



NASA Aeronautics

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Monthly STEM Newsletter

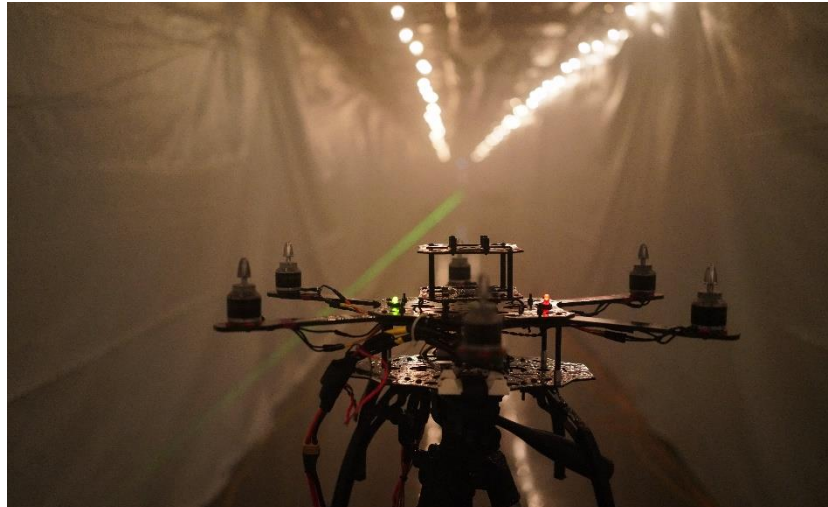
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The frame of an unmanned aerial vehicle, or drone, is installed at the end of a 180-foot-long chamber filled with fog at Sandia National Labs in Albuquerque, New Mexico. NASA researchers used this facility to test the ability of sensors such as visual and infrared cameras and lidar scanners to perceive objects through fog. Sensors like these will need to replace a human pilot's eyes on future unpiloted air vehicles such as air taxis.

Credits: Sandia National Labs

January 2022

Welcome to a new year—one that will be full of first flights, new adventures, and the culmination of years of research, development, and verification, with much more to come. Enjoy the first issue of the NASA Aeronautics Monthly STEM Newsletter for 2022!

In preparations for our flights, our education team has been hard at work getting our own projects off the ground (for some of these projects, we mean it literally!), and we're excited to share opportunities to help you get your own projects in the air.

Do you need to see more of something or have a new idea for upcoming newsletters? Let us know! Do you know someone else who needs this monthly update? [Sign Up for the Monthly STEM Newsletter](#). Do you have a question or want to be removed from the list? Send an email to: April.a.lanotte@nasa.gov.

Let's Fly!

Newly Released and "Coming Soon" K-12 STEM Items:

Coming Soon:

- **Flight Log Experience:** Our soon-to-be-released Flight Log Experience will debut soon!! Sign up to send your name with us on our X-plane flights and start building your virtual flight log--you can even bring your entire class!! Printable boarding passes, new and existing STEAM lessons and activities (and an ELA/Social Studies lesson on the history of flight logs), videos, and the opportunity to earn special endorsement stamps and virtual mission patches are a part of this interactive program.



- **Jr. Pilot Program (X-57):** Our second publication in the Jr. Pilot Program series for elementary students will focus on the X-57 and electric propulsion. [The first in the series](#), focused on the X-59 and the science of sound, is also being translated into Spanish. Coming in early 2022.

Just Released!

- **X-59 Maker Bundle:** On December 17th we released our X-59 maker bundle that includes two new projects (and a couple of our favorites) for students of all ages. The bundle includes: coloring sheets for younger builders-in-training, the X-59 paper airplane template, our brand new [X-59 3D paper model](#), and our [3D print files](#) so you can 3D print your own X-59. They are available on the [NASA Aeronautics for Educators Facebook page](#), on our [Aeronautics@Home](#) site, and our [X-59 STEM Learning Module](#) (and anywhere else we can think of!). Bundles are available in English and in Spanish.

Post-Secondary and Funding Opportunities:

MUREP Precollege Summer Institute NASA is seeking proposals from HBCUs and PBIs to develop a MUREP Precollege Summer Institute--an innovative experience for high schoolers. **Proposals are due Jan. 18th, 2022.**

Engage with Aero!

