



USPACOM Science and Technology

Soft Power and its use in the Asia Pacific Region



*Mr. Ken Bruner
Science and Technology Advisor
HQ U. S. Pacific Command*

*Kenneth.bruner@pacom.mil
808-477-0795*

December 2010

What does the international community think of the US?





What Role Does S&T Play in Soft Power?

Two basic tenets:

- 1. Work by, with, and through our international partners**
- 2. Soldier, scholar, industry**

Most nations value the development and prosperity that scientific and technological advances bring

First, how do we equip our PACOM ambassadors to engage across the theater?

Second, how do we use S&T to initiate and improve broader military-to-military engagement and interoperability with our allies and strategic partners?

There is so much more we can do, and at PACOM we are open to any and all S&T partnership opportunities that we can tie to our our most pressing challenges across our strategic and operational portfolios.

Be cautious of unintended effects/consequences

Common Challenges and Mutual Opportunities



Common Challenges and Mutual Opportunities



POW/MIAs



**Terrorism /
Extremism**



**Humanitarian
Assistance**



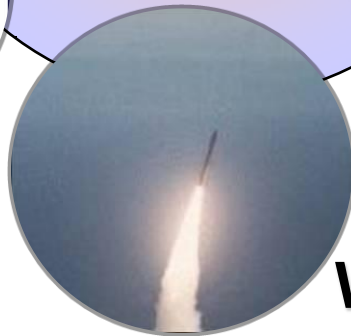
**Disaster
Relief**



**Maritime
Security**



**Weapons
Proliferation**





Two focus areas for S&T

- **Humanitarian Assistance and Disaster Response**
 - **Resilient Communities**
 - **Energy (Renewable energy sources)**
 - **Water (Long term, safe water supplies)**
 - **Prepositioned Expeditionary Assistance Kits (PEAK)**
 - **Education (Distance learning, Mobile Learning Environments)**

- **Regional Maritime Security**
 - **Anti-piracy**
 - **Illegal fishing**
 - **Counter-proliferation**



Maritime Awareness - EEZ monitoring



- **Monitor Sealanes and Exclusive Economic Zones**
- **Record Time, Place, Activity, and Vessel Identification**
- **Establish behavioral norms - highlight Suspects and Investigate**
- **Fuse collection information**
- **Long term oceanographic observation program to support Asian Regional Forum requirements**



Technology for affordable Maritime Awareness

Low Cost Dual Use HF OTH Radar

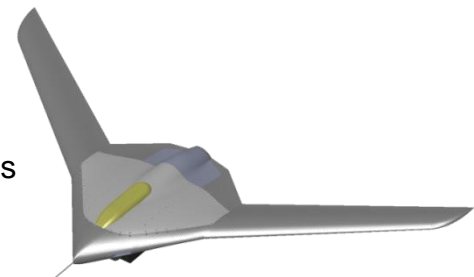


Commercial RADARSAT



Small, low-cost Autonomous UAS

- Heavy Fuel
- Loiter 33 hours
- Power 2.1 kw
- Range > 2000nm
- Usable payload – 76 pounds
- ITAR being worked
- Payloads
 - AIS
 - FMV EO/IR
 - SAR
 - SATCOM



Common Challenges and Mutual Opportunities



POW/MIAs



Humanitarian Assistance



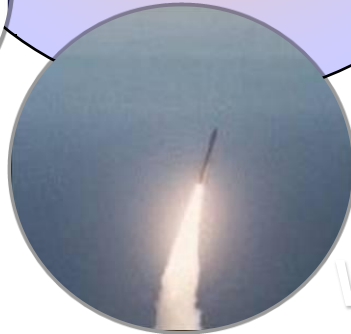
Disaster Relief

DISCUSSION

Terrorism /
Extremism



Maritime Security



Weapons Proliferation



Backups



USPACOM Area of Responsibility

- 36 Countries
- Largest developing nations
- Little/no fossil energy supply
- Abundant renewable resources





