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This Document Interprets Statements from an *Army Air Defense Artillery* Briefing in a Technical Contest that Indicates that There Were Serious Technical and Command Problems with Patriot Fire Units During *Operation Iraqi Freedom*.

These Technical and Command Problems are Almost Certainly Why Patriot Shot Down a British Tornado and US Navy F-18, and Almost Certainly Why a US Air Force F-16 Was Also Mistakenly Engaged by Patriot.

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# An Informed Guess About Why Patriot Fired Upon Friendly Aircraft and Saw Numerous False Missile Targets During Operation Iraqi Freedom

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Revision 0  
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Page 1

# Why Patriot Shot Down Friendly Aircraft

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## Preface

This document is the sum of numerous discussions with the press, technical analysis, and a very careful reading of an Army Air and Missile Defense briefing released very shortly after the end of Operation Iraqi Freedom.

Relevant Army Air and Missile Defense briefing slides are provided in an appendix at the back of this document. In addition, the appendix contains slides from the Army Air and Missile Defense briefing where factual statements of interest are highlighted (by the author). This document also contains a summary of these statements. The full briefing can be found at [http://www.globalsecurity.org/military/library/report/2003/32aamdc\\_oif-patriot\\_sep03.ppt](http://www.globalsecurity.org/military/library/report/2003/32aamdc_oif-patriot_sep03.ppt)

# Why Patriot Shot Down Friendly Aircraft (Page 1 of 2 of the Overview)

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## Overview

In Operation Iraqi Freedom, a very large number of Patriot radars were deployed in close proximity to each other. These Patriot radars would routinely be searching the skies over Kuwait and Iraq. During this same period there were over 700 combat aircraft flying regular missions over Iraq.

As a result of the large number of aircraft and Patriot radars, multiple independently operating Patriot radars were often in line-of-sight and tracking the same aircraft.

In some cases, when two or more radars are tracking the same airplane, multiple radio signals from multiple radars can be simultaneously bouncing off a tracked aircraft. When these additional pulses are roughly tenths of milliseconds delayed relative to the victim radar's pulses, spurious ballistic missile trajectories can be generated for tens of seconds as the victim radar tracks the aircraft. These spurious ballistic missile targets can, and did, appear to be unrelated to the presence of aircraft being tracked at much lower altitudes and speeds.

When these spurious ballistic missile tracks are analyzed by the artificial intelligence software of the victim radar, a warning is issued to the Patriot operators that a threatening ballistic missile is present.

For the conditions of Operation Iraqi Freedom, there is no reason to not shoot at a ballistic missile, so the Patriot unit will automatically engage the false target. The Patriot operators can intervene to stop the engagement, but this must be done within tens of seconds or less.

During the short interval when the Patriot radar operators can stop the automated engagement, the Patriot's artificial intelligence software tells the operators via a television-like display that a threatening ballistic missile is present. This is presented to the operators as an icon on the TV screen that indicates a hostile ballistic missile. To better inform the reader, this briefing contains photographs of a typical Patriot display as seen by the operators.

When the Patriot interceptor is fired at the "Ghost Ballistic Missile" target, the Patriot starts looking for reflected radar signals from the *Ghost* shortly after the interceptor leaves the launcher. When the Patriot sees no signal from the Ghost, it is programmed to search up and down the beam direction of the ground-radar that launched it. During this routine "target acquisition" procedure, the Patriot finds a reflecting target in the radar beam of the tracking Patriot radar. This target happens to be the victim aircraft that is being tracked by multiple radars. The Patriot interceptor software has no way of determining that the friendly aircraft is the wrong target, so the Patriot homes on the aircraft, destroying it and killing the crew.

# Why Patriot Shot Down Friendly Aircraft (Page 2 of 2 of the Overview)

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The *Army Air Defense* briefing referred to earlier in this discussion reveals additional very important information about the situation of the Patriot units in Operation Iraqi Freedom. This information is completely in accord with the technical guess of what led to the shoot downs.

The briefing reports that Patriot operators were not trained to deal with this scenario, and this scenario was also not incorporated in engagement training software embedded in deployed Patriot units. In addition, the briefing indicates that Patriot operators were not trained to focus on the disposition of aircraft that were being observed by their fire unit, so they did not understand what conditions could lead to the generation of false ballistic missile targets.

Individual Patriot units also did not have timely access to information from other Patriot Fire Units, or AWACS, AEGIS, or Cobra Judy, all radars that could have substantially improved the situational awareness of Patriot crews who otherwise were being told by their fire unit that a ballistic missile attack is in progress.

Thus, the combination of lack of timely information from other air defense surveillance assets, time-lines of tens of seconds or less to fire on the believed target, and no software support or training to recognize and deal with such situations, put the Patriot crews in an impossible situation. These circumstances, technical and otherwise, lead to a coherent picture of how the shoot-downs occurred.

Further complicating the situation is the mind-set of the entire command structure of the *Army Air Defense Artillery*. The *Army Air Defense Artillery* claims 9 ballistic missile intercepts, no loss of life or equipment from ballistic missile attacks, and the successful protection of tens of thousands of soldiers from what would at worst would be randomly falling bombs within a large area (see highlighted slides from the Army Briefing). In fact a more accurate statement of the record should be 9 ballistic missile intercepts plus two friendly aircraft.

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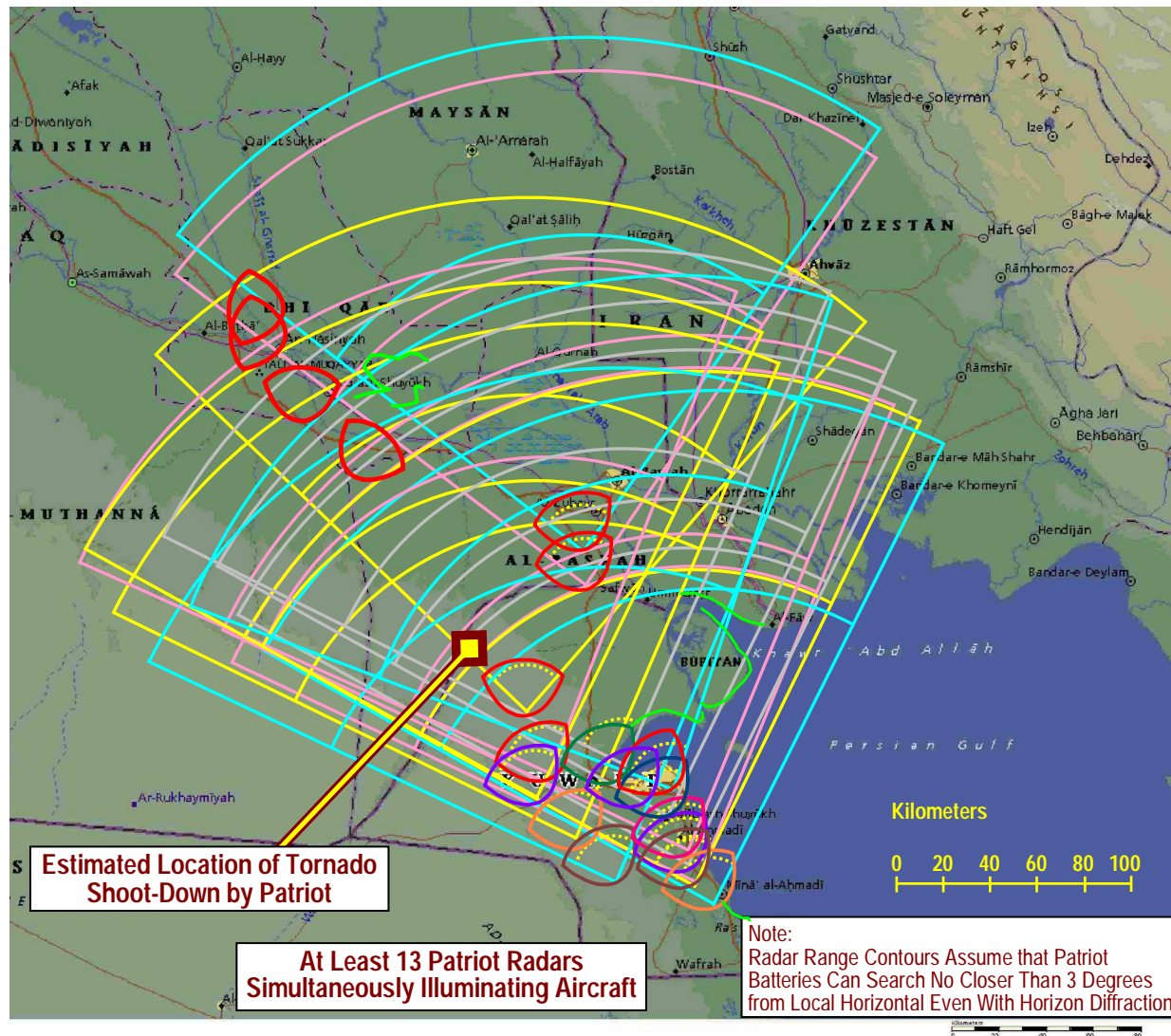
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# The Disposition of Patriot Overlapping Radar Fans, and the Locations of Ballistic Missile Attacks, and Friendly Fighter Shoot Downs

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# Estimated Number of Patriot Radars Simultaneously Tracking the British Tornado When It Was Shot Down

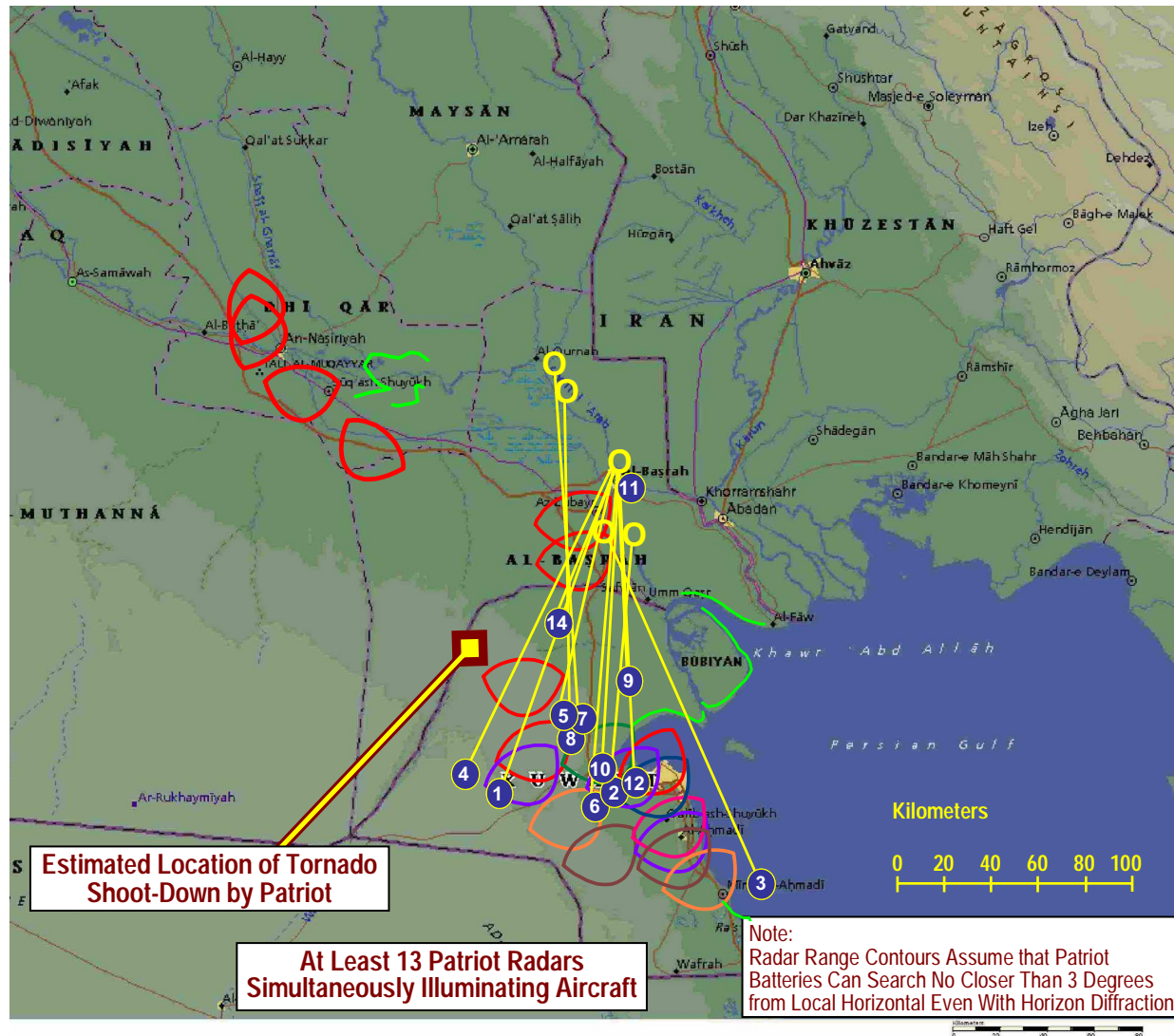
The Number of Radars Operating in and Near Kuwait During Operation Iraqi Freedom Resulted in Numerous Radars Simultaneously tracking the Same Aircraft





