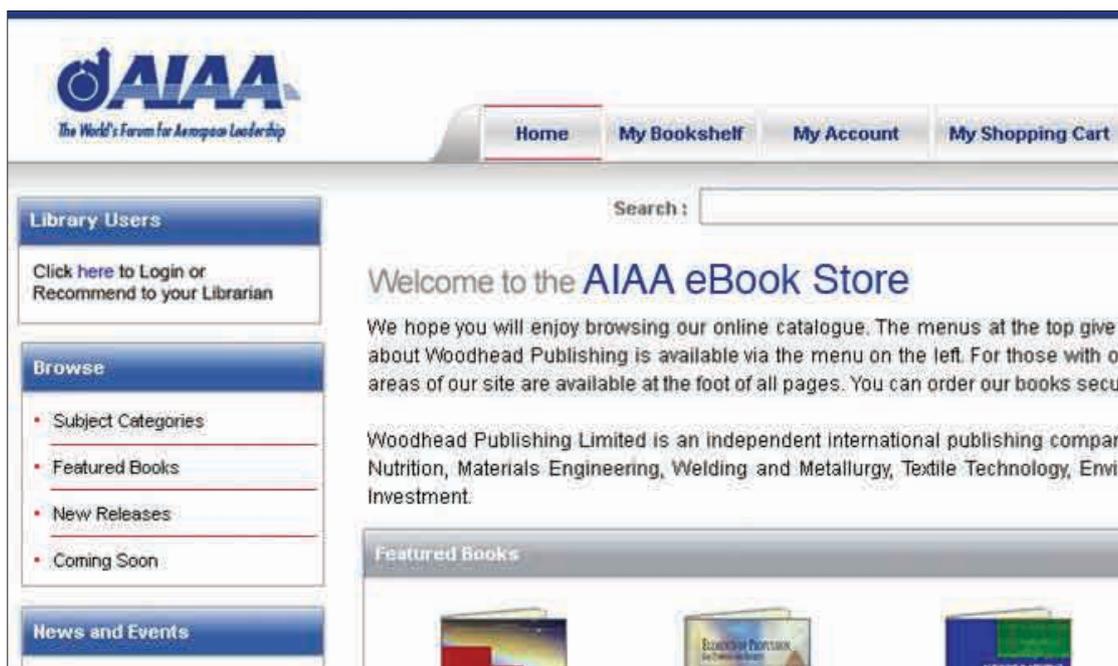
The *Journal of Aerospace Computing, Information, and Communication* now features a year-end print compendium.

Matter Experiments," organized by Associate Editor Lourdes Maurice, published in *Journal of Propulsion and Power*; "Solar Sail Propulsion: Demonstration of a System," organized by Associate Editor David Edwards, and "New Perspectives on the Satellite Drag Environments of Earth, Mars, and Venus," organized by Guest Editor Jeffrey M. Forbes, published in *Journal of Spacecraft and Rockets*; "Intelligence in Aerospace Systems," organized by Guest Editor Fernando Figueroa, published in *Journal of Aerospace Computing, Information, and Communication*; and "Morphing Aircraft," organized by Guest Editors G. Reich and B. Sanders, published in *Journal of Aircraft*.

Books: AIAA published 15 new titles in FY2007. This decrease, resulting from author and contractual delays, has continued into the current year. The new titles are: *Applied Mathematics in Integrated Navigation Systems, Third Edition* (Rogers), *Combustion Instabilities in Liquid Rocket Engines* (Dranovsky, Yang, Culick, and Talley), *Space Operations: Mission Management, Technologies, and Current Applications* (Bruca, Douglas, and Sorensen), *Helicopter Flight Dynamics, Second Edition* (Padfield), *Communication Satellites, Fifth*

