Incorporating Combined Operations Training Enablers Into Test And Evaluation

Mr. Randal D. Farley
Program Engineer
Southern California Offshore Range (SCORE)
San Diego, CA
Joint – The Training Transformation

Definition

• Multi-service, Multi-National, Interagency, and Industry?

• The concept of a Joint National Training Capability (JNTC) in the 21st century will be more aptly described as a Joint Global Training Capability.

• Joint Tactical Task (JTT) analysis is used to identify the full scope of joint training requirements. Results from “Operation Iraqi Freedom” are examined for needed changes in the training strategy.

• Joint Use Operational Training Feasibility Must Be Integrated Into Test And Evaluation Of Future Generation Complex Weapons Systems.
A global *network* of joint training enablers;

comprised of *live, virtual,* and *constructive* components;

that provides a *seamless* training environment across a *broad spectrum* of Joint training requirements.
CFFC Requirement: Deploy Combat Ready Forces

- Joint Training Initiatives
- Inter-Deployment Training Cycle (IDTC)
- Use existing DoD Ranges (including T&E)
- Use Modeling and Simulation
- Enhancements programmed for training effectiveness based on validated requirements
Operational Transformation

**Fleet Response Plan**

Month of Cycle

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**Deep Maintenance**

- Shore Trainers
- Unit Level
- Warfare Comm
- Btl Grp Comm

**Operational Transformation**

- Gain Proficiency (Surge)
- Gain Proficiency (Peacetime)

- Employable = Surge Ready + Deployed
SCORE Operation Hours

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<th>NSW</th>
<th>MIW</th>
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21,908 event hrs. in FY04
SCORE Range User Hours

- FY 02: 33,251 Hours
- FY 03: 44,460 Hours
- FY 04: 56,235 Hours

Legend:
- AMW
- AW
- C2W
- GTD
- MIW
- NSW
- STW
- SUW
- USW
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To maximize the value of the test and evaluation community as it develops and then advances new weapons, there must be a method developed and incorporated that fully supports the weapons lifecycle.

Consideration to facilitating routine and repetitive training, without development of parallel systems, one for testing and one for training, is essential.

The expansive employment envelopes of new weapons such as Tactical Tomahawk, JASSM, SLAM-ER, ERGM and the Vertical Gun for Advanced Ships (VGAS) demand that the ability to control flight and impact hazard areas is absolute in the training environment.

New technology must leverage current and developmental GPS applications, as well as telemetry to incorporate a common Flight Termination concept into ALL future precision-guided weapons.
Large Footprint Weapons

Gravity

Glide

Powered

Hypersonic

Standoff Ranges

10 50 100s more MILES

For Official Use Only
Altitude 250-400 meters

Submunition Dispense

Guided Flight Begins

Canards Deploy

Motor Burn

Dispense Pattern Based on IMU & GPS

- Weapon Footprints getting larger
- Need large contiguous area for end-to-end testing

CROSSRANGE (nmi)

DOWNRANGE (nmi)

Land Attack Cruise Missile (Notional)

ERGM

5” Gun
Small Diameter Bomb

- Higher performance systems
- Stand-off & long-range weapons
- Increasingly sophisticated training

Smaller Force Doesn’t Mean Reduced Range/Airspace Need
SHOBA – Live Fire Impact Area
Flight Termination System

R-2508 Complex

NAWC Sea Range

Edwards

SDB with FTS

SDB without FTS

SDB Footprint

JASSM Footprint

For Official Use Only
Tactical Combat Training System (TCTS)

- Replaces the Legacy TACTS/LATR Systems
- Developed to maximize NDI for baseline
- 72 High-Activity Aircraft Participants
- Incremental growth to leverage new technologies in the future

A rangeless training environment where the entire simulation is processed between the participants, but can also be monitored by ship and ground subsystems.
Fleet Training

- **Training after the schoolhouse**
  - Fleet Response Plan inter-deployment readiness cycle
    - 6 + 2 metric
  - Fleet training exercises (COMPTUEX, JTFEX, etc)
  - Fleet Schoolhouses (TACTRAGRU, EWTG, ATG, etc)
  - Synthetic training
    - LVC, MBGIE / BGIE, CNSF Apr 04 msg canceling live fire missile exercises
  - Training management
  - OSD led Training Transformation (T2) initiative
    - Joint National Training Capability
    - Joint Knowledge Development and Distribution Capability
    - Joint Assessment and Enabling Capability
Fleet Training

- Inter-deployment readiness cycle training events
- Live and synthetic exercises
  - COMPTUEX, JTFEX, etc
  - LVC, MBGIE / BGIE,

Notional 27 month cycle
Joint Live, Virtual, Constructive Training

Navy Continuous Training Environment (NCTE)

Real World Assets (Inport or Afloat)

Military Services:
- Army
- Air Force
- Marines

Simulated Scenarios/Systems, Real World C5ISR/IO Connected to Actual Platforms

Instruction combined with simulated scenarios conducted in replicated command and control facilities
21st Century Weapons

• **JASSM** - Attacks both fixed and relocatable targets at ranges **beyond enemy air defenses**. JASSM's midcourse guidance is provided by a Global Positioning System (GPS)-aided inertial navigation system (INS). In the terminal phase, **JASSM is guided by an imaging infrared seeker and a general pattern match-autonomous target recognition system that provides aimpoint detection, tracking and strike.**

• **VGAS** - Beyond ERGM is the Vertical Gun/Advanced Ship (VGAS) system. This system is composed of a 155 millimeter gun and automatic loading system placed vertically below the main deck of the ship. The gun could deliver seven times the payload of the 5-inch ERGM to 75 miles, or double the ERGM’s payload to 200 miles."

• **SDB/JDAM** - The Small Diameter Bomb range is classified but expected to be extended by pop-out wings and the speed and altitude of the aircraft using it. A Phase 3 version may have the ability to loiter or autonomously seek out targets. The Small Diameter Bomb is considered one of the most significant programs on the books because it will dramatically increase the strike capability of every combat aircraft in the inventory.

• **SLAM-ER** - **Over-the-horizon range, in excess of 135 nautical miles.** High Subsonic speed. Ring Laser Gyro Inertial Navigation System (INS) with multi-channel GPS; **infrared seeker for terminal guidance with Man-in-the-Loop control data link from the controlling aircraft.**

• **Tactical Tomahawk** – Range = 1000+ NM

• **Next Generation** - ????
The Test and Evaluation community must evolve into a cradle-to-grave cognizant body that will not only provide the warfighters with the superior weapons systems that allow them to employ overwhelming firepower in an precise, stand-off environment, but will allow them to train with these same weapons, in a realistic training environment unencumbered by artificial limitations imposed by excessive weapon envelopes and hazard patterns.
Questions?