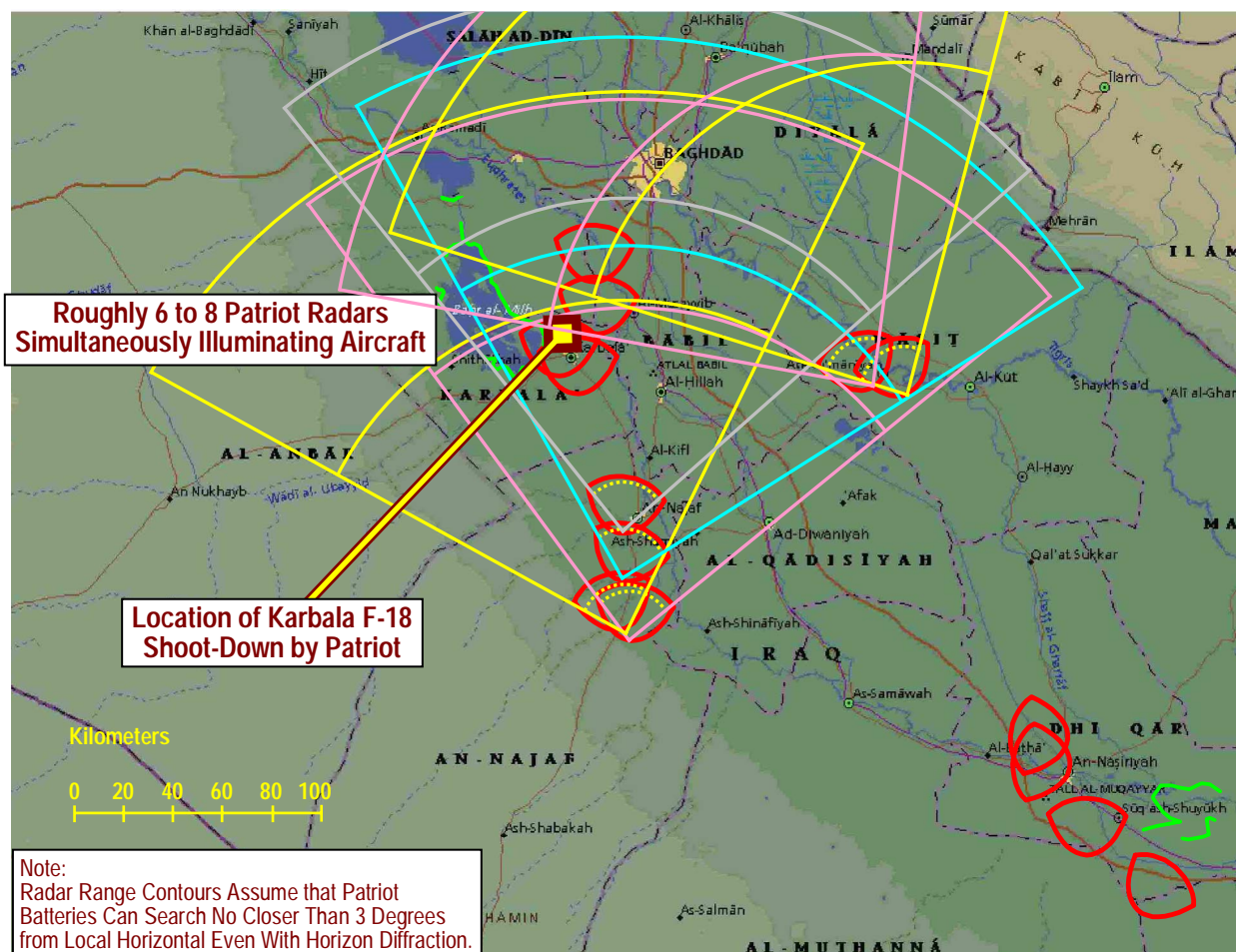
# Ballistic Missile Attacks on 20, 21, 23, 24, 26, and 29 March 2003 Tornado Shoot-Down on March 23, 2003

The Number of Radars Operating in and Near Kuwait During Operation Iraqi Freedom Resulted in Numerous Radars Simultaneously tracking the Same Aircraft



# Estimated Number of Patriot Radars Simultaneously Tracking the US Navy F-18 When It Was Shot Down on April 2, 2003

The Number of Radars Operating in and Near Karbala During Operation Iraqi Freedom







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## Additional Factors Contributing to the Shoot-Downs of Friendly Aircraft

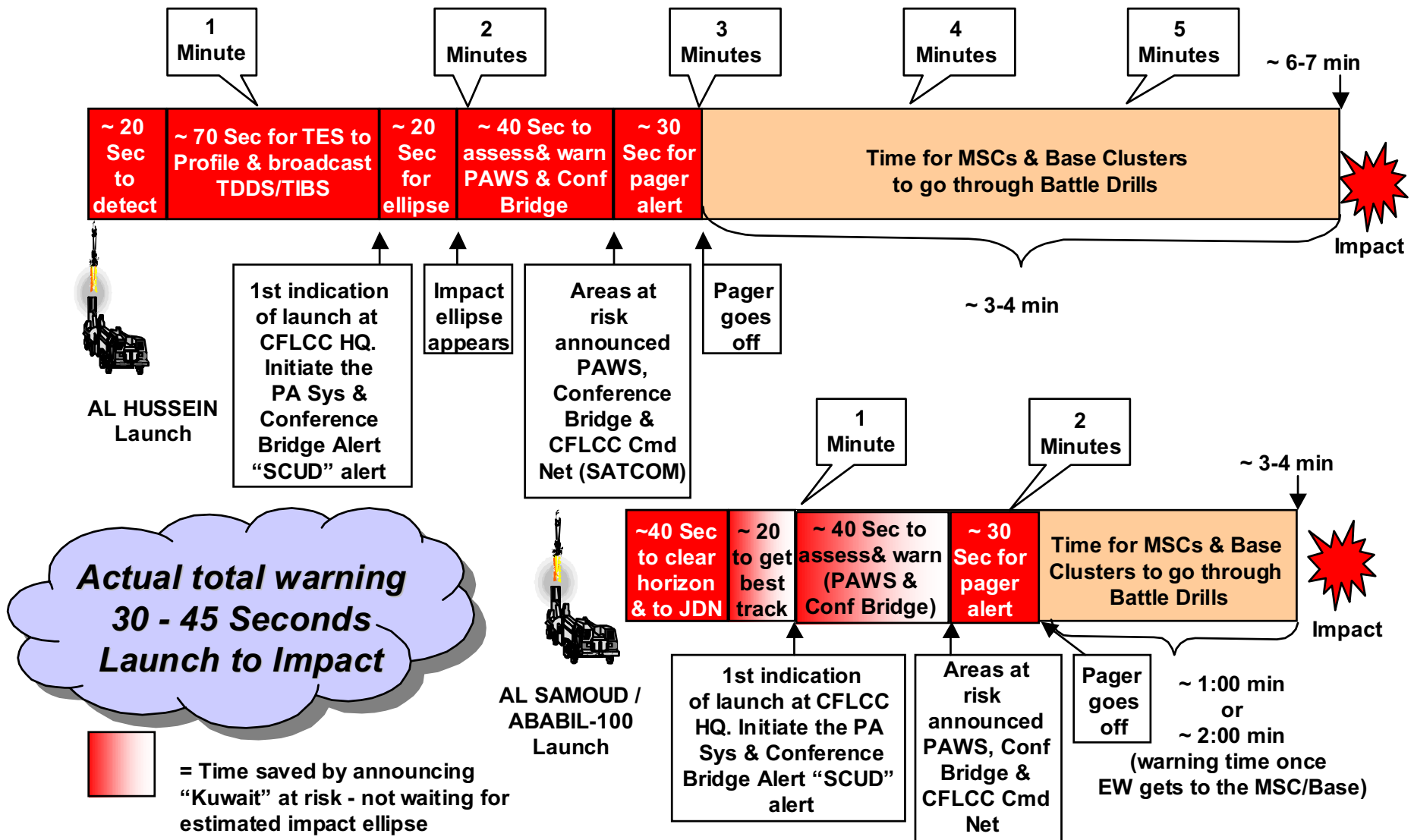
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# Additional Factors Contributing to the Shoot-Downs of Friendly Aircraft

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- Lack of Communication Between Independent Patriot Fire Units
- Late Detection of Tactical Ballistic Missiles Due to Their Small Radar Cross Section
- No Patriot Crew Training About How to Deal With False Targets
- Very Short Crew Reaction Time to Engage Tactical Ballistic Missiles
- Belief that Ballistic Missiles Must Be Engaged
- No Ability to Rapidly Communicate with Higher Levels of Command in the Air Defense Network
- Near Complete lack of Situational Awareness

# Estimated Launch to Impact Timeline





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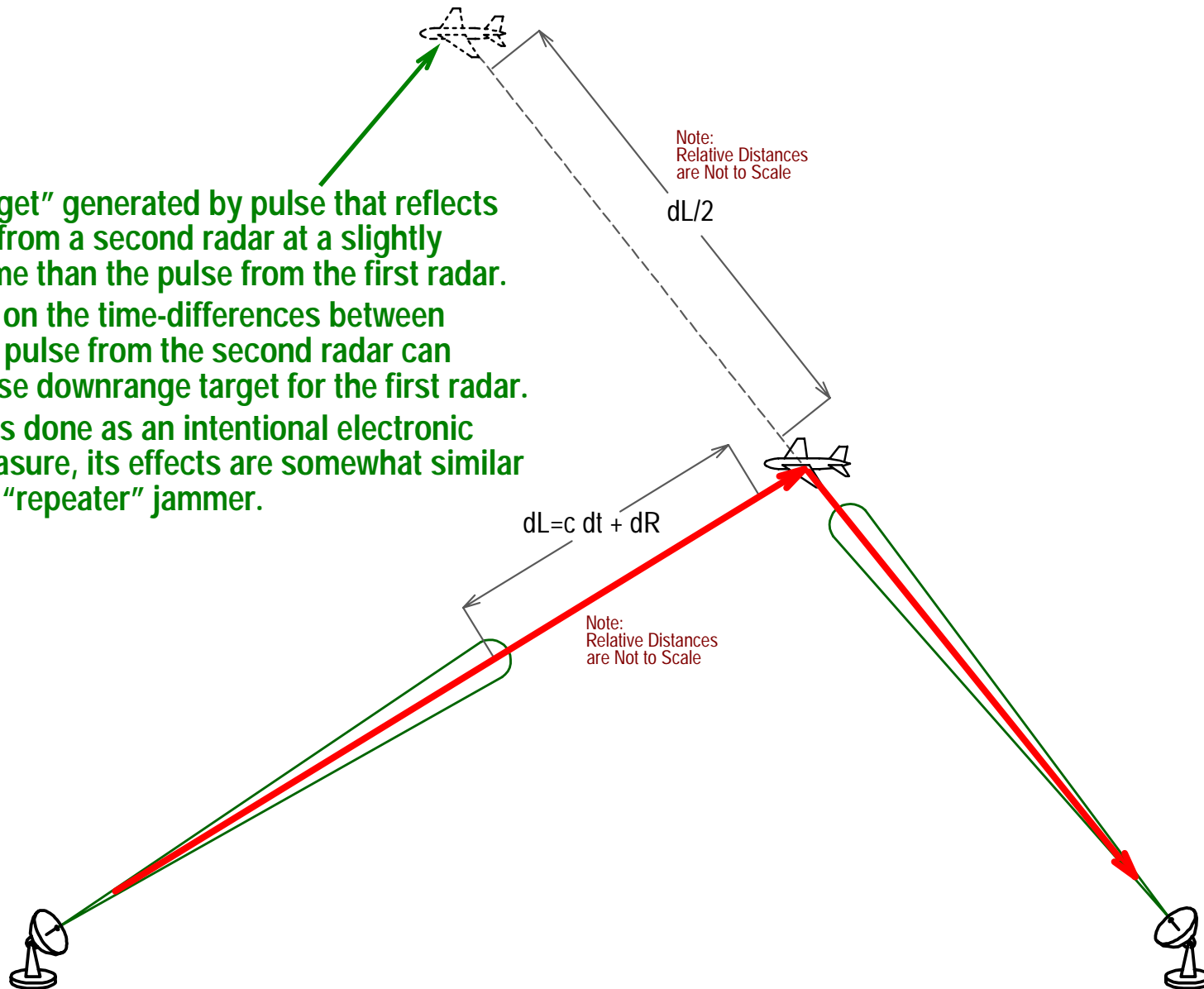
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## How Multiple Radars Tracking an Aircraft Can Create False Ballistic Missile Targets

