

USPACOM Science and Technology

“Developing S&T Solutions for Capabilities Needed”



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Science and Technology

USPACOM J85 EC&P/JCTD Liaison

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Combatant Command Structure

 **President of the United States**

 **Secretary of Defense**

 **Chairman, Joint Chiefs of Staff**

Geographic Commands

 **Central Command**

 **European Command**

 **Pacific Command**

 **Africa Command**

 **Northern Command**

 **Southern Command**

Functional Commands

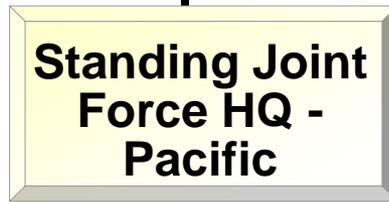
 **Special Operations Command**

 **Transportation Command**

 **Strategic Command**



U.S. Pacific Command Structure





USPACOM Mission

US PACOM protects and defends, in concert with other U.S. Government agencies, the territory of the United States, its people, and its interests. **With allies and partners**, we will enhance stability in the Indo-Asia-Pacific region by promoting security cooperation, encouraging peaceful development, responding to contingencies, deterring aggression, and when necessary, fighting to win. This approach is based on **partnership**, presence, and military readiness.

We recognize the global significance of the Indo-Asia-Pacific region and understand that **challenges are best met together**. Consequently, we will

Defending America's Interests in the Indo-Asia-Pacific remain an engaged and trusted partner committed



Capabilities Needed for USPACOM Mission



COMMANDER, U.S. PACIFIC COMMAND
(USPACOM)
CAMP H.M. SMITH, HAWAII 96861-4028

27 May 2015

U.S. Pacific Command Guidance

Our Mission

United States Pacific Command protects and defends, in concert with other U.S. Government agencies, the territory of the United States, its people, and its interests. With allies and partners, we will enhance stability in the Indo-Asia-Pacific region by promoting security cooperation, encouraging peaceful development, responding to contingencies, deterring aggression, and, when necessary, fighting to win. This approach is based on partnership, presence, and military readiness.

We recognize the global significance of the Indo-Asia-Pacific region and understand that challenges are best met together. Consequently, we will remain an engaged and trusted partner committed to preserving the security, stability, and freedom upon which enduring prosperity in the Indo-Asia-Pacific region depends. We will collaborate with the Services and other Combatant Commands to defend America's interests.

Our Vision

We will defend America's interests in the Indo-Asia-Pacific region and make America the security partner of choice of countries in the region.

Guiding Principles

- **READINESS:** PACOM is first and foremost a warfighting command, committed to maintaining superiority in all domains, and ready to fight and win
- **INTERNATIONAL RULES:** Advance international rules and norms that are respected and followed by all
- **PARTNERSHIPS:** Modernize and strengthen alliances and partnerships
- **PRESENCE:** Enhance and adapt our enduring presence in the region
- **FORCE PROJECTION:** Strengthen United States military force projection capabilities in the Indo-Asia-Pacific region
- **UNITY OF EFFORT:** Contribute to whole-of-government approaches to resolving regional security challenges
- **STRATEGIC COMMUNICATION:** Clearly convey our intent and resolve by ensuring our words and actions are aligned

Lines of Operation

- Defend the Homeland
- Be ready to fight tonight
- Lead the Rebalance by further strengthening relationships with allies and partners
- Drive activities in accordance with our Theater Campaign Order by aligning policies, plans, programs and processes
- Operationalize theater command and control
- Optimize organizational coherence and command climate


HARRY B. HARRIS, JR.
Admiral, U.S. Navy



Capabilities needed are driven by Mission

- Protect US; Defend Homeland
- Stable Indo-Asia-Pacific
- Preserve security, stability and freedom

Capabilities needed must

- Support Military Preparedness:
- Respond to contingencies
- Deter aggression; enable fight to win
- Include allies and partners
- Support enduring regional presence
- Be through collaboration with Services and CCMDs

“Capabilities needed” are driven by mission



S&T Strategic Mission Statement

- **USPACOM S&T Strategic Mission**

- Discover, develop and demonstrate solutions to war fighter challenges
- Inform S&T community about USPACOM requirements
- Avoid technical surprise
- Build international defense partnerships

- **USPACOM S&T Regional Partner Cooperation Strategy**

- Engage countries in cooperative tech development to address mutual concerns
- Build long-term relationships
- Enhance partner nation capability and interoperability
- Achieve capability advances quicker and at less cost

S&T Mission frames approach to address “capabilities needed”



PACOM Characteristics and Challenges

- Over half of world population (3.72 B)
- Top 4 populous countries
- >52% of Earth's surface; 17% of total land
- 36 countries
- 16 time zones



- World's 7 of 10 largest armed forces - potent military capabilities
- 3 of largest and 5 smallest economies
- 5 of 7 U.S. Mutual Defense Treaties

