



Joint Close Air Support Joint Test and Evaluation (JCAS JT&E)



Testing With Training: A Success Story

Col "Maggie" Brown



Joint Test & Evaluation Purpose



- Answer CINC/Service nominated problems/issues
- Provides quantitative information used for analyses of joint military capabilities
- Assess Service systems interoperability in joint operations
- Evaluate and recommend improvements to joint technical and operational concepts

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JCAS JT&E Charter



- Conduct a JT&E to investigate, evaluate, and improve the operational effectiveness of joint U.S. Close Air Support
 - Determine the baseline effectiveness of joint Close Air Support
 - Identify changes to TTP, equipment, and training to increase effectiveness

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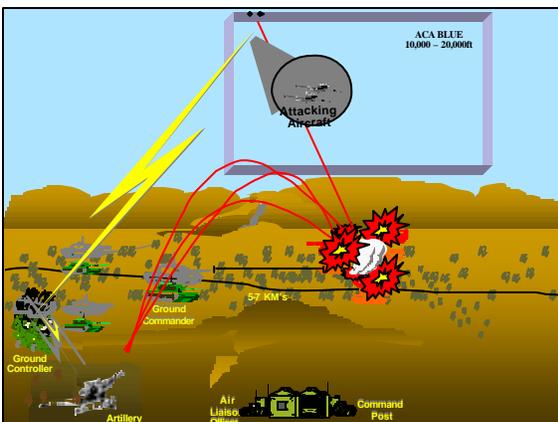
Close Air Support



“Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces.” Joint Pub 1-02

Close does not imply a specific distance. The determining factor is the requirement for detailed integration because of proximity, fires, and/or movement. Joint Pub3-09.3

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JCAS JT&E Directors



Director	Col Dave Brown, USAF <i>F-4, F-117, F-106</i>
Army Deputy	LTC Bryan Campbell <i>AH-64, AH-1, OH-58, Armor</i>
USAF Deputy	Lt Col Scot Chiasson <i>F-111, O-2, A/OA-10, ALO</i>
USMC Deputy	Maj James Quinn <i>F/A-18D</i>

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JCAS JT&E Guidance



- **General Officer Steering Committee (GOSC)**
 - Members
 - National Training Center (NTC)
 - Air Warfare Center (AWFC)
 - Marine Corps Air Ground Task Force Training Command (MAGTFTC)
 - Naval Strike and Air Warfare Center (NSAWC)
 - Joint Staff, J8 representation
- **Subject Matter Expert Seminar**
 - Maneuver, Fire Support, Terminal Control, and Aviation

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JCAS JT&E Background



- 1996/1997 Feasibility Study
- 1997 JT&E Charter
- 1998 Mini Test 1/NTC
- 1999-2002 Day CAS Field Test/NTC
- 2001 Day/Night CAS Field Test 29 Palms
- Feb 2002 Mini Test 2 Digital/NTC
- July 02, 2 year extension directed by JROC

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JCAS JT&E Methodology



- Focused mini-tests
- Field testing
 - Deploy to Field Training Exercises
- Surveys of current operators
 - Web based
- Professional gatherings
 - JCAS SME Seminars
 - JCAS Symposiums

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JCAS JT&E Testing



- Variation from other JT&Es
 - Testing with Training
 - Multiple Data Collection Opportunities
 - Observe Decision Makers
- Formalized agreements
 - National Training Center (NTC)/Nellis
 - 29 Palms

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JCAS JT&E Methodology Venue Instrumentation



- Fully instrumented ranges at NTC/Nellis
 - In-place systems
 - TSPI, Digitize tactical communications
- No instrumentation at 29 Palms
 - JCAS portable systems
 - GPS TSPI, Digitize tactical communications
- Supplemented with Palm Pilot, Voicelt, & GPS

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JCAS JT&E Data Collection



Tactical Operations Center (TOC)



