

# The Eurasian Four Ring Circus and the Long War Against Salafist Jihadism *An Overview*

OLLI Lecture #1

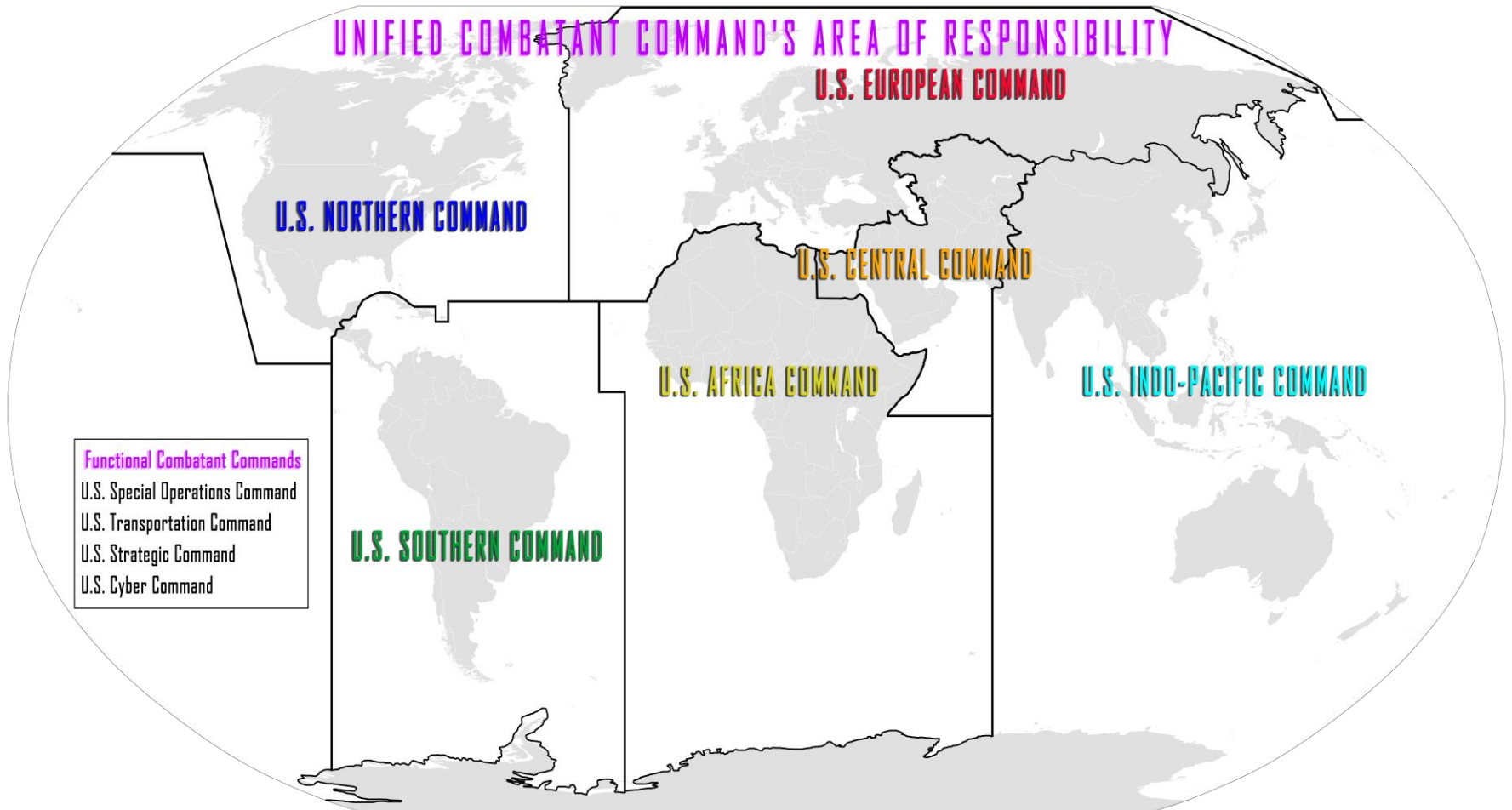
September 24, 2020

Peter A. Wilson

# Study Group Outline

- Overview
- Rise of China as near-peer competitor
- Russia as a revisionist power
- North Korea as a nuclear-armed regional power
- Iran as a revisionist power
- The long-war with Salafist-jihadism
- Conflict through space, cyberspace and the global energy system
- On nuclear weapons
- On the near future of war

# United Command Plan 2020



**The U.S. Space Force (USSF) will be subordinated to the USAF – similar to Marine Corps subordination to the DON**

# Trends, Shocks, and Discontinuities

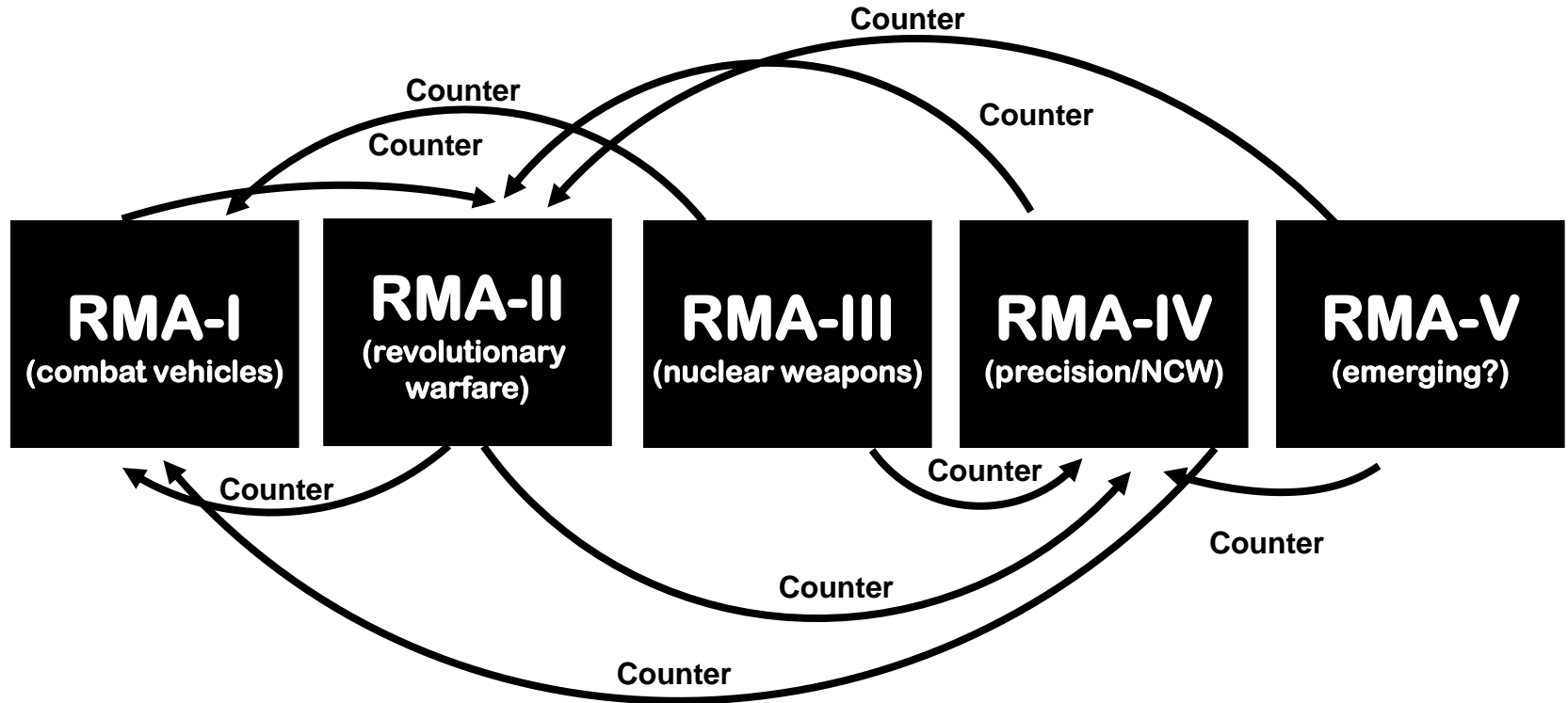
- Identify possible shocks and discontinuities
  - Trends: Powerful forces that are setting the stage for large scale change (e.g. demographic changes)
  - Shock: Abrupt and major event that may or may not be precursor to a discontinuity
  - Discontinuity: Abrupt, major and permanent change of the global security environment – response to a shock or shocks