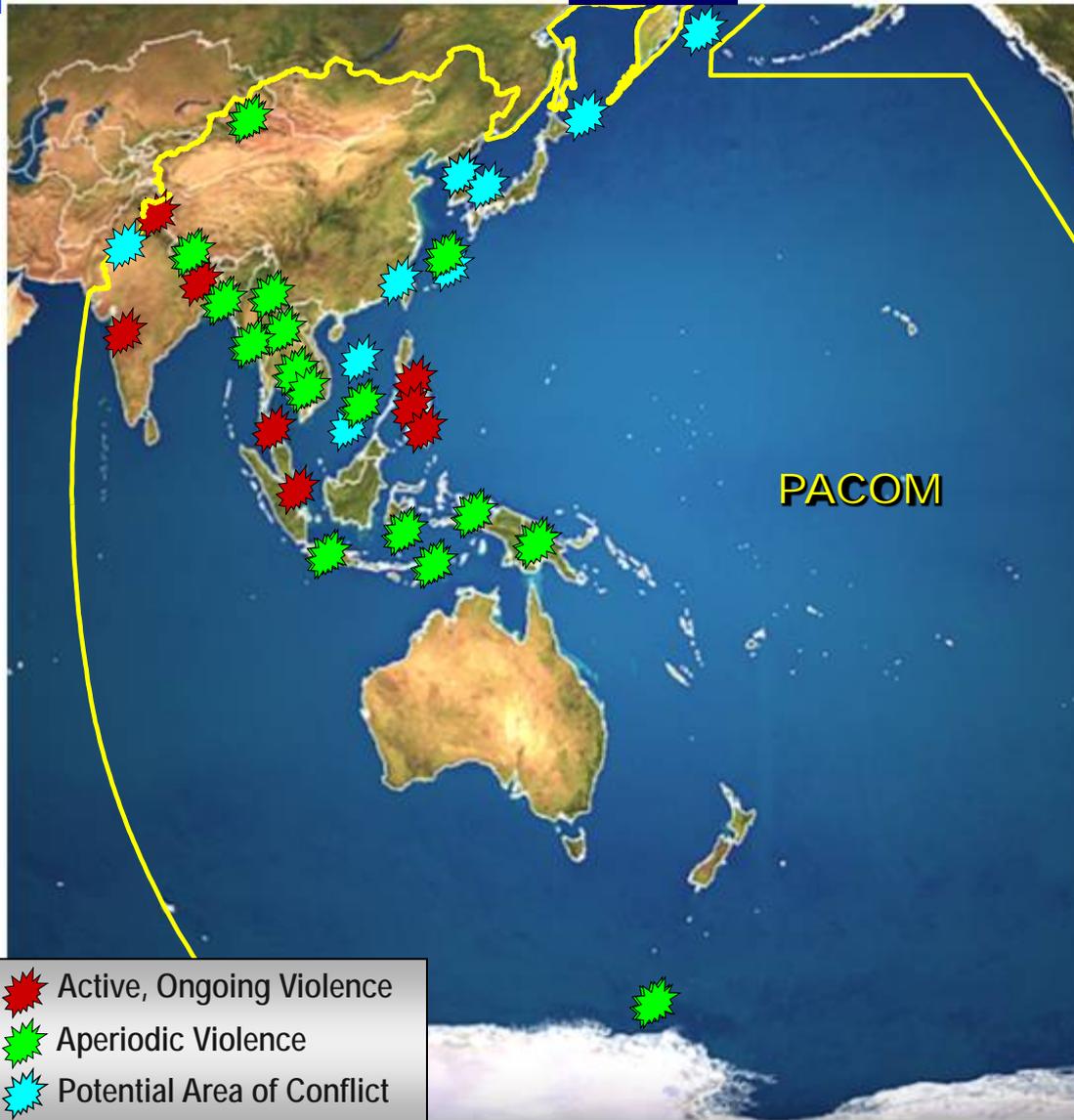


- Historic animosities and grievances
- Unresolved wars
- Separatist movements
- Territorial disputes
- Religious conflict