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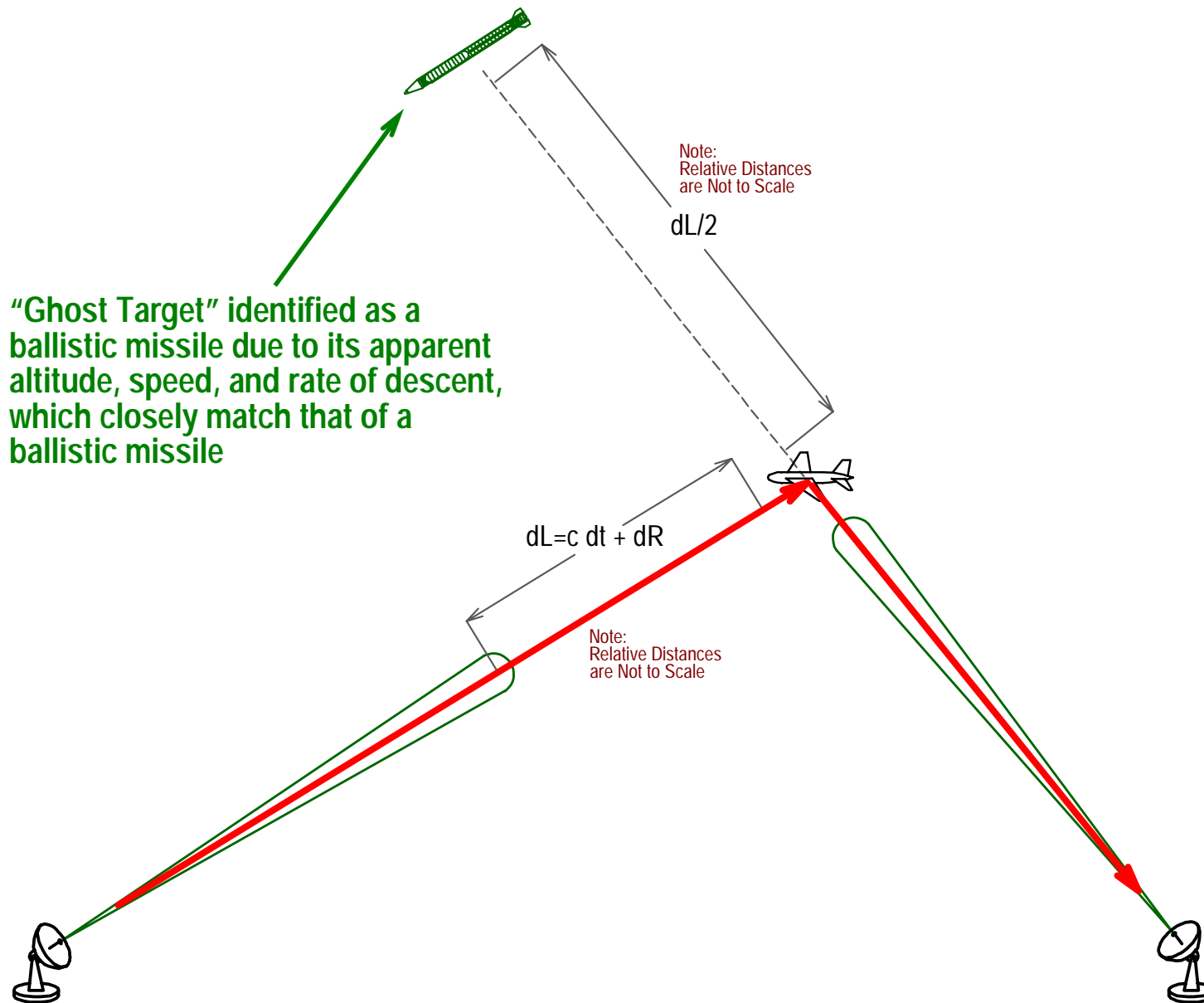
# How Ghosting (False Ballistic Missile Targets) Can Occur When Two Similar Radars in the Same Operating Mode Track a Single Target

**"Ghost Target" generated by pulse that reflects off aircraft from a second radar at a slightly different time than the pulse from the first radar. Depending on the time-differences between pulses, the pulse from the second radar can create a false downrange target for the first radar. When this is done as an intentional electronic countermeasure, its effects are somewhat similar to that of a "repeater" jammer.**

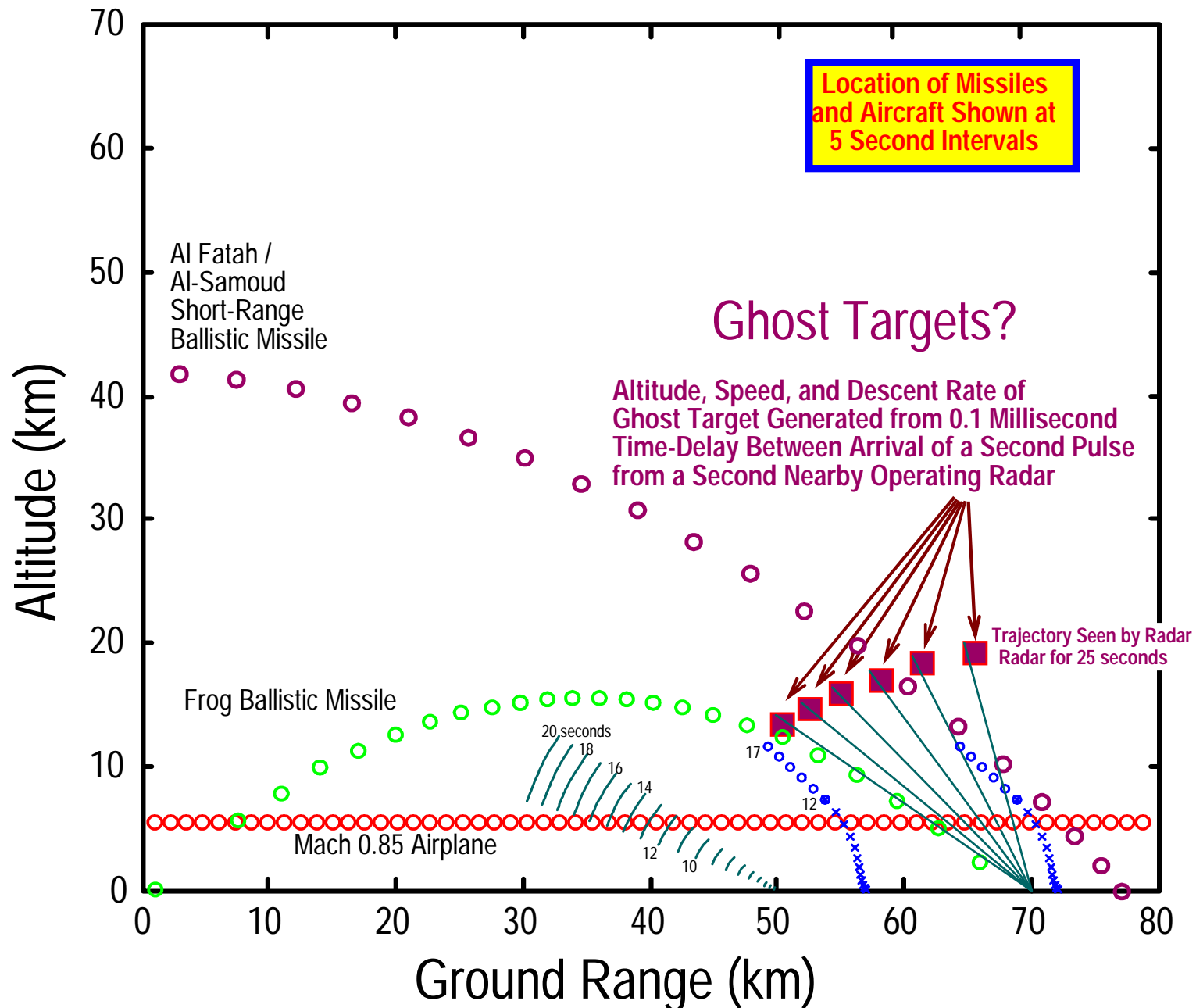




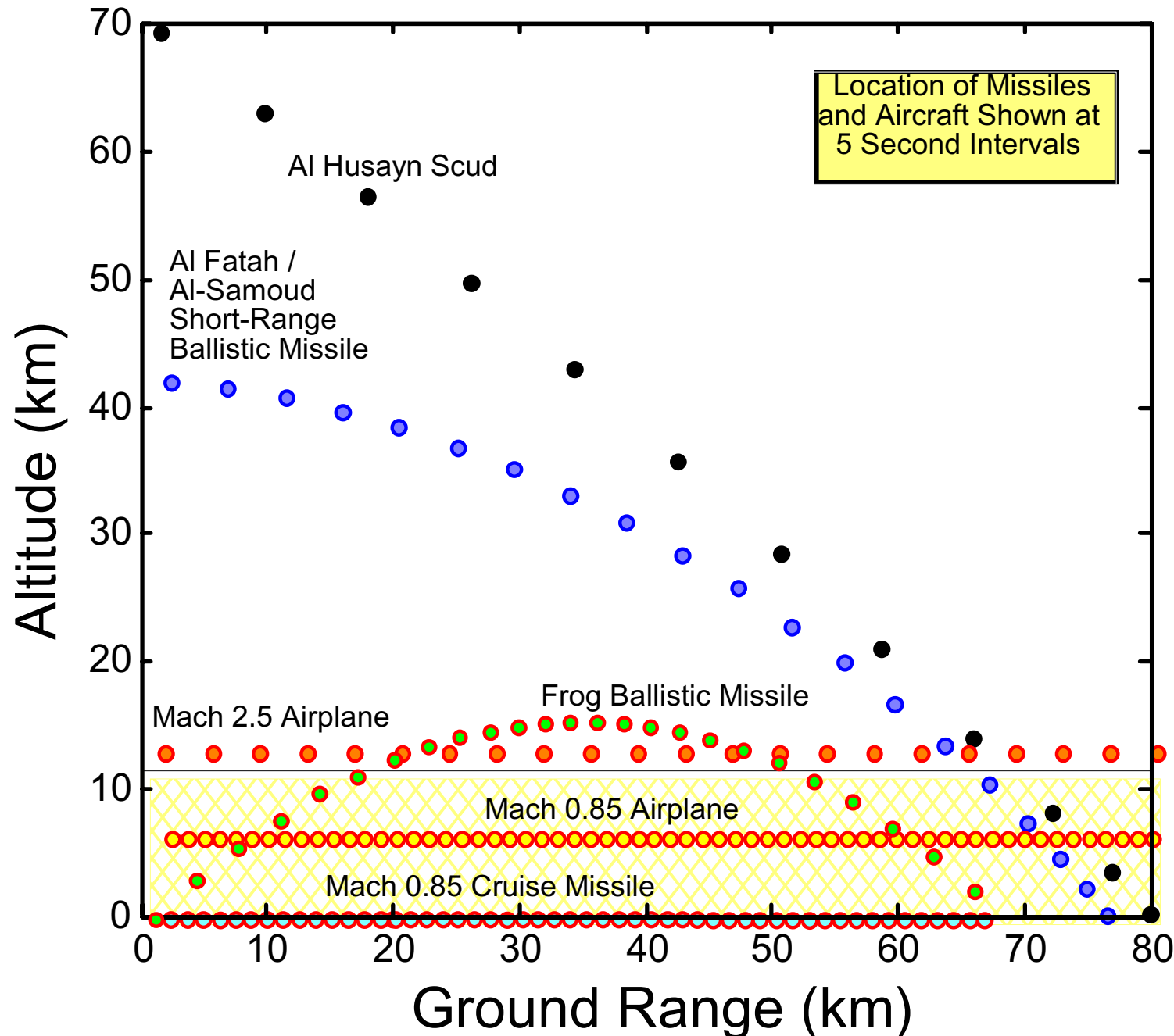
# Ghost Targets Can Appear to be on Ballistic Missile Trajectories for Certain Aircraft Altitudes and Distances Between Radars