# The Four RMAs of the 20<sup>th</sup> Century

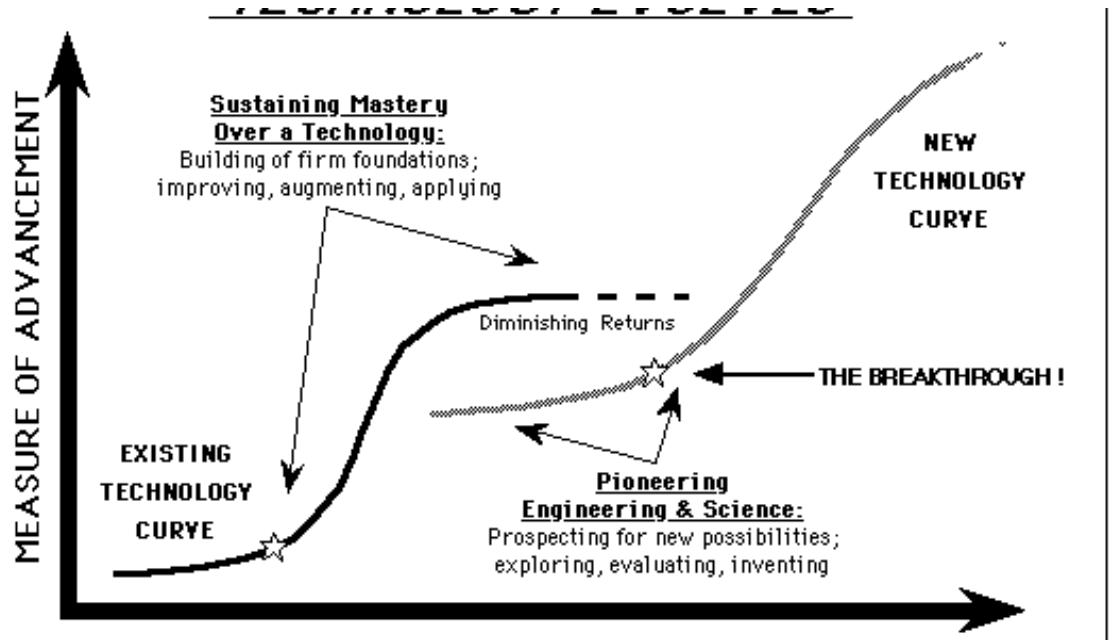
Four 20th-Century Revolutions in Military Affairs (all continuing)

RMA	Nominal Period of Change (all with older roots)	Characteristic Developments	Label for Resulting Strategy
I	1917–	Mechanization: self-propelled combat vehicles (air, sea, and land)	Industrial warfare
II	1930–	Insurgency; revolutionary, partisan, and guerilla warfare; terrorism, “Kulturkampf”	Insurgency
III	1945–	Nuclear weapons; long-range missile delivery	Mass-destruction weapons and long-range aircraft and missiles
IV	1980s–	Precision weapons; unmanned combat vehicles; persistent ISR; networked forces; computer-network operations (CNO)	Information technology

# The RMA Measure-Countermeasure Interaction



The different RMAs can be viewed as different domains or "ways of war." Not unlike the game of "rock, paper, and scissors" the various RMAs interact with each other in dynamic process of thesis and antithesis. Should RMA-V be defined by its ability to counter prior RMAs, specifically RMA-II, RMA-III, and RMA-IV? Is RMA-V simply a "hybrid" of all four prior RMAs?

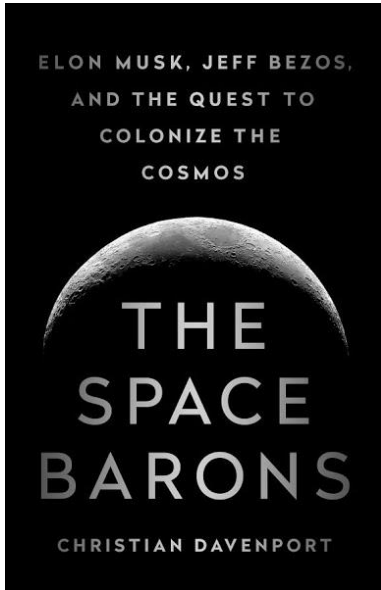


On "S" Curves

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# Emergence of Re-usable First Stage Rockets

## Space X Takes the Lead with Blue Origin Close Behind

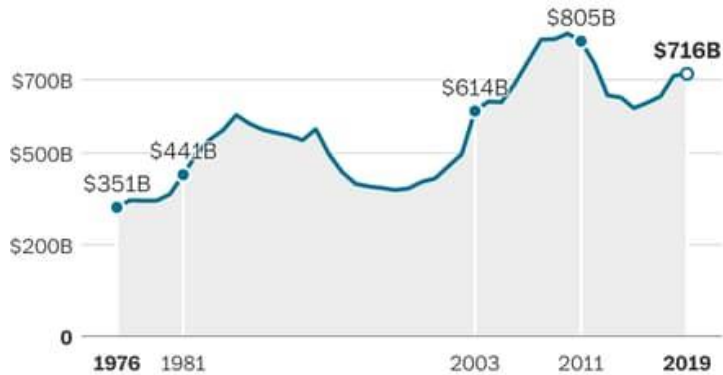




# Defense Spending in Relative and Absolute Terms

- Defense spending near peak in absolute terms while percentage of GDP appears manageable during the early 2020s