Conflict & Confrontation



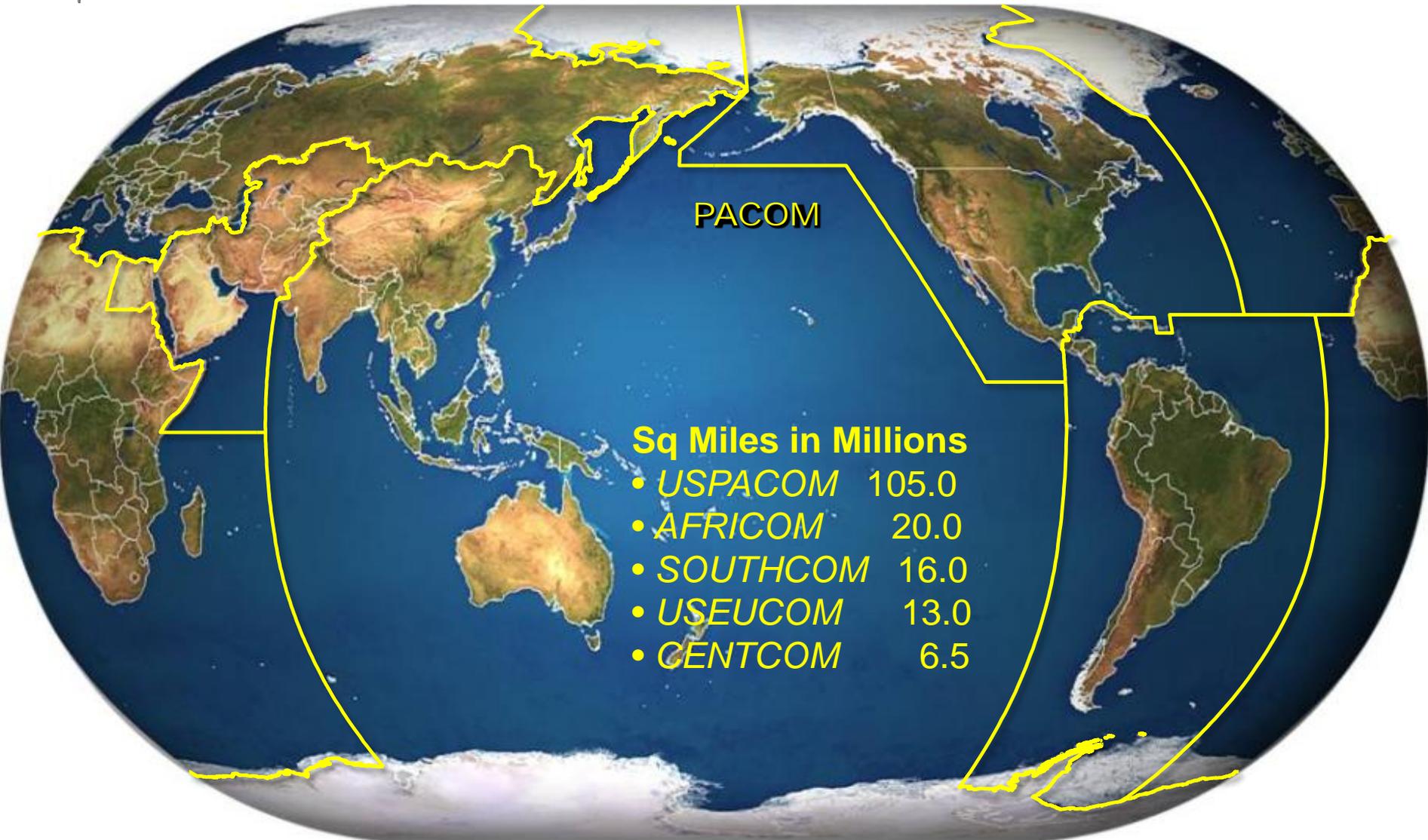
	Active, Ongoing Violence
	Aperiodic Violence
	Potential Area of Conflict

	Kashmir	Sectarian & cross-border violence
	India	Maoist (Naxalite) conflict
	India	Terrorism
	Thailand	Ethno-nationalist conflict
	Strait of Malacca	Piracy / maritime crime
	Philippines	Muslim extremists
	Philippines	Ethno-religious conflict
	Philippines	Communist conflict
	Uyghur Auto. Reg	Ethno-religious conflict
	Tibet Auto. Reg	Ethno-religious conflict
	India, BGD, Burma	Resource competition
	Bangladesh	Terrorism, extremism
	Burma	Ethno-nationalism, narco-trafficking
	Thailand-Cambodia	Border demarcation
	South, East China Seas	Maritime confrontation
	Cambodia	Ethno-religious extremists
	Indonesia	Terrorism, extremism
	Timor-Leste	Ethno-nationalist conflict
	Papua New Guinea	Ethno-nationalist conflict
	Indonesia	Sectarianism
	Indonesia	Ethno-nationalist conflict
	Nepal	Maoist, political violence
	Antarctic	Whaling-environmentalists
	China-Taiwan	Cross-Strait Conflict
	North-South Korea	Provocation, conflict
	India-Pakistan	Military confrontation
	China-Vietnam	Energy rights, territory (Paracels)
	Spratly Islands	Competing claims, energy
	China-Japan	Energy, territorial rights
	South Korea-Japan	Territorial claims
	Japan-Russia	Territorial claim
	Arctic	Resource competition

