

Chair's Corner

As I begin my final year as Tucson's Section Chair, I'm very proud of the accomplishments we've made over the last year. Our section was recently awarded five first place awards, based on the End of Year reports submitted June 30, 2008. We were honored for Outstanding Section, Membership Recruitment and Retainment, Pre-College Outreach, Public Policy and Young Professionals. In addition, we also received two second place awards for Career Enhancement and Communication. This is quite an achievement and our section officers have worked very hard to make this a notable section. I'm grateful for all the hard work that our members have put into our past events and I look forward to lots more in the coming year. For starters, we expanded our officer board over the summer, and the new folks have tons of fresh ideas.

We held officer elections over the summer—all Tucson section members were emailed a ballot. Based on the returned ballots, we have several new officers. First off, Jeffrey Jepson has agreed to serve as the Section Vice Chair. Over the course of this year, I will be sharing all the knowledge I've gained running the section with Jeff. We are all confident that he will serve the section well when he takes over as Chair next summer. Kirk Hively is our new section secretary. Hopefully, you have already received some email from him. Please be sure that our section email address is in your address book—this will help cut down on bounced emails.

Other new board members include Joseph Peterson, who has volunteered to take on the office of Career Enhancement; and Joseph Salerno, who has accepted the duties of the Young Professional Chair. Now that we have dedicated and motivated people to get involved in

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AIAA ANNOUNCES SECTION AWARDS

Reston, VA, 17 September 2008

The American Institute of Aeronautics and Astronautics is proud to announce the 2007/2008 Section Award winners. The Section Awards honor particularly notable performances made by a section of the Institute working as a unit, and are intended to formally underscore the AIAA conviction that intellectually stimulating section activity is fundamental to a healthy Institute.

All awards are bestowed annually in five section member categories (based on member size). Tucson is considered a Medium section. A cash award and certificate is presented to each of the winning sections: The award period covered is 1 June 2007–31 May 2008.

The first place winners will be honored at the awards luncheon of the 47th AIAA Aerospace Sciences Meeting and Exhibit, being held on Tuesday, 6 January 2009, at the Orlando World Center Marriott, in Orlando, Florida.

The Outstanding Section Award is presented to sections judged on their overall activities and contributions throughout the year. The basis for this award is the Section Annual Report. In the Medium Size category, First Place was awarded to Matt Anguilo and the Tucson section. Second Place awards were given to the Antelope Valley and Northwest Florida sections, with Honorable Mention going to the Sacramento section.

The Membership Award is presented for increasing the sections' membership by planning and implementing effective new member recruitment and retention campaigns. First Place went to Tucson's Douglas May, and Second Place went to the Northwest Florida section.

The Harry Staubs Precollege Outreach Award is presented to sections that have developed an outstanding precollege (K-12) outreach program that provided quality educational resources for the Nation's K-12 students and teachers in the areas of science, mathematics, and technology. First Place went to Sara Falconer, and the Tucson section. Second Place went to Northwest Florida and Third Place went to Central Florida.

The Public Policy Award is presented to sections for stimulating public awareness of the needs and benefits of aerospace research and development, particularly on the part of government representatives, and for educating its members in the value of public policy activities. Tucson took First while Antelope Valley and NW Florida tied for Second.

The Young Professional Activity Award is presented to sections that demonstrate excellence in planning and

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Chair’s Corner *(Continued from page 1)*

these positions, we promise to get several section events and opportunities put together for you.

In addition to our new officers, several of our existing officers have returned to serve the Section for another year. Dustin Grissom has been retained as our section Treasurer. His wife, Kathy, joined the section as an Educator Associate, and except for this issue, she will help make sure our newsletters are released in a timely fashion. Of course, she had bad timing when she coincided the delivery of this letter, with the delivery of their new son, Dryden Leonard Grissom! We will certainly forgive this transgression and welcome the newest Tucson section member! Congratulations Kathy and Dustin.

