

## Navigating the Realm of Automated Aerial Refueling



*Pictured are the KC-135 Tanker and Calspan Learjet used during Automated Aerial Refueling flight tests. (Air Force image)*

Moving another step in the direction of expanded Remotely Piloted Aircraft (RPA) capabilities, AFRL completed the Precision RelNav Open-Loop Flight Test (PROFT) for the Automated Aerial Refueling (AAR) program, the purpose of which is to develop technology for boom and receptacle refueling of RPA systems, as demonstrated via the existing Air Force (AF) tanker fleet. Accordingly, AAR will benefit RPA operations by extending combat radius and mission time, reducing response time for time-critical targets, minimizing the need for forward staging areas, and increasing in-theater presence. The AAR team includes a diverse set of participants from organizations across the AF, AFRL, and industry.

Conducted at Forbes Field, Kansas, the recent test incorporated updated precision-relative navigational software and gathered data intended to aid the development of a precision navigation tool for AAR-formation flight. Testing involved ten separate flights, during which a Calspan Learjet acting as a surrogate RPA flew into refueling position with a KC-135R tanker (operated by the 190th Aerial Refueling Wing of the Kansas Air National Guard). Global Positioning System-based navigational software developed by Northrop Grumman Corporation guided the aircraft into position.

All told, the successful PROFT encompassed more than 40 total flight hours and established data for 83 separate test points. These comprehensive results will facilitate the navigational system's further refinement in preparation for the second round of testing, scheduled for Fiscal Year 2011.