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Thursday, November 29, 2001

Ames Research Center: Six Decades of Contributions to NACA/NASA Missions

The second laboratory of the National Advisory Committee for Aeronautics was established by an act of Congress in August 1939, and the Sunnyvale site at Moffett Field was selected in October 1939 by the Charles Lindbergh Committee. The Ames Aeronautical Laboratory (now the Ames Research Center) was named after Joseph Ames, the president of Johns Hopkins University. Since those early days the research scientists at Ames have contributed in an astonishing range of disciplines.

They were responsible for developing the swept-back wing for aircraft, the blunt body concept for planetary entry problems, numerous low speed and high speed facilities and simulators to test these concepts, leading edge flight research activities, designing and managing the first human-made object to leave our solar system (Pioneer), and designing experiments on Viking to look for life on Mars.

Jack Boyd, who has a long association with Ames, will discuss these and many other significant contributions of this remarkable Center.

About the speaker

John W. Boyd is Executive Assistant to the Director of NASA Ames Research Center, and an Associate Fellow of AIAA. He started at Ames in 1947, when it was still Ames Aeronautical Laboratory, and worked as an aeronautical research engineer conducting wind tunnel studies of supersonic and subsonic characteristics of fighter/bomber aircraft. He later pioneered early research on the design of unmanned planetary probes to explore Mars and Venus, and helped develop early configurations for the Mercury, Gemini, and Apollo capsules, as well as the space shuttle design.

Mr. Boyd has served as Deputy Director of Dryden Flight Research Center, Associate Director of Ames Research Center, and Associate Administrator for Management at NASA Headquarters. He has been an adjunct professor at the University of Texas (Austin, El Paso, and Pan American) and teaching courses in aerodynamics and the history of space flight.



80x120 foot test section of National Full-Scale Aerodynamics Complex at NASA Ames.

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Note: Inside pages 3 through 6 available on-line in HTML and PDF forms at <http://www.aiaa-sf.org>.

AIAA Grassroots Pilot Project

Editor's note: This is a two-part article concerning the AIAA Grassroots Pilot Project. The first part, written by Paul Looney and Michael Beavin, deals with what the project is and why it was initiated. The second part, written by Todd Farley, explains how members can get involved, including access to the AIAA Grassroots Action Center website.

Part 1 Project Motivation

by
Paul Looney and Michael Beavin
AIAA Headquarters

Over the last half century, our federal government has played an ever-increasing role in the operations of most aerospace businesses and professions, through taxation, R&D policies, environmental regulation, and other aerospace issues. Undeniably, the aerospace industry, more so than other industries, is directly impacted by government decisions. Almost 2 out of 4 jobs in the aerospace industry are created because of the federal government. Even if you ignore politics most of the time, you can't deny that governmental decisions on issues like these, and others, will impact your business or profession, your job, and your life.

It's a fact that hard work and sound strategies are not enough to ensure a successful future for our profession. Decisions made in Congress and a host of regulatory and administrative agencies can determine the future of the aerospace profession just as much as your own efforts can - sometimes more. In addition, traditional methods of affecting legislative decisions just don't work the way they used to; while lobbyists still play essential roles in representing their interests before government, new laws and restrictions have curtailed their ability to communicate with lawmakers and impact legislation.

How can you ensure that legislative decisions will have a positive impact on you and your colleagues? The answer lies in the Grassroots Program. Our profession must readjust its political and legislative strategies to reflect the changing environment. By working together with your government relations professionals, AIAA staff, you and your colleagues can play an active role in helping to educate and advise your lawmakers on the issues that affect you.

As a constituent, your views are highly valued by your elected officials and as an experienced representative of our industry you are the most qualified to advise them on the issues affecting your profession and the district they represent. The AIAA Public Policy Committee has selected the San Francisco Section to start a Grassroots Pilot Project to facilitate the implementation of a national Grassroots Program. The AIAA Public Policy Committee chose the San Francisco Section because of its overall section strength, commitment to policy issues, and its relevance to the aerospace industry. Most importantly, the success of our Grassroots Program will lie in the efforts of the section members.

