Headquarters U.S. Air Force

Integrity - Service - Excellence

ISR - Precision Strike Capabilities & Technology Improvements

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Deputy Chief of Staff for Intelligence, Surveillance, and Reconnaissance

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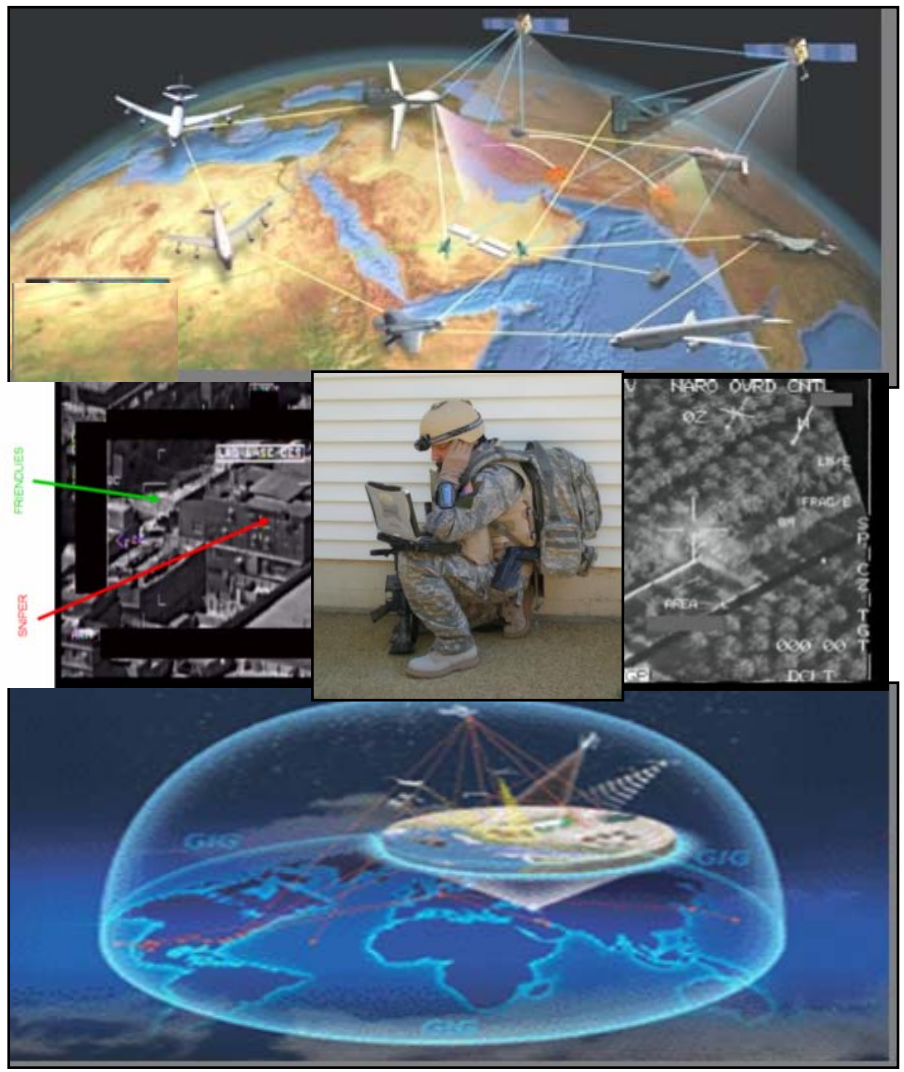
Introduction

- 20th Century Warfare …
- 21st Century Challenges …
- Tenets of Information Age Warfare …
- Information Age Warfare ISR …
- What we need from you …



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20th Century Warfare

A cultural divide of precision and information

WWI: Recon Balloon

WWII: Lockheed “Recce” P-38

Korea: N. American RB-45J

Vietnam: RF-101 Voodoo

Vietnam: RF-4C

Cold War: SR-71

Cold War: Space

Today: GLOBAL HAWK

Today: REAPER

Finding, Fixing Tracking …

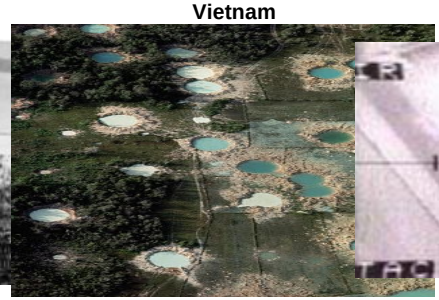
Targeting, Engaging , Assessing...

