



Upcoming Events

- STLX IV Practice Round 2, 1-3 Dec; Qual Round 2, 15-17 Dec
- STLX IV Practice Round 3, 12-14 Jan; Qtr Finals/Prestige Round, 2-4 Feb
- STLX IV Semi-Finals, 2-4 Mar
- National Finals, Colorado Springs, CO, 17-21 April

Stellar Sponsor Honored

Tim Brock

In recognition of their on-going, outstanding support to StellarXplorers, the National High School Space Challenge, the Air Force Association (AFA) awarded Analytical Graphics, Inc (AGI) its Chairman's Award for Aerospace Education Achievement at the 2017 Air, Space and Cyber Conference, 18 September 2017. Without the continuing support of AGI, the StellarXplorers Program could not achieve its goal of providing a challenging high school space competition to students all across the country and the entire globe. Starting with the early "proof-of-concept" effort in 2015 and continuing to today, AFA has received enor-

mous and unwavering support from AGI in the execution of this program.

AGI's complimentary support to StellarXplorers has many facets. AGI provides their STK software to the competitor teams, over 400 copies to date. Additionally, AGI provides an Education License for STK that unlocks additional capabilities in the software, greatly expanding the breadth and realism of the scenarios the teams must solve. In 2016, AGI provided 250 copies of this license.



AGI President, Joe Sheehan (right), accepts the Chairman's Award for Aerospace Education Achievement from AFA Chairman of the Board, F. Whitten Peters

AGI also provides free training on STK to the teams. This web-based training provides the needed insight (cont. p 3)

One Competitor's Experience

Sareta Gladson



Ms Gladson was a National Finalist for StellarXplorers II and III, and Co-Captain of the 2017 National Champions, "Sky Dragons." She is currently enrolled at Syracuse University studying

aerospace engineering.

Being the only girl on my high school's StellarXplorers team of five, which is part of the annual National High School Aerospace Challenge, tested my mettle. With only six hours to complete seemingly insurmountable aerospace tasks, each of us must work together, like gears, to reach our goals.

On the team, I have the most experience and knowledge of the computer program (p 2)

Who Are the StellarXplorers?

Why It's Important

Buck Buckwalter and Sareta Gladson

StellarXplorers is in the midst of its fourth season and is pleased to report a nearly 40% growth in registered teams to 180. Just as important is *who* the program is reaching. This year's participants are a diverse group from 31 states and three overseas locations. Female participation increased to nearly 30% (most STEM programs report around 12% female participants), and the ethnicity of participants remains more diverse than the U.S. population as a whole.

Diversity is important for fostering the innovation that will keep our nation economically competitive in our increasingly globalized world, and the sheer numbers of potential economic competitors makes attracting

the best talent to tackle our most difficult challenges critical. In the multiple technical disciplines required by the space enterprise, attracting top talent is not merely a competitiveness issue; it is a national security imperative. Finding enough scientists and engineers, particularly U.S. citizens eligible for a security clearance, is a difficult task. While we find support for the program from the Corporate Responsibility, Marketing, and Public Relations functions of our sponsors, perhaps our most enthusiastic support comes from our sponsors' Human Relations departments who are faced with this increasingly competitive recruiting problem.

Notable Quote

"I realized my degree of self-confidence and faith in myself define the confidence others have in me. These are qualities of personal success."

Ms Sareta Gladson
Sky Dragons
San Pedro High School



Recent News from the StellarXplorers Program



Another Banner Year for Registration

Bill Yucuis

StellarXplorers continues to show sustained growth. This year, 180 teams have registered for StellarXplorers IV, up 37% from StellarXplorers III. The teams represent 31 states, including Hawaii and Alaska, and three overseas locations: Guam, Osan, Korea, and Kaiserslautern, Germany. Of the 180 teams, 95 are Air Force Junior ROTC, 12 are Navy JROTC, and 2 are Marine Corps JROTC, thanks to the National Director of AFJROTC, who spread the word about this exciting and engaging program. Additionally, 57 public

schools, 11 Civil Air Patrol units, 2 Boys & Girls Clubs, and a private school registered teams.

