

Innovation, Experimentation and Transformation - An Air Force Legacy

The Air Force has a rich heritage of innovation, experimentation and transformation. That legacy continues as the Air Force Experimentation Office seeks to identify, analyze, assess, and make recommendations for the fielding of critical near-term and future warfighter capabilities through Joint Expeditionary Force Experiment, or JEFX.

Background

JEFX is a series of highly focused, large-scale experiments designed to validate capabilities that produce desired effects in the battlespace.

JEFX brings the warfighter, system architects and engineers, industry representatives, and assessors together in a multi-dimensional environment that allows for the analysis and assessment of capabilities in a distributed and collaborative “system of systems.”

JEFX 04

This year, JEFX will focus on Battle Management Command and Control (BMC2) – an approach that advances network-centric operations.

“BMC2 is my vision for bringing interoperability to the incredibly complex modern battlefield.”

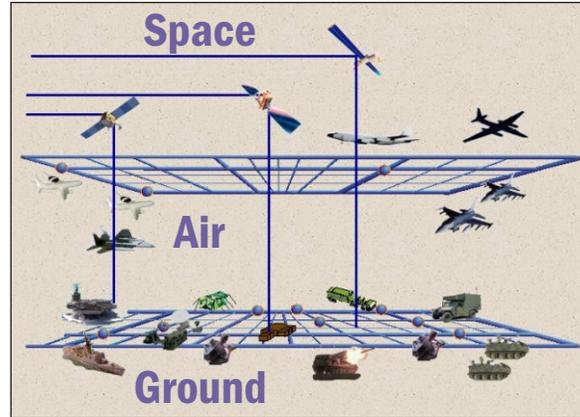
Gen. John P. Jumper, Chief of Staff of the Air Force

The experiment will link CSAF’s vision for BMC2 to capabilities within the current Air Force concepts of operation (CONOPS).

The C2 Constellation will harness the power of networks and revolutionize combat operations by linking sensors,

communications systems, manned and unmanned weapon systems in an interconnected grid that creates seamless information flow to the warfighter.

Ground Moving Target Indicator (GMTI), as well as, air and space-based capabilities within the C2 Constellation will provide a new synergy in combat identification, continuous intelligence preparation of the battlespace, targeting, and assessment.



BMC2 takes decision-quality information produced by machine-to-machine (M2M) exchanges of the C2 Constellation and creates, sustains and updates a shared, collaborative, decision-making environment on a single integrated air and space picture shared throughout the Constellation.

Secretary of the Air Force James G. Roche summarizes the objectives of the C2 Constellation,

“We will network these systems in ways that enable us to find, fix, track, target, engage, and assess in timeliness unimaginable just a few years ago. It is our goal to have consistent, persistent intelligence, surveillance and reconnaissance. And, once a decision is made, we will attack instantaneously.”

Emphasis during the experiment will be placed on air and space integration through the nodes of the C2 Constellation, including the Combined Air and Space Operations Center (CAOC), the distributed ground station (DGS), and other air, space and ground platforms and nodes.

The focus areas are the three defining attributes of BMC2 and the C2 Constellation: Effects-Based Operations (EBO), Predictive Battlespace Awareness (PBA), and Network-centric Infrastructure (NCI) with emphasis on the integration of air and space.

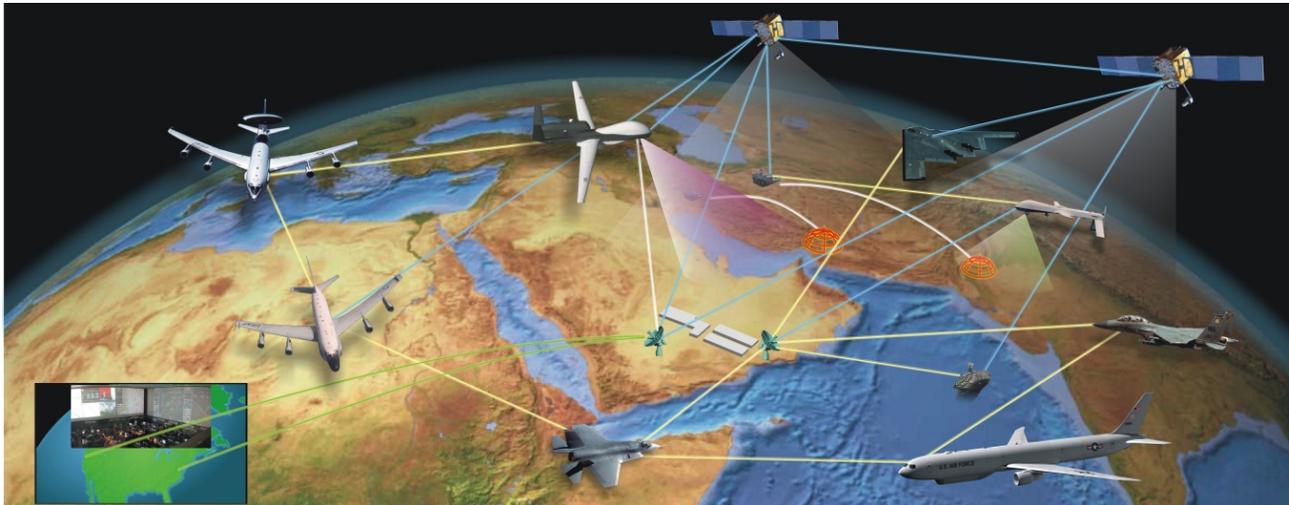
For JEFX 04, examination of Effects-Based Operations (EBO) will focus primarily on the joint air estimate process. Experimental initiatives will stress the joint air estimate process, and experiment participants will collectively examine the process in the context of effects-based planning for realistic operations.