WWI : Verdun, FR

WWII : Berlin, GE

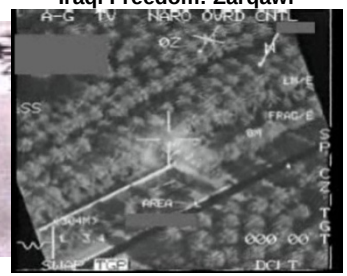
Korea: Seoul

Vietnam



Desert Storm

Iraqi Freedom: Zarqawi



Today’s challenges demand a new approach….

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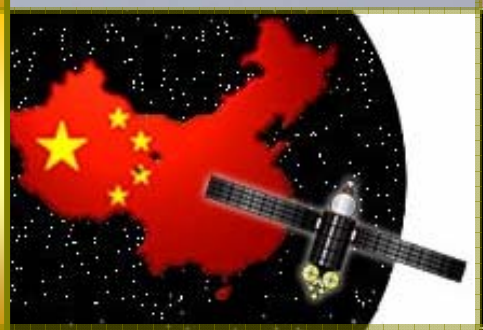
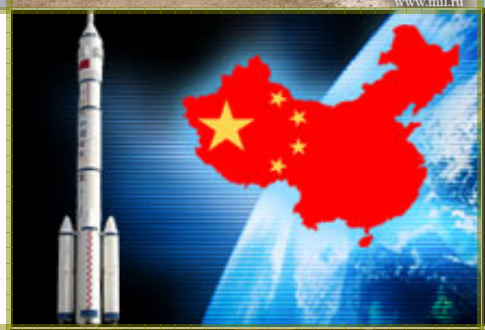
Traditional Challenges:

US dominance no longer assured…

	Near-term	Mid-term	Long-term
AIR			
SPACE			
CYBER			

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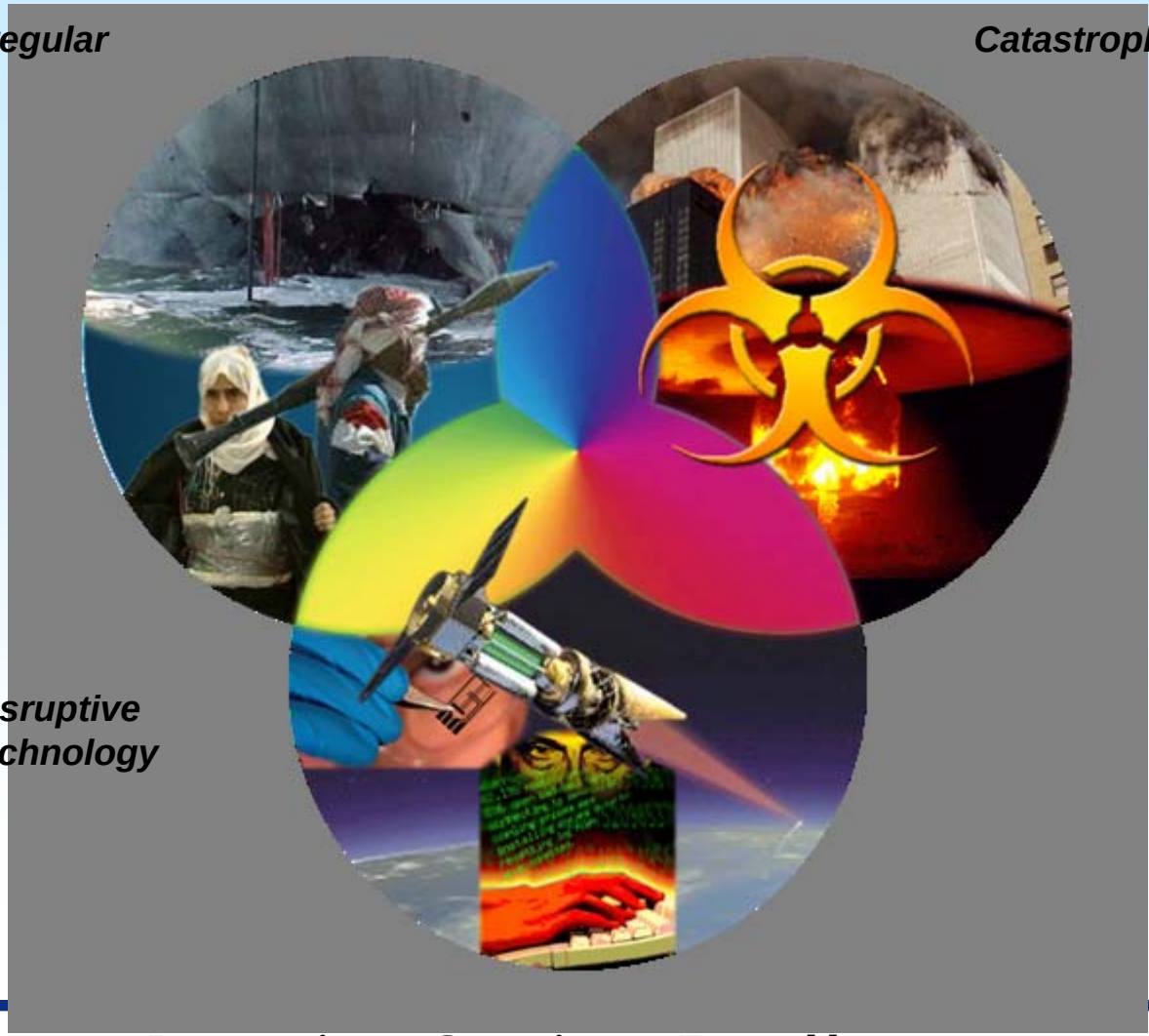
Non-Traditional Challenges:

US increasingly 'surprised'…



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Emerging Technology:

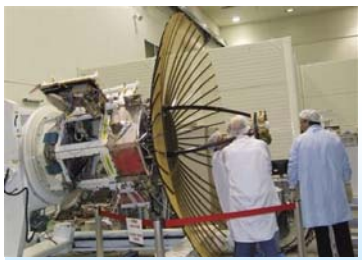
Diffusion – technology no longer 'asymmetric'

Globalization and commercialization of technology resulting in potential disruptive threats worldwide

GPS Jammers

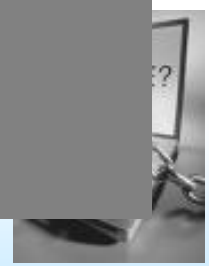
Anti-missile Defense

Laser



Satellites

Energy Directed



Cyber

Biometrics/Nano

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21st Century Challenge

Precision and Information Synergy

INDUSTRIAL AGE WARFARE → ***INFORMATION*** **AGE WARFARE**

"The most important tactical skill Airman will need in the 21st Century will be the ability to rapidly acquire, develop, and share information across the Joint Force, and at all levels of warfare"

Lt Gen David A. Deptula, DCS/ISR

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21st Century Challenge

Precision and Information Synergy

INFORMATION Age Warfare: Find/Fix is the biggest challenge…

ISR is the "hub" of the 21st Century Kill Chain….

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Info Age Warfare Tenets:

Viewing ISR as indivisible…

- **Historically…**
  - **Surveillance & Reconnaissance ≠ Intel**
- **Today's Information Age:**
  - **Surveillance & Reconnaissance are the inputs to the production of Intel, *and vice versa …***

- **"Flashy" technologies like UAS's & FMV add confusion**
  - **We forget how much integrated all-source, all-domain intelligence went into synchronizing that surveillance or reconnaissance capability at the right place at the right time to begin with …**

Information age warfare demands that ISR be indivisible…

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Info Age Warfare Tenets:

Viewing ISR as Operations…

- **Info age demands an effects-based approach**
  - **Kill chain is now ISR dependent**
  - **Single platforms executing entire kill chain**

Today, ISR is operations…

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Info Age Warfare Tenets:

Seeing ISR as "Multi-domain-ational"…

- **ISR operates in ALL domains…**
  - **Land, Sea, Air, Space, Cyberspace**
- **ISR impacts all other mission areas:**
  - ***Counter*** **- Land, Sea, Air, Space, Cyberspace**
- **To be truly efficient, ISR demands integration of all domain feeds…**
- **Stovepiping ISR by domain or platform "ownership" produces needless duplication, rivalry; synchronization problems**

Ultimately, decision makers care about the so what of intelligence; the where or who of collection is of little consequence

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Info Age Warfare Tenets:

ISR is about Capabilities & Effects…

- **AF is transforming ISR with a capabilities and effects based approach**
  - **ISR enterprise need not necessarily involve only "intel" coded Airman to be intelligence**
  - **Example: Targeting pods use for ISR taskings**
- **A platform-based construct misses the opportunity to integrate, analyze and interpret information of value to warfighters/decision makers**

Making every sensor a shooter, and every shooter a sensor produces the capability, effects, and flexibility Info-age Warfare demands …