Watching the Grass Grow

by
Todd Farley
AIAA SF Public Policy Director

Recent events have elevated dramatically the importance of aviation and defense policy in the national conscience and the congressional agenda. With urgency, lawmakers are facing many difficult decisions as national priorities are reevaluated in the aftermath of September 11. Policy decisions now in debate on Capitol Hill are expected to affect the professional interests of most or all of us in AIAA. Now is an especially important, and opportune, time for us to join the dialogue. Facing a field of policy issues far too broad for anyone to evaluate critically, your congressperson needs the input of his/her constituents, and they are especially attune to your ideas and opinions at this critical time.

As introduced in Part 1, the AIAA has undertaken a new effort to help its members initiate a dialogue with their local representatives in Congress. The goal of the program is to empower each AIAA member to take responsibility for establishing two-way lines of communication with our Congressional leaders: informing them in the most timely manner of our opinions on issues affecting our profession, and availing them of our technical expertise on issues should they desire it.

To accomplish this goal, the AIAA is arming us with new tools, information, and guidance made available to us via a password-protected website, the AIAA Grassroots Action Center. Check it out at:

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AIAA SF Wins Section Awards

The San Francisco Section won Outstanding Section Award in several categories for 2000/2001. Sections are classified as: Very Small, Small, Medium, Large, and Very Large. The San Francisco section took the following awards in the Very Large category:

- Outstanding Section
First Place - Matthew R. Jardin, Section Chair
- Career Enhancement
First Place - Prasada Rao Gogineni, CE Officer
- Communications
Second Place - Morgan M. Bracken, Newsletter Editor (tied with Dayton/Cincinnati section)
- Membership
First Place - Daniel L. Stuart, Membership Chair
- Precollege Outreach
First Place - Juanita Ryan, Precollege Chair
- Public Policy
Third Place - Morgan M. Bracken, Public Policy Officer
- Young Professional
Third Place - John Van Arsdall, Young Professional Officer

A list of winning sections nation-wide begins on page 3.

AIAA Announces Section Awards for 2000/2001

The American Institute of Aeronautics and Astronautics (AIAA) is proud to announce the 2000/2001 Section Award winners.

Sections are judged in various categories against others of similar size. A cash award and certificate are presented to each of the winning sections: first place \$500; second place \$200; and third place \$100. The award period covers only those events from June 1, 2000, to May 31, 2001.

Awards will be presented on Tuesday, January 15, 2002, at the 40th AIAA Aerospace Sciences Meeting and Exhibit, in Reno, Nevada.

Outstanding Section

- Very Small Category
First: Delaware - Clyde E. Carr, Section Chair
Second: Savannah - Douglas R. McKissack, Section Chair
Third: Holloman/Alamogordo - Michael D. Hooser, Section Chair
- Small Category
First: Wisconsin - Robert J. Gustafson, Section Chair
Second: Vandenberg - Melvin B. Desembrana, Section Chair
Third: China Lake - James E. Serpanos, Section Chair
- Medium Category
First: Central Florida - Christopher E. Antalek, Section Chair
Second: Tucson - Kevin P. Kremeyer, Section Chair
Third: Michigan - Andrew D. Santangelo, Section Chair
- Large Category
First: St. Louis - Lawrence O. Brase, Section Chair
Second: Cape Canaveral - M. Catherine Wright, Section Chair
Third: Northern Ohio - Bryan A. Palaszewski, Section Chair
- Very Large Category
First: San Francisco - Matthew R. Jardin Section Chair
Second: Alabama/Mississippi - Robert L. Sackheim, Section Chair
Third: Dayton/Cincinnati - Maxwell Blair, Section Chair

Career Enhancement

- Very Small Category
First: Delaware - Timothy M. McCardell, CE Officer
First: Savannah - Lloyd D. Morgan, CE Officer
- Small Category
First: Wisconsin - Daniel J. Gramer, CE Officer
- Medium Category
First: Tucson - Kevin P. Kremeyer, Section Chair & CE Officer
- Large Category
First: Orange County - Dino Roman, CE Officer
Second: Cape Canaveral - M. Catherine Wright, Section Chair
Third: Northern Ohio - Lois J. Weir, CE Officer
Third: San Gabriel Valley - Jesse F. Keville, CE Officer
- Very Large Category
First: San Francisco - Prasada Rao Gogineni, CE Officer
Second: Houston - Nicole Smith, CE Officer

