AIAA Volunteers Select Area's Top Aerospace Science Fair Projects

Edited by Nils Jespersen, The Aerospace Corporation

In March and April, 2012, members of the AIAA National Capital Section (NCS) applied their expertise in selecting the best aerospace-related projects in the region's various science fairs. Natalia Sizov and Kate Becker coordinated the volunteer judging teams, with Michele McMurrer (NCS Administrator) providing liaison with AIAA management, and Robert Thomas focusing on the fund raising effort. The volunteer judges visited eight regional science fairs that were held in the National Capital area, including Maryland, Virginia and Washington, DC.

Thanks to the generous support from our Corporate sponsors – ***Lockheed Martin and Honeywell*** – it was possible for AIAA to provide coverage to all of the areas fairs, and also enabled us to award tangible prizes to the first, second and third place winners (One week scholarship to a Space Camp, $100, and $75, respectively). These top award winners were also invited to attend the AIAA Awards Ceremony in June, 2012. Additionally, Honorable Mention certificates were presented to other fair participants that were worthy of special recognition.

DC STEM Fair

The DC STEM Fair was held at the Wilson High School, in Washington, DC, on 24 March 2012.

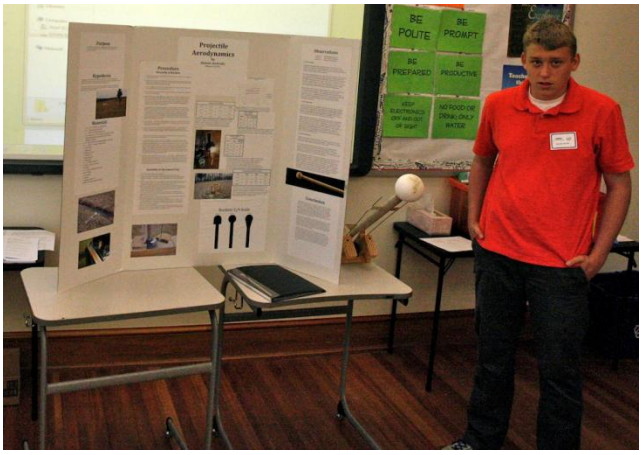
Tom Snitch (Little Falls Associates, Inc.), Keith Jankowski (Schafer Corp.), and Nils Jespersen (Aerospace Corp.) represented the AIAA on the judging team. The DC STEM Fair was conducted in an innovative format quite unlike any the judges have experienced in the past. Instead of tri-fold presentations in a large venue (like a school gym), the students were given 15-minute appointments during which they would describe their work before a panel of judges; most using PowerPoint© style presentations. This format presented the judges with challenges familiar to conference participants (e.g. presentations of interest happening in parallel sessions) but, on the other hand, the students gained experience with formal presentation as commonly used in business. The consequence of the format was that the judges needed to heavily prioritize the presentations they decided to review and, therefore, the overall pool of candidate projects was smaller than would otherwise be available. The judges selected the following projects for special recognition.

First Place: "Making Wings: An Airplane Design Project"

The First Place Award went to a 9th Grade airplane enthusiast, Julia Guidry, representing Washington Latin Public Charter School (PCS). Julia, a member of the Civil Air Patrol, was clearly excited about anything airplane related. For her project, she wanted to explore the effect of wing chord curvature on lift performance, hypothesizing that more curvature would generate more lift (based on her understanding of the Bernoulli principle). She faced numerous challenges, beginning with the design and construction of a wind tunnel having laminar

flow volume adequate to her needs. She showed a significant degree of innovation in the materials she selected and applied, and used simple tooling approaches to ensure that her wing spars were consistent in their structure. While her lift measurements were relative (based on the number of washers the test article was able to raise relative to her baseline airfoil), she recognized the need for better resolution in future trials. The judges were impressed with her experimental tenacity in the face of numerous setbacks, her understanding of the underlying principles, as well as her enthusiasm for the project.

Second Place: "Projectile Aerodynamics"

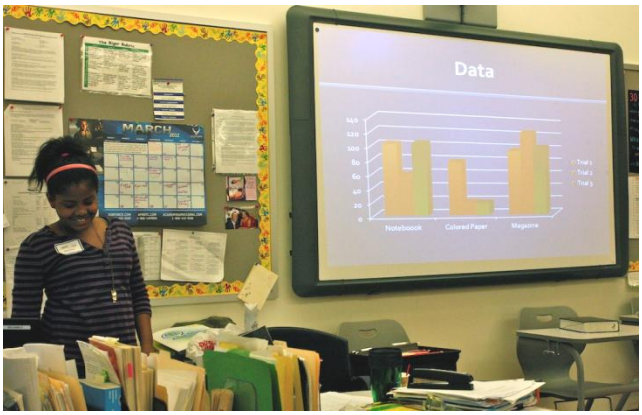


The Second Place Award went to Alistair Andrulis, a 10th grade student at Washington Latin PCS. Alistair won recognition by AIAA in last year's science fair, and this year he continued his investigation into the performance of projectiles in flight. This year he fashioned different shapes of nose cones (all of the same mass, but different form factors, all made from Styrofoam) and mounted them, in separate trials, on the top of a model rocket. His objective was to quantify the time of flight as a function of projectile shape. As part of his record, he used a video camera during each trial so that he could accurately measure the flight time of each trial. Alistair showed good command of the underlying physical principles as well as good understanding of keeping variables controlled during experimentation.

Third Place: "Gliders in Flight"

The Third Place Award went to Marquis Gregg, a 7th Grader representing Macfarland Middle School. Marquis is passionate about airplanes though he conceded to the judges that he has never actually flown in one. Marquis' hypothesis was a simple one of positing that the angle of the airfoil flaps would affect the direction of flight. By his definition, he included ailerons, elevator and rudder surfaces in the overall category of "flaps". Marquis spent time laying out his glider designs on paper prior to building his models, an approach that showed a good engineering methodology. He also included some self-correcting stays in his design in order to stabilize the positioning of the airfoils. Though Marquis was more focused on the artistry of the design process, and his results were largely qualitative, he did learn something about how weight and balance works in an aircraft. The judges assessed that his enthusiasm would serve him well going forward.

Honorable Mention: "Which Paper Airplane Will Fly the Farthest?"