Brian Ewenson plans to return as our Education Chair and Sara Falconer continues to “man” the Pre-College Outreach Chair. This month, she also helped get our newsletter out while enrolling more than 3 dozen area children in our award winning Kids Club program. Doug May is staying on as our Membership Chair. John Madden will continue as newsletter chair. Webmaster and Aerial Robotics Advisory Committee Chair, Frank Manning, will continue to keep us all up to date at www.aiaatucson.com, while Kevin Kremeyer enters into his final year as Past Chair of the Tucson Section..

We have a nationally recognized section, complemented by exceptional officers and it has been my absolute privilege to serve as the Tucson Section Chair. I am really looking forward to this coming year - it could easily be our best one yet.

Sincerely,
Matthew J. Angiulo, Tucson Section Chair

Membership News

According to Doug May, our Membership Chair, it will be one of the section’s goals this year to make a concerted effort to upgrade all those members who qualify, or have the credentials to be nominated and then selected. Members can automatically upgrade to Senior Member, if they have been an AIAA member for 8 consecutive years. The appropriate forms and eligibility criteria can be found on the AIAA web site at www.aiaa.org. Doug reports that our current membership roster is as follows:

Member	184
Member (Student Upgrade)	14
Senior Member	92
Associate Fellow	14
Fellow	4
Total	308

Awards *(Continued from page 1)*

executing successful events that encourage the participation of young members in the AIAA and provide opportunities for leadership at the sectional, regional, and national levels. Tucson took home First Place!

The Career Enhancement Award is presented for activities that are beneficial to career development. First place went to Antelope Valley, but Tucson took home Second Place and Northwest Florida took third.

The Communications Award is presented to sections that have developed an outstanding communication outreach program. Winning criteria includes: level of difficulty and complexity, timeliness, multiple methods of communications, frequency, format and content of the communication outreach. First Place went to NW Florida, Tucson took second, in no small part due to the efforts of John Madden, Section Newsletter Editor and Frank Manning, Webmaster. Third Place went to Antelope Valley with Honorable Mention going to Utah.

The only area in which our Section didn't take home an award was Outstanding Event, but we have hopes and plans for this year—the upcoming Design/Build/Fly competition will be something you won't want to miss! We will keep you posted.

Notes from the Vice Chair

I look forward to serving as the Vice Chair and transitioning to the role of Chair over next year. We have an exceptionally dedicated board, and I feel confident that this is going to be a great year for our section. I would like to present the 2008/2009 Tucson Section Goals for your consideration:

1. Increase the retention of young members transitioning from college to professional membership
2. Increase the number of events and activities that we do as a section
3. Enforce new guidelines for the student groups that we give funding to:
 - a. All members must be student AIAA members
 - b. Group must submit budget to the AIAA board
 - c. Group must present their plan to a board of AIAA officers
4. Continue with our successful Kids Club and look for ways to involve high school students in some of the AIAA activities throughout the year
5. Increase our working relationship with Raytheon Missile Systems through technical programs
6. Increase the number of newsletters that we publish
7. Encourage membership as a whole to become more active in AIAA

If anyone wishes to discuss these goals, or has ideas on how we can implement change, please contact us at tucsonaiaa@gmail.com.

International Aerial Robotics Competition

In July, the Pima College team attended the International Aerial Robotics Competition, held at Fort Benning, GA. The team placed 5th out of 10 teams, and brought back \$5,000 in prize money, plus an award for most innovative design. The competition was held at the



McKenna MOUT (Military Operations in Urban Terrain) site. A few of the buildings at McKenna are shown here, including the IARC symbol attached to the target building. Huihong Kuang (below) was the only student on the PCC



team. Next to Huihong is our primary UAV with the avionics bay open.

At prior IARC competitions, our UAV managed to escape major damage, but we weren't so lucky this year. We had several crashes and hard landings. We got back in the air

quickly, thanks to the simple structure of our airframe which was easy to repair. The vehicle has historically tended to get through static judging with high scores for crashworthiness.