U.S. military spending is higher than at any time other than the height of the Iraq war, adjusted for inflation

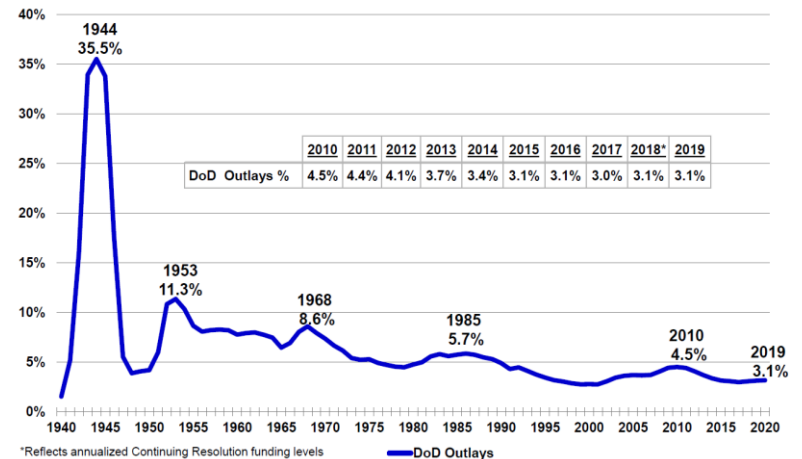


1976 was the earliest year with complete data. Includes the military's overseas contingency fund. Numbers in billions.

Source: Center for Strategic and International Studies

THE WASHINGTON POST

## Defense Outlays vs. Gross Domestic Product FY 1940 – FY 2019

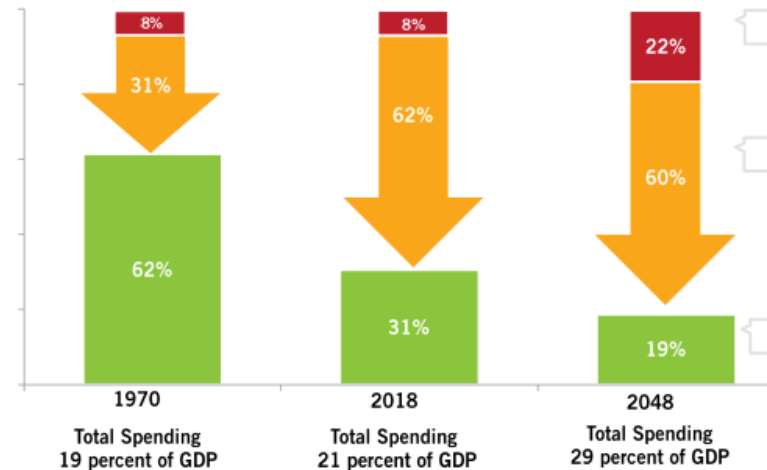


# Increasing Pressure of Mandatory Spending prior to COVID-19 Shock

The downward pressure on defense spending during the mid -2020s will increase if global inflation rises with increased debt servicing costs – also a Biden/Harris win will lead to increased Federal spending, e.g., Medicare for all

PETER G. PETERSON FOUNDATION Mandatory programs and interest costs will take c of the federal budget, squeezing discretionary pro

% OF FEDERAL SPENDING

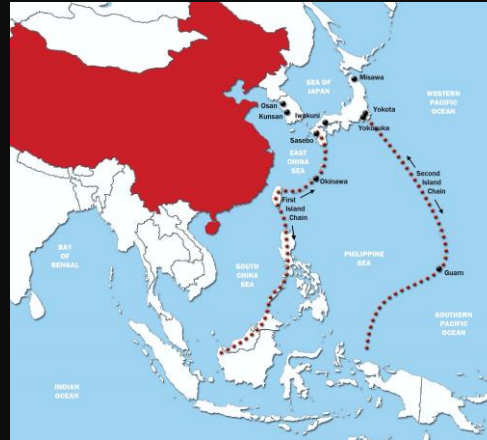


Source: Office of Management and Budget, Budget of the United States Government, Fiscal Year 2019, February 2018; and Congressional Budget Office, 2018 Long-Term Budget Outlook, June 2018. Calculated by PGPF. Numbers may not sum to totals due to rounding. Mandatory programs include Social Security, major federal health programs and offsetting receipts.  
Peter G. Peterson Foundation

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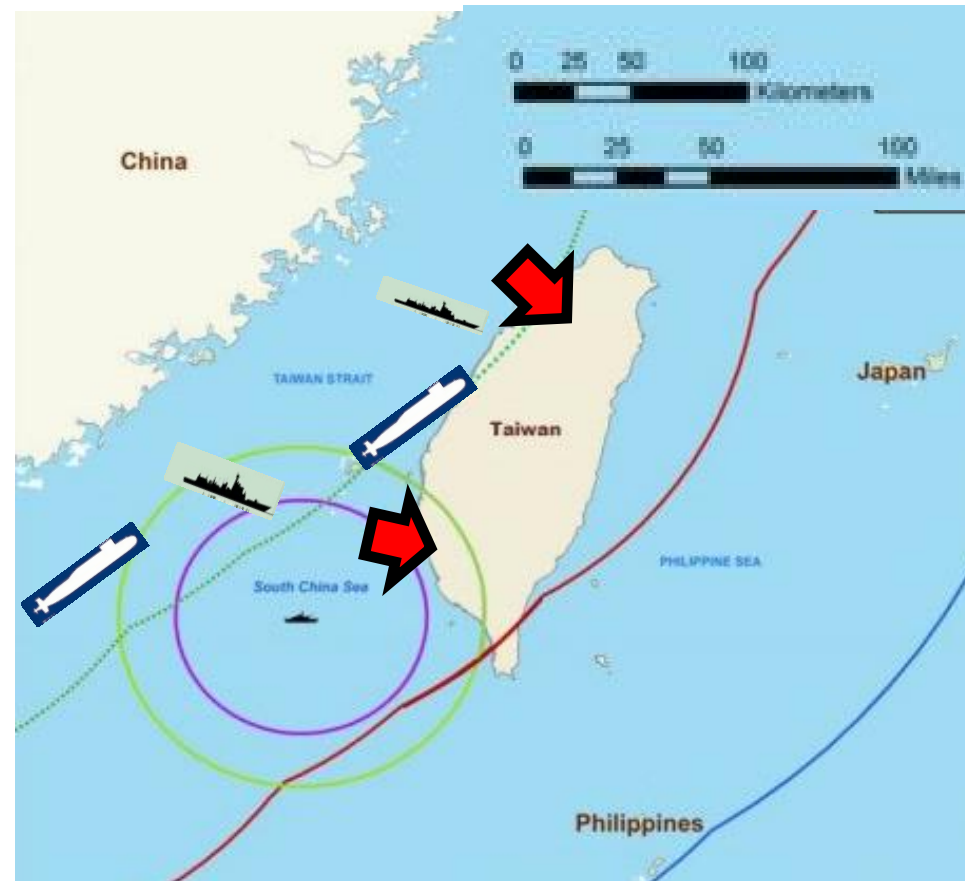
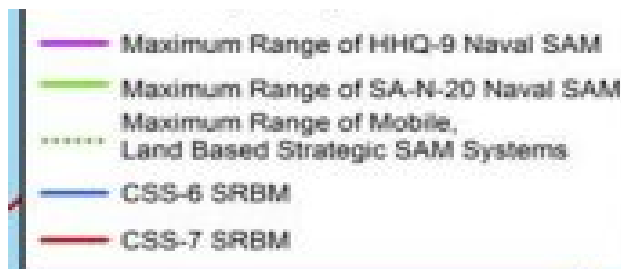
# The Struggle for Military Dominance over the “First and Second Island Chains”