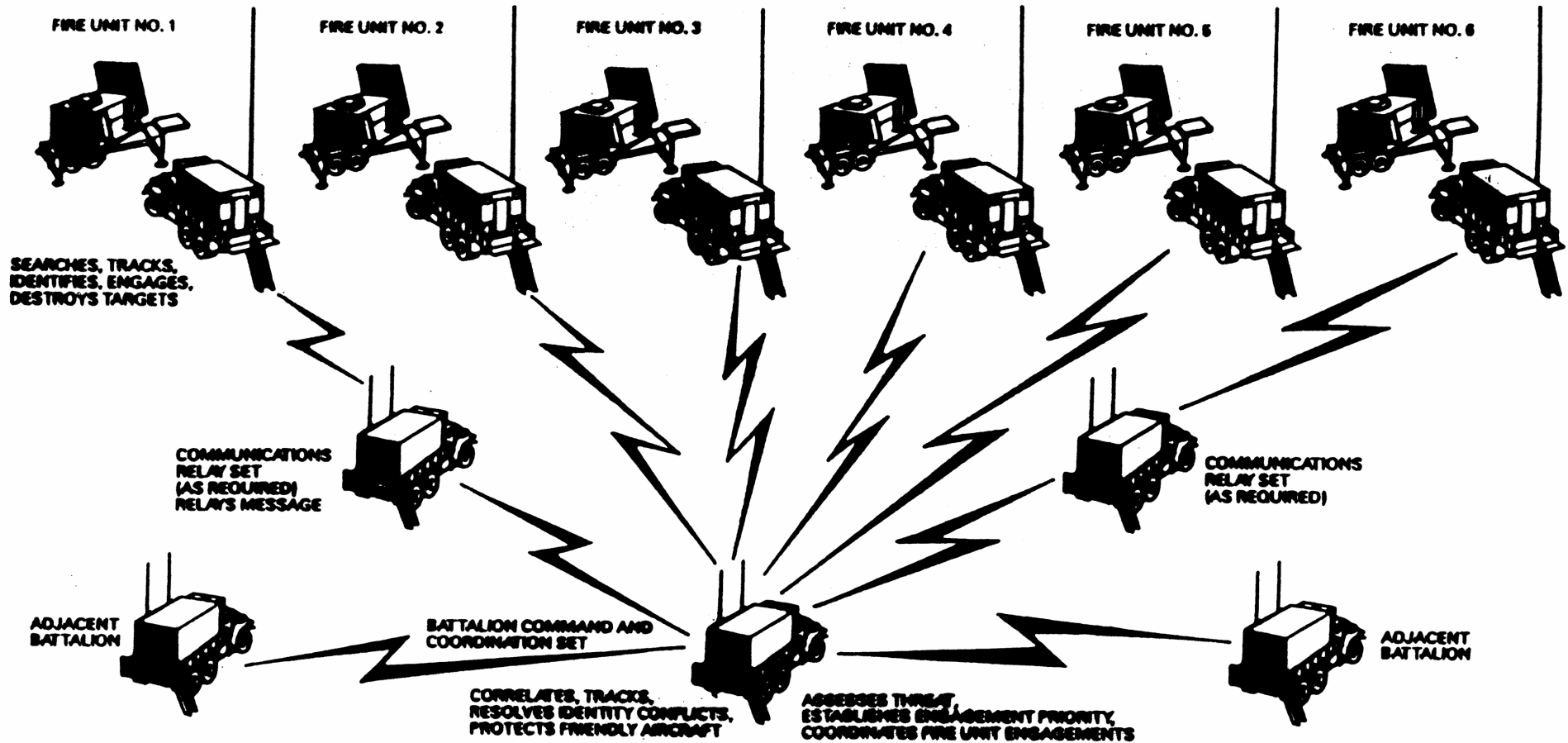
# Example of Aircraft-Generated False Al Samoud / Al Fatah Trajectory from Two Similar Tracking Radars in the Same Operating Mode



# Ballistic Missile and Aircraft Trajectories Expected by Patriot's Artificial Intelligence Software in Operation Iraqi Freedom



# Battalion Command Centers May Have Been Used to Identify False Ballistic Missile Tracks by Correlating Observations from Separate Fire Unit Radars



Qualitative data from each Patriot Fire Unit radar can be passed to a Battalion Command Center. Since not all radars would be spoofed in the same way by interference from distant radars, correlating data between radars in a battalion might in some cases make it possible to identify that observed ballistic missile tracks are false. However, the data from each Patriot Radar is passed to the Command Center once every four seconds, and the reaction time required for firing on ballistic missile may be only tens of seconds or less. As a result, pressure to fire on what is believed to be incoming missiles may have resulted in the launches against friendly aircraft.



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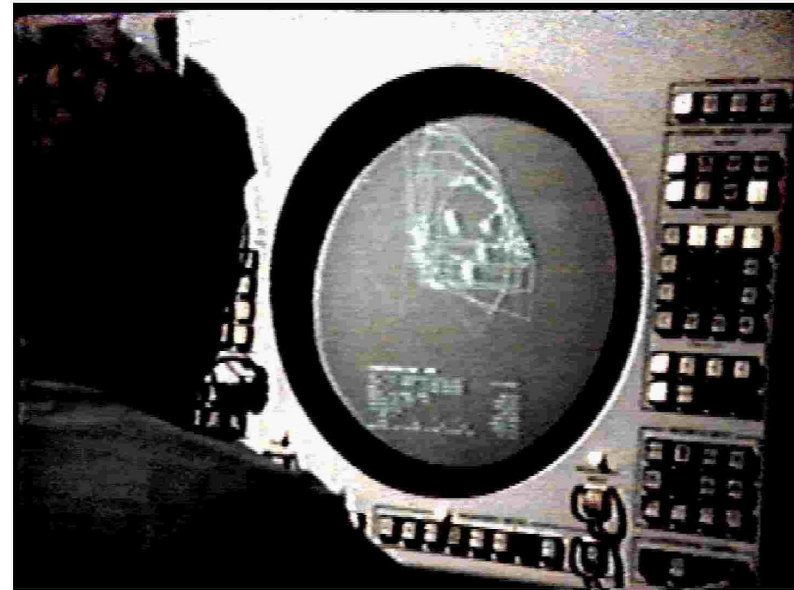
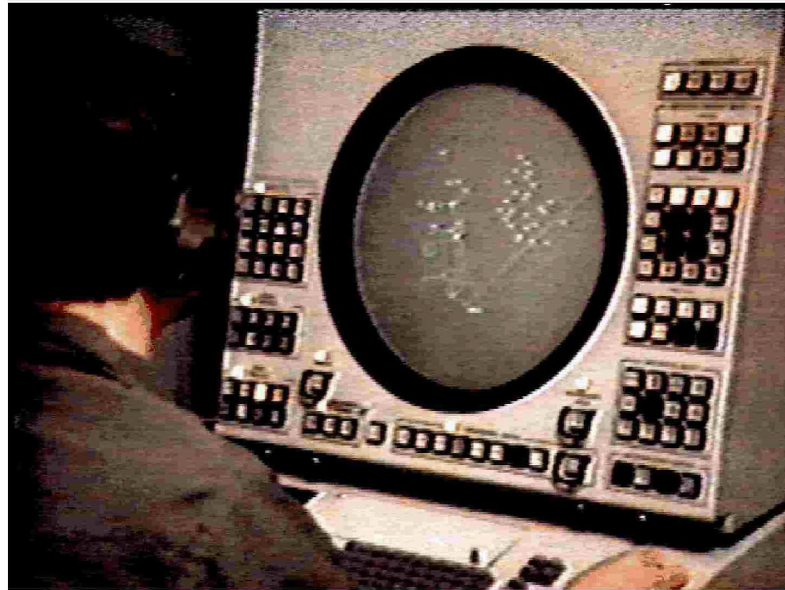
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Patriot Radars Display Results of Artificial Intelligence Software to Operators.  
The Operators Had No Training to Deal With False Ballistic Missile Targets  
In Addition Patriot Batteries Had Essentially No Real-Time Communication  
With Other Air Defense Surveillance Systems  
(AWACS, AEGIS, or Other Patriot Batteries)

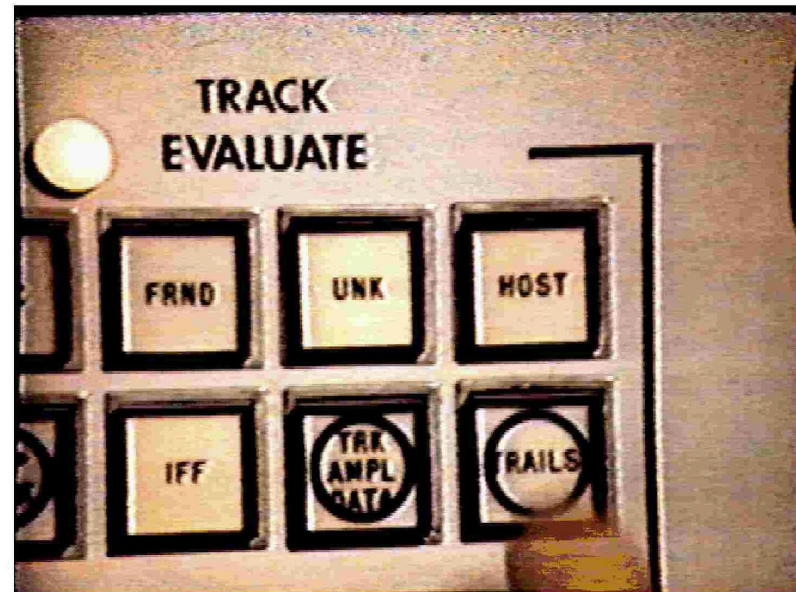
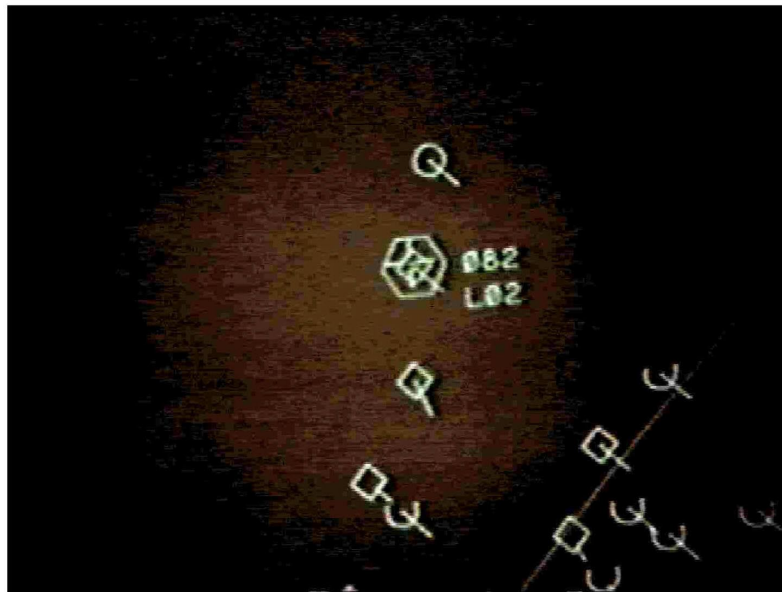
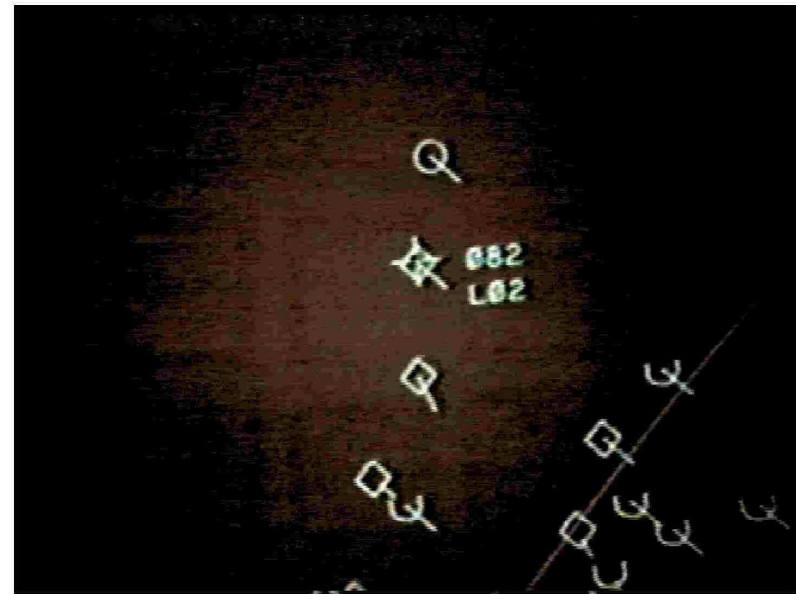
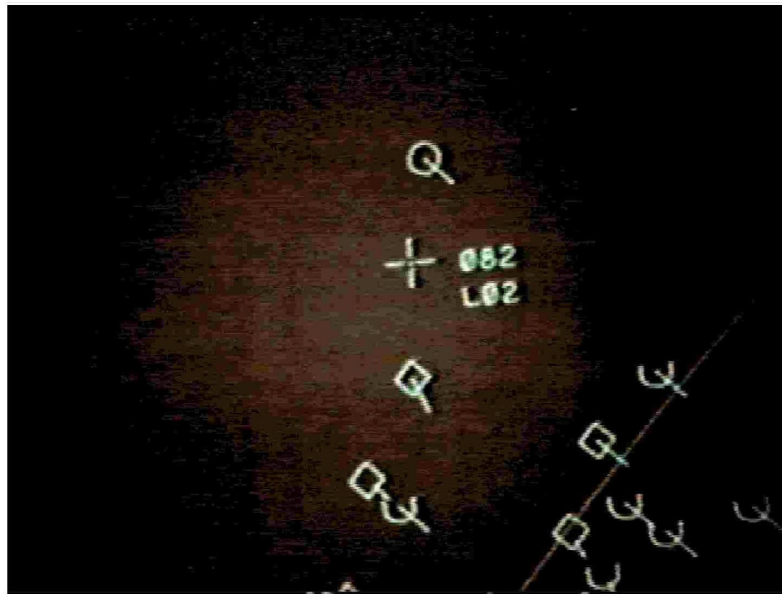
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Aircraft-Generated False Al Samoud / Al Fatah Trajectories  
would be Presented to Patriot Operators as Icons on an Electronic Display.  
The Operators Have Limited Resources to Determine Whether the Artificial  
Intelligence Software Incorrectly Identified a Ghost Target as a Ballistic Missile