Our ground station is shown below. The steerable antenna on the roof of our SUV is able to dynamically track the UAV and receive video data from a 2.4 GHz transmitter on the UAV. GPS tracking data was received from a separate 900 MHz radio modem using an omnidirectional antenna. The GPS data was used to point the antenna.



We also demonstrated our partially-completed Interior Search Vehicle's closed-loop altitude control to one of the judges. The ISV has been under development since late 2007, giving us a head start for next year's competition, which will be entirely indoors. Our PCC team has concentrated exclusively on electric power for all our vehicles for the last years, which dovetails very well with the electric propulsion requirements for the new mission.

For a complete report on the competition and more photographs, please visit http://www.aiaatucson.com/arac/iarc_2008/2008_gallery.htm. Photos by H. Kuang.

When Did YOU Know?

With all the funding and budget cuts in science programs across the country, we just have to wonder, where are the scientists and engineers and astronauts of tomorrow coming from? Hopefully, programs like our own Kids Club will inspire future aviation experts, and now AIAA wants to know:

When did you know you wanted to work in aerospace? For some it was a specific moment, for others it was a gradual realization that space and flight had captured their imagination and wouldn't let go.



AIAA members are sharing what inspired them to follow this path. If you would like to read the stories, or if you would like to add your own, please visit <http://www.aiaa.org/content.cfm?pageid=733>

Kids Club

The award winning Kids Club program announced the 2008/2009 program on a Monday afternoon...and by Thursday, the class was full. This unique program offers children ages 8—12, a hands-on opportunity to learn about science and technology directly from the experts who are out there doing the work! The program has been recognized nationally, and has become extremely popular with kids, teachers and parents who want their kids to have MORE science education. We actually have enough interest that we could fill two Kids Clubs!

We are again partnering with the UA/NASA Space Grant to present classes such as Rocketry (Steve Lubliner and the Southern Arizona Rocketry Association), Math Magic with the UA chapter of the Society for Industrial and Applied Mathematics, Structural Engineering and Bridge Building with Annette Gaynes from Raytheon, and exploring the solar system with Dr. Larry Lebofsky, from the UA Lunar and Planetary Lab.

If you want to get involved, teach a session, have your child participate....please send an email to Sara at say_rah@yahoo.com.



Naval Postgraduate School Hosts Homeland Security Conference as Gustav Hurls Towards Gulf

By Barbara Honegger, Senior Military Affairs Journalist, U.S. Navy photos by Javier Chagoya

[Note: The Homeland Security: Systems in Action conference was organized by the AIAA Homeland Security Program Committee, chaired by Kevin Kremeyer, Tucson Section; and coordinated by Sara Falconer, Tucson section Pre-College Outreach Officer. For the full text of this article, please visit <http://www.nps.edu/News/ReadNews.aspx?id=3895&role=pao&area=media>]

The timing couldn't have been better for the second annual American Institute of Aeronautics and Astronautics (AIAA) conference on "Homeland Security in Action" held at the Naval Postgraduate School, Aug. 26-29. Cell phones rang and beepers beeped as top Department of Homeland Security and other crisis/disaster management officials and first responders received real-world updates on hurricane Gustav as it bore down on the Louisiana coast during the four-day symposium.

The goal of the conference was to encourage communications and collaboration among the agencies, organizations and individuals who develop and operate air, space and maritime systems in support of homeland security and defense.

"This conference is a place to share your strengths, ask for help where you need it and form the relationships and teams we'll need to further our common goal of enhancing homeland defense and security," conference chair and NPS graduate Jim Somers told the government and industry leaders who presented briefs. "Some of the best and the brightest are here for cross-mission and cross-agency dialogue and to see how each others' systems operate."

Even the opening day presentation of a special AIAA commendation to the Department of Homeland Security seemed propitious, as if the society's Homeland Security Program Committee knew the imminent response to Gustav would merit the award. Kevin Kremeyer, Tucson section of AIAA, presented the award to Assistant Secretary for Policy, Stewart Baker, on behalf of DHS Secretary Michael Chertoff.