# China: Deter/Defeat Large-Scale Aggression

U.S. forces need to:

- Protect forward forces/bases and sustain operations
- Effectively target and strike amphibious fleet in contested airspace
- Provide airborne fire support to Taiwan ground forces



# China: Increasingly Vigorous Assertion of Sovereignty

## “Nine Dash Line”

Chinese forces are:

- Holding the initiative in the South China Sea
- Creating “facts on the ground”
- Intimidating other states in the region
- Raising the risks of U.S. intervention

U.S. forces need to:

- Help partner states to regain the initiative in areas important to them
  - Esp. Philippines
- Put onus on China to “take the first shot”
- Be present in more places more often but at a sustainable cost



Woody Island, April 2016

# Key Options for U.S. Forces to Meet Challenges Posed by China

## To deter/defeat large-scale aggression:

- Standoff anti-ship missiles, esp. for delivery by long-range bombers
- Enhancements to airbase resiliency
  - Dispersal to numerous FOLs
  - SHORADS for cruise missile defense
- Improved SAM suppression weapons
- Long-range, stealthy ISR platforms
- Space resiliency measures and counter-space systems
- Enhancements to Taiwan's anti-ship, SHORADS, mining, and artillery capabilities

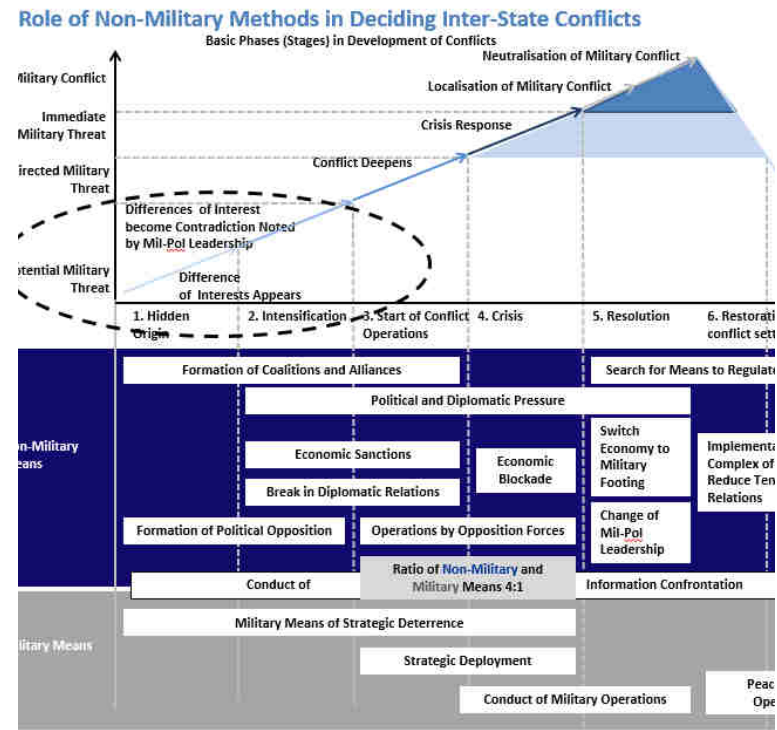
## To counter Chinese “slow motion” aggression in SCS:

- Deploy persistent ISR assets
- Deploy large, “black-hulled” logistics ships to Philippines and Singapore
- Field long-range ASMs on LCS and FFs



# Russia's "New Generation" Warfare

- Translated by Dave Johnson in "Nuclear Weapons in Russia's Approach to Conflict", *Foundation pour la Recherche Strategique*, #06/2016, November 2016





# On “Active Measures” aka subversion aka “Kulturkampf” aka “Hybrid” Warfare

- **USSR and PRC had sophisticated “active” measures programs during Cold War**
- **Those tools and techniques have not change since the end of the Cold War**
  - **Extensive use of all media for propaganda and disinformation**
  - **Creation of sympathetic media outlets**
  - **Creating agents in place**
  - **Creative use of corruption**
- **The Internet enabled “new” media has opened up new opportunities to conduct “Information Operations” of increased sophistication**
- **Salafist-Jihadi movements have proven to be very adept at using Internet to sustain global insurgencies**
- **Subversion and terrorism by remote control**
  - **Role of Communist Parties during Cold War**
  - **Creative use of Internet as a means to recruit followers to commit acts of terrorism including suicide attacks**
  - **See ISIS inspired attacks in Sri Lanka Easter Sunday 2019**
- **Scale of suicide attacks has risen dramatically over the last twenty years – scale similar to the Japanese use of the Kamikazes during WW II**

# Russia: Deter/Defeat Large-Scale Aggression

Russian forces can:

- Swiftly mass superior ground combat power on borders of Baltic states
- Mass effective artillery fires
- Defend airspace over the battle area
- Disrupt U.S. ISR, comms, positioning satellites
- Disrupt C2 networks
- Attack rear areas with advanced cruise missiles
- Deny surface operations in the Baltic
- Overrun NATO's defenses and invest capital cities

