



FREQUENT FLYER

American Institute of Aeronautics and Astronautics
Northern Ohio Section

Newsletter - May 2015

Distinguished Lecture with Dr. Rubén Del Rosario on Green Propulsion Technologies for Advanced Air Transports

Dr. Rubén Del Rosario, Manager of the Advanced Air Transport Technology Project in NASA's Advanced Air Vehicles Program of the Aeronautics Research Mission Directorate, enlightened an audience of nearly 40 attendees at the most recent Distinguished Lecture, held at the Ohio Aerospace Institute on May 12, 2015. He spoke on the comprehensive challenge associated with enabling groundbreaking energy efficiency improvements in subsonic transport aircraft, in conjunction with dramatic reductions in harmful emissions and perceived noise, to facilitate the sustained growth of the air transportation system. This lecture was joint-sponsored with the Cleveland Section of the American Society of Mechanical Engineers, the Cleveland Chapter of Women in Aviation, Intl. and the Ohio Aerospace Institute.

Dr. Del Rosario's presentation, "Green Propulsion Technologies for Advanced Air Transports", highlighted NASA's vision for the revolutionary systems and propulsion technologies that are needed to achieve these challenging goals. The primary focus of the talk was on the "N+3"



Dr. Rubén Del Rosario speaking on Green Propulsion Technologies for Advanced Air Transports.

generation—vehicles that are three generations beyond the current state of the art, requiring mature technology solutions in the 2025-2030 timeframe, which are envisioned as being powered by Hybrid Electric Propulsion Systems.

Dr. Del Rosario is responsible for developing and executing NASA's strategy as it relates to research in commercial subsonic aircraft technologies. He manages a large project portfolio across four NASA Centers, including close partnerships with industry, academia, and other government organizations. He has a Bachelor of Science degree in Mechanical Engineering from the University of Puerto Rico in Mayagüez, a Master of Science degree in Industrial Engineering and a Doctorate in Engineering from Cleveland State University. He is an AIAA Associate Fellow and a Licensed Professional Engineer in the State of Ohio.

Following his well-received lecture, lasting about an hour, the diverse audience engaged Dr. Del Rosario with various questions. Attendees also had the opportunity to mingle and chat during the pre-lecture social period, which featured free appetizers and refreshments provided by the sponsoring organizations.



(Left to right) Dr. Mike Heil, Patty Austin, Dr. Rubén Del Rosario, Peggy Cornell and Dr. Paul Penko.

AIAA Northern Ohio Section Supports Local AIAA University Chapters

The AIAA Northern Ohio Section (NOS) supported the area AIAA University chapters by organizing a tour of the NASA Glenn Research Center facilities on March 11, 2015. This event was leveraged as a recruiting activity for the University chapters and attracted participants from Cleveland State University, Kent State University and Kenyon College. AIAA NOS coordinated with test engineers in NASA's Facilities Directorate to put on a tour that included the Simulated Lunar Operations (SLOPE) Lab, the Zero Gravity Research Lab, the 10x10 Abe Silverstein Supersonic Wind Tunnel and the Electric Propulsion Laboratory. These large facilities gave the students insight into the diverse research activities being conducted at NASA Glenn, and the importance of AIAA for publishing and dissemination technical knowledge.



Student participants from area colleges gained insight into the operation of the control room at NASA Glenn's Zero Gravity Research Lab.



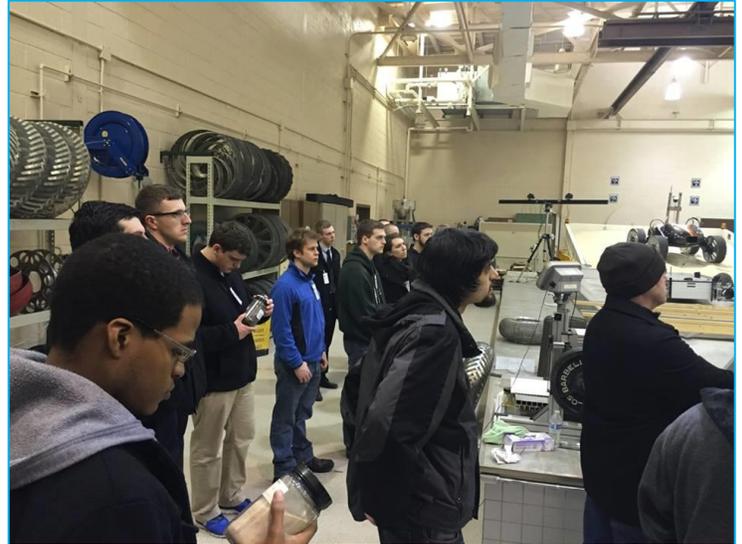
University chapter students visiting the Zero Gravity Research Lab during a facilities tour of NASA Glenn Research Center coordinated by the AIAA Northern Ohio Section. The Zero-G Lab is NASA's premier facility for ground-based microgravity research, and the largest facility of its kind in the World.