Kidist Deneke, a 6th grade student representing Macfarland Middle School, received an Honorable Mention for the project she did in experimenting with different constructions of paper airplanes. Kidist set forth a hypothesis that lighter airplanes would travel the farthest given the same launch thrust. She constructed similar paper airplane designs out of different types of paper (viz. magazine paper, colored paper, and notebook paper). She then launched them with consistent thrust, to the best of her ability, and measured the distance traveled from the launch point. Her hypothesis proved true as the lighter paper construction did travel the farthest.

Northern Virginia Regional Science and Engineering Fair

The Northern Virginia Regional Science and Engineering fair was held on March 3, 2012, at the Wakefield High School. Michael Poliszuk, Joseph Gruber and Lani Azahari made up the AIAA judging team. The judges were very impressed by the display of ingenuity among the students in designing apparatus, running experiments, and conducting research. They all agreed that there was a lot of talent in evidence at the fair. The selected winners all had several things in common: best use of the scientific method, lots of background reading done to understand the physics behind their experiments, good data collection, the understanding on the limitations of their experiments and what they would like to improve. Above all, they all shared a tremendous amount of enthusiasm, creativity, and excitement about their research.

First Place: "The Effect of Rotating Helix on Reducing Drag in the Nose Cone"

Our First Place went to Jeffrey Alvarado, 12th grade, at TC Williams High School. This project was selected for his very detailed research concerning drag on various nose cone shapes. It was a very advanced topic for a high school student and Jeffrey's explanation reflected both his knowledge depth on the subject of laminar vs. turbulent flow as well as his understanding on good experiment design. Jeffrey even built his own small-scaled wind tunnel, with only minimal guidance from his teacher, in order to test the various nose cone shapes that he had built. He even completed the wind tunnel with straws on one end to ensure a better wind flow through his tunnel, proving that he understands the need for good experiment apparatus design to yield reliable results. Jeffrey also explained possible uses for results from such an experiment, as well as improvements that he would do if he could refine his work. Of all the students interviewed, he was the most confident in his presentation, had done the most research, spent the most time and care in designing his experiment, and displayed best understanding and use of the scientific process. This was a very impressive project; certainly the best aerospace-related project at the fair.

Second Place: "Investigation of Ground Effect"

Second Place went to team Adrianna Gorsky & Juliana Butler, 12th graders from Washington-Lee High School. Adrianna and Juliana did some investigations into the ground effect phenomenon. They both presented their explanations on the project well, displaying a good understanding of the scientific process. They did a thorough job explaining the theory behind ground effect, showing that they had done sufficient research beforehand. They also were thoughtful in designing their experiment, using a fan mounted on a horizontal frictionless track with a white board to serve as the "ground" for

their experiment. Once again, this was another very advanced topic that was well handled by two high school students; a solid project.

Third Place: "The Effect of Automatic Rotating Foils on Descent Rate"

Calvin Pollard, 11th grade, from Yorktown High School, earned Third Place at the Northern Virginia science fair. Calvin's experiment design was pretty good, his use of video to calculate data for his experiment showed his creativity in problem solving. He definitely put effort into the experiment, repeatedly dropping his test designs from the upper floor of his house in order to get the right amount of data. He also explained how he had to deal with any wind that blew and affected his readings, showing an understanding of having control over external effects to prevent skewed data. He gave explanations for possible applications, but his presentation was not as detailed versus the first and second place winners. Solid project; a good foundation upon which to build and extend for next year.

Honorable Mentions

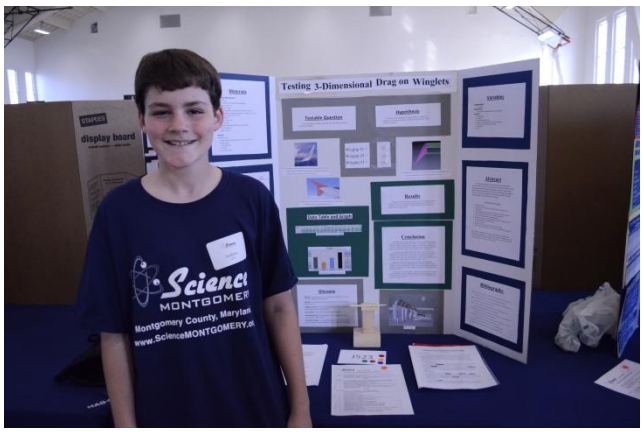
Scott Sawicki, 9th grade, Yorktown High School, received an honorable mention for his project called **"The Effect of Parachute Diameter on Fall Rate and Structural Integrity of An Egg".** Scott's experiment made good use of the scientific method. His briefing reflected that he had a full grasp of the physics concepts behind his experiment as well as knowledge on using statistics to make sense of his data. He also explained that in future, he would like to test how string length would affect his results, showing that he understood some limitations of his experiment. He was very enthusiastic about investigating that in a future science experiment. Lots of room for improvement in his methods, but this was a solid start, and we hope he will come back next year.

A second honorable mention went to **Henry Bendon**, 8th grade, Jefferson Middle School, for his project entitled **"Go Down to Go Up".** Henry did a very fascinating experiment to see whether it was better to have airport runways pointed downward, upward, or level to improve takeoff performance. For a middle school student, he had done a lot of reading on aircraft takeoffs and lift, giving a pretty impressive briefing on the physics behind his experiment. He had taken initiative in designing an experiment using an inclined ramp and remote-controlled aircraft inside a gym. He showed a lot of confidence in presenting his experiment. We hope that the honorable mention award will further encourage him to participate again next year with another aerospace-related project.

Science Montgomery

Science Montgomery took place on March 17, 2012, and the AIAA judges were Ben Jimenez, Ben Berry, and Sung Lee, all of the University of Maryland.

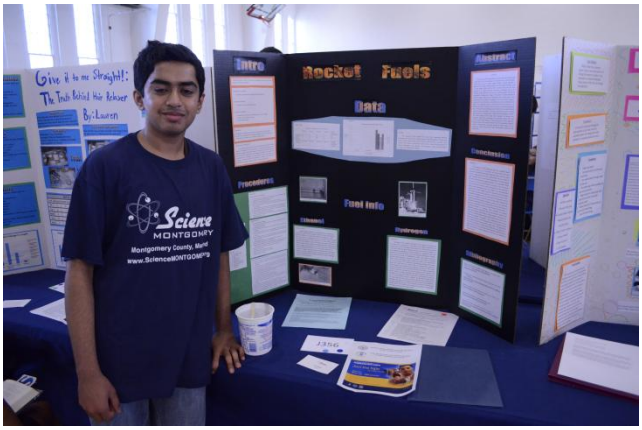
First Place: "Testing 3-Dimensional Drag on Winglets"



First Place went to Andrew Lent of Roberto Clemente MS for his project on "Testing 3-Dimensional Drag on Winglets". Andrew's

project consisted of his own wind tunnel build, hand-carved wooden airfoil design and winglet airfoil extensions. Andrew tested three different winglets to determine which had the best drag reducing properties. He tested this by a combination of smoke flow visualization, flow straightening, and creative, accurate measurement techniques. Andrew demonstrated strong technical understanding of the advanced concepts he considered.