Communications

- Very Small Category
First: Delaware - M. David Rosenberg, Newsletter Editor

Second: Savannah - Ralph J. Jagielka, Newsletter Editor & Webmaster

- Small Category
First: China Lake - James E. Serpanos, Chair & Newsletter Editor
First: Wisconsin - Kathy J. Prem, Secretary/Newsletter Editor
- Medium Category
First: Southwest Texas - James D. Walker, Newsletter Editor
Second: Tucson - Frank Manning, Newsletter Editor
- Large Category
First: Northern Ohio - Christopher J. Miller, Newsletter Editor
Second: Cape Canaveral - William E. Harrell, Newsletter Editor
Third: St. Louis - David E. Morgan, Newsletter Editor
- Very Large Category
First: Houston - John F. Keener, Newsletter Editor
Second: Dayton/Cincinnati - Richard D. Snyder, Newsletter Editor
Second: San Francisco - Morgan M. Bracken, Newsletter Editor

Membership

- Very Small Category
First: Delaware - M. David Rosenberg, Membership Co-Chair & Sue Ann Cuppett, Membership Co-Chair
First: Savannah - Donald D. Freund, Membership Chair
- Small Category
First: Wisconsin - Brant C. White, Membership Chair
Second: Vandenberg - Eileen H. Wyckoff, Membership Chair
- Medium Category
First: Tucson - Rina S. Fulcher, Membership Chair
Second: Central Florida - Eric F. Wood, Membership Chair
- Large Category
First: Cape Canaveral - George T. Cole, Membership Chair
Second: San Gabriel Valley - Mark D. Guman, Membership Chair
Second: Wichita - Jeffrey B. Drake, Membership Chair
Third: San Diego - James D. Peterson, Membership Chair
- Very Large Category
First: San Francisco - Daniel L. Stuart, Membership Chair
Second: Houston - Tsutsumi Sophia Bright, Membership Chair
Third: Alabama/Mississippi - Victor J. Giuliano, Membership Chair

Precollege Outreach

- Very Small Category
First: Savannah - Patrick C. Connor, Precollege Chair
Second: Delaware - Edward C. Painter, Precollege Chair
- Small Category
First: Wisconsin - Robert C. Morrow, Precollege Chair
- Medium Category
First: Tucson - Rajka Corder, Precollege Chair
Second: Southwest Texas - Jon T. Cutshall, Precollege Chair
Third: Michigan - Anthony Talo, Education Officer

Continued on page 4

Section Honors (continued from page 3)

- Large Category
First: Cape Canaveral - John T.R.Dillion, III, Precollege Chair
First: Orange County - Brian L. Foist, Section Chair
Second: Northern Ohio - Gwynn A. Severt, Precollege Chair
- Very Large Category
First: San Francisco - Juanita Ryan, Precollege Chair
Second: Houston - Joy Conrad King, Precollege Chair
Third: Hampton Roads - Thomas E. Pinelli, Precollege Chair

Public Policy

- Very Small Category
First: Delaware - David K. McGrath, Public Policy Officer
Second: Savannah - Douglas R. McKissack, Section Chair
- Small Category
First: Vandenberg - Donald D. Smith, Public Policy Officer
Second: Wisconsin - Matthew Malecki, Public Policy Officer
- Medium Category
First: Michigan - Andrew D. Santangelo, Chair & Public Policy
Second: Tucson - Kevin P. Kremeyer, Chair & Public Policy
Third: Southwest Texas - James D. Walker, Public Policy Officer
- Large Category
First: Northern Ohio - Lois J. Weir, Public Policy Officer
Second: Cape Canaveral - Victor M. Tasiemski, Public Policy Officer
Third: St. Louis - Richard E. Pinckert, Public Policy Officer
- Very Large Category
First: Dayton/Cincinnati - Douglas M. Allen, Public Policy Officer
Second: Houston - John R. Bendle, Public Policy Officer
Third: San Francisco - Morgan M. Bracken, Public Policy Officer

Young Professional

- Very Small Category
First: Delaware - Sue Ann Cuppett, Young Professional Officer
Second: Savannah - Kenneth C. Martin, Young Professional Officer
- Small Category
First: Wisconsin - J. Arthur Sauer, Young Professional Officer
- Medium Category
First: Central Florida - Christopher E. Antalek, Section Chair & YP
Second: Tucson - Kevin P. Kremeyer, Section Chair & YP Officer
- Large Category
First: Northern Ohio - Eric J. Pencil, Young Professional Officer
Second: San Diego - Sunshine C. Russell, Young Professional Officer
Third: Cape Canaveral - Adam Zaricki, Young Professional Officer
- Very Large Category
First: Houston - Kevin Butler & Nicole Smith, YP Officers
Second: Hampton Roads - John C. Lin, Young Professional Officer

