AIAA Flight Testing (FT)

Call for Papers: Additional Information

AIAA Science and Technology Forum and Exhibition (SciTech) 11-15 January 2027
Hyatt Regency Orlando, Orlando, FL
www.aiaa.org/scitech/

Overall Description

The Flight Testing Technical Committee invites papers on advances in testing aerospace vehicles and equipment in their natural environment. Submissions across research, development, acceptance, and operational testing should prioritize the "how" of the test focusing on methodology, safety, and execution. The AIAA Flight Testing technical discipline at SciTech consists of numerous technical sessions (including joint sessions with other disciplines) and a new FT Student Paper Competition.

Key topics include new or novel classical flight test techniques; in-space testing and space domain evaluation; advances in instrumentation and high-fidelity data acquisition; and AI/ML integration in data analysis. The committee also seeks papers on testing vehicles with intelligent flight controls or autonomous systems; GNC techniques, including sensor performance and handling qualities; electrified aircraft and sustainable propulsion; and modeling and simulation (e.g., hardware-in-the-loop) as a flight test prerequisite. Innovative flight test education and training approaches are also encouraged. Papers must interpret broader impacts on the field and highlight lessons learned to benefit future test efforts. Submissions for live flight tests should include preliminary results. Scoring will be based on technical merit, clarity of lessons learned, and relevance to flight test science.

Individual papers may be submitted to the appropriate technical sessions, as detailed in the Technical Area descriptions. Proposals and submissions for discussion panels, workshops, and non-traditional sessions are also welcomed and encouraged. Papers that are primarily authored by students are also eligible for the FT Student Paper Competition as detailed below.

Please direct any questions and comments to the conference organizers:

Technical Discipline Chair
Jessica M. Peterson, University of Nevada Reno
jessicapeterson@unr.edu

Technical Discipline Co-Chair
Andy Freeborn, USAF Test Pilot School
andrew.freeborn.5@us.af.mil

Technical Discipline Co-Chair
Shawn Keshmiri, University of Kansas
keshmiri@ku.edu

Draft Manuscript Submission Guidelines

Draft Manuscript Deadline: 21 May 2026

Final Paper Deadline: 01 December 2026

Submission: www.aiaa.org/scitech

Paper selection is based on draft manuscripts or extended abstracts. In accordance with AIAA requirements, submissions must be at least 1,000 words to be considered for acceptance. While there is no strictly required format for the draft, authors are encouraged to use the official AIAA manuscript template available on the Author Resources Page. The submission must include sufficient detail to demonstrate the purpose of the paper, the technical foundation of the topics, and any preliminary results to date. Furthermore, the draft should outline the expected results of the final paper and include key figures, equations, tables, and references as appropriate. The body of the draft must provide specific details on the flight test techniques used or the methodology employed, clearly explaining how the work connects to the broader T&E community. Organizers and reviewers will use this information to evaluate the likelihood of the final manuscript being completed by the deadline; therefore, incomplete abstracts or unrelated content will not be accepted. All submissions must be unclassified, and authors are responsible for securing prior approval for public release. *Note that submissions to the joint FT/GNC session must still adhere to the GNC requirement of a full-length draft manuscript as detailed in the technical area descriptions below.*

Panels, Workshops and Non-Traditional Sessions

(Email) Proposal Deadline: 21 April 2026 to jessicapeterson@unr.edu

Final Submission to Call for Sessions: 21 May 2026

Panels, workshops and non-traditional sessions are solicited in any of the technical areas listed below, as well as in other related and new or emerging areas. Proposed panels should have a cohesive focus on a particular topic. The guest organizer is responsible for contacting and confirming all speakers in advance, as well as obtaining approval for the session from the FT technical discipline chairs before the submission deadline. Proposals should be emailed to the discipline chairs and must include a session title, a summary abstract of the session topic, and a list of anticipated authors/speakers. Upon approval, session authors must submit 200- to 300- word abstracts through the conference website to the Call for Sessions by the regular submission deadline (21 May 2026).

Papers may be moved to or from traditional sessions as scheduling dictates. Workshops may be conducted on a more informal basis to promote discussion during the session. Workshop presentations may be given without written manuscripts if deemed appropriate by the guest organizer in consultation with the technical discipline chairs.

For presentation-only workshops, no abstracts are required. The FT technical discipline chairs are also open to submissions for non-traditional sessions. Formats for these sessions include but are not limited to debates, tutorials on relevant topics, roundtable discussions, and others.