UNCLASSIFIED



USPACOM Tyranny of Distance



USPACOM's sheer vastness makes "capabilities needed" complex



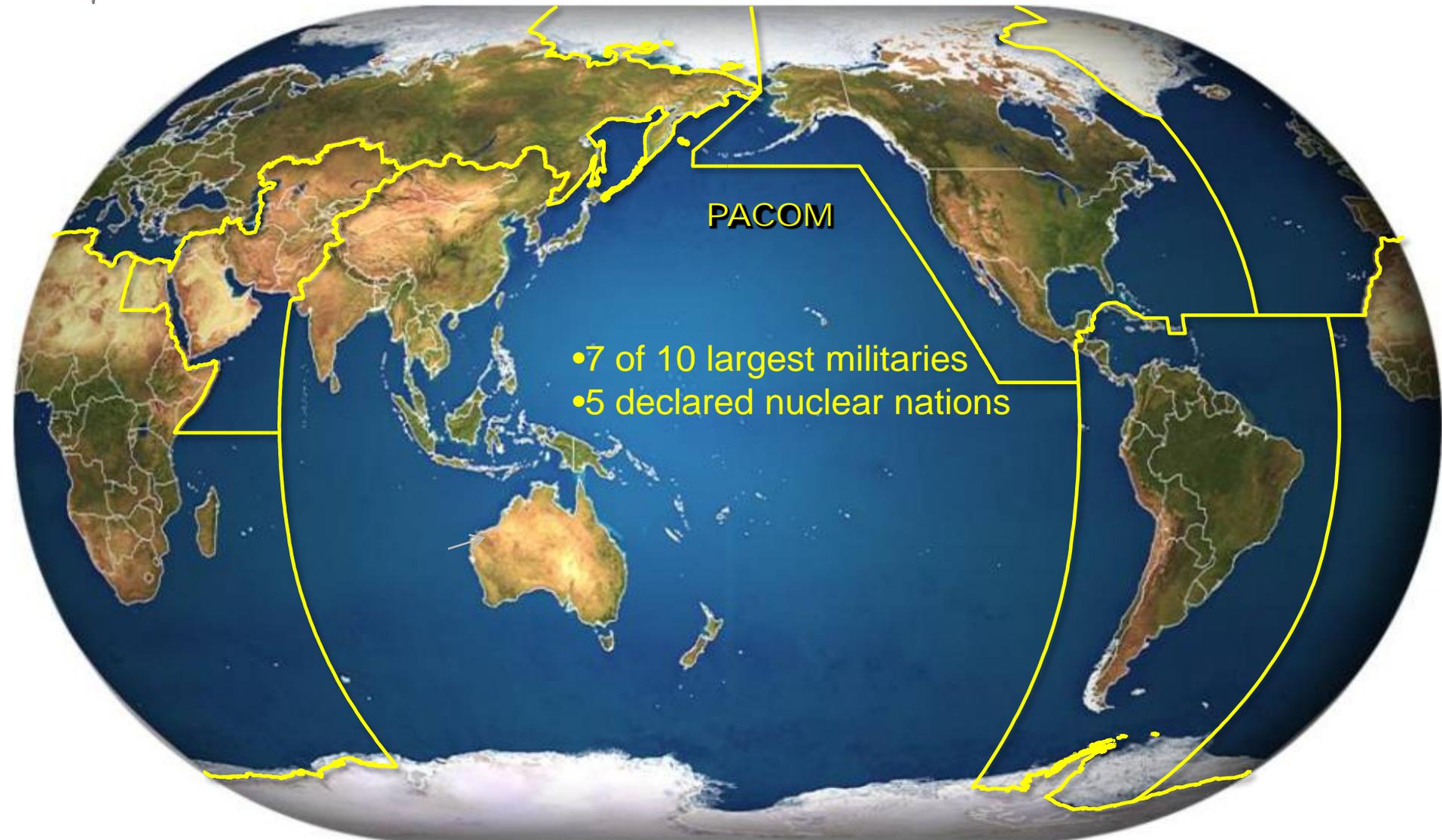
USPACOM Geopolitics

- 
- 36 nations
 - 3000 languages
 - 3.9 billion people
 - Top 3 economies
 - 5 smallest economies
 - 60% of world population
 - US 2-way trade \$1.4 trillion

Huge diversity in nations, cultures, languages, and affluence makes “capabilities needed” complex