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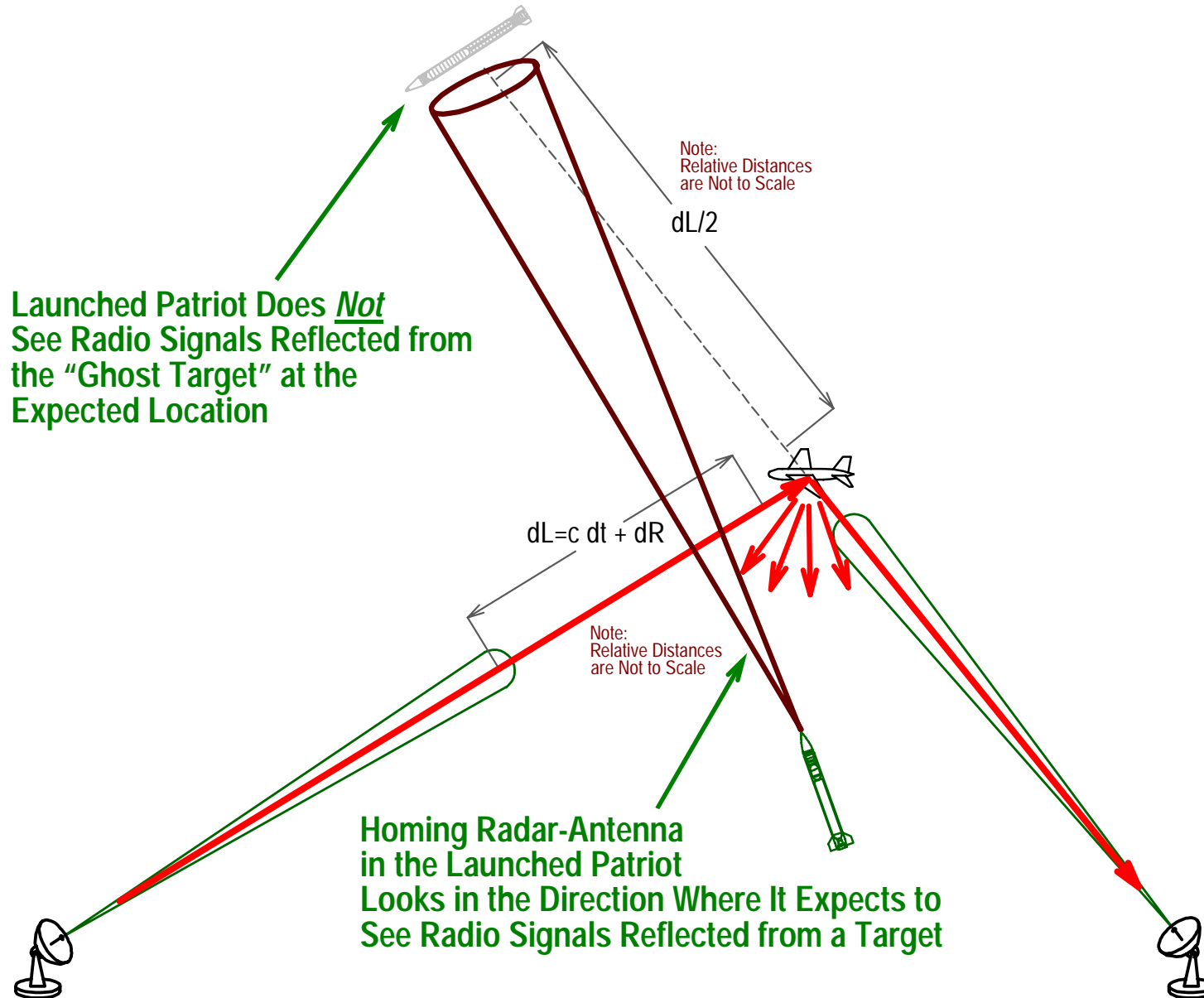
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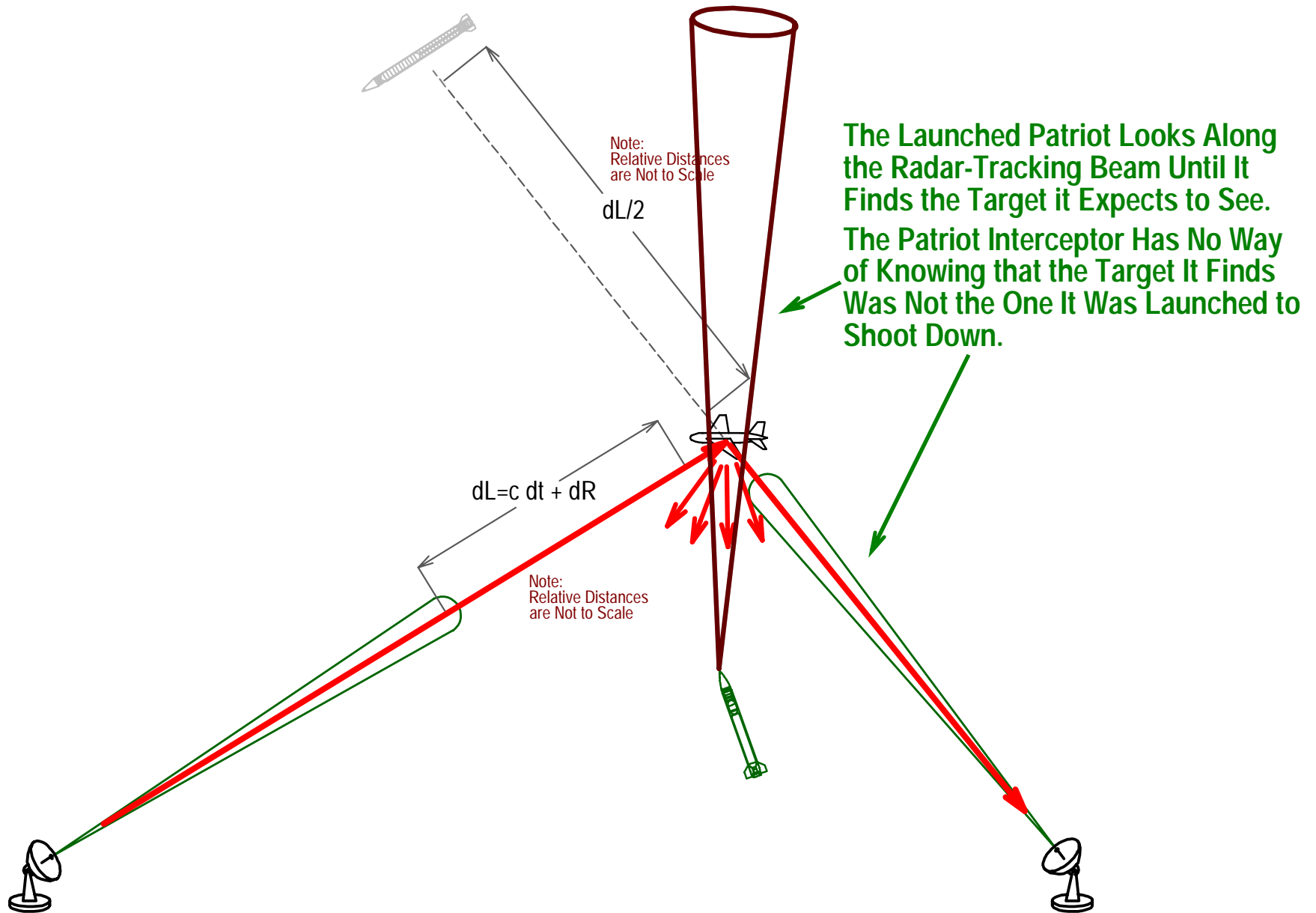
Patriot Track-via-Missile Electronic Countermeasure System Almost Certainly  
Increased the Chances that a Firing on a False Ballistic Missile Target  
Would Still Result in Homing on the Friendly Aircraft  
that Was Accidentally Being Tracked by Multiple Radars

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# Launched Patriot Looks for Reflected Radar Signal from "Ghost Target" But There is No Signal Being Reflected from the Ghost Target

