

**Minutes of the 2010 Annual Meeting
of the Aerospace Department Chairs Association (ADCA)
Orlando World Center Marriott Resort & Convention Center, Ballroom K-M
Orlando, FL
January 5, 2010**

Chair: Gary Balas, University of Minnesota
Secretary/Treasurer: Rich Gould, North Carolina State University
Executive Chair: Colin Britcher, Old Dominion University

Handouts: Agenda; 2009 ADCA Minutes

Presenters: Jon Montgomery, NASA Director, Mission Support Office
Mark Lewis - Univ. of Maryland
Kirk Yerkes, AFRL, Energy, Power, Thermal, Technologies,
Jay Dryer, Director, NASA Fundamental Aeronautics Program
Dr. Bernard Grossman, VP of Education, NIA
Prof. Annalisa Weigel, Aero & Astro, MIT
Bob Lindberg, AIAA University Partnerships

Institution Representatives Present: Gary Balas - Univ. of Minnesota, ???, M. Plesniak - George Washington Univ., C. Dutton - Univ. of Illinois at U-C, . R. Gould - North Carolina State Univ., S. Balachandar - Univ. of Florida, F. Mistree - Univ. of Oklahoma, D. Lagoudas - Texas A&M Univ., G. Lesieutre - Penn State Univ., C. Britcher - Old Dominion Univ., M. Lewis - Univ. of Maryland, J. Yagoobi - Illinois Institute of Tech., T. Shih - Purdue Univ., G. Palm? - Rice Univ., D. Jacobowski? - Oklahoma State Univ., S. Miller - Wichita State Univ., Emily S?? - MIT?, K. Ravindra - Saint Louis Univ., J. Hermanson - Univ. of Washington, B. Lindberg - National Institute of Aerospace, C. Hall - Virginia Tech., A. Plotkin - San Diego State Univ., Prasheet Sameta? - Mississippi State Univ., B. Grossman - National Institute of Aerospace, C. van Dam - Univ. of California Davis, J. Montgomery - NASA, J. Dryer - NASA, T. Springer - NASA

Welcome and Introductions: The meeting called to order at 7 p.m. by ADCA Chair, Dr. Gary Balas - University of Minnesota . A sign-up sheet was passed around and each institution representative introduced themselves. 28 individuals and the institutions they represent were identified. Additional representatives joined after the introductions.

2009 ADCA Minutes: A motion was made to approve the 2009 ADCA meeting minutes. It was seconded with no discussion and the motion carried.

Secretary Treasurer position - primary responsibility to take minutes at ADCA meetings and to support the chair. A volunteer at 2009 ADCA meeting was not recorded and no vote was taken, as such Colin Britcher served as the acting secretary-treasurer for 2009. Rich Gould (North Carolina State Univ.) identified himself as the volunteer and agreed to serve in this capacity. No others express an interest in this position. A motion made to elect R. Gould as ADCA Secretary Treasurer. This motion carried.

Jon Montgomery, NASA Director, Mission Support Office:

- Jon started with NASA this past Feb. Prior to that he was at the Dept. of Commerce - Aerospace Policy. He is currently working on implementing Aerospace Commission Report and National R & D Plan.
- He mentioned that the focus is on: 1.) Environmental compatibility (CO2 and NOx emissions - impact on environment) and 2.) Reduction of noise created by aircraft (supersonic boom an issue) - for aerospace growth we must reduce emissions and noise.
- Economic efficiencies: 1.) Airspace system capacity , 2.) fuel consumption (In 2006 fuel consumes >25% of operation cost)

- Investment strategy: 1.) Seedling fund (new this year), 2.) Fundamental Research Programs - FRP (focused on this heavily over last 3 years), 3.) Systems level research (new this year) - general idea is to integrate FRP ideas into systems
- FY10 (new within Aeronautics) - Integrated Systems Research Program - \$60M (5 yrs) - drawing from Fundamental Aeronautics Program & Airspace and Safety to support research in systems level concepts.
- Four emphasis goals: 1.) Conducting world case research, 2.) Transitioning research to the nation, 3.) Leveraging worldwide capabilities, 4.) Inspiring new generation of researcher (through NRA process)
- Renewed focus on K-12. National challenge is to increase STEM education. Science and math literacy programs - i.e. SmartSkys, SOAR - high school level.
- University level Education programs: Aeronautics principles, air shows, public exhibits. Graduate and UG scholarship program continuing. NRA supporting 72 institutions.
- How are we doing? Required to assess effectiveness of programs. Impact of scholarships on program completion? on entering graduate school? Need university help/feedback. Are the NRAs funding the right things - should they be reshaped to be more effective. Discussion followed about the value spending say \$150k to support research, faculty and one graduate student (NRA) verses perhaps supporting 4 graduate fellowships (like GSRP) or a number of undergraduate scholarships. Discussion on whether universities track graduate students after funding/graduation.

