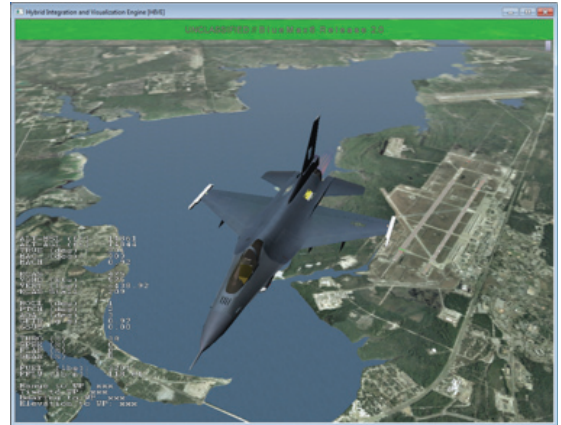# BlueMax6

Aircraft Flight Dynamics, Flight Path Generator, Maneuver, Mission, and Aero-Perfomance Evaluation Model

BlueMax6 provides high-fidelity air-vehicle dynamics and Time & Space Position Information (TSPI) for constructive and virtual modeling simulation and analysis. BlueMax6 output can be fed directly into other models, such as ESAMS, ALARM, RADGUNS, SUPPRESSOR, JAAM, and the model can be directly interfaced to constructive non-real-time or virtual real-time environments.

BlueMax6 is a pseudo-6-DOF point-mass aircraft flight dynamics model. It uses installed propulsion data, trimmed aerodynamic data, flight control laws/limiters, and structural limit data and is used to construct realistic air-vehicle TSPI data for input into other models, analysis tools, and environments for the purpose of conducting aircraft susceptibility and survivability and vulnerability analysis. BlueMax6 has a standalone tool for determining aircraft mission performance, aero-performance, and energy maneuverability. It incorporates the WGS84 Spheroid and National Geospatial-Intelligence Agency (NGA) Digital Elevation Terrain Data (DTED Level 0 to 2) to construct realistic Terrain Following (TF) flight paths.
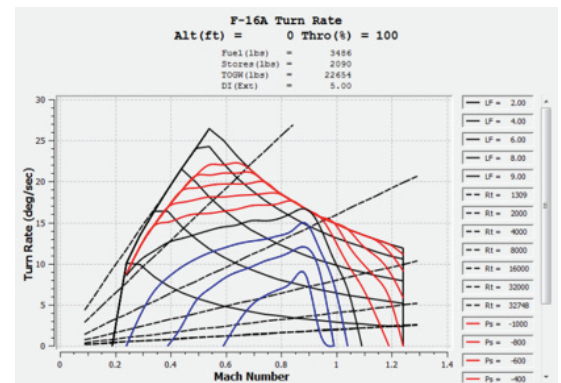

BlueMax6 flight paths and aircraft maneuvers are constructed as a sequence of flight segments commanded via the Input Scenario File. Each flight segment is controlled by a set of command variables, such as latitude, longitude, heading, altitude, velocity, g-factor, roll angle, etc., along with the aircraft-specific maneuver limits, such as maximum/minimum g-factor and maximum roll rate.

Input

The scenario file specifies the aircraft to be used, the terrain option, initial conditions (e.g., position, heading, airspeed), external store loadout (number and type of stores), internal/external fuel load, output file options, and the details for each waypoint/maneuver flight sequence to be flown.

The aircraft data models are now integrated into dynamic link libraries (dll's). The released database (AircraftRlsDB) with BlueMax6 currently contains 17 aircraft data models. There are 25 additional aircraft data models (individual dll's) which are restricted release due to proprietary data rights. Additional aircraft models can be added easily by building the individual .dll and adding the information to the "aircraftDatabase.dat" file located in the bin directory.

Output

BlueMax6 has nine different predefined output file options, selectable from the graphical user interface. The options include multiple formats for ESAMS, RADGUNS, ALARM, and SUPPRESSOR models. Other options include a mission summary, HIVE Replay, and Route Plot file. There is also a user-defined-output (UDO), which allows the user to specify the desired output variables.

HOST SYSTEMS: Windows, Linux, 32- and 64-bit platforms
PROGRAM LANGUAGE: C++

Request a copy of the BlueMax6 model at www.dsiac.org/services   **BlueMax6**