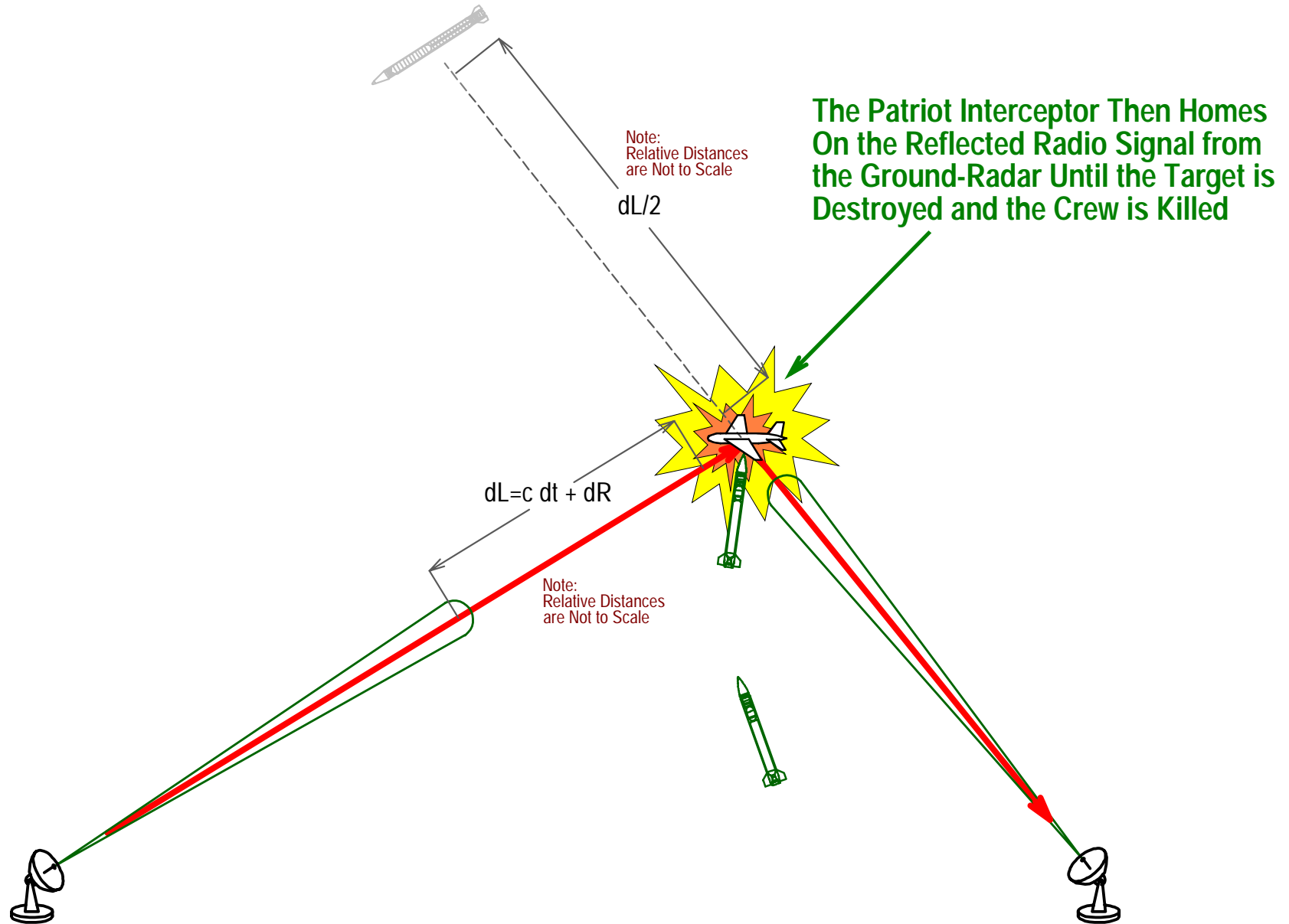


# When Patriot Finds No Reflected Radar Signal from the "Ghost Target," It Looks for the Expected Target Along the Radar-Beam and Finds the Hapless Friendly Aircraft

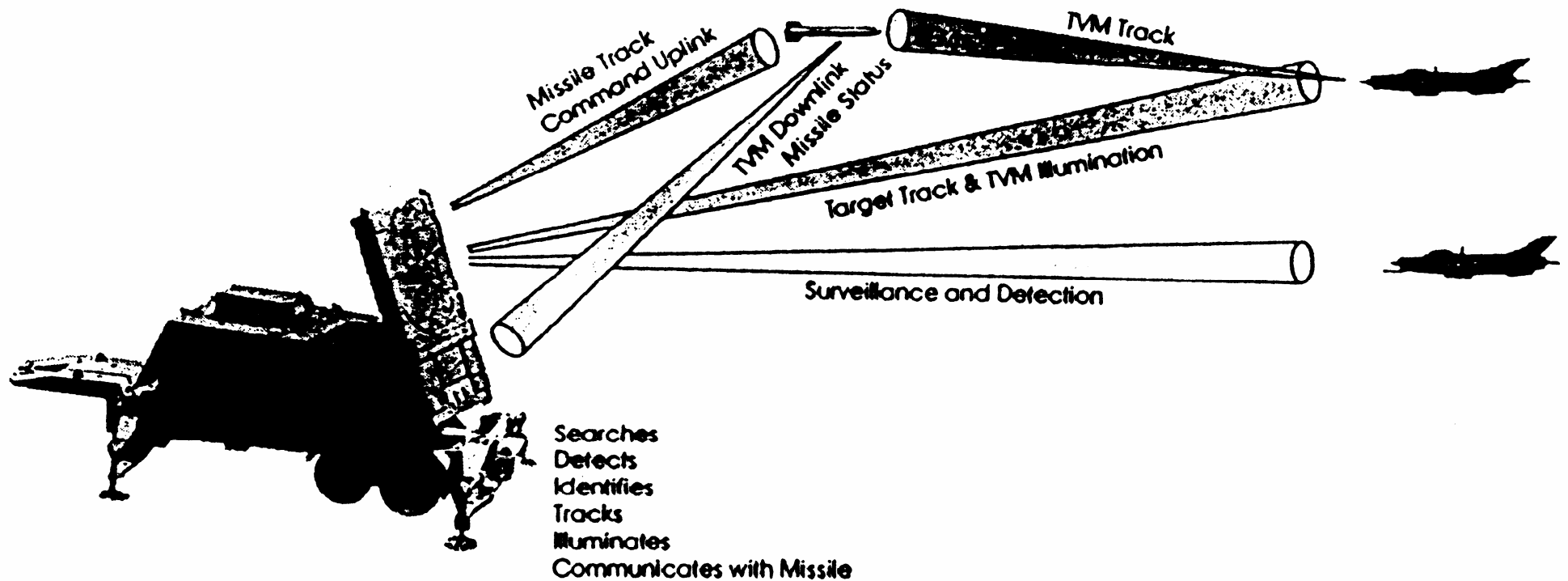




# The Patriot Simply Assumes that the Target It Found Is the Intended Target, So It Homes On the Hapless Friendly Aircraft Destroying It and Killing the Crew



# Patriot Track-via-Missile Mode May Have Caused Launched Patriot Interceptors to Select the Real Aircraft (Rather than Ghost Missile Target) Once the Patriot Interceptors Were Launched



The Track-via-Missile guidance used by Patriot in the terminal homing phase was conceived and designed for dealing with "false" targets intentionally created by enemy electronic countermeasures like electronic repeater jammers. It is possible that when the Patriot was fired at what was believed to be a missile it quickly identified the missile as a "ghost target" and instead homed on the aircraft.



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## Patriot Units Under Tremendous Time-Pressure to Fire on Ballistic Missiles.

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# Patriot Units Under Tremendous Time-Pressure to Fire on Ballistic Missiles

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- Ballistic missiles could only be observed at close range (perhaps 40 to 50 km)
- This is roughly one minute before impact.
- There are only tens of seconds or less available to launch, or to inhibit the launch, of Patriot interceptors.
- These very short time-lines are in part due to the very small Radar Cross Section of the Tactical Ballistic Missiles
- Patriot Fire Units had cueing information from AEGIS, COBRA JUDY, DSP, or Other Patriot Batteries

# Slide from Army Briefing Showing Patriot Engagement on 27 March 2003 of Ababil-100 Missile on Trajectory Where Impact Could Have Been as Close as One-Kilometer from the COIC or Stables in Kuwait

## Volley 12 "Saddam's decapitation strike" The Defense of CFLCC Headquarters

CAMP DOHA, Kuwait (CNN) -- The Iraqi military came within seconds of possibly wiping out the headquarters of the coalition ground forces with a missile on March 27, U.S. military officials said. The missile was intercepted and destroyed by a U.S. Patriot missile shortly before it could have hit its target.

Intercept point

2.7 KM from Intercept to COIC

Stables

COIC

DTG: 270831Z Mar 03


12

1 X Ababil-100, Distance: 144 km

EARLY WARNING: HIGGINS, AMDWS,

TARGETS: CP DOHA, KUWAIT CITY

ENGAGEMENT: KU3 2 x GEM, C/6-52 2 x GEM

BDA: Missile destroyed 

PATRIOT Launch



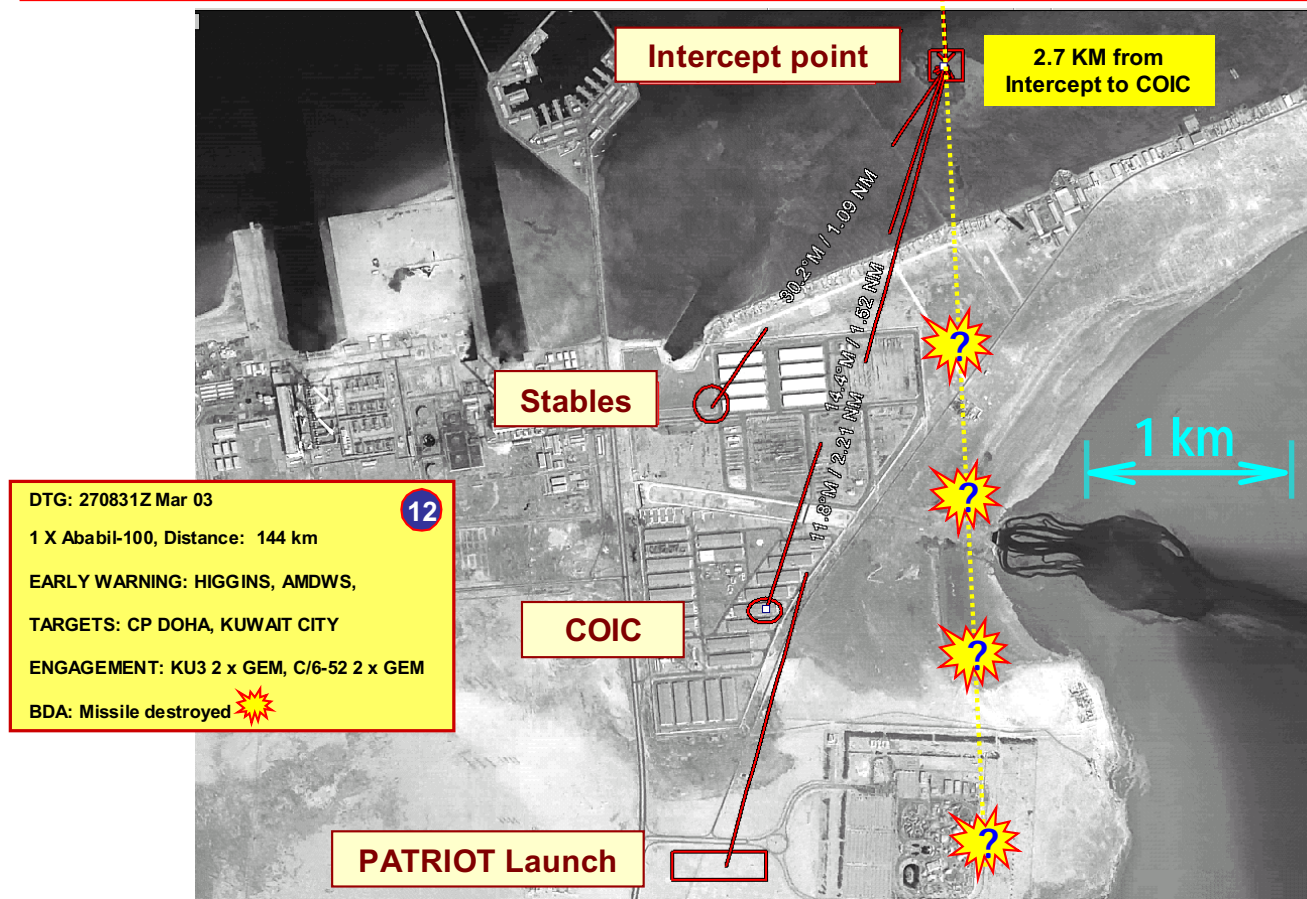
The attack came as Lt. Gen. David McKiernan, coalition ground forces commander, was meeting with other top military officials.