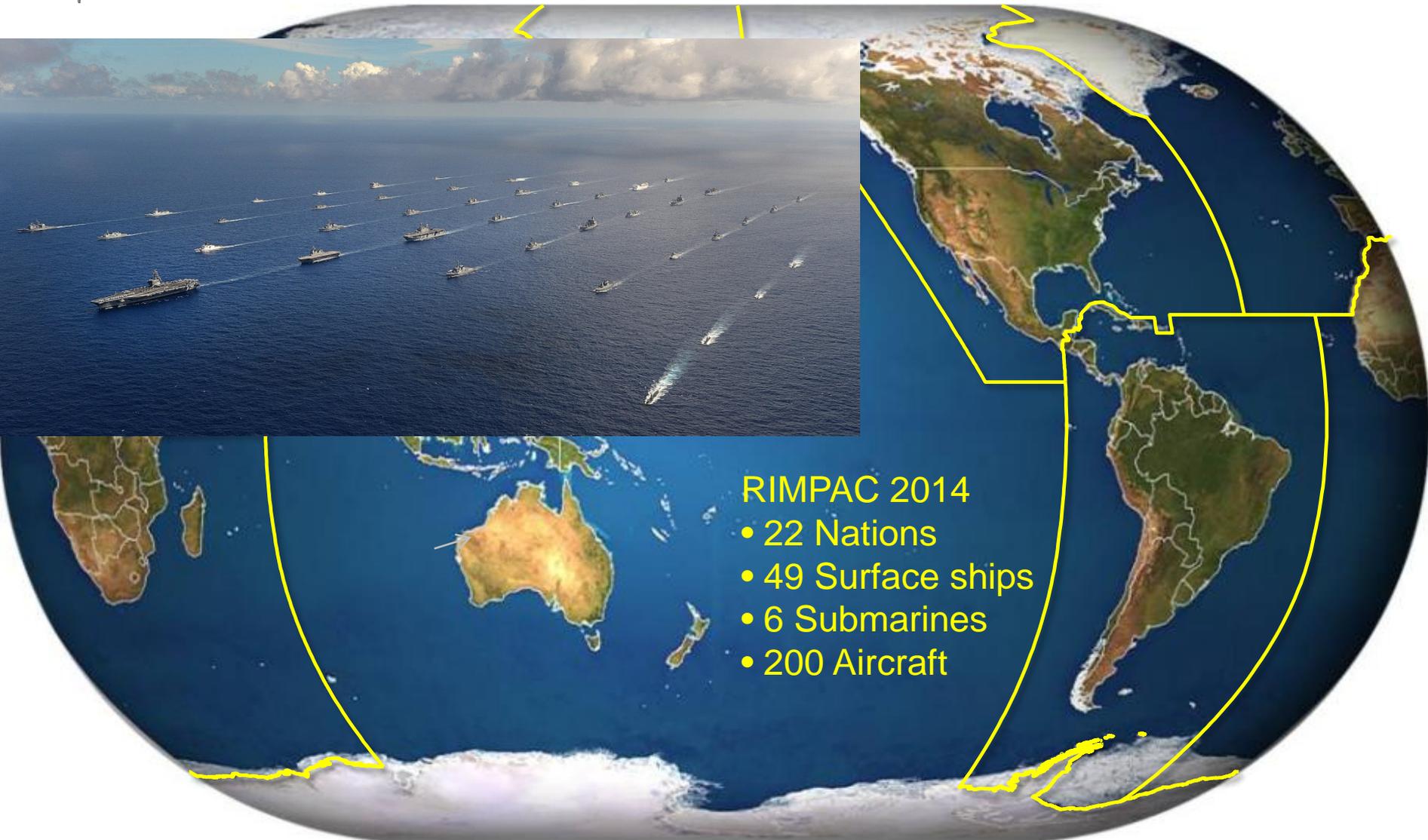
Militarization



The largest and growing militarization makes “capabilities needed” complex



(U) Interoperability With Partners



“Capabilities needed” must be viewed in the context of a coalition operation



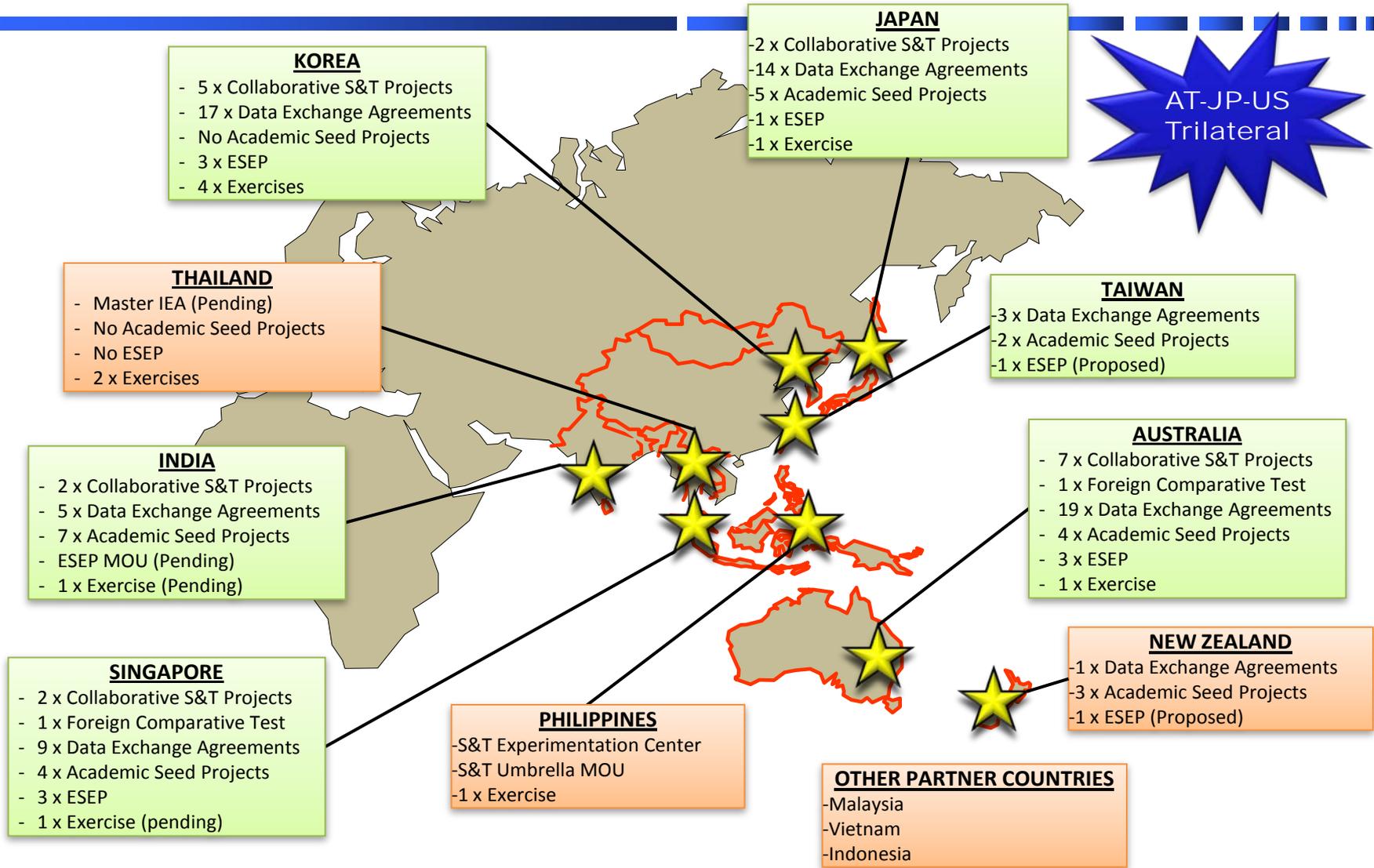
Interoperability With Partners



While I've been known to be critical of China's provocative military activities the past two years... I've also acknowledged when China has been helpful such as counter-piracy efforts off the Horn of Africa and the search for Malaysian Airliner M.H.-370 off Australia. -Adm Harris Oct 2015