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JCAS JT&E Data Collection

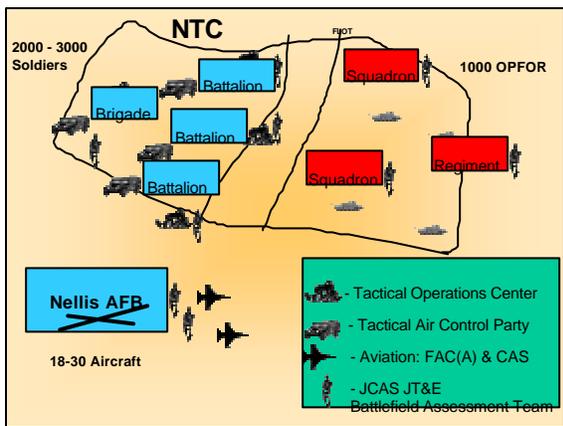
TACTICAL AIR CONTROL PARTY (TACP)

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JCAS JT&E Data Collection

AVIATION

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JCAS JT&E Data Collection

Post Battle Assessment

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JCAS JT&E Data Download

Field

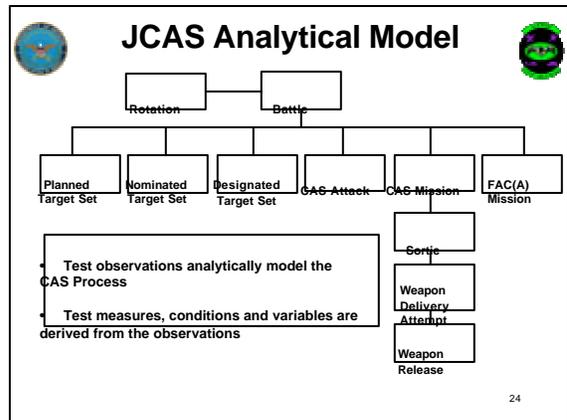
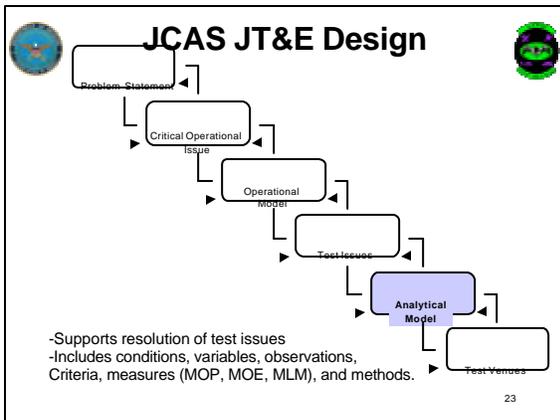
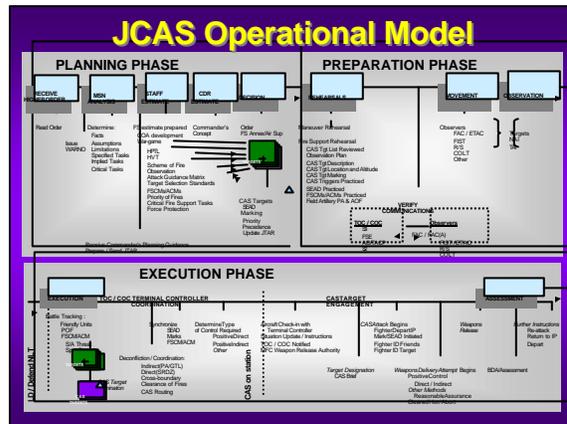
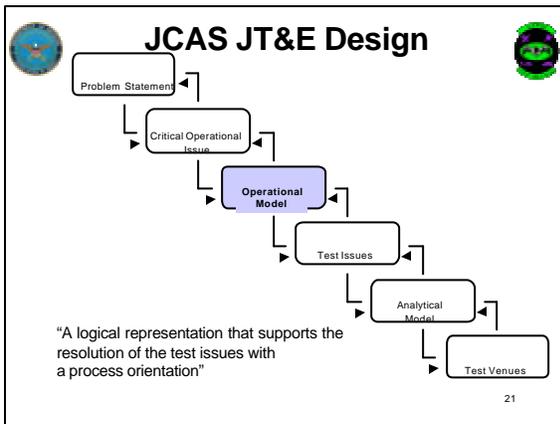
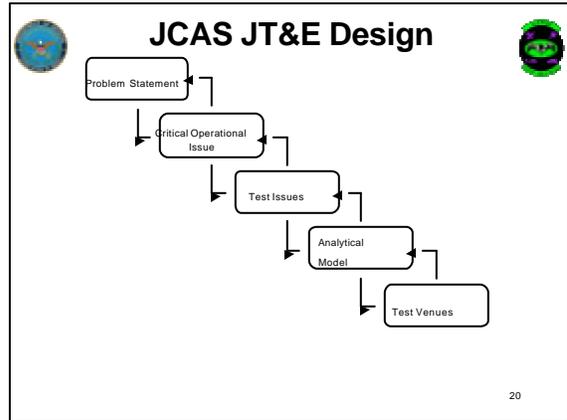
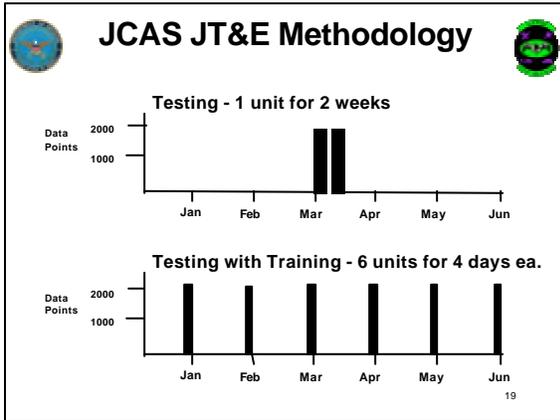
Garrison