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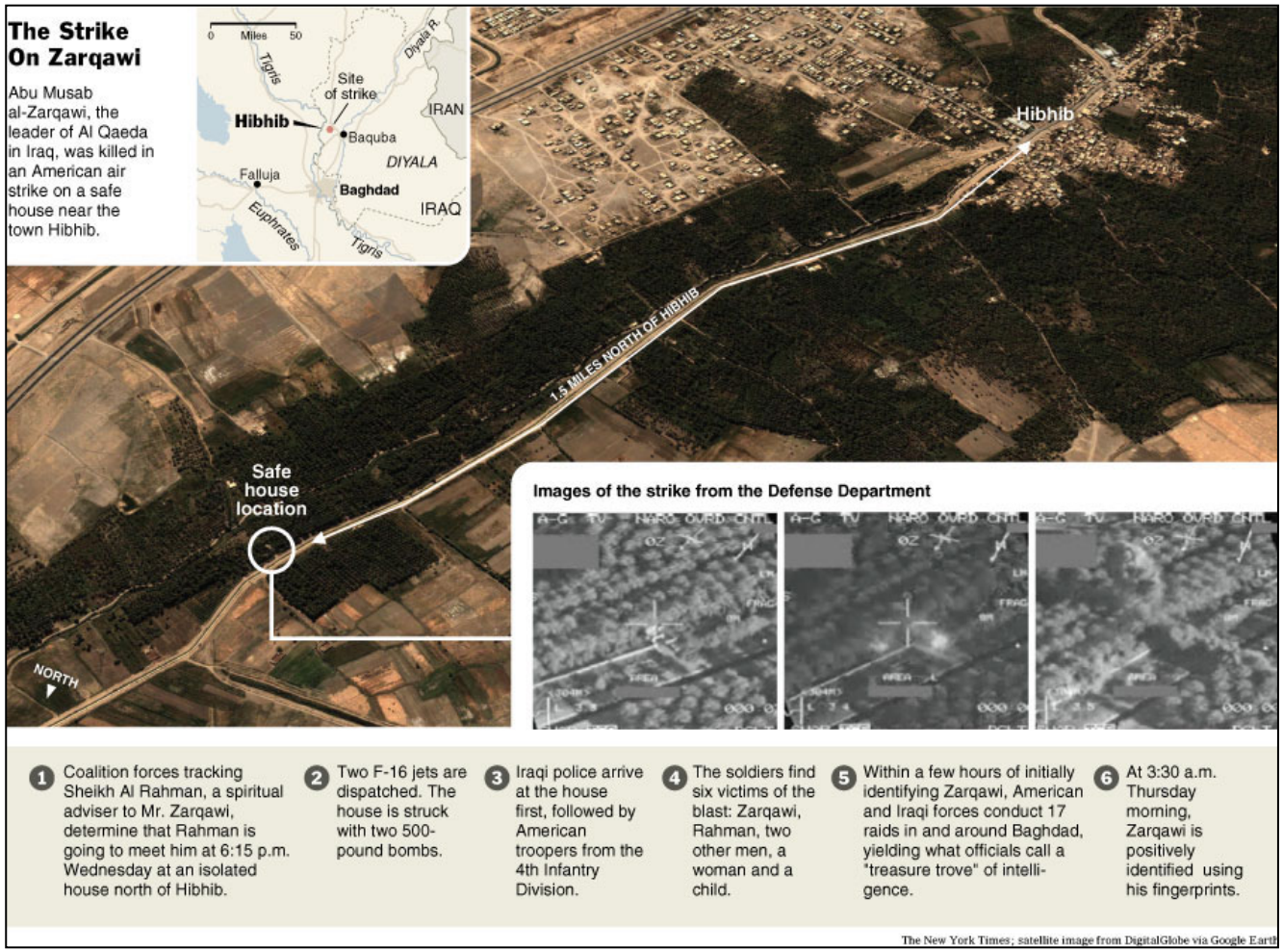
Precision & Information Synergy:
F2T2EA of Zarqawi