Second Place: "Rocket Fuels"

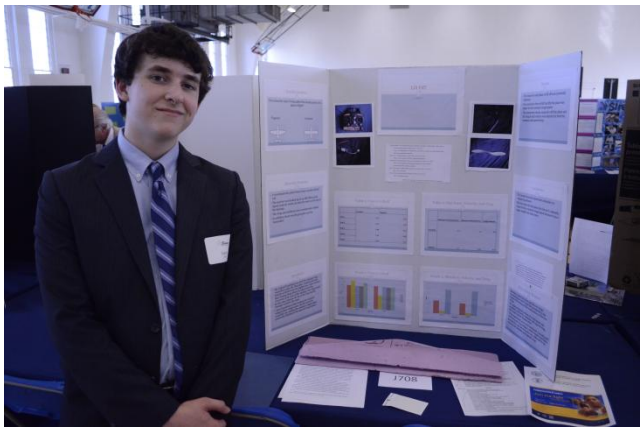


Trishul Nagenalli, of Roberto Clemente MS, won Second Place for his project entitled "Rocket Fuels". Trishul created his own rocket configuration by creating hydrogen fuel through electrolysis and using a soda can mouth as a nozzle. Trishul intended to test multiple rocket fuels but had difficulties. In testing the rocket fuels, Trishul created a test stand and measured thrust by observing the distance moved by a test body due to the exhaust.

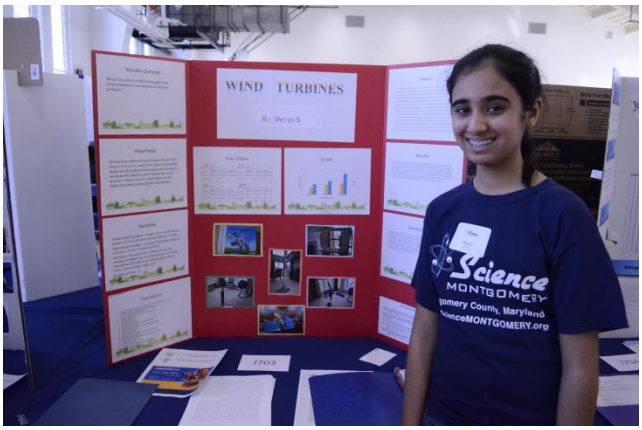
Third Place: "Surfing on Air: the Science Behind the Walkalong Glider"

Third Place went to Alex Wilson and Luca Garcia, both of North Bethesda MS, for their project called: "Surfing on Air: the Science Behind the Walkalong Glider". Alex and Luca found a project online involving Walkalong Gliders, which are simply shaped, thin papers that tumble through the air, sustained in flight by a surface that is steadily walked behind them. They decided to replicate this experiment by constructing their own Walkalong Gliders from phonebook pages. The Gliders offered interesting aerodynamic behavior when walked behind with an inclined surface.

Honorable Mentions



James Seeman, of Parkland MS, received an Honorable Mention for his project: "Lift Off!". James tested the lift characteristics of two wings that he built from foam. He measured the amount of time it took for his custom built planes to take off on an outdoor runway, and characterized the wing performance after running several trials.



Another Honorable Mention went to Shreya Singh, of Roberto Clemente MS, for her project called "Wind Turbines". Shreya built a simplified wind turbine kit and desired to measure power generated by different blade lengths. As part of her experiment, she used a house fan to start the rotation, and tied a water bottle on a string to the shaft that shared the rotor axis, then measured the time it took for the bottle to be raised a certain distance.

Charles County Science Fair

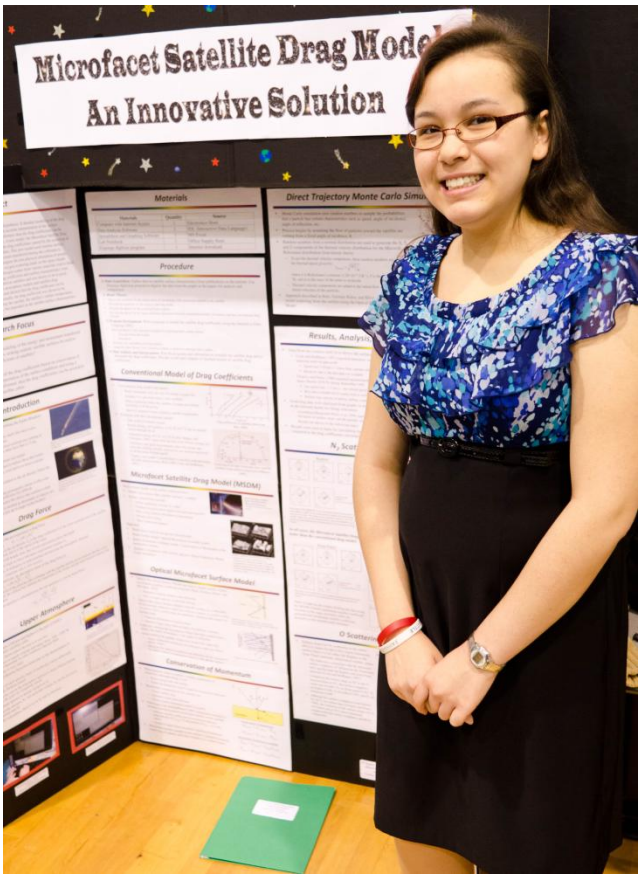
The Charles County Science Fair was held on March 3, 2012, at Theodore G. Davis Middle School. The AIAA judges were David Kanter (DCS Corporation), Josh Powers, and Chris Chabalko. The judges had an interesting time at the fair. Overall, it was a positive experience and we saw a lot of interest in science and impressive knowledge of aerospace concepts from younger people. While a wide variety of projects were displayed, the aerospace related projects were obviously of primary interest. Of these, a majority fell into the category of propeller optimization. For that reason, aerospace projects outside of propeller optimization stood out as being distinctive.

While a group of projects stood out as being in the top tier, it was difficult for us to come to a consensus for the particular rankings. The final choices were as follows.