Keynote speakers were Assistant Commissioner, US Office of Customs and Border Protection Air and Marine, retired Air Force Maj. Gen. Michael Kostelnik; US Coast Guard Assistant Commandant for Acquisitions Rear Adm. Gary Blore; and the director of the Coast

Guard's Joint Interagency Task Force-South Rear Adm. Joseph Nimmich (below).

In attendance were representatives from the Boeing Company, Lockheed Martin, California National Guard, FEMA, Hughes Corporation, Raytheon, Intelsat General Corporation, ITT, Sytronics, Customs and Border Protection, US Coast Guard, Fed Ex, SRI, Pacific Disaster Center, Northrop Grumman, Department of Defense, OSI, Sandia National Laboratories, the MITRE Corporation, SPAWAR, the Department of Homeland Security and many more. In addition to the speakers, the conference included a poster session and hands-on demonstrations and training on the latest technology applicable to homeland defense missions.



The 2009 conference is in the planning stages. If you would like to be on the mailing list to receive more information, please send a note to info@physics-math.com.

August Is For Aerospace

The Honorable Trent Franks, US House of Representative, AZ 2nd District, was the keynote speaker at the AIAA ~ Phoenix Chapter, *August is for Aerospace* Event held at the Challenger Space Center on Saturday August 30, 2008, in Peoria, AZ. This was the kickoff event for the calendar year and the launch of the Public Policy Committee. Some of the Tucson section were in attendance at this fabulous event, including section Chair, Matt Angiulo.

"I salute you scientists and those growing scientists through education and the hidden front line of defense," said Franks. He encouraged teachers to continue encouraging students to pursue math and science based careers and thanked the aerospace engineers for their dedication in working on missile defense for the sake of national security.

Local Middle School Teacher and educator associate member, Tracey Dodrill, says she was burdened to encourage middle school students to pursue careers in STEM (science, technology, engineering and mathematics) after she attended the 2007 MDA Conference in Washington. She knew that kids in middle school were "checking in or checking out" of these careers due to the increasing difficulty of material at the middle school level. She got involved in AIAA to get additional support and resources to use in her classroom.

"Congressman Franks challenged me even more

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Report on February 2008 Kids Club

The February Kids Club session was held at the Pima Air and Space Museum, an outstanding and appropriate venue for this particular event. The session began in a room fitted out like an airplane cabin, with real airplane seats. As the kids buckled in, they were treated to a presentation on the history of model airplanes by Don Lacey.

Don included memorable clips from the 1965 movie *Flight of the Phoenix*, as well as the 2004 remake. In the original version, Hardy Kruger plays a model airplane designer who takes on the task of somehow creating a new airplane from cannibalized parts of a transport that has crashed in the desert of North Africa, stranding its survivors. Giovanni Ribisi plays the somewhat more loopy character in the 2004 version, this time set in the Mongolian desert. Jimmy Stewart plays the pilot in the original, and Dennis Quaid plays the part in the remake. Just about every model airplane nut knows the story by heart.

After Don's presentation, the group moved to the museum's Challenger Learning Center, where Don explained how to make index cards fly. Don showed the kids how to make simple changes to the card's shape and center of mass in order to get them to glide like airplanes. Here one of the kids is flight testing an index card. Next, Don walked the class through making paper airplanes. In this photo, Don is at left, his wife, Nancy, is on the right:



Then it was on to the main event -- Don and Nancy showed the kids how to make Delta Darts, which are rubber-band powered airplanes from an educational program created by the AMA (Academy of Model Aeronautics). As it wasn't practical to have each kid make his or her own individual Delta Darts, Don put them in teams and had them do a few of the crucial assembly steps from partially-prefabricated versions.

Once the airplanes were ready for flight, we moved into a museum hangar. The kids got to

try out their airplanes with their somewhat larger brethren looking on in the background. In the photo below, an SR-71 looms over the group. A North American F-107 is also visible, just underneath the SR-71. The tail of a Martin PBM Mariner is barely visible at the extreme right.