Third: San Francisco - John Van Arsdall, Young Professional Officer

Additional Recognition

In addition to these awards, AIAA would like to acknowledge three sections that held an outstanding activity that deserves additional recognition:

Wisconsin Section: Robert J. Gustafson, Section Chair

The Wisconsin Section of AIAA and Orbital Technologies Corporation (ORBITEC) hosted an Educator Day at ORBITEC's Space Center facility in Madison, WI on July 29, 2000. Over twenty teachers attended, representing elementary through high school grade levels. The objectives of the event were to: (a) give teachers a better understanding of the engineering profession; (b) to provide teachers with ideas on how to get students excited about math and the sciences; and (c) to promote the Educator Associate program.

The day's activities began with an introduction to AIAA and a discussion of the benefits of becoming an AIAA Educator Associate. AIAA members then led an interactive tour of ORBITEC, including rocket test lab, space-rated clean room, botanical lab, a space plant growth chamber laboratory, machine shop, and electrical shop, and a detailed description of various engineering projects currently underway at ORBITEC. This tour was followed by a presentation and question and answer session regarding a wide variety of issues spanning from preparing students for college, sparking young student's interest in science and engineering, college life as an engineering student, working as an engineer, and past and present trends in the engineering workplace. Historically, this has been a great way to recruit new educator associate members.

Tucson Section: Kevin P. Kremeyer, Section Chair

The Tucson Section's University/Industry R&D Forum was designed to foster collaboration among R&D groups both from the University of Arizona and Arizona industries, making the various groups more competitive in business and garnering contracts). The target audience was nationwide (as was the publicity), companies and government agencies flocked in from around the nation, with great University support, and the event resulted in new members from most categories, including one very successful company interested in corporate membership!

Throughout the day, professors, students, engineers, scientists, researchers, administrators, and general public mingled and discussed current research and available facilities/laboratories. Every hour, a distinguished guest was invited to address the current participants. The first day culminated with the Tucson Section year-end dinner meeting featuring Distinguished Lecturer Dr. Stan Rosen as the quest speaker.

The following day, Dr. Charles Infosino [BMDO Chief Scientist] addressed the group, discussing the history of BMDO, the needs of the new administration, and helping Small Business Innovative Research [SBIR] projects enter more direction into DoD product lines. Finally, to close the event, participants took tours of eight of the University Arizona laboratories and user facilities.

Continued on page 5

Section Honors (continued from page 4)

This event was publicized not only in the Tucson and Phoenix AIAA newsletters, but also in the Tucson Citizen newspaper, in the Inside Tucson Businesses newspaper, and on the University of Arizona Master Calendar. The business editor of the Tucson Citizen attended the Forum and wrote two follow-up articles about the event's success and impact on the local research community.

San Francisco Section: Matthew R. Jardin, Section Chair

The San Francisco Section's History of Aviation Banquet served as the kickoff of their Evolution of Flight Activities. This event featured a 100th birthday tribute to AIAA member Ray Kelly, a presentation of Ray Kelly's "44 Years in Aviation: 1931-1975" home movies, and a presentation by NASA Ames' Jack Boyd on the contributions of NASA Ames researchers to aviation history. The banquet was held at the Hiller Aviation Museum in San Carlos, California, and was attended by nearly 100 people.

United Airlines, Raytheon, and Lockheed Martin at the level of \$1000 each sponsored the event. Along with a \$1500 contribution in Category III funds, this sponsorship allowed the Section to hold the catered banquet at the Hiller museum while maintaining low enough prices to have high attendance. Nearly 100 elementary school children were enlisted to help create table decorations for the event. As a reward for their efforts, the children were all presented with certificates at their elementary school graduation ceremony in June.

Several local news channels picked up the story of the banquet due to the Ray Kelly 100th birthday tribute. The marquis at the museum is located out along the very busy highway 101 in San Carlos, and it displayed the messages "AIAA SF", "Happy Birthday", "Ray Kelly" in succession throughout the evening.