Following the tour, a meeting was conducted to explore how NOS could better support the university students in the area. It was determined that a key barrier facing the University chapters was membership. To overcome this barrier, the chapters resolved to get their student members more excited about larger events. To support this objective

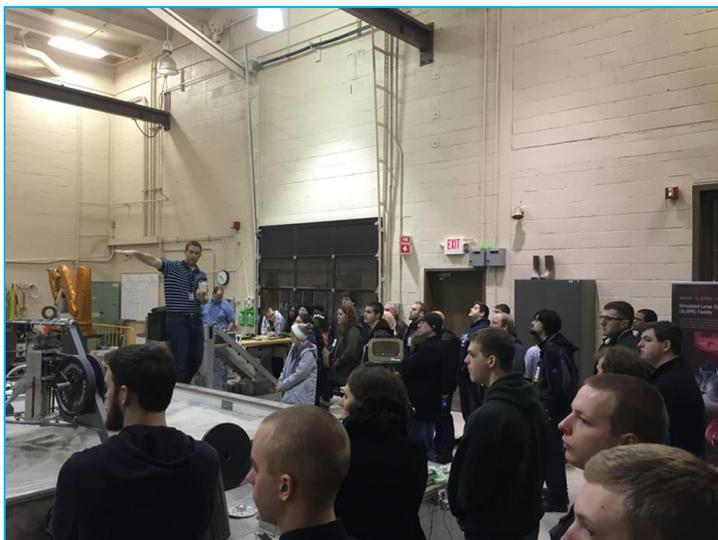
on a continuing basis, the decision was made by AIAA NOS to make this tour an annual event. In addition, NOS decided to support area students' participation in this year's AIAA regional conference through a travel stipend. Finally, in the time period since the tour event, the University of Akron was able to establish an official AIAA student chapter.



Examining a drop vehicle used to carry experiments and instrumentation during free fall experiments inside of a 467 ft. long vacuum chamber.



The Simulated Lunar Operations Lab features an adjustable tilting soil tank used for testing sloped surface operations.



The Simulated Lunar Operations Lab is used for studying the traction and power consumption of lunar vehicles operating in lunar soil.



Demonstrating the consistency of the simulated lunar soil in the soil tank.

Local AIAA Student Members Present at the AIAA Region III Student Conference

The Wright State University Student Branch of AIAA hosted the 2015 AIAA Region III Student Conference on March 17-18, 2015. Nineteen papers were presented, including two from members of the Cleveland State University (CSU) Student Branch. Dan Gerges, Past Chair of the CSU Branch, presented a paper in the undergraduate category. Erick Shelley, Secretary of the CSU Branch, Daniel Stralka and Jason Wolf, current Chair of the CSU Branch, presented a paper in the Team category. Both papers were well received by conference attendees, with the Team paper from CSU placing first out of five papers, in that category. This first place recognition resulted in a cash prize and an invitation to participate in the AIAA International Student Paper Conference to be held in January 2016 in conjunction with the AIAA SciTech Conference, which will take place in San Diego, California.

AIAA Northern Ohio Section provided a generous travel stipend to help support CSU students who participated in the conference. Eight AIAA student members from CSU attended and three students became new, first-time members of AIAA as a result of the event.



Jason Wolf, Chair of the AIAA CSU Branch (center), talks with students about his team's project on "Design of an Engine Air Particle Separator for Unmanned Aerial Vehicle Applications".



Dr. Morley Stone, Chief Technology Officer for the Air Force Research Laboratory (AFRL), engaging the audience during the AIAA Region III Student Conference.

AIAA NOS Baseball Group Outing: Cleveland Indians vs. Cincinnati Reds

A spirited group of Northern Ohio Section members, family, and friends took advantage of a clear, cool Friday night, May 22, to watch the Tribe take down cross-state rivals, the Cincinnati Reds, 7 – 3, at Progressive Field. This was a game with a little of everything: strong pitching, diving catches, a Tribe home run, lots of loaded bases, dollar hotdog night, and a Tribe win!

The ages of the AIAA NOS attendees ranged from 4 to, well, a high number. Everybody cheered on the team and each other all night. A rousing fireworks show with the cityscape in the background capped off a perfect night.



Members of the AIAA Northern Ohio Section along with family and friends attended a group outing at Progressive Field to watch the Cleveland Indians defeat the Cincinnati Reds on May 22.

Northern Ohio Section Officers and Council Members

Officers

James Gilland	<i>Chair</i>	440-962-3142	james.h.gilland@nasa.gov
Peggy Cornell	<i>Vice Chair</i>	216-433-2748	peggy.a.cornell@nasa.gov
Jonathan Litt	<i>Secretary</i>	216-433-3748	jonathan.s.litt@nasa.gov
Christine Pastor-Barsi	<i>Treasurer</i>	216-433-3867	christine.m.pastor@nasa.gov
Kevin Melcher	<i>Past Chair</i>	216-433-3743	kjmelcher@nasa.gov

Council Members

Edmond Wong	<i>Communications</i>	216-433-8917	edmond.wong@nasa.gov
Geoffrey A. Landis	<i>Honors & Awards</i>	216-443-2238	geoffrey.a.landis@nasa.gov
Jeff Csank	<i>Membership</i>	216-433-3479	jeffrey.t.csank@nasa.gov
Amber A. Abbott-Hearn	<i>Public Policy</i>	216-433-8440	abbotta@zin-tech.com
Julie Kleinhenz	<i>STEM K-12</i>	216-433-5383	julie.e.kleinhenz@nasa.gov
Al Juhasz	<i>Technical</i>	216-433-6134	albert.j.juhasz@nasa.gov
Joe Connolly	<i>University</i>	216-433-8728	joseph.w.connolly@nasa.gov
Roger Tokars	<i>Young Professionals (and Vice-Treasurer)</i>	216-433-8771	roger.p.tokars@nasa.gov
Jason Wolf	<i>Student Branch Representative(CSU)</i>	216-659-3534	jwolf320@gmail.com



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