First Place: "Rotor Blade Efficiency"

First Place went to Kevan Thomas, a senior. Kevan's project investigated the performance of helicopter blade design. Kevan measured and optimized the aerodynamic forces on a helicopter rotor. The rotor was a scale model swashplate which was fixed at various angles of attack. He inferred the aerodynamic forces through the output of a multimeter and the motor generator combination.

Second Place: "Microfacet Satellite Drag Model: An Innovative Solution"



Second Place went to Cayley Dymond, a senior, for her work on satellite trajectory modeling. This project focused on a new model for satellite drag. Current models simplify drag estimates as an extension of atmospheric drag, although at a much lower density. Cayley's model considered oxygen ionization which occurs at orbital altitudes. Due to chemical reactions and ion clustering, the drag force dependence on altitude is quite different from the simpler model. Cayley's model of this drag force matches closely with experimental observations from the literature.

Third Place: "This Project Sunks"

Charles Rawson, a junior, won Third Place. Charles sought to maximize propeller speed by varying shape and number of blades. He investigated different propeller designs by constraining the propeller to a wire and dropping it several feet in an enclosed space. He recorded the "time of flight" of each propeller over five trials.

Honorable Mentions

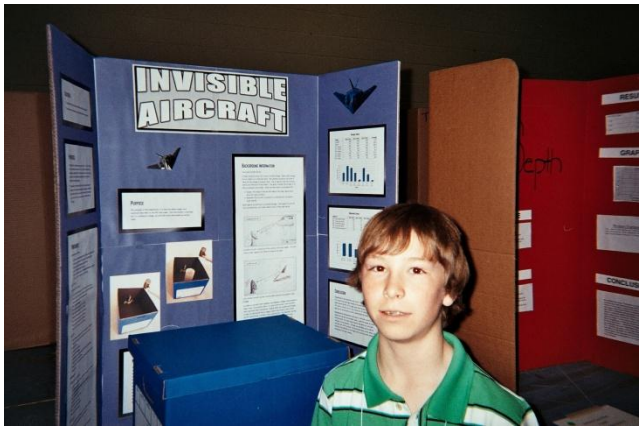
The judges awarded an Honorable Mention to Amanda Kusher, a junior, for her project "Hidden in Plane Sight". Amanda investigated the observability of different objects, as related to radar cross section. She placed the various objects in a closed box with a light source, measured the reflectance of each. She used a piece of paper, crumpled into a uniform ball, as a benchmark reflector.

A second Honorable Mention went to Cameron Reynolds, a junior, for her project "Crazy 'Copter Chords". Cameron's project was to assess the efficiency of helicopter blade performance as a function of chord. She constructed a variety of chord designs and quantified their aerodynamic efficiency by measuring their speed in a flow generated by a box fan.

Prince George's County Science Fair

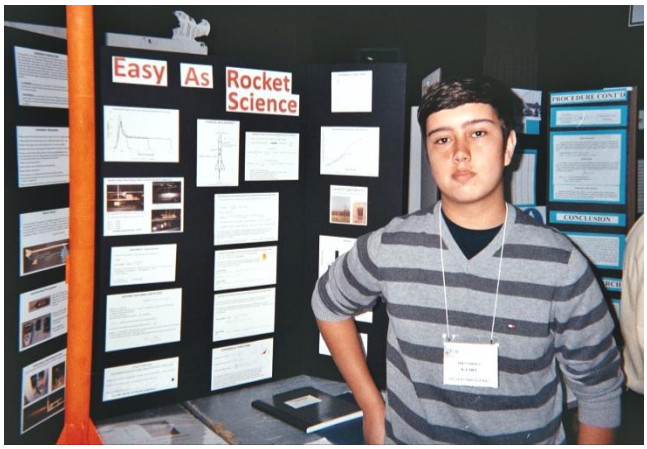
The Prince George's Area Science Fair was held on March 17, 2012. Approximately 350 students in Junior and Senior Divisions presented their science projects for special awards judges, as well as judges in 16 science, technology, engineering, & mathematics (STEM) categories. Shivaji Medida (University of Maryland-College Park), Alexander Singh (CENTRA Technology Inc), and John Day (NASA Goddard Space Flight Center) represented the AIAA in judging the air and space related projects for AIAA science fair awards. The outstanding AIAA student awardees at the 2012 Prince George's County Fair were as follows.

First Place: "Invisible Aircraft"



Jay Tracy won First Place for his project "Invisible Aircraft". For his project Jay investigated the factors that make stealth technology possible. He used visible light and an illumination sensor to replicate the effects of radar energy. Jay tested different materials, angles, colors and shapes and determined which variables were least reflective. He built the apparatus to perform his experiments and had an excellent understanding of the scientific principles involved in this project.

Second Place: "Easy as Rocket Science"



Second Place went to Robert Vandegrift for "Easy as Rocket Science". Robert sought to expand his knowledge of rockets by mathematically predicting the altitude to which his rocket would travel and validate his predictions. He used Mathematica© to generate a code for altitude prediction with rocket thrust as an input. Robert launched his rocket, measured altitude, and determined that his predictions were

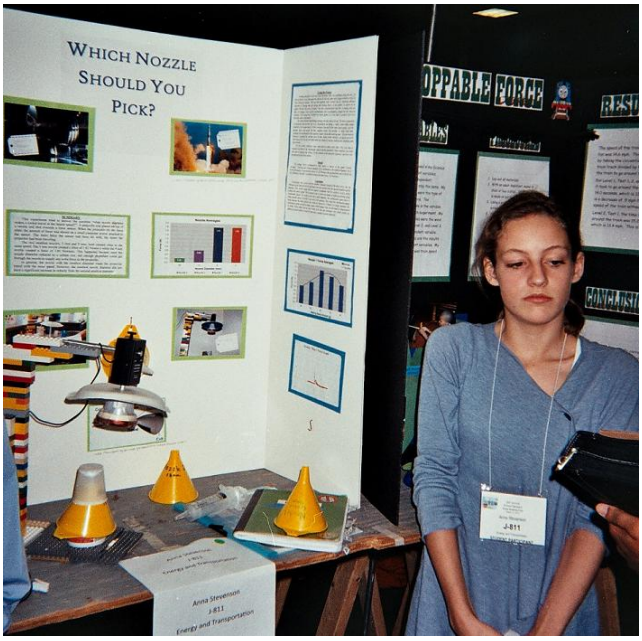
in close agreement with test results, within wind error. His experiment draws a close parallel with how engineers and scientists use simulations as experimental tools.

