

ATO Joint Aviation and Space Collaborative Decision Making (CDM) February 2024 Executive Committee Meeting Executive Summary

What: On February 29, 2024, the FAA’s Air Traffic Organization (ATO) System Operations (AJR) held a Joint Aviation and Space Collaborative Decision Making (CDM) executive committee meeting at Evans Consulting in Falls Church, Virginia. The meeting was the first joint meeting of the executive committees and this is a summary of the event.

Who: Aviation and space industry members participated, including **Allegiant Air, American Airlines, Delta Air Lines, Horizon Air, JetBlue Airlines, SkyWest Airlines, Southwest Airlines, SpaceX, Stoke Space, United Airlines, United Launch Alliance (ULA), United Postal Service (UPS), and Virgin Galactic.**

Airlines for America (A4A), Commercial Spaceflight Federation (CSF), International Air Transport Association (IATA), National Business Aviation Association (NBAA), and the United States Space Force (USSF) also participated.

The FAA participants included offices from the **ATO**, including **System Operations (AJR), Program Management Office (AJM), and Mission Support Services (AJV).**

The program is invitation-only, collaborative, and not a Federal Advisory Committee Act (FACA).

Core agenda:

Topic	Speaker(s) / Facilitator(s)
Welcomes	<p>Alyce Hood-Fleming <i>Vice President</i> <i>ATO System Operations</i></p> <p>LaKisha Price <i>Director, NAS Operations,</i> <i>ATO System Operations Services, FAA</i></p> <p><i>Aviation and Space CDM Co-Chair</i></p>
Aviation CDM industry co-chair welcome	<p>Rob Goldman Senior Manager of Air Traffic Management & Industry Affairs, Delta Air Lines</p> <p><i>Aviation CDM Co-Chair</i></p>
Space CDM industry co-chair welcome	<p>Michael Lapidus <i>Director of Government Affairs, SpaceX</i></p> <p><i>Space CDM Co-Chair</i></p>



Aviation-focused CDM update and overview	Vern Payne <i>ATO CDM and International Operations Manager, FAA</i>	
Joint task 118 update: Training	Tony Price <i>ATCSCC/NAS Training Administrator, FAA</i> <i>Task 118 FAA Co-lead</i>	Darin Tietjen <i>Chief Air Traffic Management, Southwest Airlines</i> <i>Task 118 Industry Co-lead</i>
Joint task 119 update: Metrics	Renee Fields <i>Office of Performance Analysis, FAA</i> <i>Task 119 FAA Co-lead</i>	Erin Cobbett <i>Office of Performance Analysis, Delta Air Lines</i> <i>Task 119 Industry Co-lead</i>
Assured access to space	Mark Bontrager <i>Technical Director, Launch and Range Operations, U.S. Space Force</i>	
Space impact report overview	Kevin Hanson <i>Director, Office of Performance Analysis, FAA</i>	
Space CDM update and joint CDM activities	Elizabeth McGovern Assink <i>ATO Space CDM Program Manager, FAA</i>	
Space operations pre-mission planning portal update & future tools	Allison Nicholls <i>ATO Space CDM Program Coordinator, FAA</i>	Julia Black <i>Director of Range Operations, Stoke Space</i> <i>Space CDM Pre-mission Planning Sub Team Industry Co-lead</i>
Discussion: What are the common integration priorities for the two communities?	Ed Kesler <i>ATO Space Operations Group Manager, FAA</i>	Vern Payne <i>ATO CDM and International Operations Manager, FAA</i>
Next steps	Ed Kesler <i>ATO Space Operations Group Manager, FAA</i>	Vern Payne <i>ATO CDM and International Operations Manager, FAA</i>
Open forum	Michael Lapidus <i>Director of Government Affairs, SpaceX</i> <i>Space CDM Co-Chair</i>	LaKisha Price <i>Director, NAS Operations, System Operations Services, FAA</i> <i>Aviation and Space CDM Co-chair</i>