Edition (Martin, Anderson, and Bartamian), *Black Hawk: The Story of a World Class Helicopter* (Leoni), *Highly Flexible Structures: Modeling, Computation, and Experimentation* (Pai), *Modeling and Simulation of Aerospace Vehicle Dynamics, Second Edition* (Zipfel), *Tactical and Strategic Missile Guidance, Fifth Edition* (Zarchan), *Hired Minds: A Career Guide for Engineering Students and Graduates* (Gardner), *Space Exploration and Astronaut Safety* (Pelton), *Introduction to Helicopter and Tiltrotor Flight Simulation* (Dreier), *Fundamentals of Hybrid Rocket Combustion and Propulsion* (Chiaverini and Kuo), *Introduction to the Design of Fixed-Wing Micro Air Vehicles Including Three Case Studies* (Mueller, Kellogg, Ifju, and Shkarayev), and *Basic MATLAB®, Simulink®, and Stateflow®* (Colgren).

Revenues from AIAA books declined by approximately six percent in FY07, with the declines in both Library of Flight and Progress Series, while the AIAA Education Series continued to experience gains in both member and nonmember sales. Despite these overall revenue declines, the program increased its net margin over the previous year through cost savings. We anticipate an increase in sales and revenue following completion of our electronic initiatives.



The AIAA eBook Store, which is set for a full launch in October 2008, will feature an unprecedented level of access, convenience, and flexibility.

STANDARDS



Amr A. ElSawy
Vice President

The AIAA Standards Executive Council (SEC) and the associated products and services it oversees continued to add value to the AIAA membership and aerospace industry over the past year. We have continued work on a number of ongoing standards development projects while also taking steps to increase our outreach to the AIAA membership base.

Standards projects continued at a steady pace throughout the last year and the prospects for new and follow-up work are good. The first six of what will ultimately be a series of thirty-plus standards in the area of reliability are ready for publication. A new standard on Electromagnetic Compatibility is ready for public review and should be undergoing the final stages of publication by the time you read this, depending on the feedback received from the review process.

Outreach to Technical Committees (TCs) encouraging development of standards has resulted in the formation of a Space Logistics Committee on Standards (SLCoS). The first SLCoS project will be a lexicon for space logistics, and follow-up documents are already in the planning stages. The Ground Testing TC Subcommittee on Standards is responsible for six standards documents which form a body of knowledge indispensable to the wind tunnel testing community. These documents are under regular review by the committee and are updated as changes in wind tunnel technologies dictate.

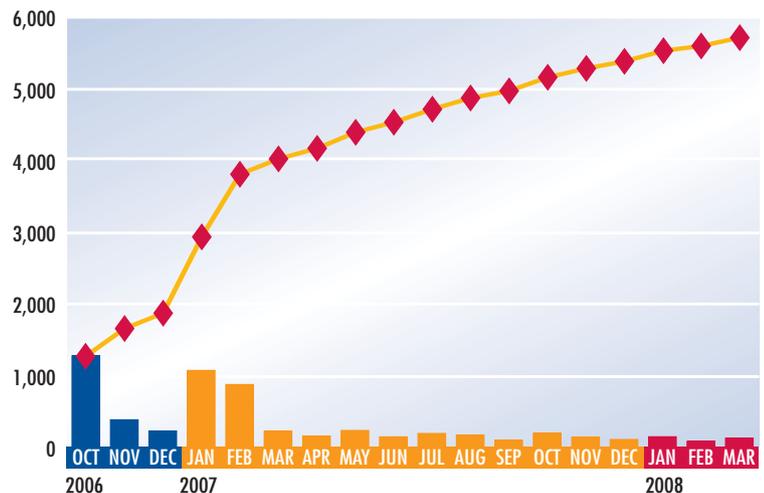
The Standards Executive Council is supporting a special effort to increase industry participation in all phases of AIAA standards work. A crucial first step in this important endeavor is communication and outreach about the importance of standardization. The November issue of *Aerospace America* included two pieces stressing the benefits of industry participation in standards activities. The first was the Commentary in the front of the magazine. Written by an AIAA member involved in numerous standards program activities, it presented a call to action to the aerospace industry to increase their engagement in standardization. In the *AIAA Bulletin* section of the same issue I presented my views on the needs and benefits of such participation. I stressed that standardization facilitates maximum participation in world markets, insures interoperability of products and processes, stretches design budgets, and inspires customer confidence in products bearing an ISO/ANSI label.