Army S&T Collaboration in PACOM





USPACOM Mutual Defense Treaties



“Capabilities needed” to support US treaty responsibilities



Counter Transnational Threats



“Capabilities needed” for transnational threats



Humanitarian



Good to know facts about RADIATION

Common levels of ionizing radiation exposure (mREM)

- 4 mREM = A single cross country flight
- 10 mREM = A single chest X-ray
- 400 mREM = A single mammogram study
- 620 mREM = Average background radiation annually
- 1,800 mREM = A single CT scan
- 10,000 mREM = Chernobyl evacuation zone

Exposure term equivalency chart

- 1 Sievert (sv) = 100 Centi-sievert
- 1 Centi-sievert (cSv) = 1 Roentgen Equivalent to Man (REM)
- 1 Roentgen Equivalent to Man (REM) = 1,000 mREM

Information courtesy of Defense Threat Reduction Agency

- Pandemic
- Consequence Management
- Humanitarian Assistance/ Disaster Relief



on exposure

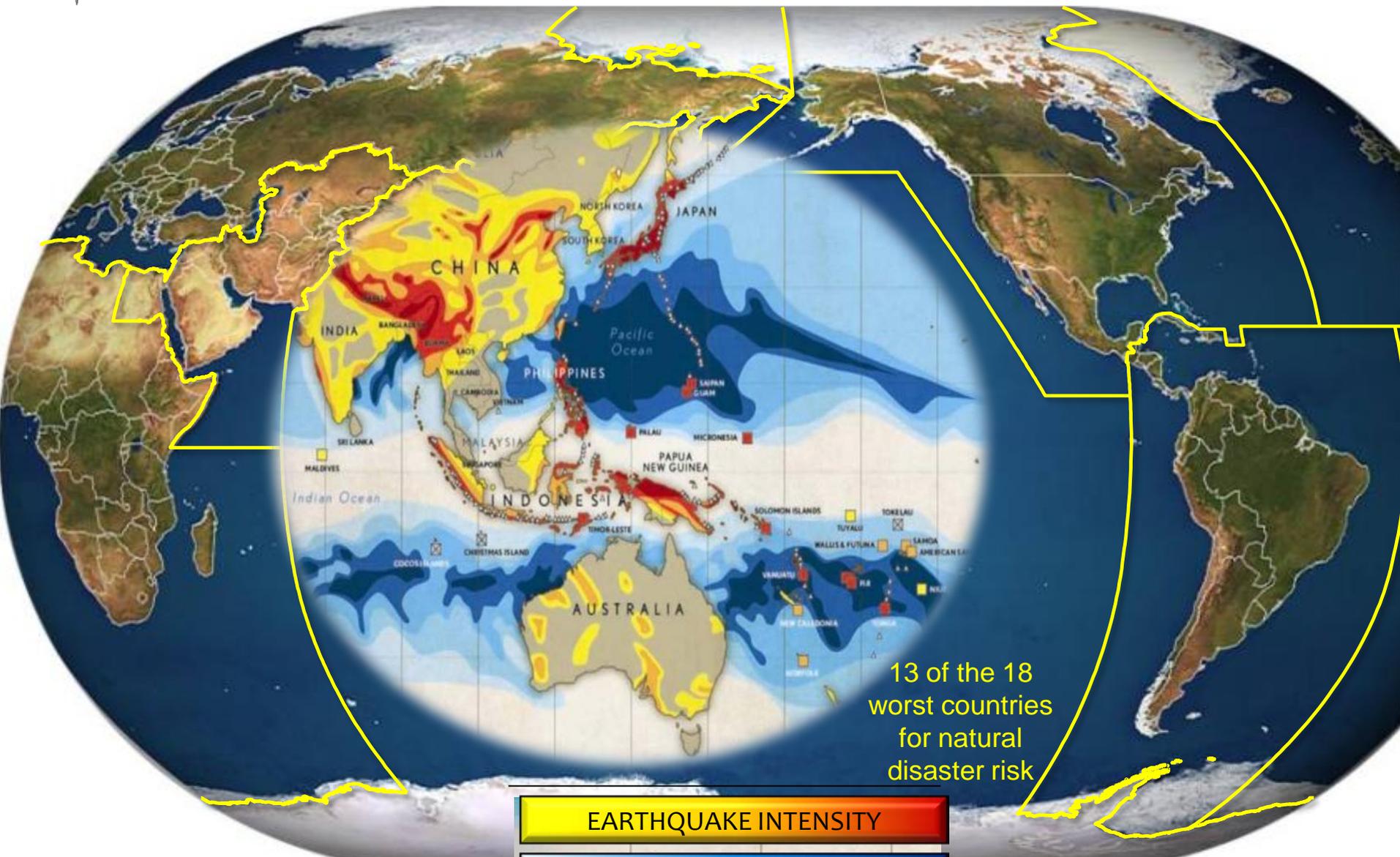
1 Distance: Increasing the distance between the radiation source and yourself will sharply decrease the severity of exposure. The severity of exposure decreases the further you are from the source in the same way that the sun is less intense or away you are from it.