Final comments	Rob Goldman <i>Senior Manager of Air Traffic Management & Industry Affairs, Delta Air Lines</i> <i>Aviation CDM Co-Chair</i>	Michael Lapidus <i>Director of Government Affairs, SpaceX</i> <i>Space CDM Co-Chair</i>	LaKisha Price <i>Director, NAS Operations, System Operations Services, FAA</i> <i>Aviation and Space CDM Co-Chair</i>
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Next steps and actions:

Create a joint CDM task system	Future joint CDM taskings will reflect aviation and space CDM representation in industry co-lead selection and joint task numbering system.	Aviation and space CDM program teams will develop a structure to support future taskings and brief at a future meeting.
TFM Learning	Joint activities, educational materials, meeting information, etc., will be stored on a corresponding central repository on TFM learning.	In the meeting follow-up, include links to the TFM learning sites, debris response areas (DRA) training, task 119 modules, meeting slides, sample space article for airlines, and executive summary.
Case studies	Joint education activities and products will include aviation and space case studies.	The first case study will be on the coordination efforts of a recent SpaceX launch that was moved to another date due to a high National Airspace System (NAS) impact day.
Joint education initiatives	Joint education remains a priority to facilitate information exchange between aviation and space communities.	Aviation and space CDM program teams will focus on identifying existing education or creating educational products on DRAs, Space Operations hotline, and aircraft hazard area (AHA) terminology to host on TFM Learning .
Educational article: Airspace efficiency efforts	An educational article was developed for Southwest Airlines . They requested the target audience be their pilots and other employees to increase awareness of the efficiency efforts occurring during space launches.	The FAA ATO Space CDM program is happy to provide a similar article for your organization if it is of interest. Please send a request to spoc@faa.gov and note the audience in your request and a POC.



Quarterly dashboard	<p>A vice-president-level quarterly dashboard on space launches and operations would be useful for information exchange and storytelling initiatives.</p> <p>Developing a corresponding infographic was suggested, potentially including case study event, impact (duration, real-time communications), and total cumulative impact.</p>	<p>Aviation and space CDM program teams will work with Kevin Hanson on the potential development of a dashboard.</p>
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Key outcomes: The key meeting outcomes included:

Joint CDM activities: Leadership from the aviation and space CDM program management teams and sub-teams have partnered on various activities:

- **Joint tasks:** In April 2023, joint task forms were issued focusing on space course development and metrics, and meetings with subject matter experts (SMEs) began in the fall of 2023. Education and information sharing between aviation and space industry SMEs was credited as laying the foundation for discussion.

During the meeting, the need to have co-leads represented by aviation and space and to have a joint task numbering system was discussed.

- Task 118/Course Development: Space Operations Impact and Mitigations
 - Objective: Establish an information resource for a joint understanding of Space Operations, including:
 - A description of advance coordination practices.
 - Processes to mitigate disruptions from missions.
 - Practices to maintain efficient NAS Operations.
 - A description of the tactical decision-making process and procedures associated with Space Operations.
 - Status:
 - Final report and deliverables provided on December 7, 2023.
 - Training materials posted to TFM Learning - [click to view](#).
 - Aviation CDM has concurred.
 - Awaiting space CDM concurrence.
- Task 119/Course Development: Space Operations Impact and Mitigations
 - Objective: Collaborate to establish a common set of metrics to measure space and aviation operations in areas where the two activities overlap.
 - Status:
 - The current tasking end date is 3/31/24, pending the concurrence of the aviation and space CDM executive committee.
 - Prepare a close-out report to include findings, recommendations, and potential actions.



- Continue dialogue to expand cross-industry awareness/communication.

“Great exchange of information (during joint tasking meetings) ... it has been enlightening and (we) can bring back to our operations. Makes the process smoother and lot less questions.”