Below, an A-10 and a Cobra helicopter form the backdrop to the kid's flight testing. Brian Ewenson, Education Officer for the Tucson section, is helping the Kids line up.



Each child got to take a Delta Dart kit home so they could assemble it on their own. This event could not have been possible without Dan and Nancy or Brain, who made the museum resources available to our group. Also thanks to Frank Manning for photographs and his valuable assistance during the day:

Meet Our Education Officer

Brian Ewenson, was born in Canada and decided to join the space program when he first visited NASA as a young child. He has worked for the Canadian Space Agency, NASA and Lockheed Martin as an aerospace education specialist. Brian has designed, developed and flown student-created science experiments on 8 space shuttle and space station missions. He has served as an astronaut trainer and a world director of **Space Day** with Sen. John Glenn. Brian was instrumental in the design, development and fundraising for the world's first air and space museum located in an international airport. (Calgary, Alberta, Canada).

Brian does approximately 60 presentations each year, reaching more than 50,000 people. He has made more than 100 media appearances as a space expert with radio, TV and newspapers including, NBC, CBC, CTV, *Calgary Herald* and CNN Local Edition (Virginia).

Brian has worked for the Calgary Aerospace Museum, the Pima Air and Space Museum and is now an independent aerospace education consultant. He joined AIAA as an Educator Associate, and has brought so much to the children and educators of our city. One of Brian's pet projects over the last few years has been the **Math, Science and Technology Funfest**.

Headed by Event Director Sharon O'Neal from Raytheon and an amazing collaborative team, the 5th annual Funfest will be held at the TCC Nov. 5-7. More than 6,000 Tucson area students and 1,500 teachers are registered to attend FunFest, which is designed to show students a real-life perspective of many diverse sciences

On November 7th, the FunFest organizers will be trying to set a new world record for the Guinness Book of World Records for the most simultaneous handheld launches of a toy airplane...and AIAA will be there—be sure to tell your kids to stop by our booth is they attend!



Kids Club May 2008 with Aviation Artist, Michelle Rouch

Meet Our Vice Chair

Dr. Jeffrey K. Jepson received his Ph.D in Aerospace Engineering from North Carolina State University and is currently employed at Raytheon Missile Systems. Dr. Jepson also received a Masters of Science and a Bachelors of Science from North Carolina State University. He has been published in the *Journal of Aircraft* twice and had presented at numerous AIAA conferences. He was also the recipient of the 2003-2004 AIAA Foundation John Leland Atwood Graduate Award. Jeff was also invited to speak at the Royal Aeronautical Society conference. He is a member of the Experimental Aircraft Association and is working towards obtaining his private pilots license.

Meet Our Young Professional Officer

Joe Salerno was born and raised in northeast Pennsylvania, and has 2 younger sisters. He received his BS in Aerospace Engineering from the University of Notre Dame and plans to begin a course of study leading to a master's degree next year. Prior to joining Raytheon this past spring, Joe worked at Lockheed Martin as an aerodynamicist.

In his spare time, Joe enjoys mountain-biking, watching movies, and fixing computers...and after a life time spent in a state with seasons, he is thrilled to be in Tucson, where he can take advantage of the long summers that the desert has to offer.

Meet Our Section Secretary

Kirk Hively has worked various projects and disciplines between General Dynamics, Hughes Aircraft and Raytheon Missile Systems. From initial work on pre-design of missile and space systems, to aerodynamics and finally transitioning to systems engineering. Kirk is currently the Reliability engineer for the Army's Mid Range Munition program. He has been the Lead for the ESS/HALT/HASS Community of Practice (CoP) for five years. Before that, Kirk coordinated a working group for accelerated test methods across all Raytheon. He is a member of the CoP steering team which promotes this effective method of knowledge transfer.

Kirk completed five years of active duty with the Navy on the aircraft carrier, the *USS Coral Sea*. He continued in Naval Aviation with the reserves while working in industry, rising to the rank of Captain (*not to be confused with Captain James T. Kirk of the USS Enterprise*) before retiring with 27 years of service in 2005.