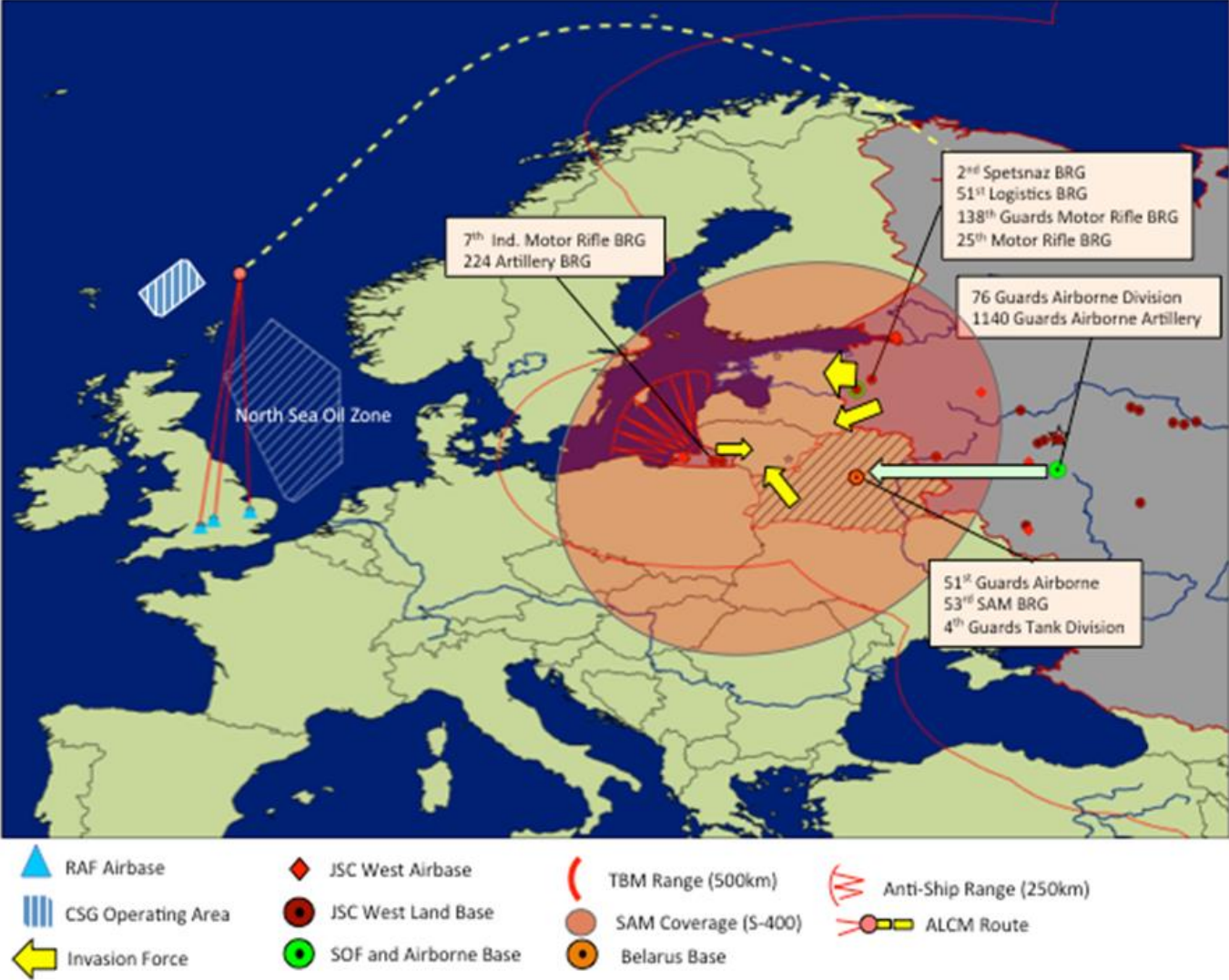
U.S. forces need to:

- Strengthen forward posture with equipment for heavy ground forces, artillery, advanced munitions, sustainment
- Effectively target and strike invading forces and in contested airspace
- Rapidly suppress Integrated Air Defense System (IADS)
- Defend maneuver forces and rear areas from air/cruise missile attacks

Invasion of Baltic States,  
2020



# Plausible Russian Operational Concept early 2020s “Grab and Threaten to Smash”



# Why Belarus is so Important?

- Belarus satisfies the three rules of real estate: Location, Location, Location
- Popular resistance to recent corrupt “re-election” of Alyaksandr Lukashenka – regime may collapse without Russian covert and overt assistance
- Lukashenka will pay the price and be absorbed by the Russian Federation
- Possible peacetime deployment of RF armed forces into Belarus will militarily destabilize the Baltic Sea region
- Possible NATO responses include a much larger military deployment into the Baltic Sea region





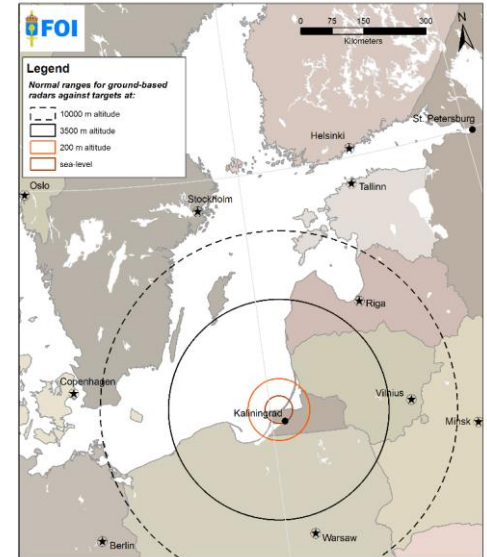
# Russian Military Escalation to Save Assad Regime and Warn NATO Europe

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# The S-400: Not A Wonder Weapon

- The S-400 can be defeated by a variety of means
  - Suppression of Enemy Air Defense (SEAD)
    - Electronic Warfare (EW) – deception and jamming
    - Anti-radiation missiles (ARM)
    - Precision bombardment of SAM sites with SRBMS



# RFAF Non-Nuclear threat to NATO Europe and CONUS – A Consequence of the End of INF Treaty



- Over the next five years, RF will be able to carry out a non-nuclear strategic missile campaign against the United States and NATO Europe
- Key civilian infrastructure targets very vulnerable to precision attacks
- Should NATO strike Russian military and civilian targets in response to this type of attack?
- What role does the NATO nuclear forces play in deterring such an attack?
- Similar PRC capability may emerge during the same time-frame



# Alternative ASAT Options

India, China,  
and other  
major powers  
will likely  
have a wide  
range of ASAT  
options by  
mid-2020s



F-15 ASAT Test



MiG-31 armed with ASAT



“Tactical” Laser DEW may emerge as  
“blinding” ASAT



Chinese Medium bomber as  
SLV/ASAT launcher



# Key Options for U.S. and NATO Forces to Meet Challenges Posed by Russia

## To deter/defeat large-scale aggression:

- Preposition equipment, sustainment, and support for heavy ground forces (3 ABCTs plus MLRS/ATACMS)
- Forward deploy large stocks of advanced area anti-armor weapons
- Enhance intra-theater logistics capabilities
- Forward base SHORADS for mobile air- and cruise missile defense
- Improve SAM suppression weapons
- Improve counter-battery capabilities, esp. against long-range artillery
- Long-range, stealthy ISR platforms
- Space resiliency measures and counter-space systems
- Increase readiness of allied forces