Aeronautics is everywhere! Here are some of the places you can go (some in person, others virtual) to engage with us or our partners:

Advanced Air Mobility Academy (AAM Academy): [Session 2 on Jan. 19, 2022!](#)
[REGISTER NOW!](#)



The [Advanced Air Academy \(AAM Academy\)](#) is a year-long series devoted to ongoing student and educator opportunities to learn more about AAM and how it will change the airspace above us.

Join these live events (or participate in them via recorded videos), and **apply to be an "AAM Academy Classroom of the Quarter"** to work directly with one of our AAM experts. Participation is free but you need to register!

Live events (9-10am PT):

- Dec. 8, 2021 "Package Delivery Drone Simulation" (This event highlights a NASA Aeronautics activity that can be used to support computer science week and Hour of Code.) [Access archived recording and presentation materials here.](#)
- **Jan. 19, 2022** "The Science Behind Quadcopters" [REGISTER NOW](#)
- Feb. 25, 2022 In-person AAM Academy, West Virginia (Fairmont State University's Falcon Center)
- March 9, 2022 "Air Taxi Design Challenge"
- May 11, 2022 (9-11am PT) AAM Middle and High School Career Day

Student Airborne Science Activation program now accepting applications for highly motivated rising sophomore undergraduate students to participate in an 8-week summer research experience. The full-time, paid internship includes a competitive stipend, housing, and travel. 25 participants will gain hands-on research experience in all components of a scientific research campaign, including flying onboard the NASA P-3 research aircraft to collect land, ocean, and atmospheric measurements. **Applications are due by Jan. 31, 2022.**

University Student Research Challenge (USRC): Amendment 2 to the NASA ARMD Research Opportunities in Aeronautics (ROA) 2021 NRA has been posted on the NSPIRES website.

University Student Research Challenge (solicitation [NNH21ZEA001N-USRC](#)) seeks to challenge students to propose new aeronautics ideas/concepts that are relevant to NASA Aeronautics. USRC will provide students, from accredited US colleges or universities, with grants for their projects and includes the challenge of raising cost-share funds through a crowdfunding campaign. The solicitation goal can be accomplished through project ideas such as advancing the design, developing technology or capabilities in support of aviation, by demonstrating a novel concept, or enabling advancement of aeronautics-related technologies.

Notices of Intent (NOIs) are not required for this solicitation. **Proposals for the next USRC cycle are due Feb. 24, 2022.** The due date for the third cycle is June 23, 2022.

MAIANSE CONNECT (MAIANSE CONNECTing Indigenous Culture and Science Through Co-design of STEM Ecosystems) fosters STEM Ecosystems that focus on building connections between indigenous cultures and NASA through community collaborations. Eligible institutions include Tribal Colleges and Universities (TCUs), Native American Serving Non-Tribal Institutions (NASNTIs), and Alaska Native/Native Hawaiian Serving Institutions (ANNHs), as identified by the U.S. Department of Education. **Proposals are due Feb. 15th, 2022.**

2021-2022 ARMD University Aeronautics Langley Challenge

Challenge Topic: "Extending Aviation's Public Benefit"

In this request for proposals (RFP), university teams explore the use of UAM/RAM vehicles in a firefighting scenario. Teams design a suite of vehicles that can collectively deliver 3000 gallons of water to a fire location in a single pass.

Notices of Intent are due Feb. 15th, 2022. Final design papers are due June 15, 2022. Find out more [here](#).

• May 18, 2022 (time coming soon) AAM Future Workforce Seminar for post-secondary students.

NASA in Your Neighborhood!

Join NASA Aeronautics Jan. 28-30, 2022 in Texas for educator, student, and public events focused on the X-59 aircraft. Hear from NASA researchers, pilots, STEM experts, and others as we share the story of the X-59.

- Jan. 28-29: UT Arlington (Students, professors, K-12 educators: space is limited, [registration](#) is required.)
- Jan. 30: [Frontiers of Flight Museum](#) (Open to everyone! No registration needed.)

**Please note that the events are currently scheduled as in-person events, but may change due to COVID restrictions.*

ImaginAviation [Registration](#) Now Open!



You're invited to register for the upcoming **imaginAviation** event taking place **March 1-3, 2022**. Join NASA's Transformative Aeronautics Concepts Program (TACP) at the three-day virtual event focusing on advancements for aviation transformation! Glimpse into the future of aviation as you learn how NASA Aeronautics inspires, invigorates, and infuses exciting new technologies into the community.