Since that issue we've tried to include an overview of individual projects or committees that could benefit from increased industry support. We will continue to include these messages in future issues—I encourage you to review them and get involved where your expertise overlaps an identified need.

At the start of FY07 AIAA began providing its standards documents to its members for free via PDF downloads. We have now collected more than a year's worth of data on who is downloading these documents. To date there have been nearly 6,000 standards downloaded by AIAA members in 49 countries. Our downloads have averaged 150 over the last few months. One of the more interesting statistics indicates that more than 1,000 of the downloads have been by our student members. This is a metric we would like to increase, as one of our strategies for the future is to better educate and engage members at the student level on the benefits of standardization. The graph to the right provides an overview of the download trends since October 2006. For reference, our library of standards available for free download currently includes 46 titles.

On the international front, AIAA continues to work closely with the International Organization for Standardization (ISO) by managing the operation of its committee on space systems and operations standardization (ISO TC20/SC14). The group continues to make progress on its work program, which currently comprises more than 100 projects. The main areas of interest of this group are: design engineering and production, interfaces, integration, and test, operations and ground support, space environments, program management, and materials and processes. A coordination group works across all of these disciplines to define implementation standards for the mitigation of orbital debris creation and risk. ISO TC20/SC14 will hold its annual plenary meeting in Rome in May.

AIAA also works closely with the Consultative Committee for Space Data Systems (CCSDS), which provides a forum for discussion of common problems in the development and operation of space data systems. It is currently composed of ten international member space agencies, 22 observer agencies, and over 100 industrial associates. CCSDS develops Recommended Standards for data- and information-systems standards to 1) reduce the cost to the various agencies of performing common data functions by eliminating unjustified project-unique design and development, and 2) promote interoperability and cross support among cooperating space agencies to reduce operations costs by sharing facilities. AIAA, through our standards program, provides secretariat support services to this body, with contract support from NASA. The group works across the space communication domain to define standards in the following areas: systems engineering, mission operations and information management services, cross support services, spacecraft onboard interfaces, space link services, and space internetworking services. In March, the group held its annual Spring meeting series in Crystal City, Virginia, with an attendance of nearly 200 technical experts over the five meeting days.



Above: Graph showing monthly and cumulative downloads of AIAA standards documents since they first became available for free download by AIAA members, in October 2006. Below: Map showing countries in which AIAA members have downloaded AIAA standards documents.



MEMBER SERVICES



Catherine M. Downen

Vice President

The paragraphs that follow describe some of the activities that have been organized over the past year by AIAA members, American and international, student and professional. AIAA volunteers and staff have hosted local technical meetings and provided networking opportunities. We have recognized our outstanding members with awards and membership upgrades. I invite you to join in

these types of activities or even contribute your leadership skills in the coming year to realize the full benefit of your AIAA membership.

The Membership Committee reports steady membership levels and the continued growth in international membership. In 2007, the Institute had 29,588 professional members, of which 5,244 were international. A total of 795 people have committed to be lifetime members, an increase of 26% over the previous year. At the AIAA Foundation Associate Fellows dinner in January 2008, 172 of our outstanding members were honored as newly elected Associate Fellows. We also honored 30 new AIAA Fellows and three Honorary Fellows with our most prestigious grades of membership.

The Career Enhancement Committee provides opportunities and educational information to assist members with realizing maximum career potential. The committee held a session at the SPACE 2007 conference in Long Beach with topics including interviewing, mentoring, starting a small business, and making decisions on career change. The committee also conducted the 11th Annual Career Enhancement Workshop at the Aerospace Sciences Meeting in Reno in January 2008, and is working on the first salary survey of AIAA members, to be conducted in the Spring of 2008.