Chances of these initiatives rise if Belarus democracy movement is crushed with Russian help



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# Regional and Transnational Adversaries Pose Serious and Growing Threats to U.S. Interests

## ISIS and similar groups can:

- Seize and control areas as quasi-states
- Radicalize individuals
- Mount complex attacks in allied states and homeland

## North Korea can:

- Pummel Seoul metro area with arty/MLRS
- Attack across DMZ (or not)
- Attack U.S./allied forces and bases with nuclear weapons
- Threaten nuclear use against cities in effort to deter U.S./ROK counterattack

## Iran can:

- Attack bases and key infrastructure targets throughout Arabian Peninsula
- Threaten shipping
- Conduct unconventional attacks
- Provide military support to Shia oriented allies in region



# North Korea: Deter/Defeat Large-Scale Aggression

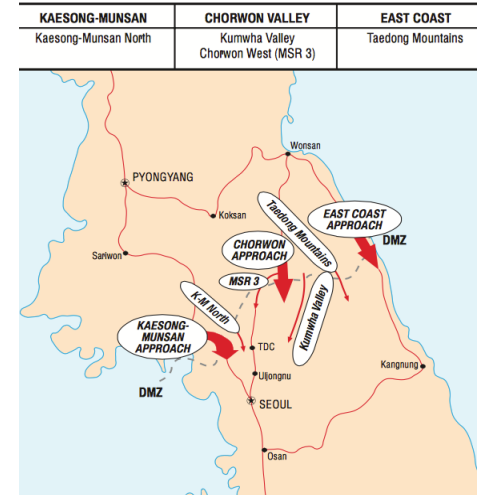
## North Korean forces can:

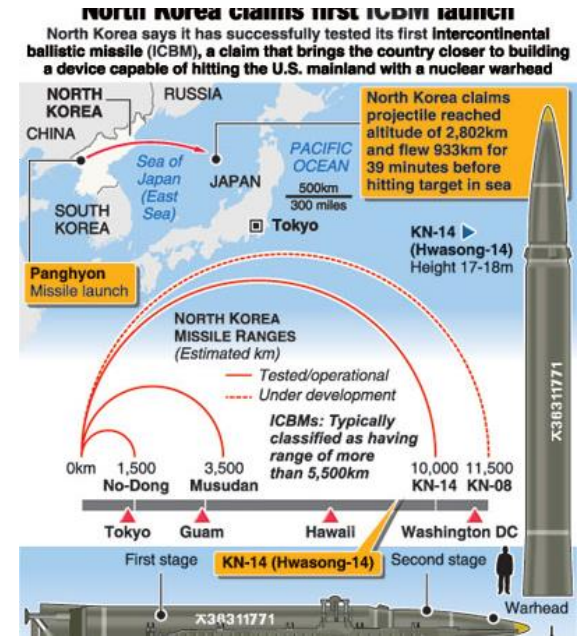
- Pummel Seoul metro area with heavy tube and rocket artillery
  - Including large-scale CW use
- Attack across DMZ (or not)
- Attack CFC forces and bases in Korea with nuclear weapons
- Threaten nuclear use against cities in effort to deter U.S./ROK counterattack
- Be a source of WMD proliferation

## U.S. forces need to:

- Field better capabilities to *prevent* nuclear use
  - ISR, BMD, counterforce
- Improve capabilities to promptly neutralize artillery/MRLs
- See South Korean *Steel Rain* movie for alternative scenario

## Attack on ROK, 2024





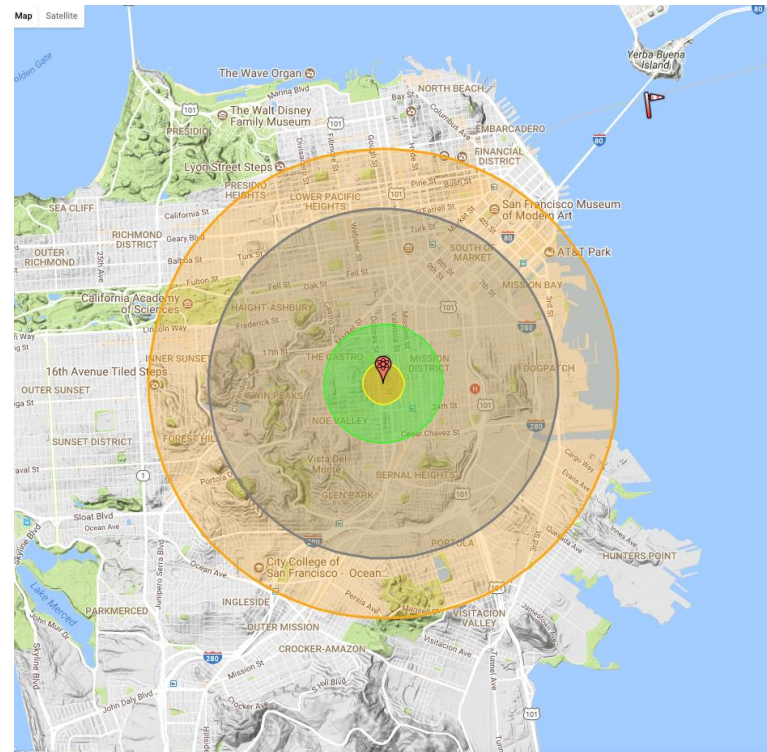
**New North Korean Long-Range Strike Capabilities**

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# 100 KT Detonation over San Francisco

- **Approx. 300,000 fatalities**
- **Approx. 1.5 million casualties**

*Source: Burgess  
Laird, RAND Corp.*



# Korean Summitry Takes Off With Three Trump-Kim meetings during 2018 and 2019 – High Level Diplomacy has “fizzed out”



- Three Korean summits during 2018
- Kim-Moon breakthrough meeting along DMZ 2018
- Kim-Trump Singapore Summit of 2018
- Second Kim-Moon summit in North Korea
- Summit in Hanoi early 2019
- Trump-Kim third meeting at the DMZ summer 2019
- De Facto Trade: US/ROK stop major military exercises while DPRK does not test long-range ballistic missile and nuclear weapons
- John Bolton major source of resistance to any major concessions on a nuclear arms control/disarmament deal
- President Trump looking for deal that does not call for comprehensive verifiable irreversible nuclear disarmament
- Any deal will likely led to DPRK possession of a nuclear arsenal for some period of time
- Process has nearly die (in face of Bolton opposition) and health uncertainties of KJU

# Key Options for U.S. Forces to Meet Challenges Posed by North Korea

## To deter/defeat large-scale aggression:

- Explore air-launched boost-phase intercept concepts
- Enhance ISR for tracking NK WMD and missiles
- Improve reliability of NMD
- Forward deploy advanced area anti-armor weapons
- Prepare forces to fight in contaminated environments
- Focus on deterrent strategy since military victory option is off the table – prospect of two sided regional nuclear war in NEA