2006 Planning Meeting

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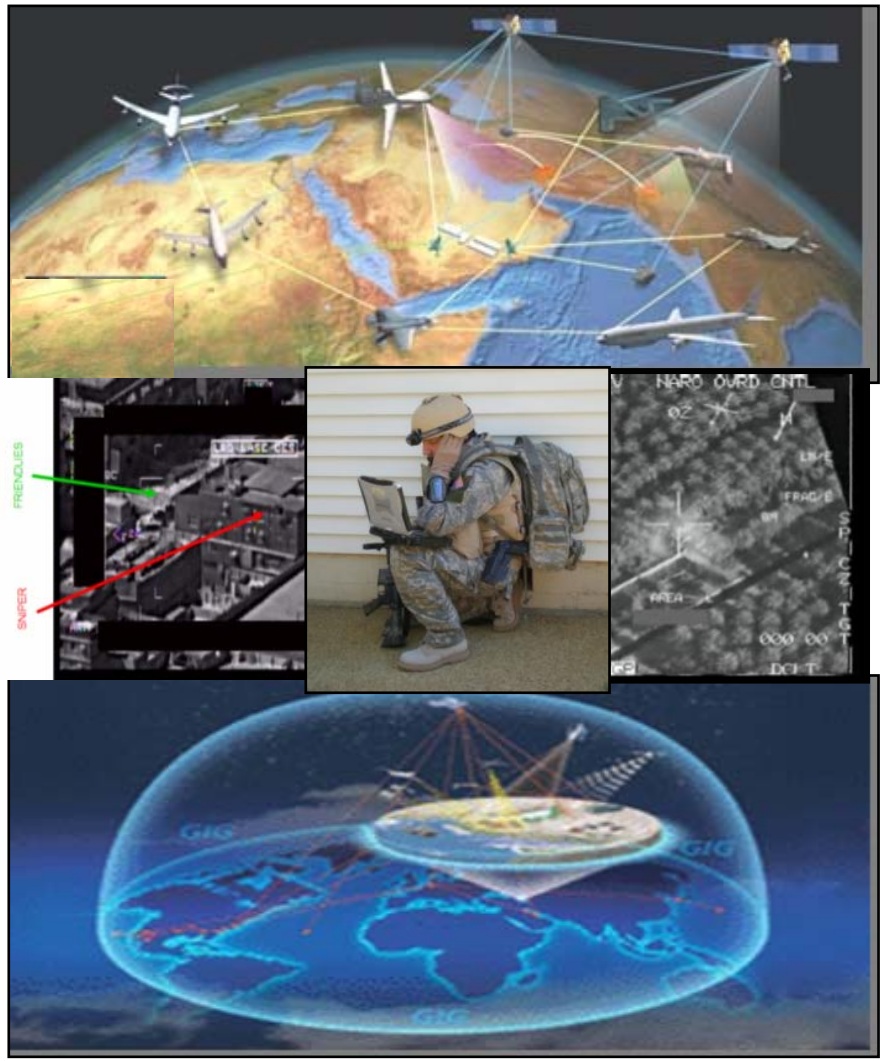
Information Age Warfare ISR:

What We Need From You …

- 5th Generation Threat Counters…
- Precision Targeting …
- Information Fusion …



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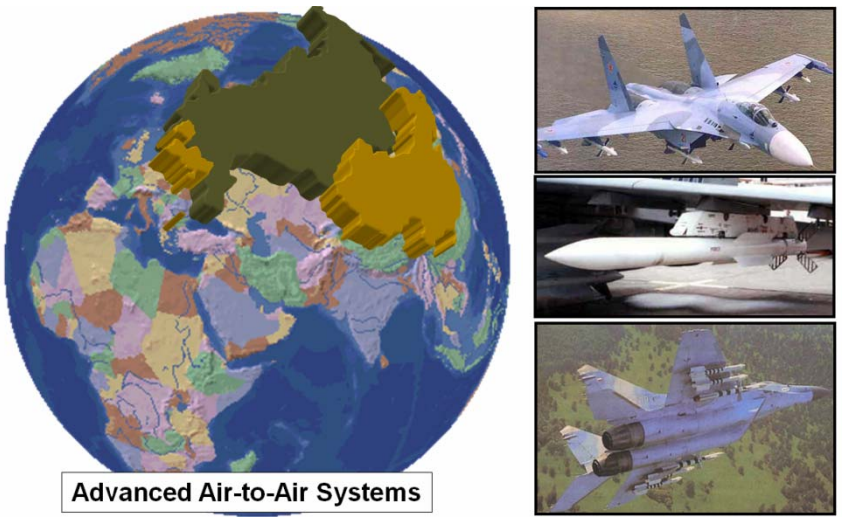
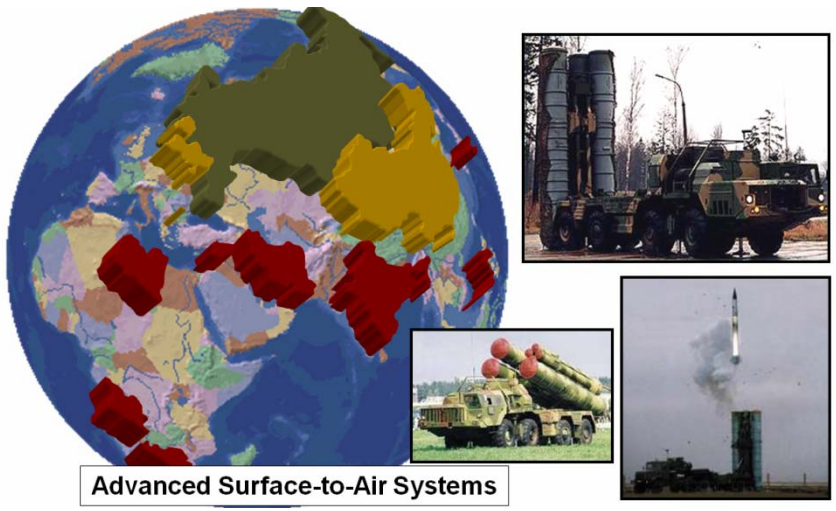
5th Generation Threat Counters