The Young Professional Committee continues to serve the interests of professional members under the age of 35. The "First Year Conference Program" was created to give people in their first year of professional membership the opportunity to experience a national conference at a reduced rate. The program concluded this year with 98 individuals having participated. The committee continues to host networking events at select AIAA conferences. The biannual newsletter has been converted into a blog format to highlight the opportunities and activities of interest to young professionals in a timely manner.

Region I constitutes the northeastern United States from Maine to Virginia. The Mid-Atlantic and North-East Student Conferences held in Spring 2007 were outstanding, as was the 2nd Annual Young Professional, Student and Education Conference in the Fall of 2007. An AIAA Historic Site was dedicated in Philadelphia at the former home of GE Re-entry Systems, whose critical work in reentry technologies saw many firsts, facilitating the Apollo program and ensuring defense of the nation. Region I sections continue to do well, winning Section Awards from the very small (Delaware: 70+ members), to the very large (National Capital: 2700+). Local sections sponsored a broad variety of activities including Career Enhancement, Pre-College and Student Outreach, Public Policy, Technical and Young Professional programs.

Region II includes the southeastern United States, with members participating in diverse activities from general aviation to commercial and military aviation. Over 300 of these Region II professional members are serving on AIAA Technical Committees, and 21 were selected as Associate Fellows this year. Region II members have also enjoyed informative section-sponsored lectures and briefings at lunch and dinner meetings. Region II has 969 student members that represent a bright future as future professionals, with many participating in the Regional Student Paper Conference. Many of Region II's 783 Educator associates and K-12 students are now realizing the benefits of AIAA's educator grants—especially in the areas hit by Hurricane Katrina. Region II sections have also awarded thousands of dollars in undergraduate scholarships to graduating high school seniors.

Region III includes the states of Ohio, Indiana, Michigan, Illinois, Wisconsin, and Kentucky, with seven professional sections and twenty-seven student branches

in the region. All seven of the professional sections in Region III have been active, with a particular emphasis on developing new leadership. The Dayton-Cincinnati Aerospace Sciences Symposium (DCASS) on March 4 continued to set new standards for excellence and innovation. The Student Conference was hosted by Western Michigan University April 11–12. Distinguished lectures, special events, and K-12 educational outreach activities (e.g. Techfest in Dayton, OH) are continuously being supported by most of the sections in Region III. It is also well represented on AIAA Technical and Standing Committees and on public policy issues, and has a continuing prominent role at AIAA's Congressional Visits Day.

Region IV is comprised of members residing in the south central United States. The Holloman/Alamogordo Section hosted an annual technology symposium in partnership with New Mexico State University, and included a keynote speaker and forty-two technical presentations. The White Sands Space Harbor Section co-hosted three meetings with the local National Management Association, featuring managers from the Lunar Lander and Orion projects. The Albuquerque Section hosted lectures on the topics of aircraft accident investigation and the guidance, navigation and control for the Apollo program's Lunar Landing Module. Southwest Texas (San Antonio and Austin) had meetings on women in flight, the Chinese space program, and the New Horizons mission to Pluto. Oklahoma held an annual technical symposium in conjunction with ASME. The Houston Section held a state of the Johnson Space Center meeting and is working to initiate a Russian sister section to complement their Chinese and French sister sections.

Region V hosts activities for members in the Midwestern United States. The Iowa Section and Student Branches have a strong meetings program defined, and received first place section awards in three categories. The Rocky Mountain Section has realized an increase in membership in the past year, as well as excellent responses to monthly local programs. The St. Louis Section also has received first place section awards in recognition of an active year of programs. The Twin Cities Section has been very active and is working to establish a student branch at Minnesota State University at Mankato. Finally, the Wichita Section received the Outstanding Activity Award for its role in the AIAA ATIO Conference.