B-47 Stratojet: America's First Swept-Wing Bomber

Aviation historian **Larry Rinek** spoke on the dinner meeting of September 27 on the B-47 Stratojet.

Some things we learned about the B-47:

The B-47 was the first production swept wing bomber and laid the groundwork for all of Boeing Company's jet liner development from the 707 to the 777.

The B-47 was the first bomber specifically designed to drop atomic bombs.

No B-47 was ever used in warfare but an unknown number of B-47 spy planes (and their crews) were lost in "incidents" in or near Soviet airspace.

The aircraft required long runways and rocket-assist to takeoff.

The airplane design was so weight-conscious that the crew ladder was made of magnesium...one of the most expensive ladders ever built!

The B-47 had to use a drag chute on approach and keep the engines spooled up in case of a go-around.

Above right, Larry holds a model of the B-47 as he explains some of its characteristics and idiosyncrasies.

Below right, B-47 with JATO bottles to provide take-off thrust. Without them, the bomber needed an extremely long runway.



Vern's Family Photos

Images of Wake Vortices

They may look like photographs from the family vacation. In fact, they are a family of photos of visible wake vortices, which we know as condensation trails, taken by **Dr. Vernon Rossow**. He spoke at the AIAA SF dinner meeting, October 25, on research to understand and minimize the hazards of wake vortices.

He showed a video taken from within the cockpit of a small research aircraft following behind a larger transport, deliberately flying into its wake. The goal was to see how closely the smaller one could follow without the pilot losing control. After a minute of riding in the wake, the horizon suddenly turns as the vortex energy flips the aircraft over.

Another video showed experiments with various large transport aircraft, performing various maneuvers to minimize or dissipate the energy of the resulting wake vortices. Results were mixed. The maneuvers would be something new for passengers.

Shown here are some of the photos he showed at the dinner meeting.

At top, taken near Mount Vernon, the parallel condensation trails are due to aircraft following the same path. A wind blowing away from the camera carries the trails off as they get older.

At second from top, taken near Hollister, the trails indicate that aircraft have executed a right turn at a common point, presumably heading for a common destination... except for one trail that cuts across the two turning trails. (What was that pilot doing?)

At second from bottom, vortex loops appear below the bulk of the condensation wake. These are result of mutually induced instability of a vortex pair (or Crow instability, discussed by S.C. Crow in "Stability Theory for a Pair of Trailing Vortices," *AIAA Journal*, 1970). The vortices are in close proximity and link across the space between them, forming the irregularly shaped loops.