– Eric Silverman, ATC/Airfield Operations Manager, American Airlines

- **Collaboration:** The space CDM program has collaborated with the aviation community since its inception:
 - Three airline associations are represented on the ATO SpOC - NBAA, A4A, and IATA.
 - Airlines have briefed on their operations and efficiency needs - Delta, Southwest, and JetBlue.
 - Held an ATO SpOC meeting at Southwest Airlines HQ in Dallas, TX.
 - Invited airlines to periodically observe ATO SpOC meetings (Southwest, Delta, Southwest, JetBlue, and American).
- **Joint meetings:** The aviation and space CDM program teams will continue planning bi-annual executive committee meetings, potentially in April and October, and regular co-chair planning meetings.
- **Education:** The [TFM Learning site](#) is a repository of information and educational resources for space and aviation communities.
 - [Aviation CDM](#)
 - [Space CDM](#)

During the meeting, participants asked if education materials were available for debris response areas (DRAs). The training is posted to [TFM Training](#) and can be viewed [here](#).

The aviation and space CDM program teams will continue to develop educational resources, including, but not limited to:

- Space operations hotline.
- AHA terminology.
- Space operations 101.

The aviation and space CDM have collaborated with CANSO and the FAA International (AJV-I) to produce two guidance documents:

- [Air Navigation Service Provider \(ANSP\) Considerations for Managing Space Operations](#)
- [Planning for the Expected and Unexpected](#)

Assured access to space: Mark Bontrager, Technical Director for U.S. Space Force’s Launch and Range Operations, briefed on the status of assured access to space and what it means to national security.

Key points included:

- Space is foundational for national security and important to the American way of life.
- Space is no longer a peaceful place; e.g., Russia and China counter space activities.



- Assured access to space breaks down into warfighter requirements and commercial capabilities.
 - Responsive and reliable launch.
 - Resilient and ready spaceport.
 - Space mobility and logistics (futuristic).
- The U.S. space domain is organized into three groups:
 1. National security: U.S. Space Force and Department of Defense (DoD) partners.
 2. Civil: FAA, National Oceanic and Atmospheric Administration (NOAA), National Aeronautics and Space Administration (NASA).
 3. Commercial: Space industry (launch and reentry operators).
- Spaceports were built in the 1960s, and there is concern about the infrastructure, funding, architecture, and policy needs to support current and future demand for space operations.

“It’s an American issue - not just the Department of Defense - and an opportunity for the United States to lead globally.”

– Mark Bontrager, Technical Director, Launch and Range Operations, U.S. Space Force

- The need for autonomous flight safety systems (AFSS) at the range/spaceports is needed as demand increases and to support access to space by opening up range/spaceport capacity and reducing cost.

“Reliable, resilient, responsive launch is vital to countering the pacing challenge.”

– Mark Bontrager, Technical Director, Launch and Range Operations, U.S. Space Force

- The U.S. Space Force is working on the sustained maneuverability of satellites (while reducing the impact on the life of the satellite, e.g., fuel reduction) and rocket cargo (moving cargo point to point on Earth within an hour).
- The discussion included the following questions:
 - Is NASA taking a step back from space launch and reentry?
 - In reality, NASA hasn’t stepped back. NASA is letting commercial space companies lead the launch of satellites so NASA can focus on interplanetary efforts, e.g., Artemis and the moon missions, Mars.
 - Is there a centralized system/office tracking objects in orbit and identifying possible collisions?
 - Yes, the U.S. Space Force produces a collision avoidance analysis for every launch.
 - Over time, it may transition to the [U.S. Office of Space Commerce](#), where the [Traffic Coordination System for Space \(TraCSS\)](#) is in development.



- The U.S. Space Force provides free tracking of unclassified vehicles in orbit and all launch and reentry operators (LROs) provide data that feeds into the tracking system.

Space operations metrics: At previous respective Aviation and Space CDM executive committee meetings, Kevin Hanson, Director of the FAA ATO Office of Performance Analysis (AJR-G), briefed on a preliminary space data report, “Space Launch Impact Report.” The report is based on data provided by the FAA ATO Space Operations (AJR-1800) team and includes:

- Operation information:
 - Mission name, date, location, operator
 - Launch or scrub
- Airspace closure information:
 - Temporary Flight Restrictions (TFRs), ATC-assigned airspace (ATCAA), Warning Areas, Restricted Areas
 - Schedule start/stop
 - Actual start/stop
 - T-O
 - Geometries

“Data doesn’t lie.”