PACOM AOR Energy Security Strategy

Developing Energy Security Strategy

Developed strategic themes

Videoconference meetings developed installation-level goals

- 1. Increase energy efficiency**
- 2. Develop renewable energy resources**
- 3. Reduce greenhouse gas emissions**
- 4. Emphasize sustainability**
- 5. Exercise leadership**
- 6. Explore innovation in advancing energy security**
- 7. Establish cooperative initiatives with host governments**

Developing regional assessment and courses of action

Vision (PACOM Energy Partnership and Strategy Council):

“USPACOM will lead the DoD in developing and implementing a regional energy security, energy independence, and energy efficiency strategy for the benefit of the nation, our people, our Pacific partners, and for the stability of the Asia-Pacific region.”



Energy Efficient Water Purification focused on USPACOM HADR

- **ID HADR capabilities with respect to small unit and local populace water purification.**
- **Ten systems assessed in a limited objective experiment as part of Crimson Viper Field Experiment 2010 (CV10) in Sattahip, Thailand.**
 - **Thai military operators and lab technicians operated the systems and provided subjective feedback**
 - **Water quality analysis was both subjective (by operators) and objective (lab analysis of samples)**



ASPEN WATER 2000DM



**UH SLOW SAND
FILTRATION**



Maritime Awareness - It's not about the Dots...



It's about who puts them there
And Why



What is “Soft Power”?

Posit a definition:

*** “Soft power is influencing others to act in mutual interest by appealing to shared values”**

Culture, political values, and foreign policies

Compared to “Smart Power” and “Hard Power”

*** Joseph Nye, Dean of Harvard’s Kennedy School of Government**



Which “Power” is Best?

Choosing which power(s) to use depends upon what effect(s) we’re trying to achieve