Kirk has two sons and is married to Sandra Raleigh, a nurse working for Casa De La Luz hospice. With Sandy, they helped support animal rescue efforts for Miniature Pinchers in Arizona. Kirk's Interests include travel, camping, ATV riding, astronomy, photography, geology—he is the president of the RTEAM Rockhounds & Silversmiths club, and wine education.

August is for Aerospace *(Continued from page 4)*

and confirmed that this is a tremendous urgency," said Dodrill. "It makes me look for even more opportunities to expose my students to the amazing career opportunities that are available to them in the aerospace industry. AIAA has provided this support and my students have been greatly blessed by their efforts," she said.

Franks also discussed his role in the United States Missile Defense Program and the importance of aerospace with regards to national and economic security.



Attendees were able to explore the 21,000+ square foot Challenger Space Center before and after the lunch-

reception with docent lead tours. Phoenix AIAA is excited about hosting future events at the Challenger Space Center and developing a new partnership with this organization.

Meet our Section Chair

Matthew Angiulo is an Tucson, Arizona native and has been employed by Raytheon Missiles Systems since he graduated from the UA with a Bachelors Degree in Aerospace Engineering. As a member of the Raytheon Aerodynamics Department, his principal responsibilities include preliminary design, wind tunnel testing, and aerodynamics model development. In addition to being the current Chair, Matt has served the Tucson Section as Vice Chair, Secretary, Public Policy Chair and Young Professional Chair. Matt is a lifetime member of AIAA and has been a professional member since 1999. He recently completed his Masters Degree in Fluid Mechanics from the University of Arizona. Matt has taken on new responsibility within the AIAA organization and he is now the western region Deputy Director for Career Enhancement. Matt will be getting married to Maren McRae in October, and the section wishes him much success on his new endeavor. *[Note: their exquisite wedding china has a motif that looks like little planets. How appropriate!]*

Meet our PreCollege Outreach Officer

Sara Falconer is the Director of Membership Services for the University/Resident Theatre Association (www.urta.com) with a Masters Degree from the University of Colorado and a BA from UCSB. In high school, Sara had plans to major in Astro-geophysics, and although she changed her major, she never lost her love for the sciences. In addition to her job with U/RTA for which she telecommutes to Manhattan every day, Sara also teaches drama in Tucson area schools, directs plays and has even been seen on stage a few times. In her "free time" Sara likes to travel, read and crochet, and she coordinated the two Homeland Security conferences presented by the AIAA/Homeland Security Program Committee in Monterey, CA

Meet our Membership Chair

Doug May, has a BS in Mechanical Engineering from Washington State and an MS in Aero Engineering from the Air Force Institute of Technology. As an F-4 pilot in the Air Force, Doug served two tours in Vietnam. He served in the Program Office for the development of the Inertial Upper Stage (for the Space Shuttle and Titan) and managed the propulsion subsystem. While he was at the Kennedy Space Center, his responsibilities included integrating DOD payloads into the Space Shuttle. Doug also served in Readiness Command in an office responsible for development of the Joint Exercise Support System, a computerized exercise control system.

As a civilian, Doug spent 15 years with ATK Thiokol, spending most of that time in support of the Reusable Solid Rocket Motors for the Space Shuttle. He is an adjunct faculty member with the AME Department at the UA, where he teaches orbital mechanics.

This year, Doug plans to focus on bringing in new members, retaining current members and encouraging membership upgrades to Senior Member and Associate Fellow.

Upcoming Events for the Tucson Section

- Students vs. Professionals Softball Tournament & BBQ (late October or Early November)
- Funfest is held at the TCC Nov. 5-7.
- Tour of the Phoenix Mars Lander Mission Control (Before the end of the year)
- Distinguished Lecturer (Late February to mid March)
- Design/Build/Fly Competition (April 17—19, 2009)
- Congressional Visits Day (April)
- Soaring Event at El Tiro Gliderport (late spring)