2 Shielding: Inserting a solid material or shield between yourself and a radiation source will greatly reduce the radiation dose. Barriers of lead, concrete or water provide protection from radiation from gamma rays and neutrons. This is why certain radioactive materials are stored under water or in concrete or lead-lined rooms.

“Capabilities needed” to support Humanitarian missions

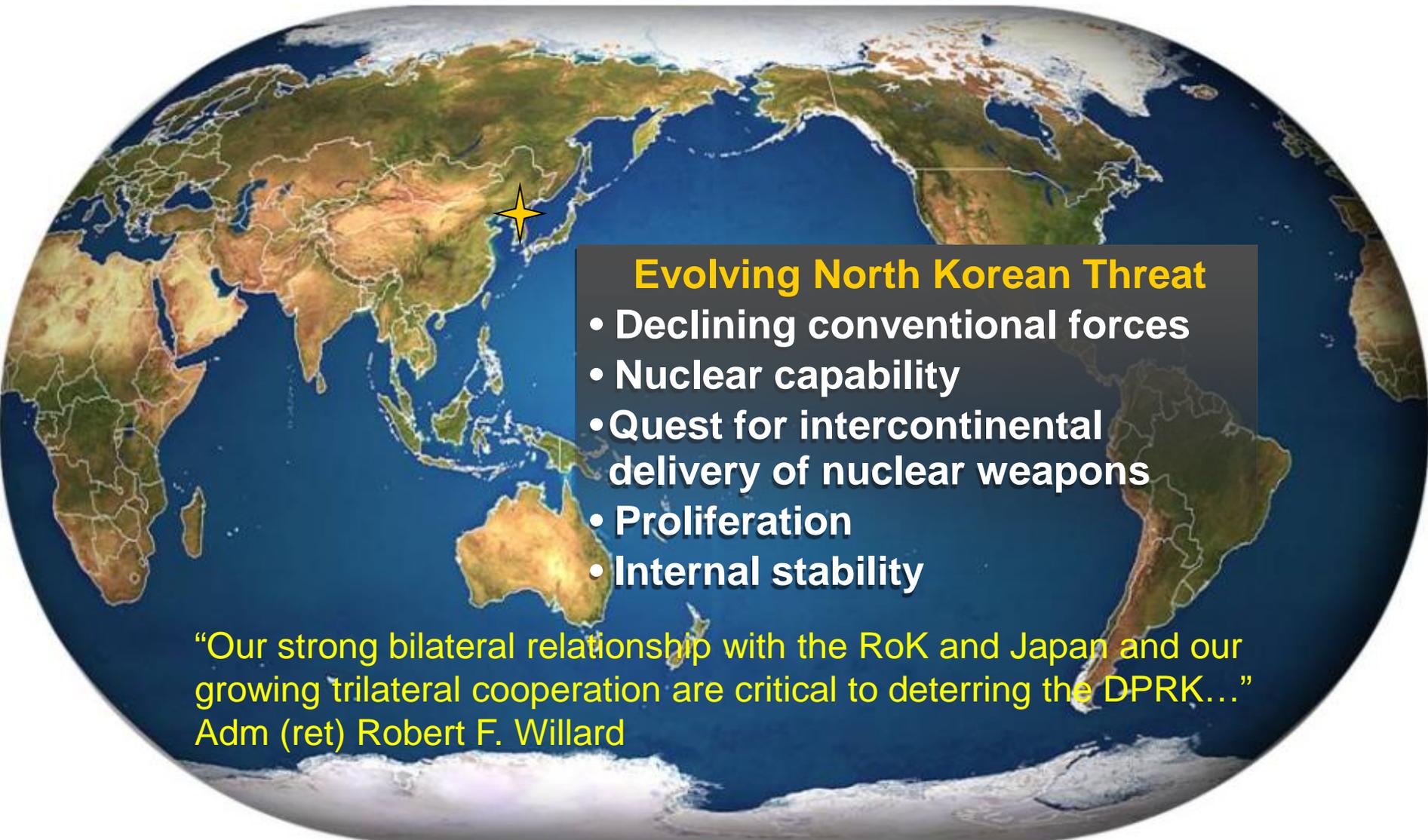


Most Disaster Prone





Evolving Scenarios

A satellite-style map of the world, showing continents in various shades of green, brown, and tan, and oceans in dark blue. A yellow starburst is positioned over North Korea. A semi-transparent grey box containing text is overlaid on the right side of the map.

Evolving North Korean Threat

- Declining conventional forces
- Nuclear capability
- Quest for intercontinental delivery of nuclear weapons
- Proliferation
- Internal stability

“Our strong bilateral relationship with the RoK and Japan and our growing trilateral cooperation are critical to deterring the DPRK...”
Adm (ret) Robert F. Willard