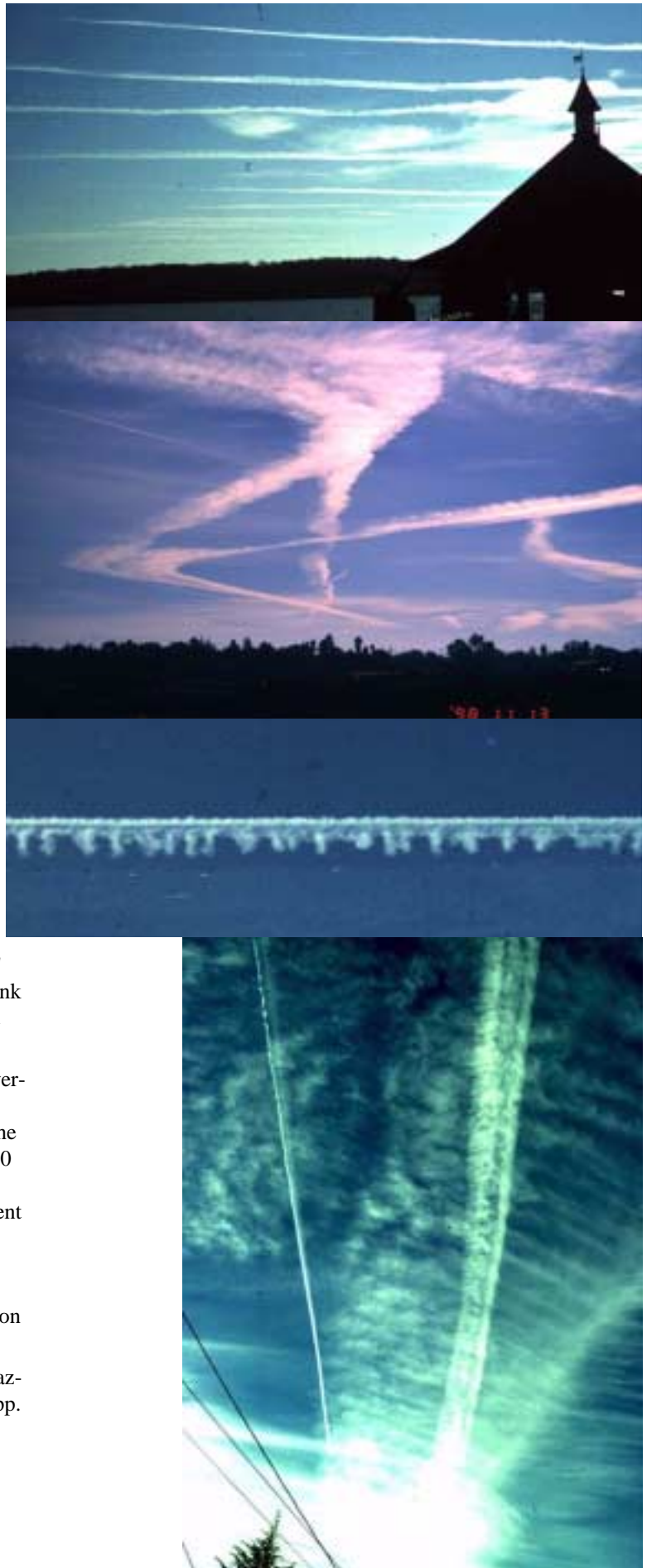
At bottom, three sets of condensation trails of varying widths overlap. The narrow trail, about 2 wingspans, was formed shortly before the picture was taken, with the aircraft headed toward the bottom of the picture. Parallel and to its right is a trail, about 20 wingspans, estimated to be several minutes old. Further right, appearing as feather extending outside the photo, is a still coherent trail, about 100 wingspans, which is about 1 hour old.

Papers

Dr. Rossow has written the following (and many more) papers on wake vortices.

Rossow, V. J., and James, K.D., "Overview of Wake-Vortex Hazards During Cruise," *Journal of Aircraft*, Vol. 37, No. 6, 2000, pp. 960-975.

Rossow, Vernon J., "Lift-Generated Vortex Wakes of Subsonic Transport Aircraft," *Progress in Aerospace Sciences*, Vol. 35, 1999, pp. 507-660.



Career Enhancement

Seminar on Managing Investment Risk: The Art of Asset Allocation

The AIAA San Francisco Section, with the help of Morgan Stanley, will present a free seminar on "Managing Investment Risk: The Art of Asset Allocation." The noon-time seminar on November 29 is being present as part of the section's career enhancement activities.

According to Morgan Stanley, research has found that asset allocation may contribute more to a portfolio's performance than security selection and market timing combined. (Source: Brinson, Hood & Beebower, 1991) Yet asset allocation is an art many investors have not mastered.

The seminar will talk about how asset allocation may be able to give your portfolio greater resiliency through market fluctuation- and how it can help you reach your investment goals.

About the speaker

Craig Cymrot has been a Senior Vice President and Financial Advisor with Morgan Stanley Dean Witter in San Jose since 1993. He received his Bachelor of Science in 1985 from University of Arizona, Tucson, Arizona. His professional training includes: 401(k) and other retirement plans, lump-sum distribution, retirement planning, Rule 144 programs for restricted and controlled stock, and stock options.

Before coming to Morgan Stanley, he was a financial consultant with Merrill Lynch; and before that, was the owner of a retail bookstore in San Jose.

Program Information

Morgan Stanley will be providing lunch. Attendance is limited to the first 200 attendees.

Date: November 29, 2001

Time: 11:00am to 1:00pm. Lunch provided from 11:00 to 11:30 by Morgan Stanley

Place: Lockheed Martin, Sunnyvale, Building 157 Auditorium.

Directions: See

<http://lmms.external.lmco.com/about/directions.html>

Building location: See

<http://lmms.external.lmco.com/about/lmms-maps.html>

Cost: Free

Registration: contact Prasad Gogineni, AIAA SF Career Enhancement Director, by e-mail (prasad.gogineni@lmco.com) or phone (408-756-2994); Karen Dimmick, Morgan Stanley, by e-mail (karen.dimmick@morganstanley.com) or phone (408-947-3738).