Region VI represents the western United States. The Antelope Valley Section expanded member communication with a section blog, providing interactive Web content for members. They also held a Glider Day in October and an "AV-ation History Symposium" during Engineer's Week. The revitalized Pt. Lobos Section cosponsored a Homeland Security conference in Monterey. San Diego members celebrated Fifty Years of Atlas Launches. The Los Angeles and Orange County sections sponsored the Responsive Space and ASAT Conferences. The Los Angeles Section also sponsored "Aerospace Day" for 800 middle school students to experience "hands-on" aerospace. The region helped sponsor four educators to visit the Subaru telescope and Astronaut Ellison Onizuka Space and Science Center in Hawaii. The region chartered two new student branches—at Arizona State University and at the University of Idaho—and held a Student Paper Conference at Arizona State University in April.

Region VII represents all members outside the U.S. The Adelaide Section assisted in the coordination of an AIAA Historic Site designation at the Woomera Launch Facility in South Australia. Both the Royal Australian Air Force Chief and the Australian Parliamentary Secretary to the Minister for Defence flew from Canberra for the day for the ceremony. This ceremony aided Woomera significantly in publicizing Woomera's international importance and helped the facility in securing ongoing funding for future projects.

In the fall, the Adelaide and Sydney sections coordinated a speaking tour for AIAA Distinguished Lecturer Mark Adler. The sections set up lectures in Adelaide, Brisbane, Melbourne, Sydney, and Canberra, with attendance reaching close to eight hundred people.

As I conclude my term as Vice President for Member Services, I would like to thank the volunteers and staff who have dedicated their time and talent to AIAA. In particular, I thank the Regional Directors and Committee Chairs: Tom Milnes, Steve Noneman, John Blanton, Sivaram Gogineni, James Walker, Larry Brase, Bruce Wilson, Jurgen Quest, Melinda Tolle, Paul Kostek, Brian Lund, and Darin Haudrich. I also commend the Regional Deputy Directors, section officers and members, and staff who strive to provide excellence to every member of AIAA. Finally, I thank my husband, as well as my employer, Hawker Beechcraft, for their unwavering support of AIAA and of my personal involvement.

FINANCE



David R. Shaw

Vice President

The Institute continued with a very positive financial performance for FY07 as with the previous fiscal year. Operational revenues increased 1.4%. Our core operations performed \$899K better than budget. This positive accomplishment enabled the investment of \$1,554K in the membership through continued funding of the Strategic Plan activities and the Institute's Electronic Information Services (E.I.S.). We are continuing to examine each strategic initiative for its viability to our membership and encourage investment in new initiatives that are focused on the growth and health of the Institute.

As noted in the following summary of the audited financial performance of the Institute, the conferences and publications were major contributors to our positive financial growth this past year:

The table below summarizes the audited financial performance of the Institute (Dollars shown with K are in Thousands).

Serving Our Membership

We charged members for services at a total price of	\$4,526K
We sold publications with a value of	\$6,660K
We conducted conferences with a value of	\$12,105K
We had investment revenue and contributions of	\$4,125K
Our revenue, gains and support totalled	\$27,416K

Associated Costs

The cost of providing support to the members was	\$6,378K
The cost of publishing our products was	\$6,442K
The cost of conducting the conferences was	\$9,081K
The cost of initiatives for the future was	\$2,416K
We had portfolio management expenses of	\$194K
Our expenses totalled	\$24,511K

The difference between these results is an increase in net assets of \$2,905K.

The Institute investment portfolio finished the 12-month period \$3,800K or 13% above where it started at the beginning of the year, with an overall ten-year net increase (after drawdowns) of \$6,568K. The investment portfolio is the financial backbone of the Institute for investing in future development to support membership related initiatives. Therefore, we have set a goal to transfer selected Strategic Plan activities identified as operations expenses and most non-strategic related E.I.S. costs into the operational budget by FY13 and cease their funding from the Institute's investment portfolio.

As in past years, these results could never have been achieved without the dedication and vigilance of the Finance Committee, Audit Committee, Board of Directors, and the AIAA staff. We would also like to welcome the new members who joined our Finance Committee this past year. A special recognition for their outstanding service goes to Dr. John Blanton of the Audit Committee and to Dr. Wanda Austin and Jim Sides of the Finance Committee. Due to business obligations, they were obliged to resign from those Committees.

