FACT SHEET

USAF Fact Sheet
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Nellis Air Combat Training System

Mission

Since 1999, the 414th Composite Training Squadron has used the Nellis Air Combat Training System, or NACTS, which provides objective feedback to aircrews – a training opportunity that aircrews cannot get back home. NACTS provides real-time monitoring, post-mission reconstruction, accurate pairing of participants and integration of range targets and threats. "Blue Force" commanders can now objectively assess mission effectiveness and determine valid lessons learned.

NACTS is a computerized aircraft, threat and target tracking system that is the "great-grandson" of the Air Combat Maneuvering Instrumentation system, or ACMI. While the ACMI system tracks only the air-to-air engagement of eight aircraft, the NACTS system tracks air-to-air engagements (airplanes versus airplanes), surface-to-air engagements (threat systems versus airplanes) and air-to-surface engagements (airplanes versus targets) on a three-dimensional display. NACTS is capable of tracking 100 aircraft, 75 threats and 75 ground targets. It can also track up to 100 aircraft in a "low activity" mode, which depends on transponder system "identification friend or foe," or IFF, for aircraft that cannot carry the NACTS pod. In September of 1999, NACTS replaced the Red Flag Measurement and Debriefing System (RFMDS) which had been in use since 1984. RFMDS was another ACMI derived system, but with far less capability than NACTS as it could only track 36 aircraft and 20 threats simultaneously.

Like the ACMI system, NACTS is composed of pods carried on aircraft, remote sensors located on the Red Flag ranges, a host computer and debriefing and display subsystems. The 100 pods downlink aircraft flight and weapon systems information to 14 remote ground sites. These sites receive the information and pass the aircraft flight position information to the super computer. Threat sites also feed certain parameters to the computer. Once targets are programmed, the computer amasses the large volume of data, records the data on disks and displays it on any one or all of more than twenty computer displays located throughout the Red Flag building. As the mission is flown, commanders as well as maintenance people can view the mission as it unfolds live on the "big screen" display in the main auditorium. It is possible to see other aircraft the way the pilot looking out of the canopy would see it.

A typical NACTS mission involves a simulated "Red Force" integrated defense system composed of mock surface-to-air missile, or SAM, sites, targets and aircraft defending the "Motherland" of the Red Flag ranges. The "Blue Forces" are composed of fighter bombers (F-16s, A-10s, F-15Es, etc.) whose mission is to attack assigned targets. For the fighter bombers to be successful against the integrated "Red Force," air superiority aircraft (F-15s, F-14s, F-16s, F-18s, etc.) and electronic combat aircraft (AWACS, EA-6B's, etc) are needed. During missile firings, the computer generates a simulated flyout on the computer display. Since the computer knows the target's flight parameters, it can determine if the missile shot was valid by displaying the probability of kill. The computer is also capable of determining and estimated point of bomb impact for the fighter bombers not actually carrying ordnance, known as No-Drop Bomb Scoring. The "Red Force" integrated defense system versus the integrated "Blue Force" is all tracked on the NACTS for aircrew playback.

Not only is the live monitoring of NACTS exciting, the replay for aircrew debriefing revolutionized aircrew debriefing concepts. The majority of time spent in the debriefing of composite forces involved reconstructing what happened. Now, with NACTS, reconstruction is automated and more time is spent on lessons learned and evaluating the tactics. The NACTS enabled Red Flag and other users to maximize combat readiness, capability and survivability of our air forces.

Primary users: Red Flag, U.S. Air Force Weapons School, 422nd Test and Evaluation Squadron.

(Current as of January 2001)