"Stay calm, continue the BUA, and let PATRIOT take care of it." COMCFLCC

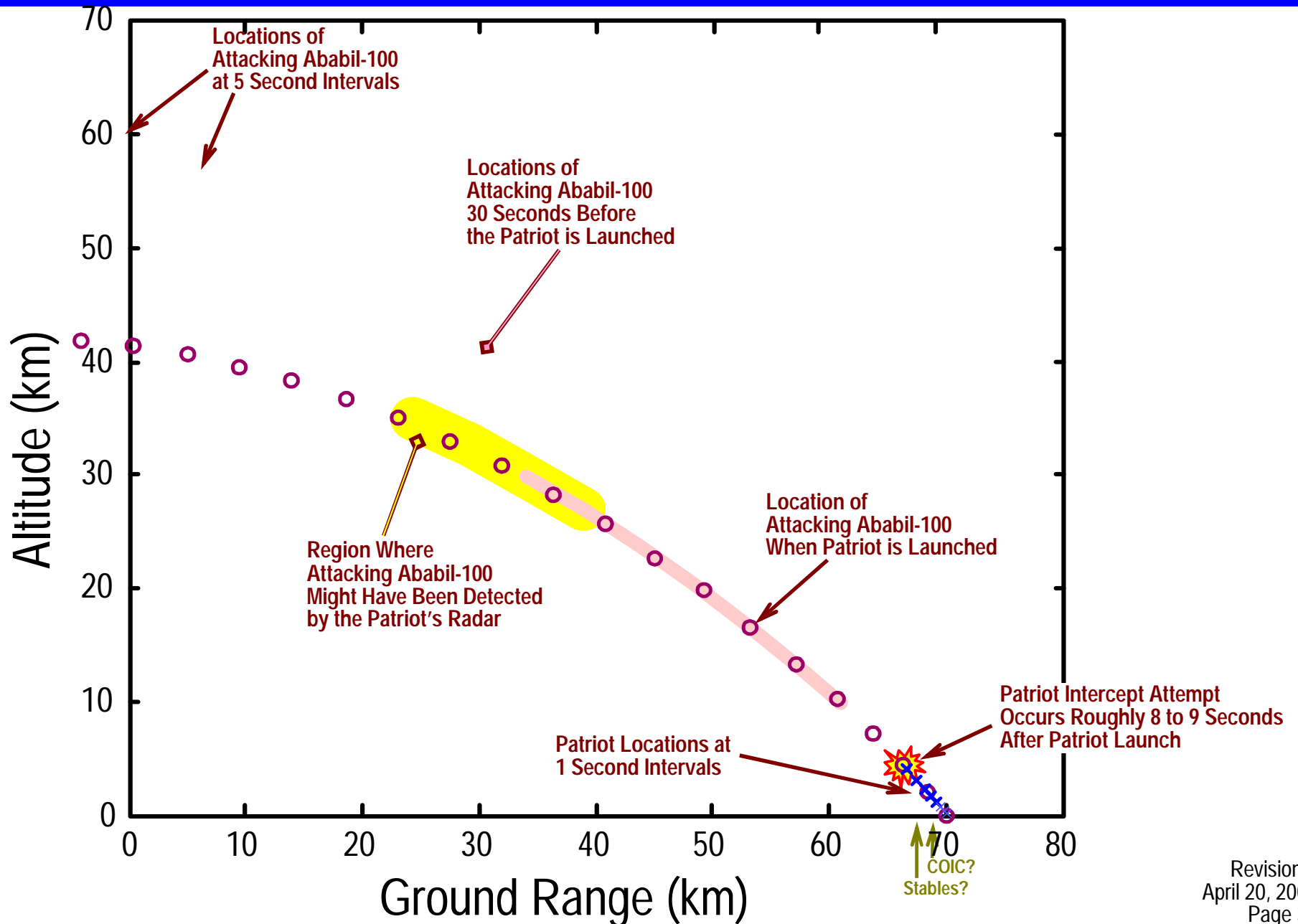


# Modified Slide from Army Briefing Showing Patriot Engagement on 27 March 2003 of Ababil-100 Missile on Trajectory Where Impact Could Have Been as Close as One-Kilometer from the COIC or Stables in Kuwait

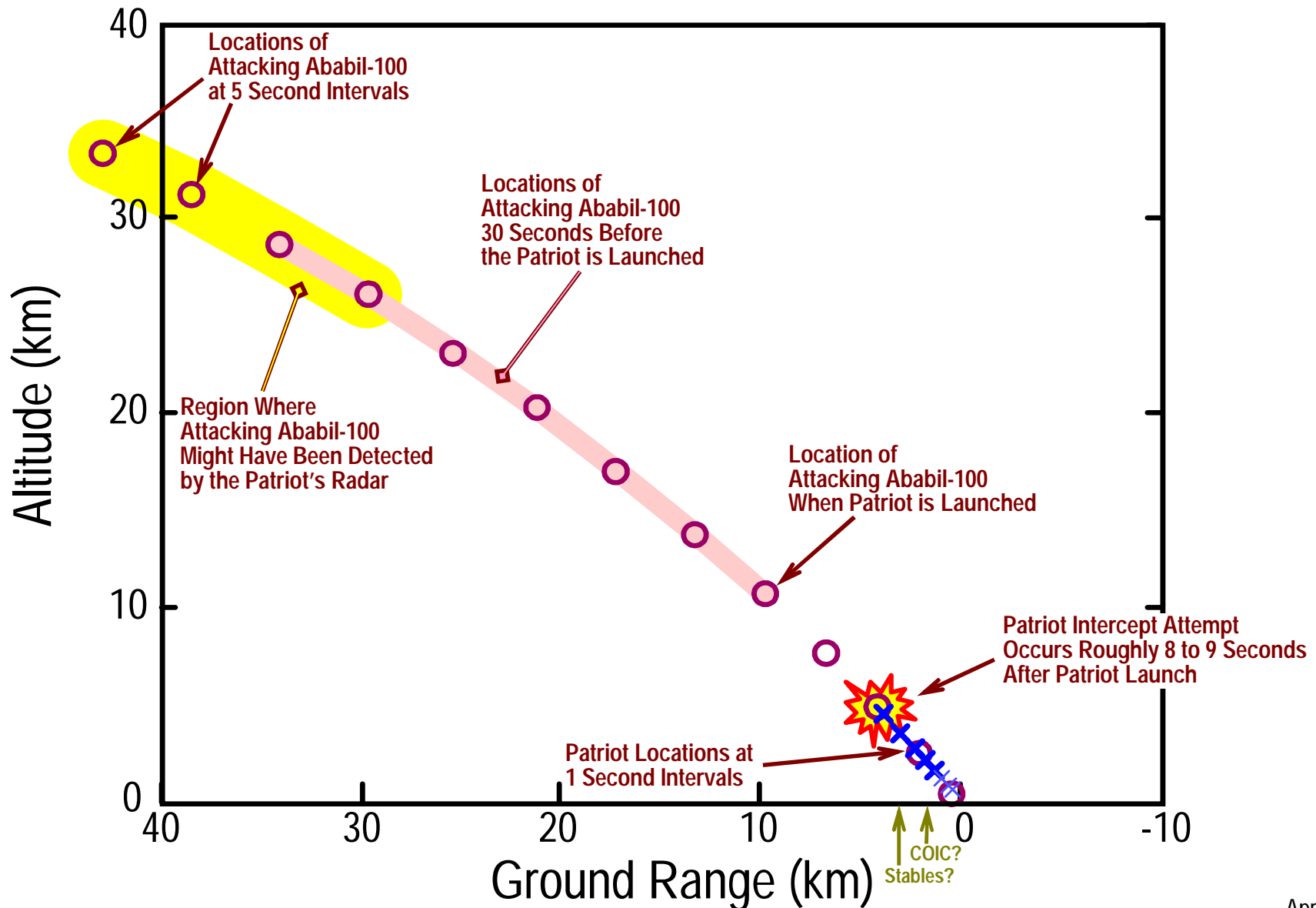
## Volley 12 "Saddam's decapitation strike" The Defense of CFLCC Headquarters



# Estimated Events During Patriot Engagement on 27 March 2003 of Ababil-100 Missile on Trajectory Where Impact Could Have Been as Close as One-Kilometer from the COIC or Stables in Kuwait



# Estimated Events During Patriot Engagement on 27 March 2003 of Ababil-100 Missile on Trajectory Where Impact Could Have Been as Close as One-Kilometer from the COIC or Stables in Kuwait





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## Statements Extracted from the Army Air Defense Artillery Briefing

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# Extracted Statements from the *Army Air Defense Artillery* Briefing (Page 1 of 2)

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The First Time Patriot Batteries Knew of Incoming Ballistic Missiles was When the Patriot Battery's Radar Saw the Missiles

The Source of Spurious "Ghost" Ballistic Missile Trajectories Can Be Explained in Terms of Electromagnetic Interference from External Sources that Were Then Incorrectly Interpreted By Patriot's Artificial Intelligence As Incoming Ballistic Missiles.

The Extremely Short Time-Line for Operators to Launch Patriots (Tens of Seconds or Less) and the Belief that the Ballistic Missiles Were High Priority Targets Made it Difficult or Impossible for Operators to Assess Whether or Not Ballistic Missile Tracks Spurious.

Patriot Batteries Could Not Communicate Quickly with Higher Levels of Air Defense System (AWACS, AEGIS, Patriot)  
AWACS could not talk to Patriot Units on the Ground

The High Density of Deployed Systems Led to Electromagnetic Interference (EMI) that Caused Patriot to See Spurious Tracks and IFF Signals

Some (or All) Patriot Units Operated Autonomously

Space-Based Warning Was Not Effective Against Long-Range Missiles (This Should Have Been Known Before Combat)

System Either Did Not Have or Could Not Use Link 16 Voice Communications to Patriot Batteries

AEGIS Ships Could Have Provided Early Warning and Situational Awareness to Patriot Batteries With Link 16, but Batteries Did Not Have Access to Link 16 Data.

First Time Patriots Knew of Incoming Ballistic Missiles was When the Patriot Radar Saw the Missiles

- OPERATORS AT ALL LEVELS DIDN'T FULLY UNDERSTAND TABULAR ENTRY VALUES.
- PROCEDURES NOT ESTABLISHED FOR HARMONIZING THE PATRIOT WEAPON IAW METT-TC.

**RESULT:** OPERATOR NOT ENABLING THE WEAPON SYSTEM.

# Extracted Statements from the *Army Air Defense Artillery* Briefing (Page 2 of 2)

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- OPERATORS FOCUS SOLELY ON TBMs; DID NOT WORK ID OF UNKNOWN AIRCRAFT ON SCOPE
- LOST SITUATIONAL AWARENESS OF AIR TRACKS
- AUTONOMOUS OPERATIONS PROCEDURES NOT CLEAR.

RESULT: LOSS OF SITUATIONAL AWARENESS

FIX: TRAIN SCOPE AWARENESS – ALL AIR PLATFORMS.

- AIRBORNE PLATFORMS; CAN'T TALK TO PATRIOT

CLASSIFICATION/TRAINING SOFTWARE IMPROVEMENTS,  
FALSE TBM ELIMINATION, OPERATOR DECISION AIDS, HUMAN/COMPUTER INTERFACE, HIGH FAILURE PARTS

SPURIOUS TRACKS INJECTED IN PCOFT SOFTWARE; USE OF DUST FACILITY

- ON-LINE TRAINING MODE/TROOP PROFICIENCY TRAINER DOES NOT PRESENT OPERATOR WITH MISCLASSIFIED OR FALSE TRACKS
- PCOFT – INCAPABLE OF SCRIPTING SPURIOUS TRACKS

FIX:

UPDATE OTM/TPT/PCOFT SOFTWARE



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## Highlighted Extracted Slides from the Army Air Defense Artillery Briefing

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## **LESSONS/OBSERVATIONS (-)**

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### **Joint Deficiencies**

**— C4I Lacking – Internal and external voice & data capability -- Controlling Authority to shooter links**

- Voice over TADIL-J / Link 16
- Voice to airborne controller
- Theater Air Defense net

**— Impacts of dense joint / coalition battlespace ⊕ EMI ⊕ Spurious tracks, IFF**

- Training, Doctrine, Material Solutions

**— Space based warning not effective for SRBMs**

## **LESSONS/OBSERVATIONS (-)**

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### **Systems Deficiencies**

- SRBMs more challenging – non-contiguous battlefield requires 360° coverage**
- Interoperability via Link 16 to Battery Level**

### **Operational Deficiencies**

- Need revised Tactical SOP for Patriot Crews w/ focus on engagement operations**
- EAD / EAC unit training to include CSS training**
  - Operations on non-contiguous battlefield
  - Resourcing of CSS units
- PATRIOT organization**
  - 4 Btry vs. 5 Btry battalion
  - PAC II in PAC III Task Force

**Completed Action**

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## ***The “Way Ahead”***

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- OIF validated the inherently “Joint Nature” of Theater Missile Operations
  - Joint Exercise/ Experiments enhance combat readiness (RS, UFL, IL, CJTFEX (JCIET))
  - “CTC Like” training opportunity required for AMD forces
  - **C2 limitations pose greatest risk now and in the future**
  - Enhance capabilities to counter the evolving threat
  - Theater-level air defense command required
    - Today- 32d AAMDC with Joint Responsibilities
    - Tomorrow- Standing Integrated Missile Defense JTF
-

## **AMD LESSONS LEARNED (+)**

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### **Joint Operations**

#### **•Joint (AEGIS) early warning and situational awareness w/ Link 16**

- Role as DAADC w/ CFACC – Counter-TBM team (Attack Operations), AADP
- Role as TAAMDCOORD w/ CFLCC-Operations w/ V Corps, I MEF
- Operational Force Protection

### **Combined Operations**

- Integration of US & Coalition TMD operations: Jordan, Qatar, Bahrain, Turkey, Saudi Arabia, Kuwait, Israel, Dutch, UK
- C2 of Kuwait PATRIOT (46 ADA (KWT) TACON to 11 BDE in Feb 03)
- Host nation early warning

### **Performance**

#### **•PATRIOT lethality proven – 9 of 9- confirmed warhead kills 8 of 9**

- OR Rate for the Patriot force >92% during combat operations
  - Stance and flexibility – Playbook, Shortstop, EAC remissioning, Asymmetric defense
  - Divisional ADA – Combined arms contribution, fight as a battalion, security missions, CMO
-

## TRAINING

### **FRIENDLY PROTECT**

- OPERATORS FOCUS SOLELY ON TBMs; DID NOT WORK ID OF UNKNOWN AIRCRAFT ON SCOPE
- LOST SITUATIONAL AWARENESS OF AIR TRACKS
- AUTONOMOUS OPERATIONS PROCEDURES NOT CLEAR.

