



FAA Civil Space Traffic Management Terminology



Federal Aviation
Administration

Terminology

- Space Traffic Management
- Space Situational Awareness
- Safety-related space situational awareness data and information
- Commercial & Foreign Entities
- Non-National Security Space Operators and Stakeholders
- Conjunction Assessment
- Collision Avoidance

Space Traffic Management (STM)

There is no single lexicon for space traffic management. Definitions have varied over time but most focus on these elements;

- Coordination
- Promotion of safety
- Oversight
- Regulation

Commonly used Definition:

“Space traffic management means the set of technical and regulatory provisions for promoting safe access into outer space, operations in outer space and return from outer space to Earth free from physical or radio-frequency damage” (International Academy of Astronautics 2006).

FAA focus

- The policies, regulations, and services that support orbital safety and the preservation of the space environment

Space Situational Awareness (SSA)

Space Situational Awareness Services

- Using knowledge of the space environment, including the locations of space objects, to improve space operations safety and support the preservation of the space environment
- Civil SSA is a portion of national security collected SSA

AIR FORCE DOCTRINE DOCUMENT 2-2.1 - Space Situation Awareness (SSA)

SSA is the result of sufficient knowledge about space-related conditions, constraints, capabilities, and activities—both current and planned—in, from, toward, or through space. Achieving SSA supports all levels of planners, decision makers, and operators across the spectrum of terrestrial and space operations.

- SSA involves characterizing, as completely as possible, the space capabilities operating within the terrestrial and space environments.
- SSA information enables defensive and offensive counterspace operations and forms the foundation for all space activities.
- **It includes space surveillance**, detailed reconnaissance of specific space assets, collection and processing of intelligence data on space systems, **and monitoring the space environment**.
- It also involves the use of traditional intelligence sources to provide insight into adversary space and counterspace operations.

STM vs. SSA

STM focuses on making decisions before and during space operations for those operations within a nations responsibility

- Near and long term safety issues
- Actions within your authority and have responsibility for

SSA focuses on:

- Near term safety issues of the space environment, including location of all space objects
- Actions of all objects in the environment regardless of ownership

Safety-related SSA data and information

CSLCA Section 110 report signed by the Secretary of Transportation

- The report notes that safety-related SSA data and information include analysis products used for orbital safety and range from simple positional information in an element set to detailed services including;
 - conjunction assessments,
 - collision avoidance support, and
 - emergency close approach notification.
- It also includes element sets, positional variation or covariance, and analytical products.
- It includes all phases with regards to orbital safety during launch, on-orbit, and reentry. For reentry it encompasses predictions to predicted re-entry time/location and details of the reentering object.

Stakeholders

Commercial and Foreign Entities (CFE)-

- Term developed in the 2004 Air Force Pilot Program.
- Pilot program to determine the feasibility and desirability of providing to non-United States Government entities space surveillance data support
 - Eligible Entities.
 - A State or political subdivision of a State.
 - US commercial entity.
 - Government of a foreign country or foreign commercial entity.

Non-National Security Space Operators and Stakeholders

- Includes CFE stakeholders and other stakeholders not involved in national security activities – US, foreign, and international
 - Commercial entity,
 - Civil entity,
 - research and development entity, and
 - Academic entity.

Operations Terminology

A **conjunction** is defined here to mean a local minimum in the difference between the position components of two trajectories – the closest point of approach

- **Conjunction Assessment (CA)** is the process of predicting the conjunction event (also called “screening”)
- **Collision Avoidance** is the process by which the risk associated with a conjunction event is mitigated – by a maneuver or other action.