## To locate and secure WMD following regime collapse:

- Ground forces for humanitarian, occupation, and stabilization ops
- CBRNE response and decontamination assets



NK'S STATE-OWNED RODONG SIMUN



# Iran: Deter/Defeat Large-Scale Aggression

## Iranian forces can:

- Attack bases and key infrastructure targets throughout Arabian Peninsula
- Sow thousands of mines in SoH
- Threaten military and civilian ships with ASCMs, submarines, fast boats
- Conduct unconventional attacks on bases and key infrastructure



## U.S. forces need to:

- Ensure ability to rapidly neutralize sea mines
- Explore new options for basing air forces in the region
- Enhanced active defense against LACM
- Need for enhanced ballistic missile defense – enhanced by precision guided warheads
- Improve capabilities to locate, track, and attack mobile missile launchers
- Consider more substantial redeployment of U.S. forces in the region



# Clash of the Titans: KSA verses the IRI

- Saudi Crown Prince Mohammed bin Salman (MbS) under severe pressure
  - Khashoggi assassination “worse than a crime, a massive blunder”
  - Needs to end Yemen civil war on favorable terms
  - Has started crisis with Qatar with uncertain result – US has key bases in same
  - Major economic and political reforms have hit bumps on the road – ARAMCO IPO put off
  - MbS believes in the theory of “Peak Oil Demand”
  - De Facto alliance between KSA and Israel
    - Both want IRI out of Syria even if Assad prevails
    - Major flash point between Israel and IRI
    - IRI desires a strategic bastion in Syria from which to launch precision guided SRBMs against Israel
    - KSA may assist Israel in any conflict that involves Israeli strikes against IRI



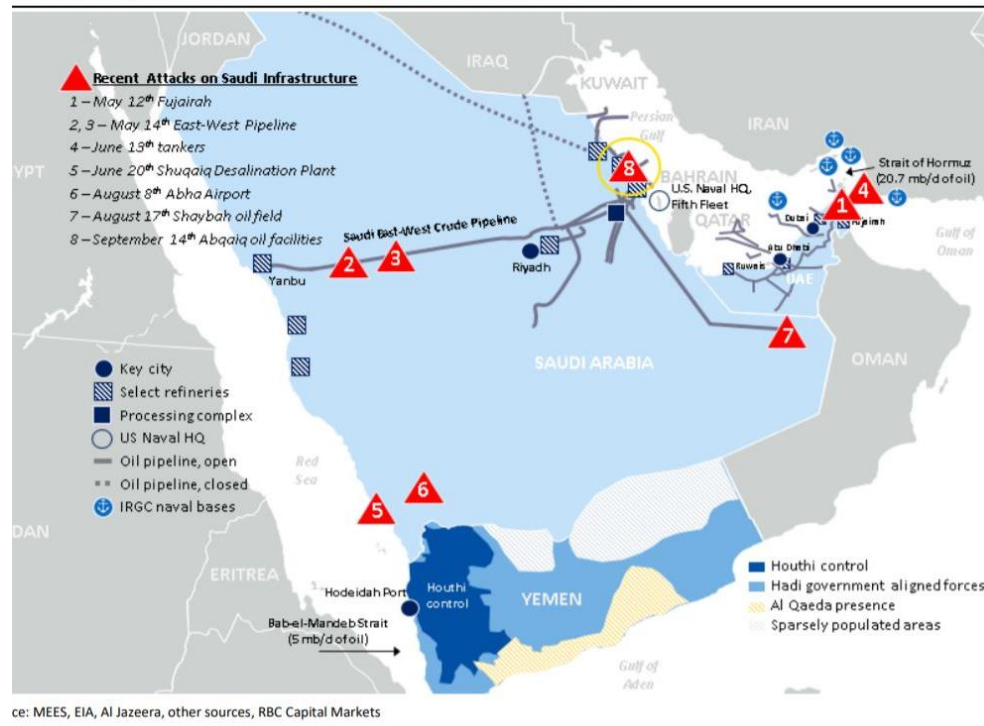
# Israel's Diplomatic Openings to the Gulf States – Reflecting Emergence of anti-IRI Entente

- **Major diplomatic success by Trump Administration**
- **Building an enduring anti-Iranian regional coalition**
- **Israel building on its relations with Jordan and Egypt to solidify an anti-Turkish alliance in the Eastern Mediterranean – all about massive undersea natural gas finds**
- **Complex dynamic in Libya civil war with Turkey supporting the Tripoli government (GNA) in struggle with Benghazi/Tobruk insurgent (LNA)**
- **LNA has support from Egypt, Russia, France and Saudi Arabia**