The states with the largest participation are California with 33 teams, Florida with 20 teams, and Texas with 17 teams. In total, students compete from 122 locations, since some locations have multiple teams. A complete list of the teams' locations can be found under the Competition tab on the StellarXplorers website, www.stellarxplorers.org. Teams compete from their home

location through as many as four rounds to earn a chance to attend the StellarXplorers National Finals Challenge in Colorado Springs in April 2018. The web site also has a link to our video (scroll down the home page or look under the Media tab). You can also see the National Association of Secondary School Principals (NASSP) has listed StellarXplorers on their list of Contests, Programs, and Activities for Students. For more information about StellarXplorers, contact us at:

stellarxplorers@afa.org

Experience (from p 1)

Systems Tool Kit (STK). In the larger scheme of things, this skill is my main contribution to propel the team to success. In preliminary rounds, my other team members push for explanations of each step in STK. Sometimes I've produced five different orbits, just to prove the first was correct. Each time I did so, another teammate wanted me to produce quantifiable evidence while he watched. He caught errors; was my frustration an overreaction? I rarely was wrong; was his doubt justified or gender oriented? When they told me to "go make lunch" was this because I was there or because I'm a girl? Was this to apply the female stereotype or to annoy as friends do? The indistinct boundary between playful banter and discrimination was difficult to assess. It led me to be hesitant about expressing my opinions.

In preparation for the final round, I advocated to bring reference material. Confident we would win because we had consistently placed first during the preliminary rounds, the rest of the team agreed we would not

need the information. They convinced me to ignore my instinct as well.

Driven by blinding arrogance, we brought the materials, but deemed not to use them. Those papers could have led us to first place, but in our unjustified arrogance, we had forgotten them as a resource. In the preliminary rounds, I ignored the stereotypes and we were forced as a team to constantly question every choice we made in the competition. In the final round, I gave into the stereotypes. The experience stung of failure.

On paper, we failed to place in the top three. However, in my heart, I won. Often lack of immediate results defines defeat, yet to truly fail is to learn nothing from one's mistakes. The results could never be changed but I could change my thinking and approach. I realized my degree of self-confidence and faith in myself define the confidence others have in me. These are qualities of personal success. Although conquering the challenges in engineering is an arduous battle, I love the practice with an

enduring fondness. Even when we lost the competition, I still wanted to construct electrolysis systems and design flexible spacesuits. It was as if, in spite of the disappointment of losing, walking away wasn't an option. My critical male teammate and I took our anguish and refined our skills even further for the next year's competition.

As co-captains we led our team to question every result and used empirical data to produce our results. At the final round that year, we knew exactly how many points we were going to score before the judges. Not only did we become this year's National Champions, we created a satellite orbit that performed better than the highest score the judges projected possible. Yet, there still is more I have to prove. Intellectually, I can stand on par and collaborate with peers because of the barriers I have overcome. Like learning to ride a bike, I have fallen and I will fall, yet I will keep riding because I live on the thrill of the journey.

Registration for StellarXplorers V opens 1 May



Fall 2017

Sponsor Corner

Diversity (from p 1)

The program has achieved our diversity through broad appeal to less affluent Title I schools (almost half of the competitors are from Title I schools or organizations catering to those schools). Because all registration fees are waived for such organizations upon their request, the program is the least expensive STEM competition available to great numbers of students.

Perhaps the most gratifying aspect of the program for those of us who produce the program is the growth it affords our competitors. This is strictly a team competition, and if a team wishes to succeed, they must learn some basic technical information, but as importantly, must develop the leadership and interpersonal communication skills that are best learned through competition.