**RESULT:** LOSS OF SITUATIONAL AWARENESS

**FIX:** TRAIN SCOPE AWARENESS – ALL AIR PLATFORMS.

**ACTION:** ADAS/32<sup>nd</sup> AAMDC

### **PATRIOT GENERAL KNOWLEDGE**

- OPERATORS AT ALL LEVELS DIDN'T FULLY UNDERSTAND TABULAR ENTRY VALUES.
  - PROCEDURES NOT ESTABLISHED FOR HARMONIZING THE PATRIOT WEAPON IAW METT-TC.
- RESULT:** OPERATOR NOT ENABLING THE WEAPON SYSTEM.

**FIX:**

- RE-WRITE TSOP; INCLUDE LINKAGE BETWEEN IPB(DOCTRINAL/SITUATIONAL TEMPLATE) TO TABULAR ENTRIES.
- GROW EXPERTS IN THE FORCE

**ACTION:** ADAS/32<sup>nd</sup> AAMDC

**PROFESSIONALIZE THE FORCE**

## SITUATIONAL AWARENESS/UNDERSTANDING

### VOICE

- PATRIOT IN IRAQ COULD NOT TALK TO TAOC IN KUWAIT
- NO SATCOM
- AWACS CAN'T TALK TO GROUND BASED UNITS

**RESULT:** NO VOICE LINK BETWEEN BATTALION HQS AND HIGHER AUTHORITY (ID AND ENGAGEMENT)

**FIX:** MTOE AND JOINT

**ACTION:** ADAS / 32<sup>ND</sup> AAMDC

### DATA

- SHORTAGE OF HSDIO CARDS

**RESULTED IN PAC-2 UNITS NOT TRANSMITTING/RECEIVING DATA FROM ICC/TAOC/CRC**

- PAC-2 AND PAC-3 INCOMPATABILITY

**RESULT: AUTONOMOUS UNITS**

**FIX:** HSDIO CARDS FOR PAC-2 UNITS  
PATRIOT & MEADS TRANSITION

**ACTION:** LTPO AND 32<sup>ND</sup> AAMDC

### JDN

- AWACS/CRC DID NOT ALLOW GROUND AND SEA BASED DATA TO BE DISPLAYED

**RESULT:**

- DIFFERENT AIR PICTURE AT DIFFERENT LEVELS OF COMMAND
- 1ST TIME PATRIOT WAS AWARE OF INCOMING TBM WAS WHEN IT'S RADAR SAW IT

**FIX:** MAXIMIZES JOINT EFFORTS IN DEFINING THE JDN

**ACTION:** DCD

### ACO/SPINS

- OIF SPINS WERE NOT TIMELY
- UNITS NOT AGGRESSIVE IN RECEIVING ACO/SPINS
- ACMS NOT USED TO ROUTE FRIENDLY AC

**RESULT: UNITS OPERATING OFF DIFFERENT DATA**

**FIX:** JOINT TRAINING

**ACTION:** ADAS/32<sup>ND</sup> AAMDC/DIV ADA

CHALLENGED AIRSPACE CONTROL

## ***BASIC FUNDAMENTALS***

### SHOOT

- MUST SHOOT INDIVIDUAL AND CREW-SERVED WEAPONS TWICE A YEAR
- CONVOY LFX A MUST
- RING MOUNT READINGS
- IMMEDIATE ACTION DRILLS - SPORTS
- WEAPONS MAINTENANCE
- MUZZLE AWARENESS

### MOVE

- CONVOY PROCEDURES
- MANEUVER / COMBINED ARMS
- VEHICLE RECOVERY OPERATIONS
- MTOE REVIEW – PLUGGERS; NVGs
- UP-ARMORED HMMWVs
- FUTURE REQUIREMENTS

### COMMUNICATE

- RADIO MAINTENANCE
- FIELD EXPEDIENT ANTENNAS
- URIDIUM PHONES/SATCOM - MTOE
- MEDEVAC/CALL FOR FIRE
- USAF “FIREWALLS” PROHIBITS AMDWS, C2PC, CHAT

**• AIRBORNE PLATFORMS; CAN'T TALK TO PATRIOT**

### FIX – “CTC-LIKE EXPERIENCE”

- COMBINED ARMS/JOINT
- COE/NON-CONTIGUOUS
- TRAINED/COMPETENT OCS AND OPFOR; TBMs, CMs UAVs, ASYMMETRIC THREATS
- LESSONS LEARNED; COMMUNITIES OF PRACTICE
- LEADER DEVELOPMENT – LEADER TRAINING PROGRAM
- UPDATE MTPs AND JOINT DOCTRINE
- LFX – DUST FACILITY/ CONVOY LFX

**WARRIOR FOCUS**



## TRAINING

### AMD STANDARD BEARER

- SOLDIERS 100% RELIANT ON PATRIOT WEAPON SYSTEM
- NO STANDARD FOR TRAINING PROFICIENCY
- RECOGNITION OF TECHNICAL/ TACTICAL COMPETENCE

**RESULT:** ACROSS THE FORCE THERE ARE VARYING DEGREES OF STANDARDS

**FIX:**

- 1) INITIATE MASTER GUNNER COURSE  
(1<sup>ST</sup> CLASS 2<sup>ND</sup> QTR FY04)
- 2) DEVELOP/PUBLISH PATRIOT GUNNERY MANUAL
- 3) DEVELOP AMD TOP GUN PROGRAM
- 4) TRAIN NEW POST-OIF TSOP

**ACTION:** ADAS / 32<sup>ND</sup> AAMDC

### OPERATOR TRAINING IN AN AMBIGUOUS ENVIRONMENT

- ON-LINE TRAINING MODE/TROOP PROFICIENCY TRAINER DOES NOT PRESENT OPERATOR WITH MISCLASSIFIED OR FALSE TRACKS
- PCOFT - INCAPABLE OF SCRIPTING SPURIOUS TRACKS

**FIX:**

UPDATE OTM/TPT/PCOFT SOFTWARE

**ACTION:** LTPO / 32<sup>ND</sup> AAMDC

PROFESSIONALIZE THE FORCE

## **BLUE ON BLUE**

### **What are we doing now?**

**D**  
**O**  
**T**  
**M**  
**L**  
**P**  
**F**

TSOP RE-WRITE; PATRIOT GUNNERY MANUAL

FORMING LEADER DEVELOPMENT BRANCH IN ADAS;  
CREATIVE ADAPTIVE, INNOVATIVE LEADERS

JTAM COURSE, PATRIOT MASTER GUNNER, TOP GUN, CTC  
LIKE EXPERIENCE

**CLASSIFICATION/TRAINING SOFTWARE IMPROVEMENTS,  
FALSE TBM ELIMINATION, OPERATOR DECISION AIDS,  
HUMAN/COMPUTER INTERFACE, HIGH FAILURE PARTS**

ADAS POI CHANGES, TOP GUN, CTC, ONE BRANCH - AMD

ADAFECO-NG CONTRIBUTION, WARRANT OFFICERS (MORE  
EXPERIENCE) IN THE ECS

**SPURIOUS TRACKS INJECTED IN PCOFT SOFTWARE; USE OF DUST  
FACILITY**

# Highlighted Slides from the *Army Air Defense Artillery* Briefing (Page 10 of 11)

UNCLASSIFIED  
(DESTROY AS OPSEC SENSITIVE)

**Joint EW Architecture**  
Most advanced ever –  
TES, DSN CNF Bridge,  
pagers, AC10, WOTS,  
ADSI, C2PC, AMDWS,  
AEGIS, COBRA  
JUDY

**1<sup>st</sup> ever Wartime  
Coalition Patriot  
Operations**

**1-7 ADA**  
15 C-5s, 21 C17s  
Largest movement  
of Patriot by air

**LNOs in 6 countries**

**1<sup>st</sup> Ever support of  
the USMC by a  
Patriot Brigade**

**No loss of life or  
equipment due  
to an Iraqi TBM  
9 for 9** ?

**Joint Attack Operations**  
Successful finding, fixing and  
killing Enemy TBMs

**Innovative use of  
Float equipment –  
“Shortstop”**

**1<sup>st</sup> ever PAC III, GEM,  
and GEM+ kills**

**Textbook  
Deployment  
(rail, sea, air)** ?

**Operation Iraqi Freedom**  
*IMD TF Operations in 8 Countries*

**EW provided to  
Kuwait.  
Activated 170  
Sirens** ?

**1069 Missiles Moved**

**Attack Operations**  
Pre-combat operations:  
destroyed 2 Ababil-100 TELS

**41 BTRYS, 7 BNS, 4 BDES,  
6500 SOLDIERS**

**Joint Area Air  
Defense Plan**

**Multi-service  
SADCs**

**92% Operational  
Rate during war** ?

**Cruise Missile  
Threat is Here and  
Now**

**1<sup>st</sup> ever Remote  
Launch Operations**

**LARs, MIRs, OAI  
combat multipliers!**

**CZAR of  
Operational  
Protection (MP,  
NBC, ADA)**

**45 CH47 Sorties to  
deliver supplies**

**AMDWS mission  
sharing and air  
picture with 48  
boxes, 19 units;  
including 1<sup>st</sup> UK Div  
and I MEF**

**“PLAYBOOK”  
Reinforce Maneuver  
coverage approved by LTG  
McKiernan**

**1<sup>st</sup> employment of  
Battery Command  
Post (2 BNs)**

UNCLASSIFIED  
(DESTROY AS OPSEC SENSITIVE)

## What TAMD **Forces Protected** ???

VOLLEY	DTG	LOCATION	WHAT WAS THERE
1	200924ZMAR03	TAA Thunder	101st AAD Aviation Assets - 100+ Helos <b>4,000 Soldiers</b>
2	201030ZMAR03	Camp Commando Al Jahra	I MEF / Marine Engineer Group HQ <b>4,700 Marines</b> <b>100,000 Civilians</b>
5	202324ZMAR03	Camp Udairi	11th AHR and Combat Support Hospital <b>4,000 Soldiers</b>
6	211001ZMAR03	TAA FOX Al Jahra	1st Forward Service Support Group <b>4,500 Marines</b> <b>100,000 Civilians</b>
7	232159ZMAR03	Camps NJ / NY / PA	101st AAD <b>12,000 Soldiers</b>
8	241042ZMAR03	Camps VA / NJ	V CORPS Main / 101st AAD <b>8,000 Soldiers</b>
10	251246ZMAR03	Camp Commando	I MEF / Marine Engineer Group HQ <b>4,700 Marines</b>
12	270831ZMAR03	Camp Doha	Camp Doha / CFLCC HQ <b>8,000</b>
15	010600ZAPR03	LSA Bushmaster	11 AHR, 101st AAD Aviation Assets, V CORPS Log Assets <b>10,000 Soldiers</b>