“Capabilities needed” must be robust to address evolving scenarios



Evolving Scenarios

China: Military Modernization

- largest conventional sub force

South China Sea

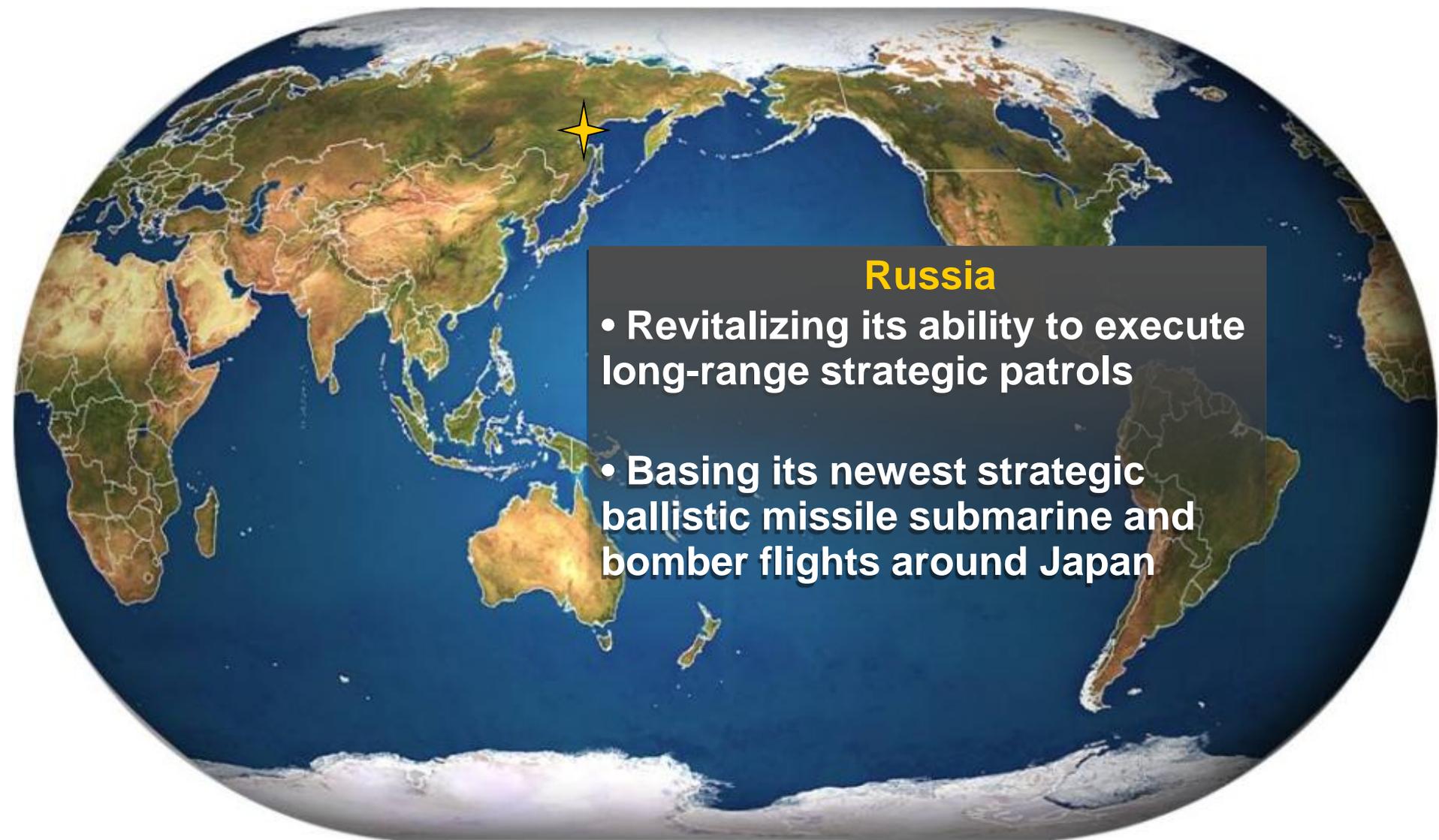
- \$5.3 trillion in trade traverses each year
- China preposterous territorial claims
- China land reclamation to adversary
- China destabilizing militarization
- US Freedom of Navigation Operations

“Development of weapons systems and CNOOPs that support the Gulf of Mexico and Caribbean Maritime” air and maritime forces - Including SR and OTC at extended distances from the PRC coastline

“Capabilities needed” must be robust to address evolving scenarios



Evolving Scenarios



Russia

- Revitalizing its ability to execute long-range strategic patrols
- Basing its newest strategic ballistic missile submarine and bomber flights around Japan

“Capabilities needed” must be robust to address evolving scenarios



Evolving Scenarios

Violent Extremism

- Recent terrorist attacks in Indonesia underscore the fact that violent Islamic extremism is a global concern that must be crushed

“Given that four of the five strategic problem sets identified by Secretary Carter -- China, North Korea, Russia and ISIL -- are in our region, I'd say that we can't Rebalance fast enough.” -Adm Harris, Feb 2016

“Capabilities needed” must be robust to address evolving scenarios



Improved Operational Capabilities



- Maritime Security/ Maritime Domain Awareness
- Integrated Air and Missile Defense
- Space Assurance
- ISR/Communications in a contested environment
- Cyber Defense / Network Security
- C2/C4I
- Data Fusion/ Sense Making capabilities
- Electromagnetic Spectrum/Electronic Warfare
- Counter unmanned threats
- Assured Navigation
- Joint interoperable systems
- Small Sat/responsive launch capabilities
- Power and Energy
- Weapons (including directed energy/non-lethal)
- *Enhance interoperability among allies/partners*
- *Building Partner Capacity*



“Capabilities needed” must address operational capabilities



Questions

“Capabilities needed” to address a wide range of issues and must be responsive to USPACOM’s tyranny of distance, militarization, diverse geopolitics, mutual defense responsibilities, humanitarian relief, numerous transnational threats, operational needs and evolving scenarios with China, Russia, North Korea, and ISIL.