U.S. Air Force photo

Mid-Air Collision Avoidance System

The Secretary of Defense established the Defense Safety Oversight Council (DSOC) to provide governance on DoD-wide efforts to reduce preventable mishaps. The NDCEE is responsible for implementing DSOC initiatives and supporting the DSOC Integration Group and its Task Forces. The Mid-Air Collision Avoidance System (MACA) is one of the DSOC initiatives supported by the NDCEE.

Problem Statement

According to the Federal Aviation Administration's National Transportation Safety Board, there have been, on average, 30 mid-air collisions each year since 1978, resulting in an average of 75 deaths. In addition, there are more than 450 near mid-air collisions each year, not including unreported incidents.

Technology Description

The mission of the MACA project is to reduce mid-air collisions and close calls through the rapid development and execution of a website linking civilian and DoD aviation safety programs. The website, www.SeeAndAvoid.org, promotes information exchange between civilian pilots and the military flight safety community. The SeeAndAvoid.org portal offers an easy-to-use, centralized, credible website that provides civilian and military pilots with open-source reciprocal information—a "one-stop shopping" experience for education on airspace, visual identification, aircraft performance, and mutual hazards to promote safe flight from more than 400+ military aviation bases and civilian aviation organizations throughout the U.S.

Users are able to find and link to all existing MACA programs, while also enjoying access to information from bases that did not previously have web-based content. The site provides every participating DoD flying base in the U.S. with the opportunity to create a web-based MACA educational and public outreach website and integrates and links the site with related sites such as the Federal Aviation Administration (FAA) Special Use Airspace, Aircraft Owners and Pilots Association (AOPA) Air Safety Foundation, and the new FAA MADE (military airspace de-confliction) program.

Environmental, Safety, and Occupational Health (ESOH) and Cost Benefits

- **ESOH Benefit.** The MACA website should reduce the number of mid-air collisions and near mid-air collisions that occur each year.
- **Cost Benefit.** Costs to maintain the site are estimated at $1,300-1,500 per month. If one mid-air collision is avoided, the monthly cost is negligible.

Technology Benefits and Advantages

- Provides information to reduce collisions and near mid-air collisions between military and civil aircraft
- Facilitates coordination among FAA, DoD, and civilian aviators
- Provides "one-stop" shopping for open-source information among 400+ military aviation bases and civilian aviation organizations throughout the U.S.
- Easy to use
- Represents all military branches
- Includes cutting-edge mapping tools and complete administrative section where Military Safety Officers can upload information easily and immediately
- Includes Google™ Mapping Interface for General Aviation Pilots

NDCEE
National Defense Center for Energy and Environment

DoD Executive Agent
Office of the Assistant Secretary of the Army for Installations, Energy and Environment

the NDCEE is operated by:

CTC Concurrent Technologies Corporation

www.ndcee.ctc.com

Technology Limitations

- Information is only as good as data entered into the SeeAndAvoid portal, and registration on the MACA site is not required by all Services
- Need to ensure that civilian pilots are aware of the site—the portal can only help reduce collisions and near mid-air collisions if used by civilian pilots

Accomplishments

- 160 DoD Flying Units are represented on line (72 Air National Guard, 45 Air Force, 20 Air Force Reserve Command, 11 Army, 10 Navy, 2 Other).
- The team developed strategic Partnerships with AOPA, Experimental Aircraft Association (EAA), and FAA.
- The site has recorded more than 25,000 civilian pilot web hits.
- The team secured a long term site host with Air Force, Flight Safety.
- The Navy is recommending SeeAndAvoid support to the facilities and is developing a link to the SeeAndAvoid.org web page on the Navy Safety Center website.
- Air Combat Command is funding expansion of the site to include coalition flying theaters in Afganistan and Iraq.
- Follow on effort called joint low-level deconfliction tool is in progress to facilitate reduction of military-on-military near misses and collisions.

Technology Transition Opportunities

Near mid-air collisions between DoD aircraft and civilians occur in every continent, including Antarctica. The more pilots—both civilian and military—who refer to the portal, the more valuable the site becomes as a preventative tool.

Points of Contact

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Military flight training can be affected when civilian pilots enter military air space. The SeeAndAvoid Web site allows civilian pilots to get data on military aircraft and mid-air collisions to select a safe flight plan.

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