Flight Testing Student Paper Competition

The Flight Testing Technical Committee, with the support of Daedalus Aerospace, is sponsoring the **Flight Testing Student Paper Competition**. Eligible written papers and oral presentations will be judged by members of the Flight Testing Technical Committee. The competition is held within the Flight Testing conference track including the joint sessions with other disciplines. The competition is independent of the larger SciTech Forum and Exhibition.

The top three finalists will receive complimentary enrollment in a Daedalus Aerospace online course of their choice. In addition, the overall winner will receive a **$500 cash award**. Finalists and the winner will be notified at the conference.

Eligibility and Entry: To be eligible for the competition, the entrant must be the primary author of the submitted paper and the work must have been performed while the author was a student. Recent graduates remain eligible provided the research was conducted during their studies. The competition is open to students submitting to any of the Flight Testing individual and joint sessions.

Entrants will present their papers during the regular technical sessions, where judges will be in attendance. To enter the competition, the **"Student Paper Competition"** option must be selected instead of "Technical Manuscript" when submitting the draft via the conference website. Papers entered into the competition are still published and scheduled within the technical sessions as normal. Full final papers are due by the regular final manuscript deadline (**01 December 2026**).

Judging Criteria: The scoring for the award is based equally on the quality of the written paper and the oral presentation.

Judging of the written paper is based on:

1. Relevance of the topic to the art and science of flight testing.
2. Organization, clarity, and technical writing quality.
3. Appreciation of relevant technical issues, instrumentation, and sources of error.
4. Meaningful conclusions and discussion of broader impacts or lessons learned.

Judging of the oral presentation is based on:

1. Background and problem definition statement.
2. Explanation of the flight test methodology and technical approach.
3. Clarity in the explanation of research results and flight data.

Entrants will be contacted via email after the conference to announce the finalists and the winner. and provide anonymous feedback from the judges. For inquiries regarding the Flight Testing Student Paper Competition, please contact the competition chair:

Student Paper Competition Chair:
Shawn Stephens, United States Air Force
shawn.s.stephens@gmail.com

Student Paper Competition Co-Chair:
Jessica M. Peterson, University of Nevada Reno
jessicapeterson@unr.edu

Technical Area Descriptions

The Flight Testing Committee solicits papers related to the art and science of testing aerospace vehicles and equipment in their natural environment across all disciplines (including methodology, instrumentation, GNC, and system identification), across all regimes (including atmospheric, hypersonic, and in-space), and across all vehicle types (including conventional aircraft, rotorcraft, UAM/UAS, missiles, and electrified aircraft). Submissions should prioritize the "how" of the test, emphasizing safety, execution, and the integration of emerging technologies like AI/ML or hardware-in-the-loop simulation. Papers discussing flight test education, multidisciplinary efforts, and international collaboration are also encouraged. Successful draft manuscripts or extended abstracts for live flight tests should include preliminary results. The areas of interest will be organized into the following broad topic areas:

Flight Test Techniques, Measurement Technologies, and Other Novel Approaches: application of new flight test techniques or novel approaches of classical techniques; new in-space test techniques; advances in instrumentation and data handling; use of machine learning or artificial intelligence in flight testing data analysis; high-fidelity measurement technologies in the natural flight environment; and specialized data acquisition systems.

Flight Testing in the Educational Environment: unique approaches to flight test education and training; curriculum development; use of flying laboratories; pedagogical methods for training flight test pilots and engineers; and academic flight test research.

Testing Ground and Air-launched Missiles and Rockets: specific challenges of testing high-speed, expendable, or reusable rocket and missile systems; launch-site operations; telemetry in extreme environments; and trajectory validation.

Other Topics in Flight Testing: advances in test range operations; safety management systems; regulatory compliance and airspace integration; and general flight test topics not covered by specific technical areas.

Special Session: Flight Test Techniques for Advanced Atmospheric Flight Mechanics (joint FT/AFM TC): This joint session provides a forum for industry, government, and academia to discuss the intersection of flight mechanics and flight test execution across all flight regimes and missions. Papers are sought that address flight test techniques for vehicle dynamics, aerodynamics, and flying and handling qualities across a diverse range of configurations, including: conventional aircraft, rotorcraft, multi-rotor and urban air mobility (UAM) concepts, vertical and short take-off (VSTOL) aircraft, unmanned aerial vehicles (UAVs), and electric aircraft. The session also encourages papers on the flight testing of hypersonic and aeroassist vehicles, launch vehicles, missiles, projectiles, and aerodynamic decelerators.

Special Session: System Identification and Flight Test (joint FT/AFM TC): This joint session focuses on extracting models and information from empirical data (flight test, wind tunnel, numerical experiments); time-dependent effects; novel sensors for identification; parameter identification; machine learning and neural networks; nonlinear models; optimized inputs; model structure determination; novel maneuver or experiment design; effects of feedback; real-time identification; fault detection; data analysis; flight path reconstruction.