Looking forward to FY08, we continue to improve our budgeting process and hone our financial management processes. Thanks to the dedication of our volunteers and staff, AIAA is in better financial shape than ever before and we are anticipating strong results that will continue to position the Institute to fully serve its vision and mission as aspired to by the membership.

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

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

AIAA FOUNDATION



Roger L. Simpson

Chairman, AIAA Foundation

The AIAA Foundation, now in its eleventh year, continued to fulfill its mission to "enhance and support the viability of the future aerospace professional, practicing aerospace professionals, and the organizations and institutions involved in aerospace."

Educational Programs

In FY07, the AIAA Foundation awarded \$151,000 in scholarship money to undergraduate and graduate aerospace engineering students. Helping college students earn their degrees has long been a cornerstone of the Foundation's work. Twenty-eight students received \$2,000 and two received \$2,500 undergraduate scholarships from the Foundation, while ten received \$5,000 graduate awards and four received the \$10,000 Orville and Wilbur Wright Graduate Awards. The competition for the premier awards—the Abe M. Zarem Graduate Awards for Distinguished Achievement in aeronautics and astronautics, the Orville and Wilbur Wright Graduate Awards, and the Willy Z. Sadeh Graduate Student Award in Space Engineering and Space Sciences—continues to increase.

Participation also continued to grow in the AIAA Foundation Design Competition program. The graduate and undergraduate competitions—including the perennial favorite, Design/Build/Fly—have intensified over the previous year in the number of schools and the number of students participating.

Seven U.S. Regional Student Conferences were held in the spring, involving over 500 students. The first-place winners were then brought to compete with the winners of the two international student conferences at the International Student Conference held in conjunction with the AIAA Aerospace Sciences Meeting.

The AIAA Foundation classroom grants continue to encourage math and science education. These grants impact over 18,000 elementary and secondary students and 200 teachers per year, allowing teachers to supplement their lesson plans with hands-on math and science activities that engage students in creative and fun ways in the classroom. Students had the opportunity to do space exploration simulations, build rockets and robots, design and fly airplanes, conduct science experiments, and plot aircraft flight plans using math, weather Web sites, and maps. AIAA partners also work to enhance the impact of these grants with additional guidance and materials. Due to school budget constraints, the AIAA Foundation is a source that teachers can turn to for assistance with these important supplemental activities.

Professional Recognition

The AIAA Foundation Award for Excellence is a special honor established in 1998 by the AIAA Foundation Board of Trustees to recognize unique contributions and extraordinary accomplishments by organizations or individuals promoting aerospace. Distinguished past recipients include Alan Mulally, Norman Augustine, John Glenn, Tommy Franks, John Travolta, Gen. John Shalikashvili, and the National Reconnaissance Office.

At the 2007 Aerospace Spotlight Awards Gala, we were pleased to present the AIAA Foundation Award for Excellence to Gordon Bethune, Former Chairman and CEO of Continental Airlines in Houston, Texas. The award recognized Bethune for three decades of committed leadership, strategic insight, and distinguished achievements in the development, growth, and promotion of the aerospace, aviation, and airline industries. A photograph of Gordon Bethune receiving the Award for Excellence appears on the inside cover of this report, as does a photograph of the recipients of the AIAA Foundation Educator Achievement Awards, recognized for their important role in exciting K-12 students about math and science.

The AIAA Foundation hosted the Associate Fellow dinner at the Aerospace Sciences Meeting and Exhibit in Reno, Nevada, in January. At this dinner, new Associate Fellows receive recognition and have the opportunity to join other Associate Fellows and Fellows for an evening of networking and celebration. Ninety-four of the 2008 Associate Fellows attended the dinner.

By providing financial support to important educational programs, and by rewarding the achievements of our members, the AIAA Foundation will continue to positively influence the future of the aerospace profession in the coming years.