Third Place: "Flying Macaroni"

Sonia Lee won Third Place with her project "Flying Macaroni". To understand the principle of lift, Sonia devised an experiment that would maximize air flow beneath an airfoil. She placed macaroni noodles beneath the airfoil and tested its performance in a wind tunnel. Experimental results showed that the airfoil with noodles had greater lift that those without.

Honorable Mentions

Brian Flood won an Honorable Mention for his project called "Effect of Impact Angles on Crater Formation". For this project, Brian created an experiment to investigate the effects of impact angles on the formation of craters on lunar and planetary surfaces. He used a tube, at various angles, to launch a projectile into a powder. After impact, he measured length, depth and the debris distance of the "crater" that was formed. Brian determined that a 45º impact angle created the largest craters, although a 90º angle created craters with the greatest depth. Brian had an excellent understanding of the physics involved in his experiment.

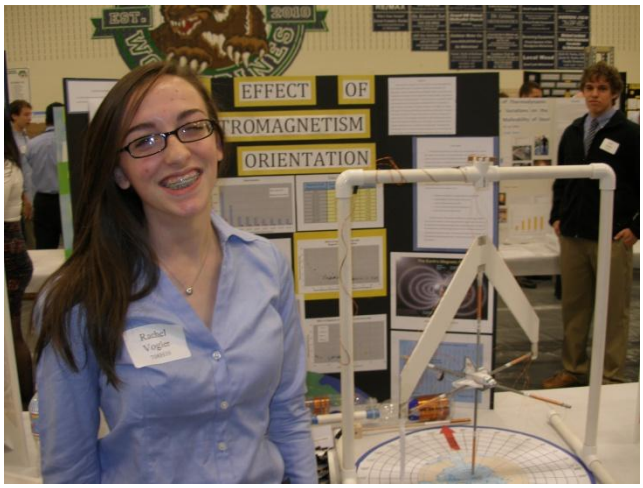


Anna Stephenson, with her project “Which Nozzle Should You Pick?”, won the second Honorable Mention. Anna created an experiment to determine what nozzle diameters would transfer the greatest force. She used vinegar and baking soda, to create her experimental gas, and injected that gas into nozzles of various diameters. The momentum of the fluid through the nozzle would then accelerate an object into an electronic force sensor. Her results showed that smaller nozzles imparted a greater force but the gains of a smaller nozzle begin to drop at a certain point as flow becomes more restricted.

Loudoun County Regional Science and Engineering Fair

The Loudoun County Regional Science and Engineering Fair was held on Thursday, March 15, at Woodgrove High School in Purcellville, Virginia. The AIAA NCS judges were Luis Bermudez, Greg Coll, Mike McFarland and Carlos Niederstrasser, all from Orbital Sciences Corporation.

First Place: “The Effect of Magnetism on Orientation”



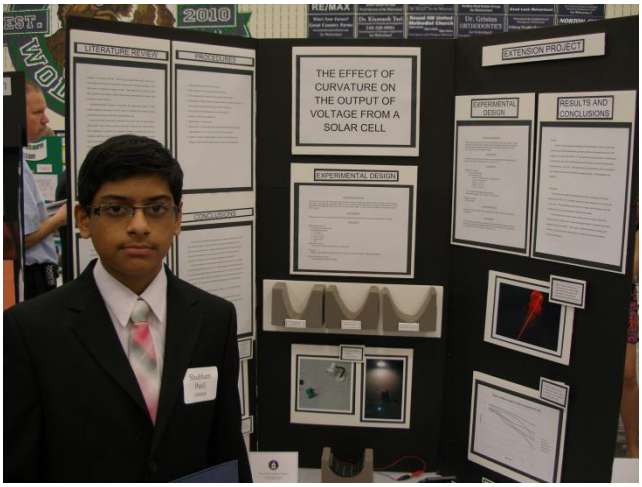
First Place was awarded to Rachel Vogler, a sophomore at Heritage High School, for her project entitled "The Effect of Magnetism on Orientation." Rachel built an experimental apparatus consisting of a model spacecraft with a three-axis electromagnet assembly that was suspended by a plastic frame over a 360° protractor. She set the spacecraft model at various initial orientation conditions, applied current to the electromagnets in different directions, and measured the resulting rotation rates. Her results demonstrated that initial conditions farthest from magnetic North produced the greatest magnetic control torques.

Second Place: “The Effect of Friction on Aircraft Tires”

Second Place went to Burak Ocak, a sophomore at Broad Run High School, for his project on

"The Effect of Friction on Aircraft Tires." Burak used a swing-arm mechanism to drop model airplane tires onto a belt sander, thus simulating the relative motion of the tire and runway. He then compared the reduction in tire mass caused by "landing" with and without pre-rotating the tires. His results showed that pre-rotation, accomplished passively by adding aerodynamic surfaces to the wheel hubs in the presence of a wind source, significantly reduced tire wear.

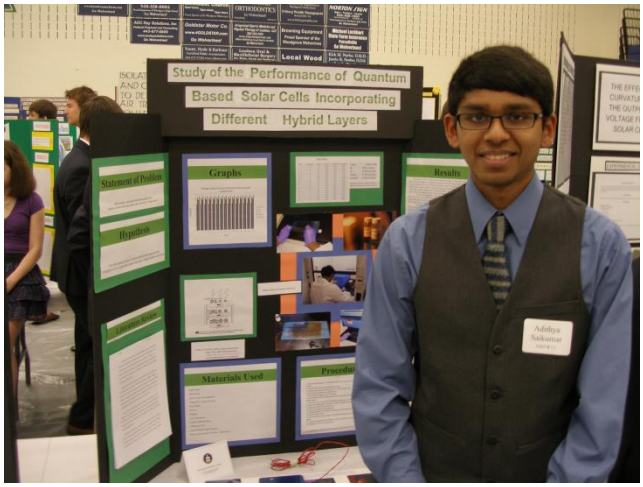
Third Place: "The Effect of Solar Cell Curvature on Voltage Output"



Shubham Patil, a freshman at Stone Bridge High School, won Third Place for his project entitled "The Effect of Solar Cell Curvature on Voltage Output." Shubham used a flexible solar panel to assess the effects of curvature on cell voltage for a range of light incidence angles. He considered parabolic and circular shapes, and showed that a circular arc produced the highest average output. The cell output was nearly constant over the angles considered, which is potentially useful for spacecraft coarse sun pointing applications.