Please include the following information:

- Number of attendees
- Name
- Address
- Phone - day and evening numbers
- E-mail

This seminar is offered solely by Morgan Stanley and is neither endorsed nor co-sponsored by Lockheed or AIAA.

AIAA Grassroots Pilot Project (continued from page 2)

<http://capwiz.com/aiaa/>

Username: **aiaa**

Password: **space983**

To keep us informed of developments on the Hill, the Action Center provides daily news regarding recent votes and current bills. It provides periodic alerts of upcoming votes critical to your professional interest(s). The Action Center can identify and provide contact and schedule information for your local Representative. It also provides an interface through which you may write your Representative with assurance that your message will be correctly and directly routed. Perhaps most importantly, benefiting from the AIAA staff's long experience working with Congress, the Action Center provides methods and suggestions to guide each of us through the process of engaging our local Representative in productive dialogue.

As mentioned, this is a pilot project. Our section is one of just two sections nationally with access to the online Action Center. I will be working with Mr. Looney and Mr. Beavin to resolve problems and identify improvements, either with the tools specifically or the program generally. I would like to hear from each of you regarding your experiences (surprises, frustrations, successes, etc.) as you take part in this new effort. Contact me at pubpol@aiaa-sf.org.

A final note, the public policy portion of the SF Section website has been extensively updated. Included there is information about your local Representative, the committees they sit on, and how their committee assignments may enable your input to more directly affect the crafting of new aerospace-related legislation. You will also find a link to the new Grassroots Action Center prominently located on the main public policy page: <http://www.aiaa-sf.org/pubpol.html>. I urge you to visit the new site and explore.

CAREER OPPORTUNITIES

THE MECHANICAL AND AEROSPACE ENGINEERING DEPARTMENT AT SAN JOSÉ STATE UNIVERSITY invites applications for a tenure-track faculty position in astronautics at the assistant/associate/full Professor level. Applicants must have an academic background in astronautics, including knowledge of and experience with most or all of the main disciplines relating to spaceflight. The position also requires the ability to instruct students in the basics of spacecraft design, and to direct a laboratory for microsatellite design and fabrication. The program has strong connections with industry, including Lockheed Martin, Space Systems/Loral, and NASA-Ames.

See <http://www.engr.sjsu.edu/mech>

Dinner Program Information

Events:

- November Dinner Meeting - November 29
- December - no meeting

No-host cocktails at 6:30pm, dinner & program from 7pm to 9pm

Place: Wyndham Garden Hotel, 1300 Chesapeake Terrace, Sunnyvale, CA [Tel: (408)747-0999]

Cost: AIAA members - \$20, Students - \$14, non-members - \$25
Cash or check only

Registration: By Monday preceding dinner. On-line at <http://www.aiaa-sf.org>, or contact Programs Director by e-mail or phone.

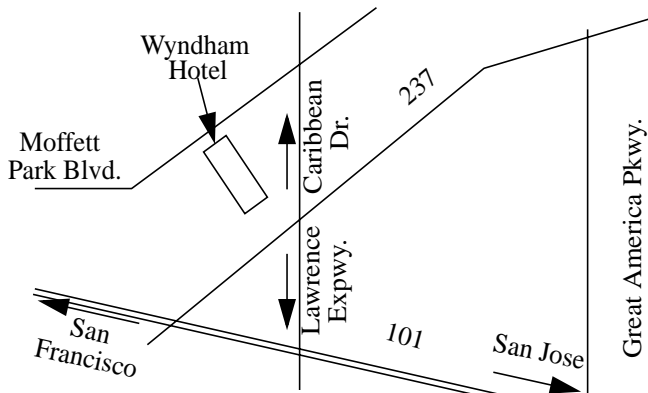
Cancellation: By Wednesday preceding dinner. Please contact Programs Director. (AIAA pays for all reservations, including no-shows.)

The **AIAA SAN FRANCISCO SECTION IN4M-LETTER** is a publication of the San Francisco Section of the American Institute of Aeronautics and Astronautics, a non-profit society whose primary purpose is to advance the arts, sciences, and technology of aeronautics and astronautics and to foster and promote the professionalism of those engaged in these pursuits.

Section Officers and Council: A complete directory of the section council can be found at <http://aiaa-sf.org>.

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