

Ground Testing Technical Committee (GTTC)

Call for Papers

Aviation 2026 Forum



The Ground Testing Technical Committee (GTTC) serves to facilitate interactions and discussions between all elements of the ground testing sector. GTTC is seeking submissions for publication as part of the technical proceedings for the 2026 AIAA Aviation Conference in San Diego, CA, USA.

GTTC welcomes and encourages submissions covering a broad array of topics across all aspects of ground testing planning, execution, data review and assessment, reporting and administration, and facility maintenance, operation, and improvements. Areas of interest include all facets of ground testing including wind tunnels, water channels, engine test cells, rocket sleds, drop testing, climactic simulations, vacuum chamber testing and other space simulation facilities, arc jet heater testing and other types of experimental facilities. Tests related to all speed and Reynolds number regimes and all physical scales are welcomed and encouraged. Specific areas of interest include but are not limited to:

Ground Test Innovations & Facility Development

- Advances in Ground Testing – Aerodynamic, Propulsion, Structural, Acoustic, Thermal, and Environmental Testing
- Design & Development of New or Upgraded Ground Test Facilities
- Facility Management & Productivity – Strategies to Improve Operational Efficiency, Cost Control.
- Developments in Facility Instrumentation & Control Systems – Automation, Real-Time Visualization, and Intelligent Test Scheduling
- Flow & Test Environment Quality – Best Practices, Data Fidelity, and Uncertainty Quantification
- Novel Applications & Emerging Techniques in Ground Testing

Test Article Design, Models & Manufacturing

- Advancements in Model Design – From Scaled Models to Full-System Hardware
- Additive Manufacturing & Rapid Prototyping – Applications in Models, Fixtures, and Instrumentation
- Smart Models & Test Articles – Embedded Sensors, Adaptive Surfaces, and Wireless Data Systems
- High-Fidelity Models for Extreme Conditions

Advancements in Test Techniques & Processes

- New & Evolving Test Methodologies – Improving Accuracy, Repeatability, and Reliability
- Next-Generation Test Planning – Leveraging Digital Twins and AI
- Optimization of Test Processes – Reducing Cycle Time and Enhancing Efficiency
- Lessons from Test Campaign Execution – Real-World Solutions for Complex Test Challenges

Integrated Computational & Experimental Approaches

- CFD + Ground Testing Integration – Aligning Modeling and Measurement
- Digital Twins for Ground Testing – Fusing Simulation, Measurement, and Predictive Analytics
- Multi-Fidelity Testing Strategies – Combining Reduced-Order Models, Scaled Experiments, and Full-Scale Verification
- AI & Machine Learning in Ground Testing – Automating Data Interpretation and Performance Optimization

Advanced Data Acquisition, Processing & Management

- High-Speed, High-Density Data Acquisition Systems, & Big Data Management Strategies – Multi-Sensor Integration and Distributed Architectures, Storage, Traceability, and Integration
- Data Processing & Visualization – Turning Raw Measurements into Actionable Insights
- Cross-Facility Data Comparisons – Insights from Canonical Models, Calibration Standards, and CRM Datasets
- Edge Computing for Real-Time Data Analytics – Accelerating On-the-Fly Test Decisions

Specialized & Emerging Ground Test Applications

- Hypersonic, Inlets, Exhausts, Store Separation, and Multi-Disciplinary Measurements

Historical Perspectives & Lessons Learned

- From Then to Now – Evolution of Ground Testing Methodologies
- Iconic Facilities & Breakthrough Experiments – Technical Insights That Shaped Aerospace Testing
- Retrospectives on Pioneering Test Programs – Lessons for the Next Generation

Panels & Invited Sessions *(Optional)*

- Future of Ground Testing – AI, Automation, and the Next Decade of Facility Development
- Best Practices Roundtable – Data Quality, Repeatability, and Test Planning Strategies
- Industry–Government–Academia Collaboration – Driving Innovation Through Shared Testing Resources