

Confronting Unknowns : A Congressional Briefing on Aerospace Safety and Anomalous Phenomena



In January 2026, 55 engineers, analysts, operators, and researchers gathered at MIT for two intensive days of applied sensemaking – learning to detect, interpret, and respond to anomalous aerospace events.

This briefing is a summary of our team’s collective ideas to support a more effective, safe and just disclosure.

The Mission

Support Frontline Operators

America’s frontline operators need better tools and frameworks to detect, identify, respond and explain anomalous encounters.

There are a growing number of incidents of unknown objects operating over U.S. and allied airspaces globally including over restricted military airspaces. Several recent incidents highlight the challenge to be:

- inadequate technological capability to detect, identify, track and intercept objects;
- lack of institutional capacity to communicate and coordinate decision-making authority to respond;
- lack of a shared language to discuss uncertainties in anomalous aerospace incidents which is inhibiting effective communication among frontline operators, policymakers and the public.

Failure to address this situation could result in a catastrophic homeland security event including a midair collision or another unanticipated crisis.

Invest in Science

Scientific investigations of anomalous phenomena provide an extraordinary opportunity for America’s technological advancement and require well-funded, well-governed infrastructures that do not yet exist.

Federal science agencies, universities, private philanthropy, and technology-governance institutions each hold a piece of the puzzle; none holds enough alone. The opportunity is extraordinary: anomalous-phenomena research touches physics, biology,

materials science, astronomy, earth science, and sensor engineering. The risk is commensurate: without governance, the same discoveries that could unlock clean energy or hypersonic travel could introduce biosecurity, cybersecurity, or national-security hazards that no existing framework is designed to manage.

Build Public Trust

Rebuilding public trust is the foundation that will make this mission possible.

Media organizations, journalists, online platforms, scientific bodies, healthcare institutions, Congress, and government public-affairs officers must have clear communications processes on anomalous phenomena in place. Government and media communications regarding anomalous aerospace events dating back to the Cold War have been nebulous and include files now on the public record stating a formal policy to deny, stigmatize and debunk anomalous phenomena. The lack of formalized acknowledgement has created a vacuum of vocabulary for uncertainty, as well as institutionalized stigma, dismantled inter-agency protocols, underreporting of potential aerospace threats by pilots and civilians and an information environment that outpaces institutional response.

An Action Agenda for Confronting Unknowns

Mission 1: Support Frontline Operators

Anomaly Detection & Identification Capabilities

Federal Defense Research & Innovation Agencies: Department of War (OASW(S&T), DARPA, DIU, ONR, ARO, AFOSR), Department of Homeland Security (S&T Directorate, HSARPA, OIC), Office of the Director of National Intelligence (IARPA), Department of Justice (FBI Innovation Center)

1. Next-Generation Sensor Infrastructure

- Deploy Hyperspectral Sensing:** Integrate hyperspectral payloads together with infrared sensors onto existing search and track platforms, adding a

Confronting Unknowns : A Congressional Briefing on Aerospace Safety and Anomalous Phenomena

discriminating signal that helps separate object classes that look or move alike (e.g., a metallic aircraft, a weather balloon, or an atmospheric phenomenon).

- **Develop Purpose-Built Sensors:** Invest in novel sensing arrays engineered for cross-domain profiles of anomalous phenomena rather than repurposing legacy defense assets.
- **Publish Open Detection Architectures:** Follow the Galileo Project model by publishing open engineering specifications to foster reproducible, peer-reviewed academic studies.

2. Taxonomies, AI, and Explicit Uncertainty

- **Unclassified Event Taxonomy:** Create a shared, actionable vocabulary of Unidentified Anomalous Phenomena (UAP) categories using both public and classified insights without compromising sensitive source data.
- **Build a Data Discovery Engine:** Develop a geo-temporal tool that automatically cross-references an observation's time and location with active surrounding monitoring assets (satellite, ADS-B, radar).
- **Deploy AI-Assisted Identification Pipelines:** Build multimodal Large Language Model (LLM) pipelines on top of existing commercial foundation models rather than training a custom model from scratch.
- **Replace binary “resolved/unresolved” outputs with probabilistic models:** Preserve ranked hypotheses, making uncertainty explicit and carrying from identification through to public communication.

Aerospace Incident Readiness & Response

Federal Aerospace Emergency Response Agencies: NSC, DHS, FBI, FAA, NASA

1. Emergency Management & Interagency Protocols

- **Establish National Protocols:** Direct the NSC to develop and exercise inter-agency protocols for anomalous aerospace incursions, modeled after existing NIMS/ICS playbooks for natural

disasters, pandemics, and nuclear incidents.