PBA or “battlespace forensic science” transforms intelligence and data into probable enemy vulnerabilities and courses of action (COAs).

Emphasis will be placed on examining the integration of predictive battlespace awareness (PBA) into the effects-based COA development process.

NCI emphasizes the electronic environment where horizontal collaboration between decision makers and M2M language expedite the situational awareness and decision processes. This is the technology that enables EBO and PBA.

Additionally, JEFX 04 will capitalize on critical lessons learned in recent operations in Afghanistan and Iraq. Specifically, U. S. Army-Air Force integration. Improved ability to track friendly forces, development of M2M processes for air support requests, and streamlined coordination processes between the Combined Force Air and Space Component Commander (CFACC) and the Combined Force Land Component Commander (CFLCC) are the specific areas being explored.



JEFX will seek to fully and seamlessly integrate coalition members in the CAOC operations along with U.S. counterparts. Based on an “open floor” concept, the experiment proposes examining if there are identifiable or significant factors that must be addressed for long-term normalization of the CAOC for a multi-national environment.

JEFX 04 Initiatives

Army Close Air Support/Situational Awareness (ACAS/SA) will focus on closing the interoperability seams between the Army and Air Force to ultimately eliminate fratricide and enhance joint combat effects.

Initial Single Integrated Space Picture (ISISP) provides a single, coherent view of all military, national agency, civil and commercial space forces, threats, and effects for enhanced planning and visibility for combatant commanders.

Battle Control Center- Experimental (BCC-X) provides the critical ground C2, Theater Air Defense (TAD), and Air Tasking Order (ATO) execution capability for the Combined Force Air Component Commander (CFACC).

M2M Weather (M2M WX) provides automated speed-of-light Wx information to TBMCS by establishing M2M links between t MAAP Toolkit and the Joint Weather Information Server (JWIS).

Global CONOPS Synchronization (GCS) provides proactive interaction, better asset management, and smoother transition between the global (enroute) and theater-centric environment. Facilitates dramatic acceleration of other DOD/Civil synchronization efforts critical to Homeland Defense.

GRIDLOCK rapidly correlates mission imagery frames to geo-registered reference imagery in less than 1 minute (10 seconds objective) enabling the immediate generation of target-quality aimpoint coordinates directly from the video frame with a single mouse click.

Network Centric Collaborative Targeting (NCCT) dramatically improves target location accuracy, timeliness and combat ID by optimizing high-speed, M2M network collaboration to support time sensitive targeting.

Effects-Based Operations/Predictive Battlespace Awareness (PBA/EBO) provides an initial capability linking both PBA and EBO tools and providing the infrastructure to enable horizontal integration for interfacing Intelligent Preparation of the Battlespace products, EBO, ISR planning, Targeting, Multi-INT Fusion, and ISR employment.

SATCOM Interference & Response System (SIRS) provides rapid, unambiguous detection, characterization, and geolocation of interference on critical unprotected SATCOM

links; reports information to CAOC positions via remote displays and automated M2M messages.

Joint Synchronized Common Operational Planning Environment (JSCOPE) provides a synchronized common operational picture (COP) from the CAOC to SOF C2 nodes; also provides collaborative and distributive mission planning and coordination tools to plan and execute SOF missions.

Tactical Targeting Network Technology (TTNT) demonstrates a robust wideband networking waveform scheduled for incorporation into the Joint Tactical Radio System for network-centric operations. The four demonstration nodes will include a T-39, Paul Revere, AFSOC van simulated tactical air control party (TACP), and a Black Mountain ground station providing the CAOC a connection via a fiber optic link.

Visualization of Expeditionary Support Tools (VEST) enhances deployment, beddown, and employment planning, replanning, and execution, and integrates disparate logistics databases and applications for assessment and visualization on one GeoBase system.

Integrated Compartmented Combat Operations Process Initiative (ICCOPI) harnesses previous JEFX successes and demonstrate a process to increase C2 integration of compartmented capabilities in a constructive and live environment.

Project SUTER III (PS III) addresses the challenge of prosecuting fleeting time sensitive targets by providing collaborative, dynamic C2 of kinetic and non-kinetic information superiority operations against conventional and terrorist threat networks by integrating National, CFACC, ISR, and space information operations (SIO).

Data Link Automated Reporting System (DLARS) will enhance the ability of the CAOC operator to task and retask assets by processing Link-16 messages, correlating aircraft data with force-level mission data from the air battle plan, and providing this aggregate status in an automated display.

JEFX execution will occur 19 Jul- 5 Aug at Nellis AFB, NV.



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Joint Expeditionary Force

Experiment 2004

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Focusing on the Warfighter