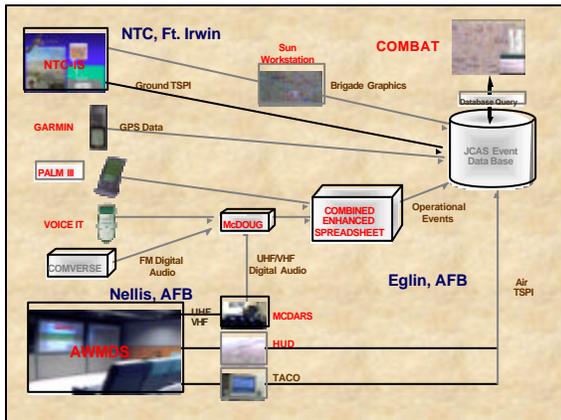
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Interim Observations

- 11 Maneuver brigades / 26 battalions
- 22 Battles
 - Observed first two of each rotation
- Over 39,000 data elements
 - 218 CAS Sorties
 - 438 Weapon delivery attempts
- A joint training environment

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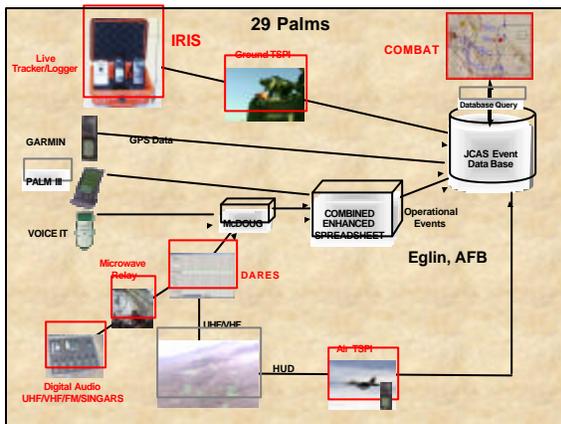




Field Testing Non-Instrumented Range

- 29 Palms
- Use same data collection package
 - Same test measures
- Instrumentation package required
 - Communications
 - Air/Ground TSPI

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IRIS – Combines APRS, Data Logger, and COMBAT

Vehicle-mounted box

NMEA: National Marine Electronics Association standard for GPS output
APRS: Automated Packet/Position Reporting System

Decodes, displays, and logs position information in real time. 28

Testing with Training Positives

- Operational Realism
 - Scenario
 - Players
- Multiple Testing Opportunities
- Cost Savings
- Instrumentation Legacy

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Testing with Training Limitations

- Non-Interference Issues
- Uncontrolled Variables
- Complex Reduction
- Trainers suspect Testers

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Testing with Training Conditions for Success



- Professional Working Relationships
- Must do your homework
- Effective MOAs
- Testing ... Noninterference with Training
- Identify Test Measures early-on
- *Execute data collection with an operational mindset ... a must!*

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JCAS JT&E Legacy Products



- Baseline of joint CAS effectiveness (day & night)
- Instrumentation Enhancements
- NTC/29 Palms battle replay CD
- Recommended changes to joint CAS training, doctrine, and equipment
- Combined testing with training on a non-interference basis

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OSD Joint Close Air Support (JCAS)