Soft power is more about winning the peace

Longer-term effects

Moral high ground

Borrowing Brilliance, David Kord Murray

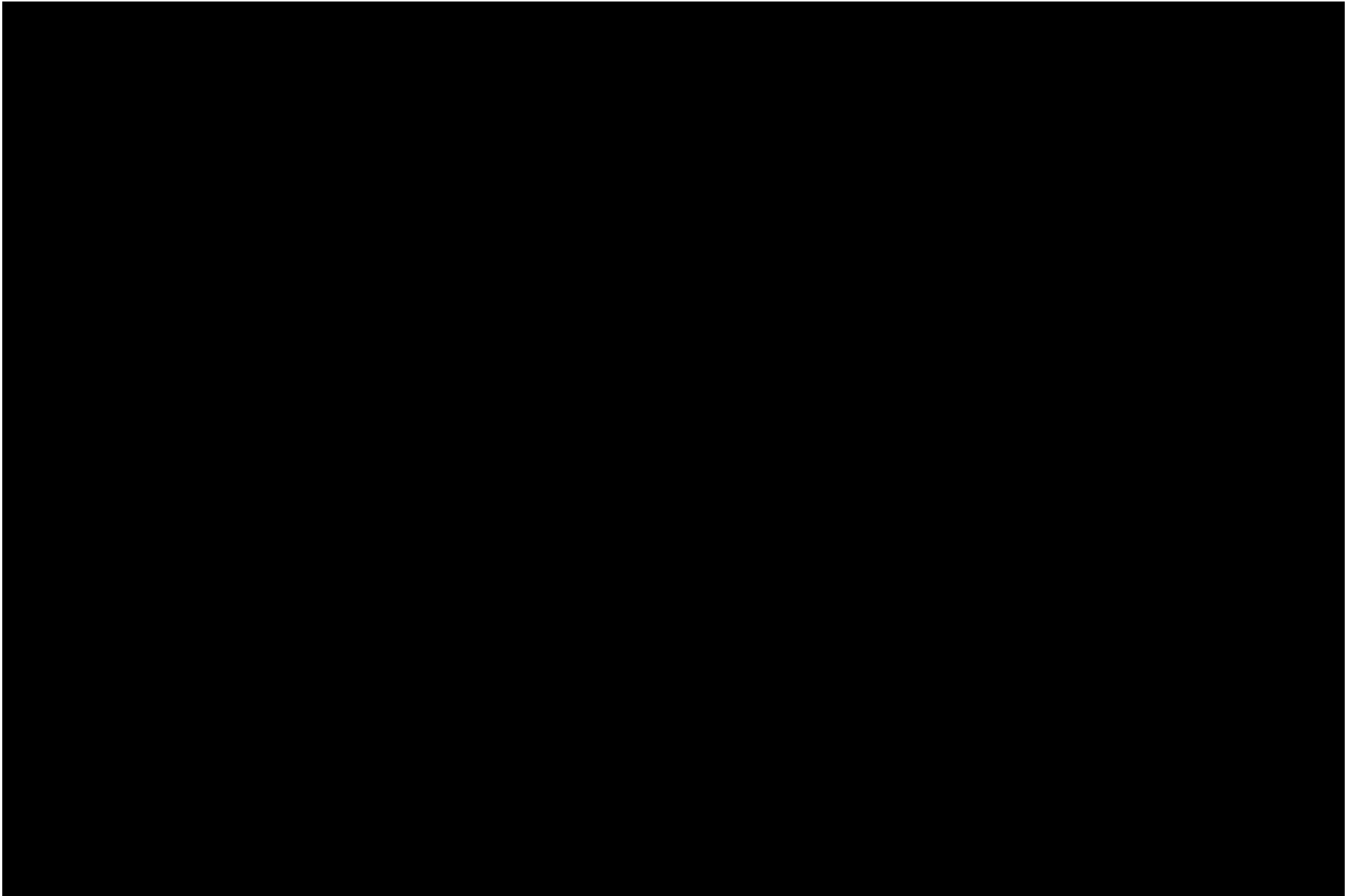
Root cause analysis: “Why is a problem a problem?”

Root problems for warfighting seem to point to higher level problems best addressed by soft power



Fury B - UAS

RTN





UH High Frequency Doppler Radio system specifications

Modulation	FMCW linear chirp
Operating Frequency Range	from 3 MHz up to 30 MHz
Transmitted RF-Power	max. 30 Watts, typically 5-10 Watts
Range, ocean currents	typ. 150 km/ 80 NM @ 12 MHz
Range, targets	max. 250 km/ 135 NM
Range Resolution	depends on bandwidth $c/2B$ 1.5 km @ 100 kHz, 150 m at 1 MHz (voice 3 kHz)
Azimuthal Resolution (Direction Finding)	better than 2 degrees with 4 antennas
Azimuthal Resolution (Beam Forming)	± 4 degrees with linear 16 antenna array coarser with decreasing number of antennas
Systems at hand	5 at University of Hawaii, 4 with partners

Past: Adriatic (ONR), Oahu (NSF), Tehuantepec (CONACyT, NSF)

Present: Philippines (ONR), Oahu (NOAA/DHS)



Crimson Viper Additional Background...

CV is a combined Thai-US military tech development activity with Thai warfighter participation.

Crimson Viper is sponsored annually by PACOM with the following objectives:

Build and maintain relationships with Thai Military through technological demonstrations

Determine the suitability of technologies for inclusion in the Cobra Gold Exercise



PEAK Capabilities

PEAK kits will focus on **water filtration**, **power generation**, **situational awareness**, and **communications** as the key enablers of distributed essential services

Kits will be designed to support the following (notional) operations:

Humanitarian Assistance / Disaster Relief (HA/DR)

Peace Keeping Operations (PKO) support

Remote operations in a tropical environment

Law enforcement / first responder support





PEAK Notional Components



Water & Power

Information & Communications Technology (ICT)



Spiral 1

Situational Awareness

Spirals 2 & 3