Stephen Gourley

Several sponsors have renewed their commitment to supporting and maintaining the phenomenal growth of StellarXplorers. USAF STEM, United Launch Alliance, Orbital ATK, SpaceX, and Kratos Defense once again will be the driving force behind this exciting and engaging Program. United Launch Alliance is now in its two year commitment of support as the Program's Travel Sponsor. Our Educational Alliance is going strong - Analytical Graphics, Inc, Colorado Educational Institute, and the Space Foundation ensure the teams undergo a first class educational experience.

These government, industry, and academic organizations understand the value of seeing and being seen by the Nation's best and brightest. In addition, there are many tangible benefits to sponsoring Stellar-

Xplorers and enabling the Program's rapid growth. Four sponsor levels offer a wide range of value and participation in ensuring StellarXplorers inspires and motivates an ever greater number of students along the path to STEM careers. Engaging a local team ensures the team will remain (and do better) in the competition, while the interaction allows mentors to share their experience and enthusiasm for STEM, as well as enhancing their company's community relations. Ultimately, to achieve and sustain the growth we know StellarXplorers will experience, the Program needs a Presenting Sponsor.

Contact the StellarXplorers Program Office today to become a recognized and distinguished promoter of STEM in the United States.

AGI Honored (from p 1)

for our teams to master this sophisticated software analysis tool. AGI has also conducted specialized one-of-a-kind training sessions specifically targeted for our StellarXplorers teams, provided via a live webcast. These "live" sessions are recorded by AGI and are available to students that are unable to attend the live sessions. The webcast recordings are posted on the StellarXplorers website for use by these students.

StellarXplorers began in the fall of 2014. The Secretary of the Air Force asked AFA in August to establish a STEM-program based on space. The Association had a difficult time deciding what type of program to implement. After tossing around a few ideas, it was decided to conduct the program using space system simulations, but what software to use? To work for a high



Chief of Staff Gen David Goldfein, Secretary Heather Wilson, Joe Sheehan, Chairman Peters, and CMSgt of USAF, Kaletth O. Wright

school level program, it had to be relatively easy to use and not extremely expensive - in stepped AGI.

The Program has grown spectacularly since then. For StellarXplorers III, team registration jumped to 131 teams compared to 27 teams the season before. This jump placed a significant burden on the StellarXplorers Competition Staff, due to the need to score each solution

manually. This situation would have been untenable for the StellarXplorers III competition. Working closely with the Competition Staff, a dedicated AGI engineer successfully converted AGI's STK Certification Program into a scoring tool for the competition. Using this tool,

the time to score each team's solution was reduced from 20-30 minutes to less than 3 minutes! Without this scoring tool, it is doubtful that AFA would have been able to successfully conduct the StellarXplorers III Challenge.

AGI has been and continues to be a key member of the StellarXplorers team. They have played a vital role in the success of this program. AFA gratefully acknowledged its contributions with the Chairman's award.

Become a StellarXplorers Sponsor TODAY!

Recent News from the StellarXplorers Program

Air Force Association
1501 Lee Highway
Arlington, VA 22209

Contact StellarXplorers at:
Phone: 703.247.5800 ext 4899
Fax: 703.247.5853
E-mail: stellarxplorers@afa.org

The Force Behind the Force



The Air Force Association (AFA) is a 501(c)(3) non-profit, independent, professional military and aerospace education association promoting public understanding of aerospace power and the pivotal role it plays in the security of the nation. AFA publishes Air Force Magazine, conducts national symposia, and disseminates information through outreach programs.

To this end we:

EDUCATE the public on the critical need for unmatched aerospace power and a technically superior workforce to ensure U.S. national security.

ADVOCATE for aerospace power and STEM education.

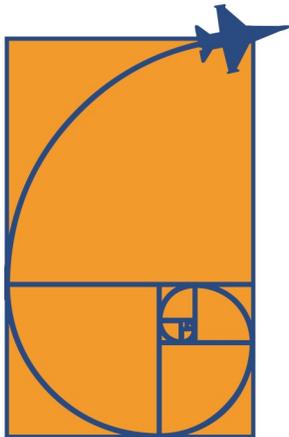
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