– Ed Kesler, Group Manager, FAA ATO Space Operations

The report is to tell the full story of the NAS and the integration of new entrants, e.g., supersonics, space launch and reentry vehicles, and autonomous flight vehicles. (Not just space).

“Not just impact - we are integrating the operation into the NAS. It’s just another operation.”

– LaKisha Price, Director, NAS Operations, FAA System Operations

Airline representatives credited education and early communications as improving awareness related to space operations. For example:

- Launches are not as impactful to the NAS as previously thought by the airlines.
- Airlines have a better understanding of space operations, i.e., why LROs cannot ‘just launch at night.
- In March 2023, a new space operator launched from Cape Canaveral Space Force Station (CCSFS) with a large hazard area (HA). The aviation community appreciated the preparatory communications prior to the launch and avoided last-minute notification, confusion, and questions.

“We can only move forward through integration to create NAS agility and how the system is managed.”

– Rick Dalton, Managing Director Airspace, Air Traffic Management, and Meteorology, Southwest Airlines

The report is preliminary and expected to be published by the end of the calendar year.



FAA ATO Space Operations pre-mission planning portal: The FAA’s ATO Space Operations team (AJR-1800) is developing a prototype portal to streamline pre-mission planning for space launch and reentry operations and communication between the FAA and space launch and reentry operators. Current portal development is supported by the ATO Space CDM data exchange sub-team for mission planning and an interagency partnership between the FAA and NASA Ames.

“Let’s not automate a bad process just because it is what we do today. There is an opportunity to do it (space operations and mission planning) better.”

– Julia Black, Director of Range Operations, Stoke Space

Aviation CDM executive committee members are interested in future aviation access to the portal and if there will be a requirement to be an aviation CDM member organization. It was noted that access would depend on confirming stakeholder needs and, if the need is validated – the development of portal permission-based user profiles.

POCs:

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Organization	Participant
Allegiant Air	Jeff Yost
A4A – Airlines for America	Jeff Rehaluk
American Airlines	Eric Silverman
CSF – Commercial Spaceflight Federation	Isaiah Wonnemberg
Delta Air Lines	Rob Goldman Erin Cobbett (speaker)
FAA – ATO-AJM Program Management Organization	Walter Abilla (AJM-22)
FAA – ATO-AJR Systems Operations Services	LaKisha Price (AJR-1) NAS Operations (SpCDM co-chair) Ed Kesler (AJR-1800) Space Operations (group manager) Vern Payne (AJR-1300) NAS Operations (CDM program manager) Elizabeth Assink (AJR-1800) Space Operations (SpCDM program manager) Allison Nicholls (AJR-1800) Space Operations (ctr coordinator) Sue Ashley (AJR-1300) NAS Operations (ctr coordinator) Kevin Hanson (AJR-G) Performance Analysis (speaker) Renee Fields (AJR-G) Performance Analysis (speaker) Tony Price (AJR) NAS Training (speaker)
FAA – ATO-AJV Mission Support Services	Michelle Lott (AJV-S) Strategy Greg Hébert (AJV-I) International
IATA – International Air Transport Association	Mike Carver
Horizon Air	Kevin McKennon
JetBlue Airlines	Lee Brown
MITRE	Mike Robinson (observer)
NBAA – National Business Aviation Association	Dean Snell
SkyWest Airlines	Stephen Sorkness
Southwest Airlines	Rick Dalton Darin Tietjen (speaker)
SpaceX	Mike Lapidus (SpCDM co-chair) Jeralyn Gibbs
Spirit Airlines	Timothy Matuszewski
Stoke Space	Julia Black
United Airlines	Paul Litke
ULA – United Launch Alliance	Vern Thorp
USSF – United States Space Force	Mark Bontrager, Technical Director, Launch and Range Operations Lt Col Greg Allen (observer) Kerri Westburg (observer)
UPS – United Parcel Service	Adam Davis
Virgin Galactic	Kyle Slover