Anti-access/Area-denial "access"

- **Advances in AA/AD technology are spreading …**
- **Increasingly to areas of the world we need to gain ISR "access" too …**
- **Range, reach, endurance, survivability, low observability must be present at the start of ISR systems concepts..not "add ons" after the sensor is proven …**





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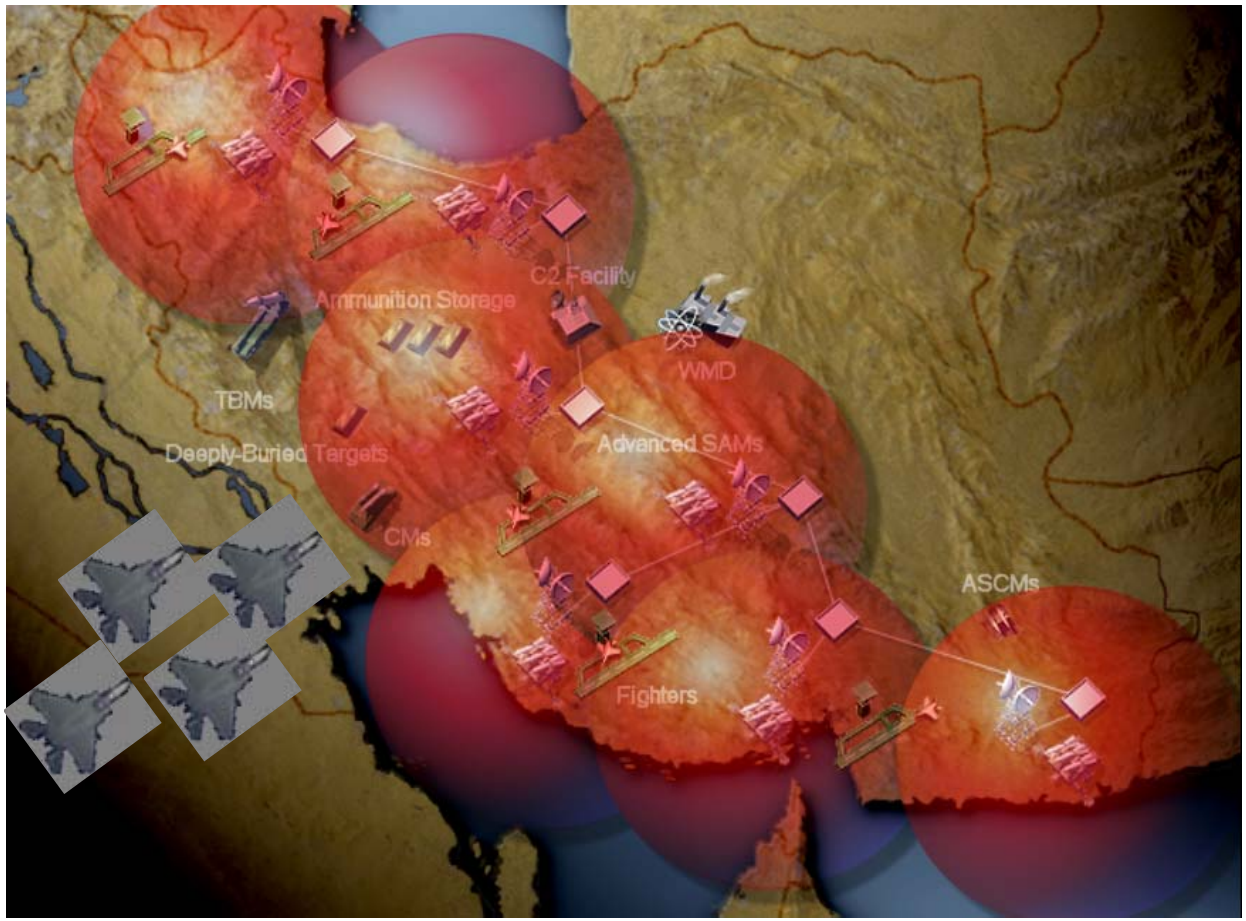
5th Generation Threat Counters:

Stand-off sensors



Stand-off sensors for ISR capabilities in denied areas

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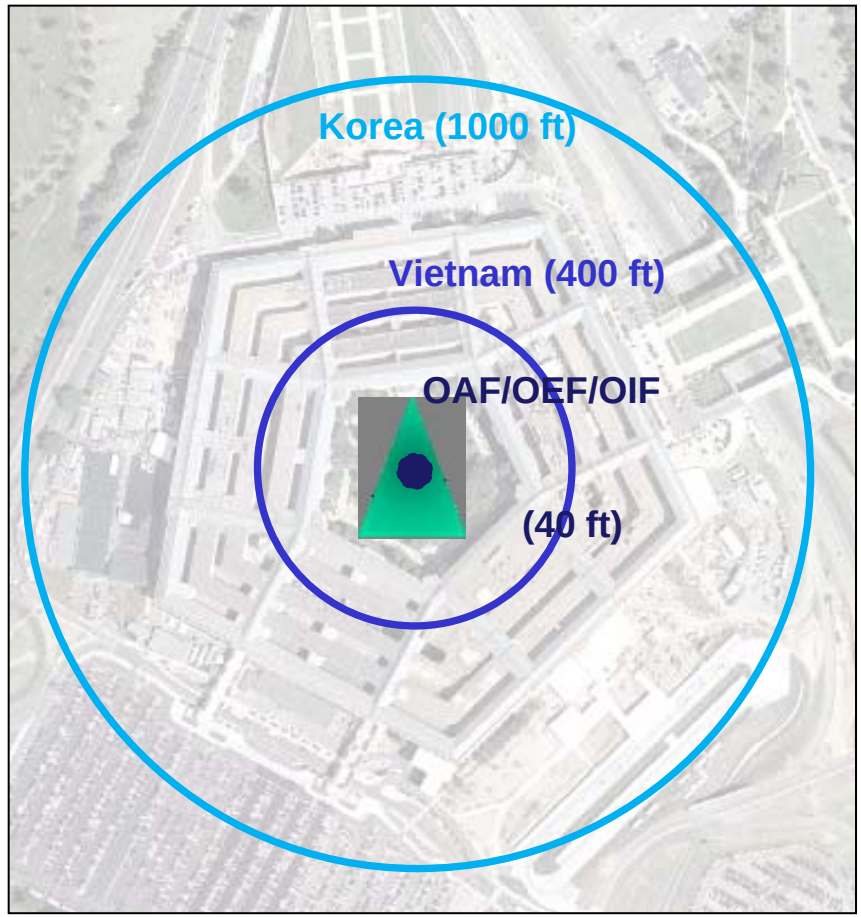
Precision Targeting:
Target Mensuration

- Precision weapons are no good without precision coordinates
- Expect 212,000 GPS / INS guided weapons by 2015
- Can take 20-minutes to 3+ hours to mensurate ***each point***
- What ISR needs:
  - Automated point mensuration capabilities / systems



MK 84 class bomb, Med Alt

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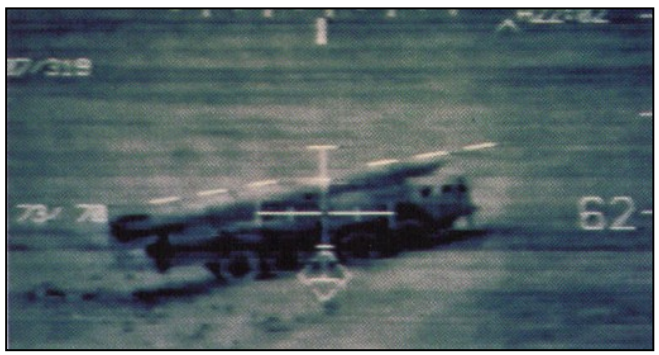
Precision Targeting:
Highly Mobile Targets

- Desert Storm “Scud Hunt” demonstrated the difficulties
- Future moving away from fixed to mobile targets
- What ISR needs:
  - Time-sensitive, time-critical, responsive flexibility …
  - Automatic sensor integration …
  - Automatic data base/pattern of life “tip offs” …



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Precision Targeting:
Hardened and Deeply Buried Targets

- **Assess Hard and Deeply Buried Target effects …**
  - **Even if weapons penetrate, may be difficult to cause substantial damage due to internal design**
- **Often used for WMD-related technologies**
  - **Counter WMD without collateral damage…**
- **How will we know it was destroyed ?**