HISTORIC AEROSPACE SITES



Tony Springer

Chair, Historic Aerospace Sites Committee

AIAA honored six historic sites over the last year. In May 2007, AIAA Executive Director Robert Dickman designated the **Woomera Rocket Launch Facility** in South Australia as a Historic Aerospace Site. Woomera was established in 1946 to support Britain's defense requirements after World War II. A large area was needed to test weapon systems, and the Long Range Weapons Establishment became

a joint project of Britain and Australia. Adelaide section chair Ian Tuohy and other section members made the six-hour trek into the outback to share in the celebration. In addition to Woomera staff, the ceremony was also attended by Air Marshall Geoff Shepherd, Chief of the Australian Air Force, and Peter Lindsay, Member of Parliament and Parliamentary Secretary to the Australian Minister for Defence.

Over the summer and fall AIAA honored three more Historic Aerospace Sites. In June, Region II Director Steve Noneman designated **Arnold Engineering Development Center** as an AIAA Historic Site, along with AEDC Commander (and AIAA Associate Fellow) Col. Arthur Huber. AEDC has been and continues to be at the forefront of the development of U.S. aircraft and space systems.

In July, Region III Director John Blanton hosted a ceremony for the **Cincinnati Observatory**. AIAA Joint Propulsion Conference attendees as well as neighbors and friends of the Observatory attended the event, which included an ice cream social, live music, and views from the observatory's telescope. The Cincinnati Observatory, the oldest professional observatory in the U.S., was founded by Ormsby MacKnight Mitchel, who has been called the "Father of American Astronomy." The second director of the Observatory, Cleveland Abbe, became interested in meteorology. He found that weather reported from the west would reach Cincinnati a day or two later, becoming the first American to be able to accurately predict the local weather. Abbe later was instrumental in helping establish the U.S. Weather Bureau.

In October, AIAA members and former employees of **GE Re-entry Systems** gathered at Drexel University to honor the facility where GE Re-entry Systems engineers and technicians solved the problem of safe reentry of vehicles into Earth's atmosphere. Region I Director Tom Milnes concluded an evening of reminiscences from current and former managers and employees. A plaque will be placed on the original building, which has now been converted to residential use.

Cape Canaveral Air Force Station was designated as a Historic Aerospace Site by AIAA Executive Director Robert Dickman and commanding General Susan Helms on 31 January 2008, the 50th anniversary of the launch of Explorer 1, America's first satellite and the beginning of the U.S. space odyssey. Over 200 people attended the ceremony, many of whom had worked on the Explorer program.

In April, AIAA honored the work of **NASA John C. Stennis Space Center** for its critical testing of stages of the Saturn V rocket, which eventually was used to transport astronauts to the moon. Stennis continues to serve the space program by testing the Space Shuttle Main Engines and their components, and will continue to be used for flight hardware testing of future vehicles.



Above: AIAA staff and Adelaide section members at Woomera Launch Facility, May 2007.

CORPORATE MEMBERSHIP



Dave Newill

Chair, Corporate Member Committee

It is a pleasure to report that over the past year, our corporate membership roster has increased substantially, from 67 to 81, and our corporate program activities have increased as well. For example, in the past year we hosted programs featuring high-level government personnel, including Lieutenant General Michael Hamel, Mark Lewis, Terry Jagers, Gary Payton, The Honorable Sue Payton, Joseph Rouge, and Major

General Ted Bowlds. There was a facility tour of Boeing Commercial Airplanes, we recognized corporate representatives at various AIAA events, and we organized small business discussions as well as a host of networking receptions at various conferences and events.

In continuing our momentum with the small business initiative, we have established a committee to focus on the needs of small businesses, for example by considering job fairs and small business pavilions at select AIAA conferences and by exploring whether AIAA might serve as an online broker between larger contractors and small businesses. In addition, we are working with various standing committees on recruitment of new hires. We are constantly seeking feedback and responding to the needs of our diverse group of corporate members, and we are focusing our programs and events to target executive leadership so they can strategically participate in all the programs AIAA has to offer.

AIAA Industry Partnership Roster

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



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