Prof. Mark Lewis (Chair, Aerospace Engineering UMD) - AIAA President-Elect

- Would rather learn how the AIAA can better serve ADCA.
- Comments: Learning more about the AIAA organization after sitting on board of directors meeting. Not many academics elected to president (Roger Simpson). Hope academic background will give different perspective on needs and areas to focus on.
- AIAA is healthy. Membership is steady, but international membership is making up for lower domestic membership. Member loss is most likely when student graduates and becomes professional (why? student membership subsidies). Perhaps first level supervisor is not encouraging new hires to be an AIAA member. Another challenge is that the AIAA endowment went from \$15M to \$5M. This is used to fund scholarships and other important activities.
- More comments. Time of transition for aerospace - need to be responsive to environmental issues and energy and the role aerospace plays in these. We should not depart too far from aerospace, however. Outreach (K-12) should be done from a unique aerospace perspective. AIAA audiences have a number of young faces which bodes well for the organization.
- Discussion from group: 1.) AIAA has reduced membership cost for first two years once out of school. 2.) Trying to encourage aerospace companies to pay for their employee's membership. 3.) There does not appear to be much connection between ADCA and AIAA. Is it desirable for ADCA to become an AIAA committee/group? Perhaps ADCA was formed specifically to be independent of AIAA - why would ADCA want to be bound by AIAA? AIAA has very good staff. Three possible issues AIAA could help with i.) ITAR issues, ii.) immigration policies and VISAs, and iii.) only between 10-15% of aerospace company engineers are aerospace engineers.

Kirk Yerkes, AFRL - Propulsion Directorate - Energy, Power, Thermal Division

- INVIN(?) program - energy optimization of vehicles. In particular, subsystems, power generation, electrical distribution, thermal management of systems and the engine with energy as the metric.
- Interested in visiting universities to discuss opportunities not only in the energy/power components, but in the system integration of these. Opens up a multidisciplinary approach to optimal design. 6.1 efforts as well as more applied efforts are of interest.
- Left contact information with ADCA group.
- Is this a funded program? Yes, core is funded. Looking to build up academic funding. Looking for interest from faculty and graduate students.

Jay Dryer, Director, NASA Fundamental Aeronautics Program

- Have been with NASA HQ (mission directorate) for a little over 4 years. Have been with the program directorate since July (~6 mo.)

- Fundamental Aeronautics Program showed increase in president's budget - Integrated systems program is new funding.
- Still organized across speed regimes, a number of partnerships exist, try not to view portfolio by only projects. Maybe some missed opportunities in NRAs (aviation safety, air space systems) if viewed too narrowly. When a call comes out, look at the research being asked for.
- Focus area - energy and emissions issues. Interested in future systems.
- Research philosophy - focus on fundamentals. New - sharpening of focus - for example supersonics problem (more than just sonic boom). Why the research makes a difference is now a critical question.
- NRA statistics presented - piechart presented. Over 200 awards. 95%+ were executed without problems (unlike when NRA initiated in 2006).
- Q&A: What does future funding look like? Program funding will be about same. No plan to make radical changes in FAP. Will research centers, similar to NSF ERC be considered. Three centers of excellence in hypersonics were started recently. Evaluating center funding shows funding to center supported universities is about double that of an NRA - which are producing high quality work. May consider centers in some areas, but they are more costly than NRAs; "if it is not broken, why fix it."

Dr. Bernard Grossman, VP of Education, NIA

Annual Survey of Aerospace Engineering Programs - copies distributed

- Surveyed 69 institutions, received 47 responses, final updated versions will be disseminated later
- A number of schools that responded in the past did not respond this year. Many had new department chairs and perhaps did not receive the request to participate.
- UG AE enrollment stable, graduate student enrollment up (perhaps due to economy), female and underrepresented minority enrollment at both UG and graduate levels are about constant (but low).
- Number of faculty presented for each participant school - also subdivided by rank.
- What else would you like to see? What would you like to do with this data? How do you want the data delivered.
- Comments - very valuable for an external review. Excel format file would be preferred. Historical data would be valuable. Post on ADCA website - perhaps password protect Excel file. Contact the NIA if you need a copy.