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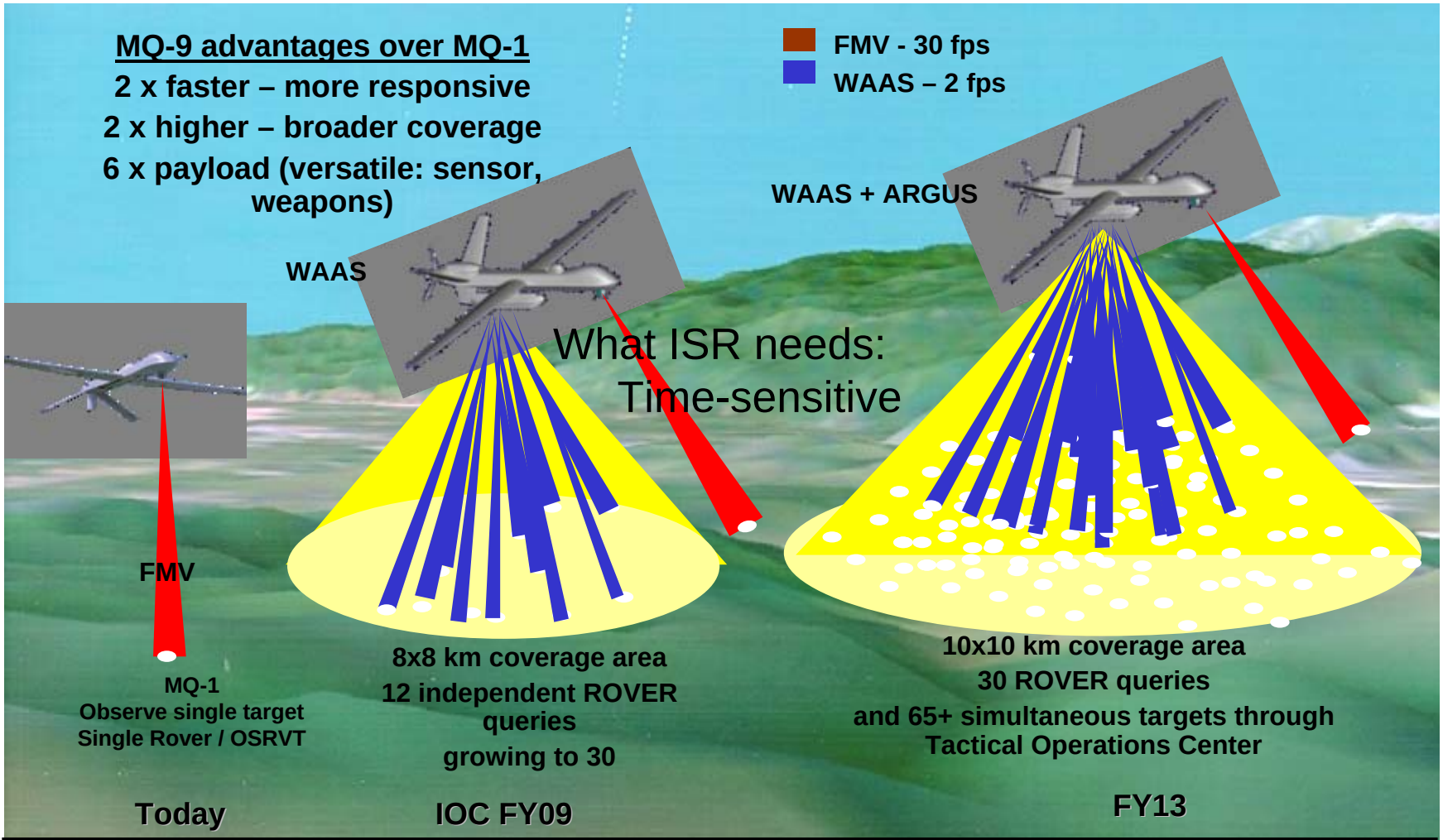
Information Fusion:
Wide Area Airborne Surveillance



How do we handle the upcoming tsunami of data?

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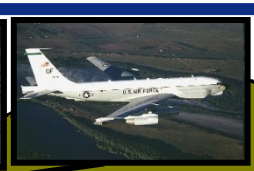
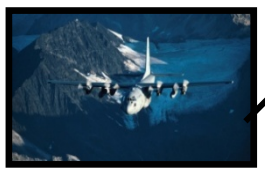
Information Fusion:

Instantaneous dissemination





	# Aircraft	# Aircraft Deployed
MQ-1	109	62
MQ-9	22	5
RQ-4	7	3
U-2	28	11
RC-135S	3	0
RC-135V/W	17	5
RC-135U	2	1
WC-135	2	1
Senior Scout	3	1

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End State: Optimized Kill Chain

Sensor-Shooter integration: We must integrate all ISR data in moments, not minutes or hours

Take Aways …

- Need your help to solve 21st Century ISR - Precision Strike challenges…
- Must view ISR as:
  - Indivisible
  - Operations
  - "Multi-domain-anotional"
  - Capabilities and Effects
- Must solve the problems of:
  - ISR vs. 5th Generation Threats
  - Precision Targeting
  - Information Fusion

Fly – Fight – Win

...Questions?