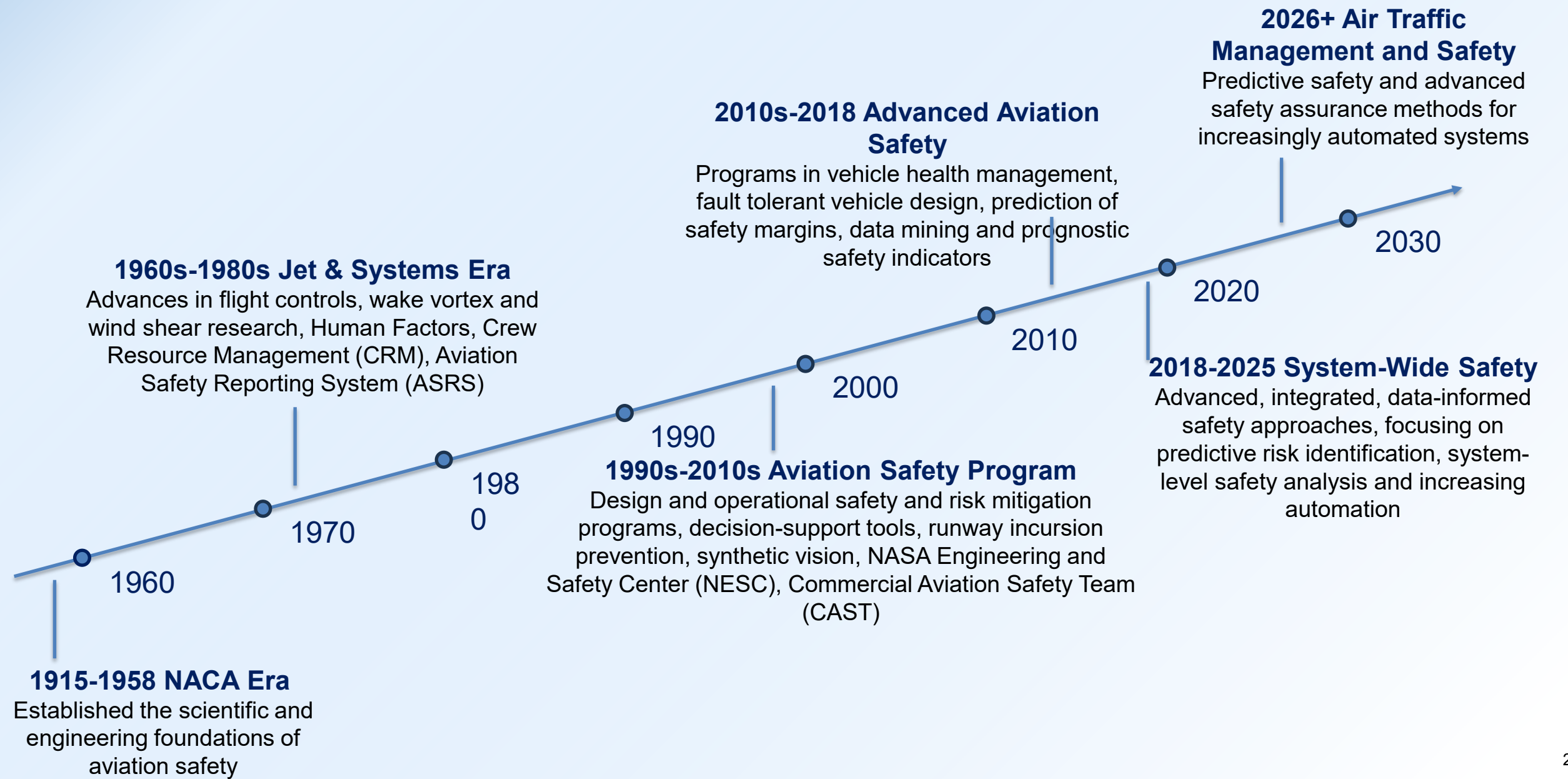


# NASA Aeronautics Safety Research and Development

Dr. Natasha Neogi  
NASA Langley Research Center  
Dayton, OH  
August 12, 2026



# A Brief History of NASA Safety Research



# **NASA Reorganization**

**Where is safety now?**



# Select Core Safety Expertise & Competencies



Verification,  
Validation &  
Assurance

Hazard Analysis &  
Safety  
Argumentation

Runtime  
Verification &  
Monitoring

Digital Modeling,  
Simulation & Risk  
Assessment

Diagnostics,  
Prognostics &  
System Health

Data-Driven Safety  
Intelligence

Human  
Performance

Human-Automation  
Interaction

Human-in-the-Loop  
Simulation

# NASA and AI/ML

- Safety of AI/ML
  - Safety of AI/ML implementations in NASA Applications
    - Aviation
    - Space
- AI/ML for Safety
  - Anomaly detection and precursor identification
  - Other

# NASA and Autonomy

## Problem

- The inability to establish appropriate assurance for increasingly autonomous systems leaves us unable to effectively manage their risks and benefits.
  - Drives cost of development uneconomically high
  - Delays adoption of autonomy at scale in safety critical systems
  - Results in unknown and unmanageable risks

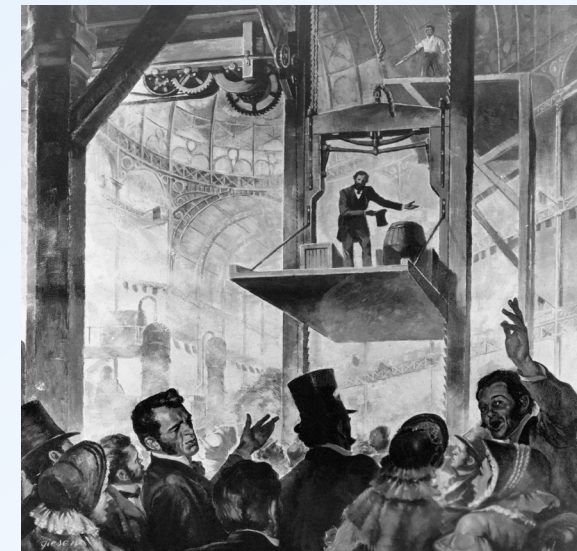
## Goal

- Discover and define what constitutes sufficient evidence to substantiate a safety claim related to an increasingly autonomous system performing a safety-critical function.

Courtesy of Baron Maddock, CC BY 4.0,  
<https://commons.wikimedia.org/w/index.php?curid=114048157>

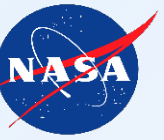


Elevators carry two billion passengers a day over hundreds of millions of vertical miles in over 200 nations.



Courtesy of  
Unknown author -  
Copie de gravure  
ancienne, Public  
Domain,  
<https://commons.wikimedia.org/w/index.php?curid=30135037>

Autonomy will not see widespread adoption in safety-critical aviation systems until it is properly assured.



# Backups