Honorable Mentions

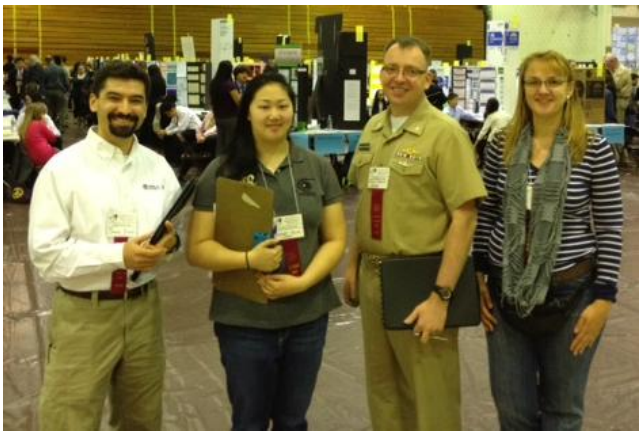
Honorable Mention was awarded to William Corlett of Briar Woods High School for "The Effect of Bicycle Helmet Styles on Air Resistance", in which he measured the aerodynamic drag of various helmet shapes using subscale clay models in a wind tunnel of his own construction.



Another Honorable Mention was awarded to Adithya Saikumar of Briar Woods High School for "The Study of the Performance of Quantum Based Solar Cells Incorporating Different Hybrid Layers", in which he extended the results of his project that won 3rd place last year. He demonstrated that combining copper and silver nanoparticles is a more cost-effective way to increase solar cell efficiency than using silver alone.

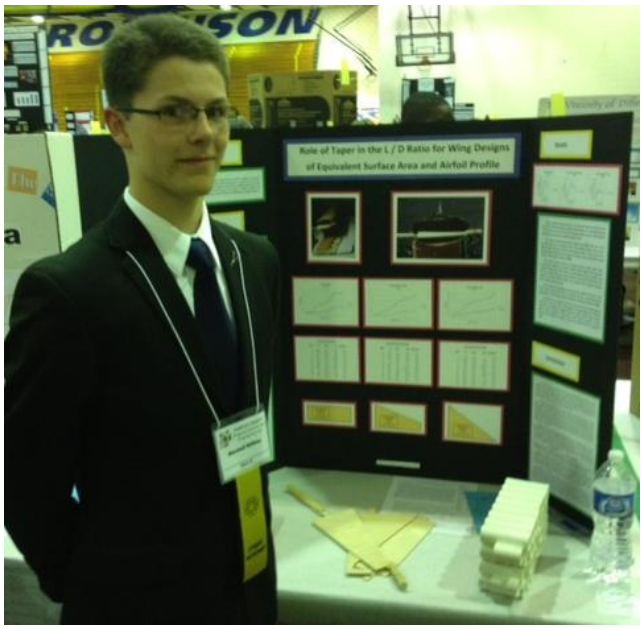
Fairfax County Regional Science and Engineering Fair

The Fairfax County Regional Science and Engineering Fair was held on March 17, 2012.



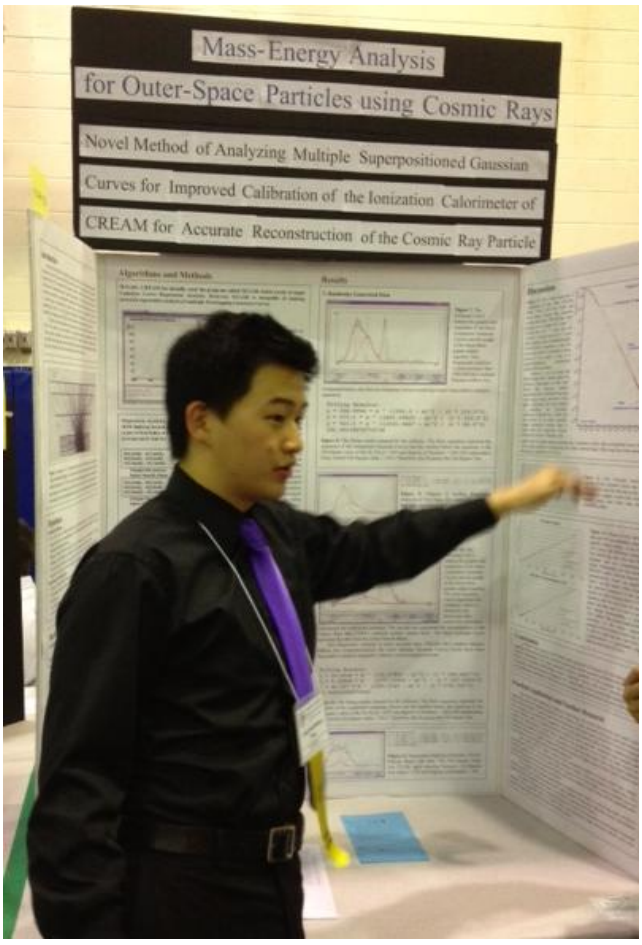
The AIAA NCS judges were Sean Kirn (Comtech AeroAstro), Heart Hsin, Vincent Chernesky (US Navy), and Natalia Sizov (FAA). The judges selected the following projects for special recognition.

First Place: "Role of taper and L/D ratio for Wing Design of Equivalent Surface Area and Airfoil Profile"



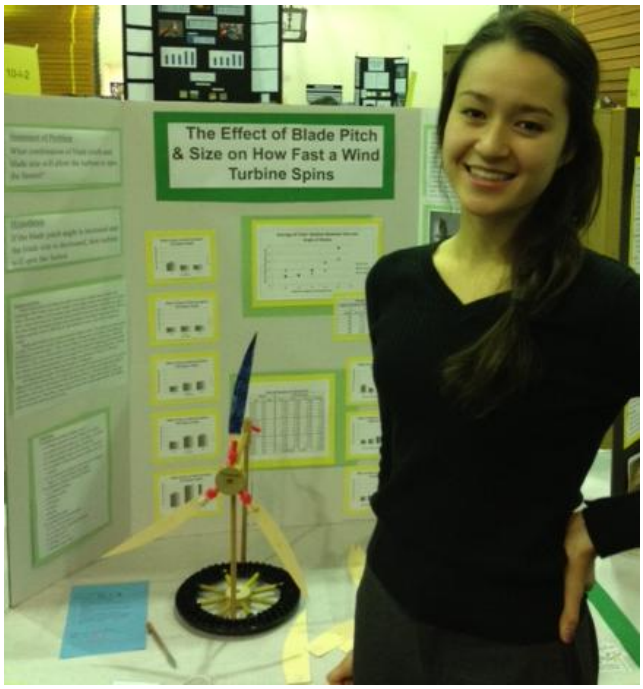
Marshall Wilkins' project, "Role of taper and L/D ratio for Wing Design of Equivalent Surface Area and Airfoil Profile", won First Place. Marshall studied the impact of wing taper shape on the Lift-to-Drag (L/D) ratio. To accomplish this, Marshall built his own laminar flow wind tunnel and measured lift, drag, and roll by innovatively using a pair of scales. His experiment searched for the maximum L/D ratio, based on angle of attack, and concluded that a non-tapered airfoil is more effective at subsonic speeds. This result supported the first half of his hypothesis. Marshall also found that the fully-tapered wing achieves its maximum L/D ratio at a much lower angle of attack, supporting the second half of his hypothesis that a tapered wing would be more effective at trans-sonic speeds and leading to his plans for future investigations.