- **Create a Drone-Incursion Playbook:** Formalize how drone waves and anomalous events are managed under the Federal Emergency Management Agency (FEMA) Incident Command System (ICS).
- **Harmonize Federal-State Coordination:** Integrate state-level reporting and legislative initiatives (e.g., NJ, VT, CT) into a coherent national framework to prevent fragmented regional policies.
- **Clarify Flight Restrictions:** Review how the FAA issues Temporary Flight Restrictions (TFRs) to better balance immediate air safety with broader air traffic disruptions.

2. Frontline Operator Tools

- **Build a Universal Operational Picture:** Engineer a data-fusion platform that merges field reporting with ADS-B, Remote ID, FAA flight data, radar, weather data, and 911 calls.
- **Train Counter-UAS (c-UAS) Teams:** Fund and mainstream specialized anomaly training across military, law enforcement, and private security operators.
- **Strengthen Safety Reporting:** Expand NASA's Aviation Safety Reporting System (ASRS) or create a parallel, non-punitive reporting track for commercial pilots and air traffic controllers.
- **Mandate Event-Preservation Standards:** Enforce strict data-retention standards that preserve raw data, metadata, sensor calibrations, and chain of custody, correcting current AARO intake deficits that reduce events to un-analyzable narrative summaries.



Mission 2: Support Science

Federal Scientific Research Grant Funding Agencies including: NSF, DoE, NASA, NOAA, NIH

1. Dedicated Funding & Strategic Planning

- **Establish Named Research Categories:** Direct the NSF, DOE, and NASA to create dedicated, competitive grant categories for anomalous

phenomena. This removes institutional stigma and unlocks faculty participation.

- **Create a Scientific Discoveries Roadmap:** Map priority research pathways across physics, biology, materials science, earth science and astronomy to explore basic science discoveries and potential breakthroughs (e.g., clean energy, hypersonics).
- **Fund Observational Feasibility Studies:** Evaluate how existing infrastructure (weather radar, satellites) and purpose-built multi-sensor observatories can optimize collection of infrequent anomalous events at an acceptable cost.
- **Coordinate via Independent Institutes:** Leverage non-profit independent Focus Research Organizations (FROs) to centralize data sharing and cross-discipline collaboration.
- **Engage Cultural and Scientific Communities:** Actively consult religious, indigenous, spiritual, and multi-disciplinary scientific communities upstream to prepare for how breakthroughs might challenge existing paradigms.

2. Create Technology Governance Frameworks

- **Build a Risks & Opportunities Roadmap:** Set clear policy triggers for controlled disclosure and dual-use oversight, balancing national security risks against open-source scientific upside.
- **Clarify IP and Patent Law:** Address legal frameworks for potential discoveries early to encourage or regulate private sector R&D investment.
- **Standardize Security & Classification Control:** Define explicit rules for compartmentalization, export controls (ITAR/EAR), end use controls, and declassification pathways. Standardize the practice of masking sensitive sensor signatures so collected data can be shared without compromising collection methods.



Mission 3: Build Public Trust

1. Information Environment & Public Education

U.S. Congress: House Committee on Oversight & Accountability

- **Formally acknowledge past information management activities:** Congress could hold hearings and formally acknowledge past activities of disinformation, whistleblower reprisals and other unethical activities conducted by US Government in relation to anomalous phenomena going back to the 1940s.

Private Sector & Philanthropy: Media platforms, including social media, civil society organizations, and philanthropy

- **Map the Information Ecosystem:** Conduct a systematic study of the sources, intermediaries, and amplification pathways of anomaly reporting to identify where misinformation and disinformation originate.
- **Train Public Communicators:** Draft pre-vetted communication templates that acknowledge detection and state verification status honestly without resorting to premature debunking or silence.
- **Host Platform Briefings:** Provide specific trust-and-safety briefings for journalists and social media platforms regarding ground-truth uncertainty during active airspace events.
- **Launch an Open-Source Information Portal:** Establish a public clearinghouse aggregating declassified sensor analysis, expert commentary, fact-checking data, and deep-fake debunking resources.
- **Prepare Healthcare Providers:** Develop clinical guidance for primary care physicians and mental health professionals to support individuals experiencing physical or psychological distress from anomalous encounters, ensuring protocols neither pathologize the reporter nor blindly validate specific interpretations.

This briefing summarizes work developed during Confronting Unknowns, a non-credit independent activity convened at MIT in early 2026. It is authored by program participants in their individual capacities. It does not represent an official position of MIT or of any participant's institution or employer.

Confronting Unknowns

A Congressional Briefing on Aerospace Safety and Anomalous Phenomena

Convened at MIT January 2026

Presented on June 25, 2026

