

DAG- TM



Key Elements:

- Free Maneuvering for user-preferred separation assurance and local traffic flow management (TFM) conformance
- Trajectory Negotiation for user-preferred separation assurance and local TFM conformance
- Collaboration for mitigating local TFM constraints
- Self-spacing for merging and in-trail separation

Benefits:

- Increased airspace system throughput through increased productivity enabled by:
 - Distribution of separation responsibility to equipped aircraft
 - ATM automation enhanced by CNS technologies
- Increased user efficiency and flexibility, resulting in reduced user direct operating costs
- Increased system safety

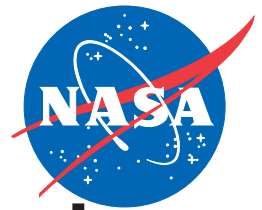
R&D Activities:

- Validation, assessment, and refinement of concept elements through simulation and flight trials
- Development of research prototype for air and ground systems
- Assessment of cost/benefit and safety cases

More Information:

Advanced Air Transportation Technologies (AATT) Office
NASA Ames Research Center
Mail Stop 210-15
Moffett Field, CA 94035-1000

Distributed Air/Ground Traffic Management



Vision

Distributed Air/Ground (DAG) Traffic Management (TM) is an integrated operational concept in which flight deck crews, air traffic service providers and aeronautical operational control personnel use distributed decision-making to enable user preferences and increase system capacity, while meeting air traffic management (ATM) requirements. It is a possible operational mode under the Free Flight concept outlined by the RTCA Task Force 3.

The goal of DAG-TM is to enhance user flexibility/efficiency and increase system capacity, without adversely affecting system safety or restricting user accessibility to the National Airspace System (NAS). DAG-TM will be accomplished with a human-centered operational paradigm enabled by procedural and technological innovations. These innovations include automation aids, information sharing and Communication, Navigation, and Surveillance (CNS) / ATM technologies. The DAG-TM concept is intended to eliminate static restrictions to the maximum extent possible. In this paradigm, users may plan and operate according to their preferences – as the rule rather than the exception – with deviations occurring only as necessary. The DAG-TM concept elements aim to mitigate the extent and impact of dynamic NAS constraints, while maximizing the flexibility of airspace operations.

Scope

DAG-TM is a proposed concept for gate-to-gate NAS operations beyond the year 2015. It will address dynamic NAS constraints such as bad weather, Special Use Airspace (SUA) and arrival metering/spacing. Out of a total of 15 concept elements, 4 have been selected for initial studies. The DAG-TM concept is intended to address all user classes (commercial carriers, general aviation, etc.) with an emphasis towards ensuring access to airspace resources for the entire user community. It covers all flight phases (Pre-Flight Planning, Departure, Cruise and Arrival) and all operational domains in the NAS (Surface, Terminal and En route Airspace). Although other operational domains (e.g., European, oceanic, and under-developed airspace) are outside the scope of the current DAG-TM concept, research activities will give due consideration to global interoperability issues.

DAG-TM research is being performed at Ames, Glenn, and Langley Research Centers. Results are being shared with domestic and international stakeholders to help establish standards through RTCA special committees and through the FAA/Eurocontrol Action Plans.