Second Place: "Optimization of Cosmic Ray Analysis Using Novel Software"



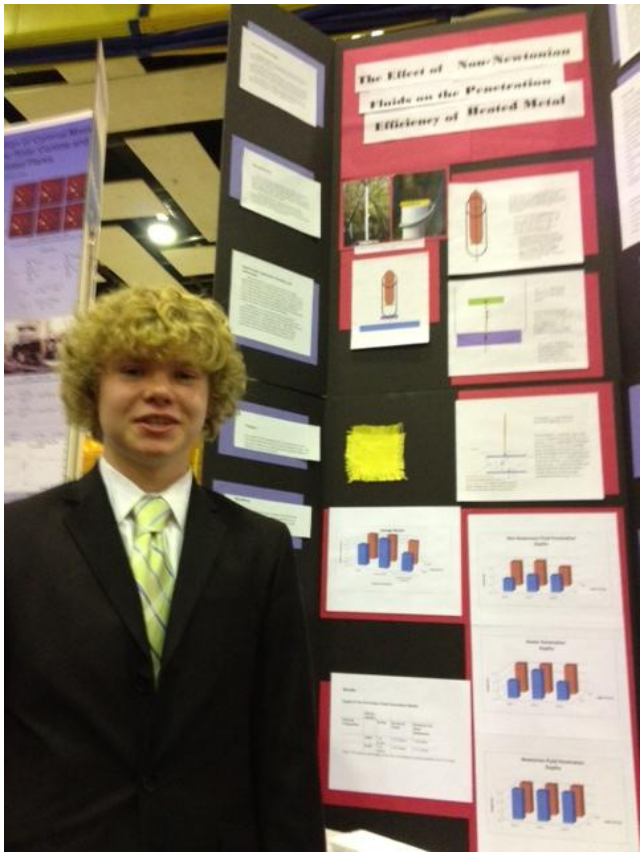
Second Place went to Jong Seok (Parker) Won for his project "Optimization of Cosmic Ray Analysis Using Novel Software". Parker performed an analysis of data from the CREAM experiment using a novel analysis technique, which included JAVA-based software to which he contributed. This software improved the accuracy of the calibration of the analysis over previous methods. With this improvement, Parker was able to explain, and remove, a "knee" and "ankle" in the analyzed data that the CREAM research team was attempting to explain. The method he developed, for the calibration of the data, is applicable to a wide range of analysis techniques that use superimposed Gaussian curves as the basis for data comparison.

Third Place: "The Effect of Turbine Design on Turbine Spin Speed"

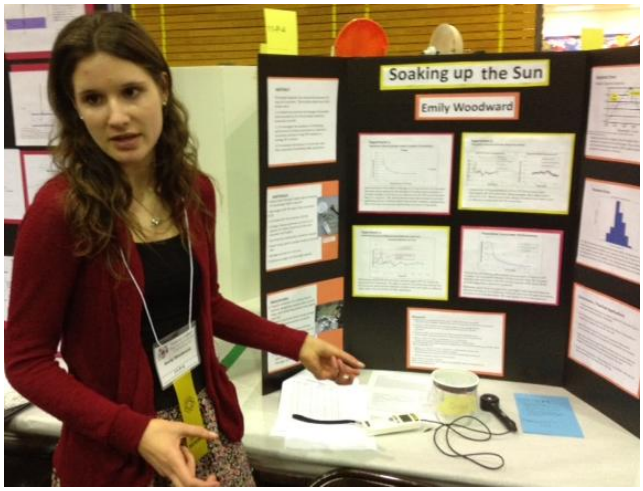


Leah Surratt won Third Place with her project "The Effect of Turbine Design on Turbine Spin Speed". Leah investigated the effect of blade shape and pitch on turbine performance. After testing three blade sizes at five pitch angles, she found that small blades mounted at a pitch of 20º was the optimal combination for speed and starting reliability. In addition, she supported her conclusion with realistic considerations for manufacturability, cost, and stability.

Honorable Mentions



Honorable Mention went to Louis Guy Michael IV. In his project "The Effect of Non-Newtonian Fluids on the Penetration Efficiency of Heated Metal", Louis investigated the impact to the performance of personal body armor through the inclusion of a non-Newtonian fluid layer. His experiment simulated a lower velocity, hot piece of shrapnel, commonly found in IEDs, by using a large nail driven into the armor sheet. Louis demonstrated that the inclusion of a non-Newtonian fluid layer, between two layers of Kevlar fabric, greatly improved the stopping capability of the soft armor when compared to both an empty layer and a layer filled with water. In addition, when the armor was punctured, a properly chosen fluid would heal the breach.



Emily Woodward, with her project "Soaking Up the Sun", won the second Honorable Mention. Emily investigated the performance of several commercially available sunscreens for UV attenuation effectiveness. She investigated the relation between dosage, application time, SPF, and price. Using a series of experiments with a UVA/UVB light meter to make direct measurements, Emily showed that the attenuation performance curve was asymptotic, and optimal, at the FDA recommended dosage. She also demonstrated that beyond SPF 30, the "return on investment" in higher SPF diminished rapidly. The third part of her experiment, comparing the performance of the sunscreen against cost, showed that all of the tested samples performed equally well, regardless of the cost. Finally, she demonstrated that the sunscreen protection was unstable for the first 20-30 minutes after initial application, thereby confirming the need to apply the sunscreen prior to a planned sun exposure.