Prof. Annalisa Weigel, Aero& Astro, MIT

Update on National Survey of Aerospace Engineering Students

- Web based survey (takes about 30 minutes) conducted spring of last year - goal to assess why students are interested in aerospace, what motivated them to get into AE, what do AE students expect of their jobs/careers and ultimately to explain why or why not students take jobs in the aerospace industry?
- Longitudinal study of interest. Survey data is to replace anecdotal data or stories.
- Aimed at sophomores through seniors, and hope to extend to 2 and 5 yrs after graduation.
- 2009 response statistics: Over 600 students from 23 schools participated. 80% male, 20% female. 96% US, 4% foreign nationals.
- Way to participate: Just send mass email to your sophomores through seniors AE students with link to survey URL.
- Request that you encourage students to participate in survey. Also, please provide comments/feedback about survey to Prof. Weigel.
- Students are excited about aerospace industry. Having a family member (or adult role model) who is an engineer seems to important. Positive influence - engineering classes, hands on experience in labs/classes/internships, faculty. Negative influences - engineering classes, faculty, non-engineering classes, career fairs.
- Jobs/careers - how long do you expect to stay in your first job? Over 75% of the students said at least 5 years.
- Aerospace compared to other industries - location and flexible schedules are important.

- Factors that led them to accept job: non-aerospace job factors - leadership opportunities, excitement, challenges, benefits ; Aerospace job factors - salary, location, challenges, work environment - large contrast between these.

AIAA Academic Affairs Committee and ABET Update - presented by Gary Balas

- AIAA Academic Affairs Committee interfaces with ABET.
- Training is common and centralized.
- Two ABET program evaluators trade in 2009, two slots available in 2010 - think they are filled.
- Statistics: Most AE programs do very well - very few deficiencies, some weaknesses and concerns. Notable increase in the number of weaknesses and concerns in last few year - faculty and objectives
- Standard shortcomings cited: Program Educational Objectives, AE program faculty, Astronautical component
- No changes in ABET next year.
- Perhaps ADCA should work more closely with the AIAA Academic Affairs Committee
- Harmonization was brought up as something to be aware of. Probably will not affect engineering programs much.

Prof. Colin Britcher (ODU), and Drs. Grossman and Peake (NIA)

New High-Speed Wind Tunnel Research and Education Programs

- Unique opportunity - seeking feedback from academic community
- Number of major windtunnel facilities available to students and academic researchers is decreasing
- NASA will be closing down all facilities not required to fulfill national mission
- Transonic windtunnel (NASA LTPT) may be available. Scheduled for demolition in late 2010 or early 2011. Other NASA windtunnels were also discussed.
- NIA could serve function, similar to VKI, to site and manage such a transonic facility. Hoping to find funding for continued operation open to academic community. Don't anticipate setting up as a cost center. Similar to Hubble Telescope use.
- Is there an academic need for such a facility? Costs would be fleshed out if there is an interest.
- Deadline for decision exists - needed prior to getting bids on teardown (next 3 month?). Salvage is more expensive than demolition.
- Contact Prof. Britcher, Dr. Grossman or Dr. Peak for questions. Will be sending out survey to assess interest shortly.

Bob Lindberg, AIAA University Partnerships

- Speaking as Representative from AIAA Board of Directors
- Corporate membership program is growing.
- Is there value in creating a analog to the corporate membership program for universities? For example, by invitation events supported by AIAA are valued by corporations. Breakfast with funding decision makers are another example. A few conference registrations are in.
- Cost would be reasonable - different model than corporate model.
- Thoughts: Universities have many expenses. Need to better understand the value that would be provided to institutions.

Updates and Information - Gary Balas

- ADCA Web site now hosted on open site - \$269 fee for 3 yrs (\$99/yr update fee): Gary paid the first installment. (<http://www.aerodeptchairs.org>)
- NASA Space Shuttle Program Artifacts - Web conference held Nov. 6, 2009. New Shuttle artifacts will be released next year.

No new business

Minutes respectfully submitted - Dr. Rich Gould, ADCA Secretary-Treasurer.