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Eglin AFB, FL 32542
DSN: 872-4089
<https://jcas.eglin.af.mil>

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Field Testing Real Time Tracking



- 29 Palms
- 3 vehicles tracked, 12 sec sample rate, 1200 baud data transmission, 2 digipeaters, data loggers used auto algorithm
- Coverage: approximately 3000 sq km (29 Palms Range)
- Future: move to 9600 baud packet radio
 - 12 sec sample rate => 12-15 vehicles
 - 25-30 sec sample rate => 25-30 vehicles
- To track more vehicles, lower sample rate and/or add more frequencies
- Data loggers capable of 1sec sample rate.
- By combining a GPS data logger and APRS, we are capable of reasonable situational awareness and accurate position logging.

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On-going Actions



- Digital Control Mini Test
- USMC Data Analysis
- AFRL Project
- Joint Pub 3-09.3 Revision
- CAS CRD
- Fires MTT
- JROC ESC
- Begin closeout March 02

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JCAS JT&E Future Operations



- JT&E Final Report Sept 02
- Lights Out Dec 02
- JROC ESC Initiative
 - SOF and Navy Baselines
 - Conditions (Weather, Foliage, etc.)
 - Digital / Standoff
 - Targeting

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JCAS JT&E Background

- Testing Began 98
- Mini-test November 98
- Day CAS Field Test March 99
- Convened (3) GOSCs
- Symposiums
- JROC ESC

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JCAS JT&E Design

```

    graph TD
      PS[Problem Statement] --> COI[Critical Operational Issue]
      COI --> OM[Operational Model]
      OM --> TI[Test Issues]
      TI --> AM[Analytical Model]
      AM --> TV[Test Venues]
      TV --> AM
      AM --> TI
      TI --> OM
      OM --> COI
      COI --> PS
  
```

-Supports resolution of test issues
 -Includes conditions, variables, observations, Criteria, measures (MOP, MOE, MLM), and methods.

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JCAS Analytical Model

```

    graph TD
      Rotation --- Battle
      Battle --- Planned[Planned Target Set]
      Battle --- Nominated[Nominated Target Set]
      Battle --- Designated[Designated Target Set]
      Battle --- CAS[CAS Attack]
      Battle --- CAS[CAS Mission]
      Battle --- FAC[A FAC(A) Mission]
      CAS --- Sortie
      Sortie --- WDA[Weapon Delivery Attempt]
      WDA --- WR[Weapon Release]
  
```

Test observations analytically model the CAS Process
 Test measures, conditions and variables are derived from the observations

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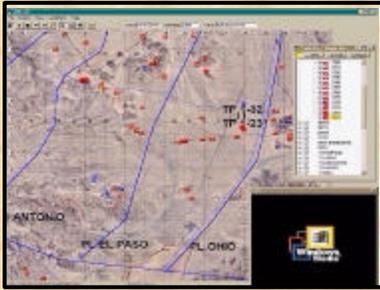
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JCAS JT&E Guidance

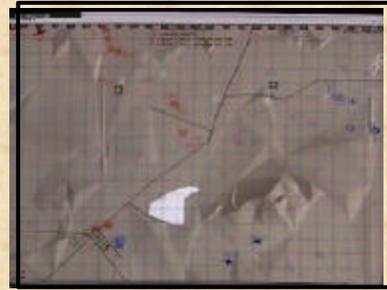
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NTC COMBAT Replay



AWMDS Replay



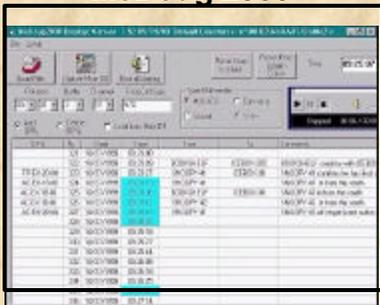
Palm Data Download



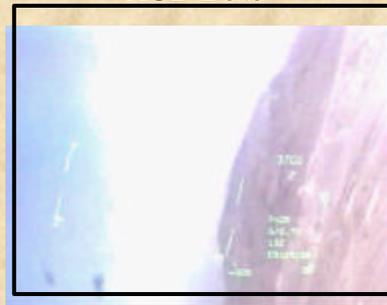
Palm IDRL Capture



McDoug 2000



HUD Data



29 Palms COMBAT Replay