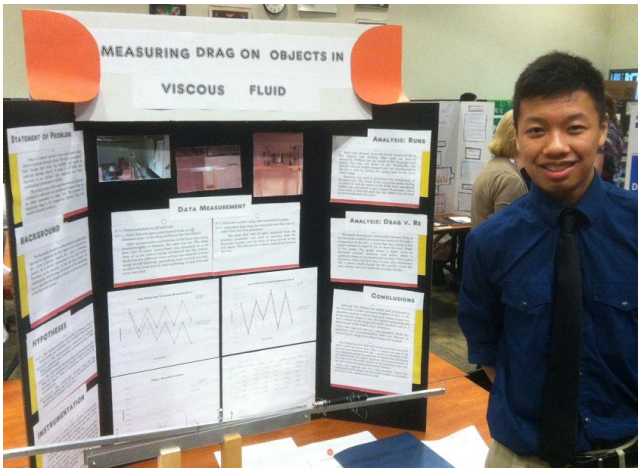
Prince William - Manassas Regional Science Fair

On Saturday March 17, 2012, Lynda Bottos, (FAA), Kristine Ferrone (Aerospace Corporation), and Loi Nguyen judged the 2012 Prince William-Manassas Regional Science. The judges selected the following projects as particularly worthy of awards.

First Place: "Mars or Bust "

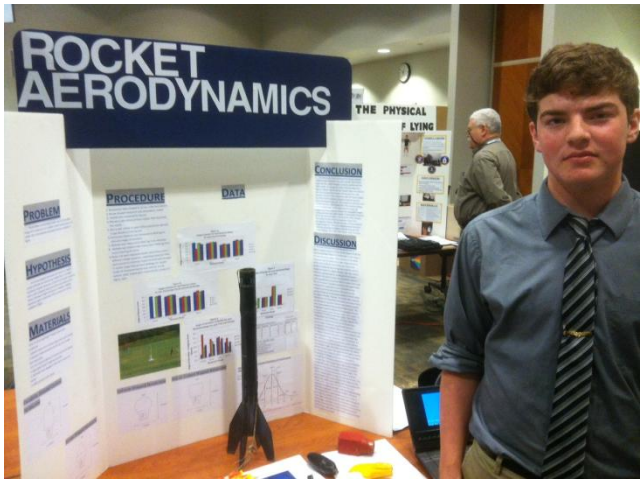
Piper Sigrest, who won First Place, did a project she called "Mars or Bust", in which she investigated spacecraft design for the Martian environment. She used Reynolds number calculations to find drag and used a wind tunnel to test her measurements. She concluded that a craft with very large wings would be needed to be able to fly on Mars. Her project was relevant to both aeronautics and astronautics fields.

Second Place: "Measuring Drag on Objects in Viscous Fields"



Second Place went to Brandon Sananikone for "Measuring Drag on Objects in Viscous Fields". Brandon's project investigated the viscous drag on objects. He built an apparatus that fed water through two containers and used a seesaw bar, with a laser, to measure the length required in the Reynolds equation for drag calculation. It was a well thought out project with strong attention to detail and data collection.

Third Place: "Rocket Aerodynamics "



"Rocket Aerodynamics" was the project that Andrew Bishop did and that won Third Place. Andrew's project investigated which shape nosecone on a rocket has the best trajectory. His baseline was that which came with the model rocket. He then built two others, a block design and an arrow shaped design, both made out of balsa wood. He found that the arrow shaped nosecone traveled the furthest and had better control.

Honorable Mentions

Maggie Chouniard won an Honorable Mention for her project entitled "Hot Air Ballooning". Maggie investigated which material makes the best hot air balloon. She tried many materials, from shopping bags to light fabrics. She concluded that the material needs to be lightweight; but that further testing is needed

(she obviously understands how academic research works).

Stephanie Flear, with "A Shocking Discovery! Measuring the Strength and Polarity of Static Charge", won the second Honorable Mention. Stephanie's project investigated the magnitude and amount of static discharge, from various sources, and evaluated how different conditions affected this discharge. She then ranked the sources and determined which substances were more user-friendly.

Plans for Next Year

In 2013, we hope to continue our science fair support, but we won't be able to do this without continued corporate sponsorship and volunteer judging participation. If you are interested in getting more involved in National Capital Section educational outreach programs, please contact Michele McMurrer at aiaancs1@aol.com.

Our sincere thanks to:

Corporate Sponsors:

- Lockheed Martin
- Honeywell

The Science Fair Judges:

- Lani Azahari, Virginia Tech
- Ben Berry, University of Maryland
- Lynda Bottos, FAA
- Luis Bermudez, Orbital Sciences Corporation
- Chris Chabalko
- Vincent Chernesky, US Navy
- Gregory Coll, Orbital Sciences Corporation
- John Day, NASA Goddard Space Flight Center
- Kristine Ferrone, Aerospace Corporation
- Joseph Gruber
- Heart Hsin, Orbital Sciences Corporation
- Keith Jankowski, Schafer Corporation
- Nils Jespersen, Aerospace Corporation
- Ben Jimenez, University of Maryland
- David Kanter, DCS Corporation
- Sean Kirn, Comtech AeroAstro
- Sung Lee, University of Maryland
- Shivaji Medida, University of Maryland
- Mike McFarland, Orbital Sciences Corporation
- Loi Nguyen
- Carlos Niederstrasser, Orbital Sciences Corporation
- Michael Poliszuk, OUSD (Acquisition, Technology and Logistics)
- Josh Powers
- Alexander Singh, CENTRA Technology, Inc.
- Natalia Sizov, FAA
- Tom Snitch, Little Falls Associates, Inc.

And finally, the AIAA NCS Science Fair team:

The science fair organizing team is very grateful for the guidance and sage advice we received from our "emeritus" members Supriya Banerjee (AIAA NCS VP) and Kimberly Harris (Lead science fair coordinator from previous years). Supriya was very helpful during our start up, and Kimberly, in addition to sharing her previous year's experience, was always there for us when questions arose.

For 2012, the following AIAA members worked very hard to make this year's AIAA science fair coverage a success:

- Natalia Sizov, AIAA NCS Lead Science Fair Coordinator
- Kate Becker, AIAA NCS Council Member
- Nils Jespersen, The Aerospace Corporation

- Michele McMurrer, AIAA NCS Administrator
- Robert Thomas, Fund Raiser
- Michael Santos, Intelligent Automation, Inc, AIAA NCS Treasurer
- Bruce Milam, NASA, AIAA NCS Chair