Special Session: Aerodynamic Testing: Ground, Wind-Tunnel, and Flight Testing (joint FT/APA/GT TC): This joint session focuses on the correlation and validation of aerodynamic data across ground-based facilities, computational methods, and flight test. Areas of interest include improvements in data quality assurance, uncertainty analysis, and quantification; the comparison or integration of ground test results with computational fluid dynamics (CFD), Finite Element Analysis (FEA), or other predictive simulations; and the direct comparison or integration of ground test results with flight test data to bridge the gap between analytical predictions and experimental results.

Special Session: Flight Testing of Electrified Aircraft (joint FT/EAT TC): This joint session focuses on development, evaluation, and integration of electrified aircraft components and systems in the flight environment; flight testing of electric and hybrid-electric aircraft; thermal management; battery and power-train performance in flight; and enabling technologies shaping the future of electrified and sustainable aviation.

Special Session: Testing, Validation, Safety, and Certification (joint FT/EAT TC): This joint session focuses on advanced methodologies for the validation of electrified aircraft systems; safety-of-flight processes for innovative concepts; development of new test standards; and the verification of certification requirements through flight test for core and emerging propulsion technologies.

Special Session: Flight Testing Systems with Intelligent Flight Controls (joint FT/IS TC): This joint session focuses on the methodology, safety, and execution of flight testing aerospace vehicles equipped with intelligent flight controls and autonomous systems. This session specifically seeks papers on the "how" of the test: novel flight test techniques, real-time safety monitoring of adaptive systems, instrumentation requirements, and the transition from simulation to flight for intelligent systems. Papers must provide interpretations on the broader impacts of their work and highlight lessons learned from the planning or execution of testing to provide value to the wider flight test community.

Areas of interest include, but are not limited to:

- Application of new flight test techniques or novel approaches to classical techniques for intelligent systems.
- Risk mitigation and safety-of-flight processes for non-deterministic or adaptive control laws.
- Real-time safety monitoring, run-time assurance (RTA), and envelope protection during test execution.
- Methodologies for transitioning from simulation and hardware-in-the-loop (HITL) to the flight environment.
- Instrumentation, data acquisition, and high-rate telemetry requirements for learning-based controllers.
- Field verification and validation (V&V) of autonomous mission logic and machine learning models.

POC: Hever Moncayo for IS (hever.moncayo@erau.edu) and Jessica M. Peterson for FT (jessicapeterson@unr.edu)

Special Session: Flight Testing Guidance, Navigation, and Control Systems (joint FT/GNC):

Flight testing is a critical part of validation, verification, and evaluation of guidance, navigation, and control architectures. This session seeks submissions covering the range of issues related to flight testing as it relates to guidance, navigation, and control. This includes uncrewed/autonomous flight systems as well as piloted systems.

Example topics include (but are not limited to):

- Verification, validation, and flight test evaluation of GNC architectures
- Flight-to-model correlation
- In-flight sensor performance
- Test techniques for augmented/autonomous systems
- Real-time safety monitoring
- Human-machine interface and pilot-in-the loop
- Handling qualities
- Robustness and performance analysis
- Lessons learned from GNC test execution.

Note: the submission to this joint track requires adherence to the GNC requirement of a full draft manuscript, which must include sufficient detail to allow informed evaluation by the assigned reviewers. Extended abstracts will be returned without review. Full draft manuscripts must not exceed a total length of 25 pages, formatted in accordance with the AIAA SciTech manuscript template.

POC: Eric N. Johnson for GNC (eric.johnson@psu.edu) and Jessica M. Peterson for FT (jessicapeterson@unr.edu)

Special Session: Space Domain Vehicle Test & Evaluation (joint FT/OPS TC): This joint session focuses on test and evaluation (T&E) of space domain vehicles and space enabled systems, with emphasis on the end-to-end planning, execution, instrumentation, and analysis of flight test and operational demonstrations. The session bridges OPS and FT, seeking to highlight in-space test techniques, mission sustainment validation, and training/testing developments.

Special Session: Flight Testing of Uncrewed/Autonomous Systems (joint FT/UAS TC): This joint session focuses on integration of technical and operational areas enabling the uncrewed systems domain, including autonomous, automated, and intelligent systems, and remote operations. Submissions should focus on flight test execution regarding underlying principles, models, and algorithms across hardware/software design, machine intelligence, CONOPs (e.g., AAM), and operational aspects. Key areas include range safety for autonomous UAS, verification of autonomous mission logic in the field, and navigation of the regulatory and certification environment through flight test results.