Professional Development:

Educator Professional Development Collaborative (EPDC): In the month of January, educators can learn more about the [Aeronaut-X Propeller Design Challenge](#) on Jan. 4th from 5-6pm ET among others. Sessions are free, but

A Look Back at 2021:

NASA launched the Sustainable Flight National Partnership, teaming up with industry, academia, and other government agencies to achieve net-zero carbon emissions from aviation by 2050. NASA also continues to validate unique airframe design technologies that will one day allow future supersonic planes to fly quietly. Additionally, [2021 accomplishments for FLIGHT](#) highlighted the X-59, TTBW, ATD-2, AAM, X-57, ULI, and many more.

X-59 Flight Simulator:

Training to fly a one-of-a-kind experimental aircraft like NASA's X-59 Quiet SuperSonic Technology requires a flight simulator that authentically replicates the real deal. Thanks to recent upgrades to the X-59's flight simulator at NASA's Armstrong Flight Research Center in California, NASA test pilots are taking the flight training and preparation of this advanced X-plane to new heights.

Take a look at the [video](#) here.



registration is required. And mark your calendars for the 28th annual [Space Exploration Educators Conference \(SEEC\)](#) on Feb. 3-5, where our Education Specialists will present many workshops including those focused on the great world of aeronautics (yes, the conference is space AND aeronautics!!). The amazing conference offers both in-person and virtual workshops.

Did you know??

- Jan 1, 1914: The first scheduled aircraft passenger service began in Florida on Jan. 1, 1914.
- Jan. 30, 1916: First flight of the German Zeppelin LZ60 dirigible.
- Jan. 12, 1935: Amelia Earhart became the first woman to fly solo between Hawaii and the mainland US.

Links to our Aeronautics STEM Resources:

[Aeronautics Research Resources](#): (all ages) This link takes you to a wide variety of educator resources, Aeronautics@Home, ebooks, National Academies Reports, webinars, lithographs and mini posters, the NASA Aeronautics Research Institute, and more.

[Aeronautics@Home](#): (K-12) This web page contains aeronautics-based activities, videos, games, and more that can be completed at home, in the classroom, or in any number of settings. Topic areas include: "Build It!" "Explore It!" "Watch It!" "Solve It!" "Color It!" and "Aero Educator Resources". Coming soon: "Read It!" and "Do It!"

[NASA Express Sign-Up](#): (K-12, post-secondary) Have you signed up for NASA's NASA EXPRESS weekly newsletter? This newsletter contains the latest information for educators (K-12 and post-secondary) about new resources, design challenges, internships, and workshops. It is THE go-to for the latest STEM news.

[NASA Educator Professional Development Collaborative](#): (K-12 educators) Where do you go for ongoing, free NASA educator professional development opportunities? To EPDC! Take a look at webinars, digital badging and CEU opportunities, STEM teaching tips, videos, and so much more.

[Aeronaut-X](#): (K-12) Our Next Gen STEM: Aeronaut-X team provides new and exciting STEM activities that focus on cutting-edge aeronautics education and the future of flight.

[Museum and Informal Education Alliance](#): (Informal Educators and Museums) Not in a classroom? Looking for informal education materials? Join NASA's Museum and Informal Education Alliance, where you have access to NASA resources—including aeronautics—for your program, organization, museum, science center, or library. Find out about events happening near you and in the virtual world, and let the MIE Alliance help you build your programs! Access to guest speakers, the latest announcements about grant programs, and an active community network allow you to connect with other like-minded people in a supportive, engaging, and aerospace-focused neighborhood.

[NASA Aeronautics for Educators Facebook Page](#): (K-12, post-secondary) Join our NASA Aeronautics for Educators Facebook page, where the latest aeronautics updates, professional development opportunities, lessons and ideas are freely shared.

[NASA STEM Stars](#): (students ages 13+) Webchats that connect students ages 13+ with NASA experts of all types. Each chat introduces a STEM career, addresses a STEM topic, and highlights a NASA mission. Webchats are streamed live at 2pm EST via YouTube, and students can ask questions via the chat feature in real time. Or, you can choose from a growing library of archived sessions.

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