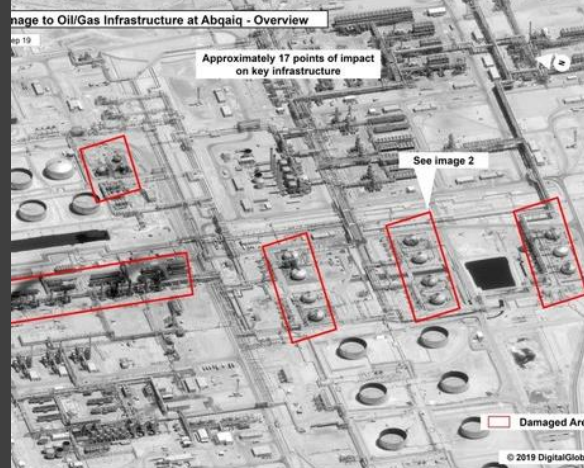


# Escalation of the Yemen Civil War and IRI Response to U.S. Strategy of Economic and Financial Strangulation

Figure 1: Recent attacks on Saudi infrastructure & regional map

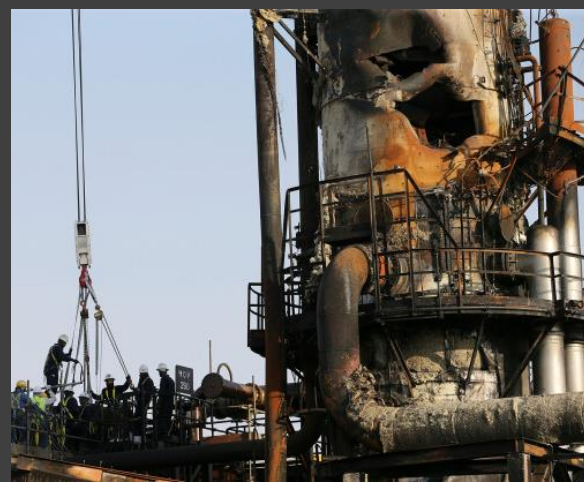


- The sustained attacks on the KSA's critical infrastructure



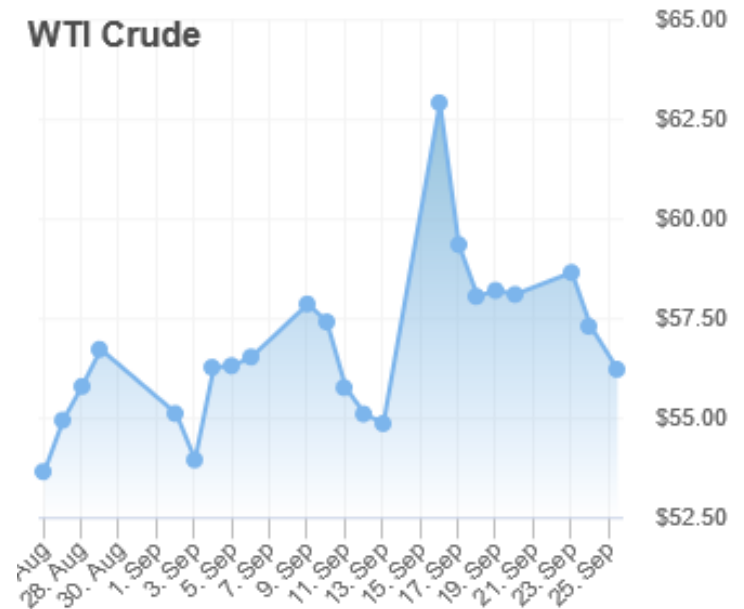
# Manifestation of IRI Regional Precision Strike Capabilities

- IRI drone/cruise missile attacks on two key KSA petroleum infrastructure sites a wake-up call?
- Attack conducted by small drones and small land attack cruise missile (LACM) that overflow Kuwait and Iraq
- Very likely launched from SE Iran and overflow southern Iraq and western Kuwait
- IRI responding to U.S. strategic of economic and financial coercion after Washington's withdrawal from JCPOA
- See Japan's response to the U.S. oil and financial embargos during the fall of 1941



# Increased Global Oil Supply Resilience

- IRI drone/missile attack on KSA cause a temporary spike in oil prices
- Brent prices followed similar pattern



OilPrice.com

# Key Options for U.S. Forces to Meet Challenges Posed by Iran

## To deter/defeat large-scale aggression:

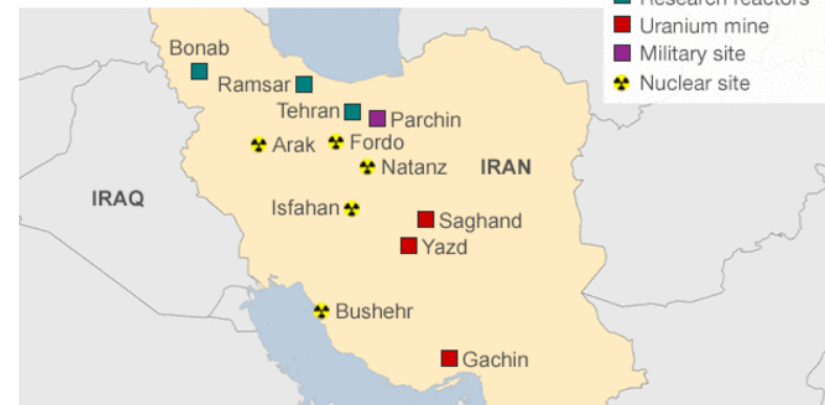
- Examine options for diversifying and hardening airbases in GCC countries
- Examine options to enhance protection of critical GCC infrastructure from long-range PGM attack
- Develop improved close-in defenses for surface combatants
- Work with partners to build capacity to locate and neutralize sea mines
- Improved SAM suppression weapons



## Deter Iranian military action while U.S. conducting coercive economic sanctions:

- To gain more robust arms control and security agreement with IRI
- Ensure adequate ability to monitor activities at sensitive sites
- Continue to improve conventional active defense and counterforce capabilities
- Major initiatives to improve point defense against land attack cruise missiles (LACM) and drones

Iran's nuclear facilities



Source: New Scientist/ Global Security

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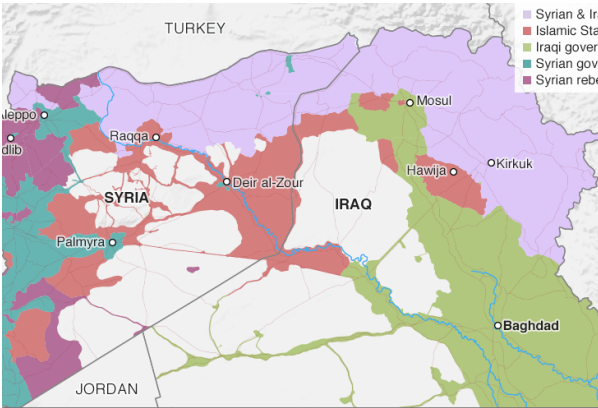
# Cripple and Contain ISIS, Al Qaeda, and Other Salafist-Jihadi Groups

ISIS, AQ, and similar groups can:

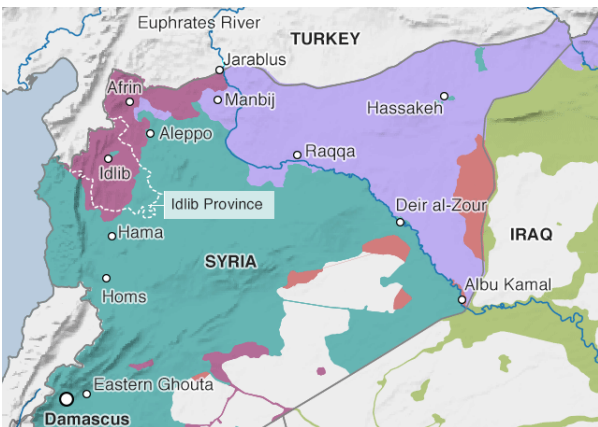
- Destabilize societies in the Middle East, North Africa, and elsewhere
- Seize and control areas as quasi-states
- Radicalize individuals to conduct violent attacks
- Mount complex attacks in allied states and homeland

U.S. and partner forces need to:

- Collect, synthesize, process, and share information among DoD, IC, homeland agencies, partner states
- Train, equip, advise, and assist local forces
- Conduct precision attacks on terrorist leaders and infrastructure
- Conduct sustained air-land campaigns against quasi-states
- “Win the information war”?
- Strategic defeat unlikely
- Strategy similar to medical treatment of chronic illness
- Realistic outcome is the contain the symptoms of the disease and not current



ict Monitor (27 Mar 2017)



# The Rise and Fall of ISIS aka "The Caliphate" aka DAESH

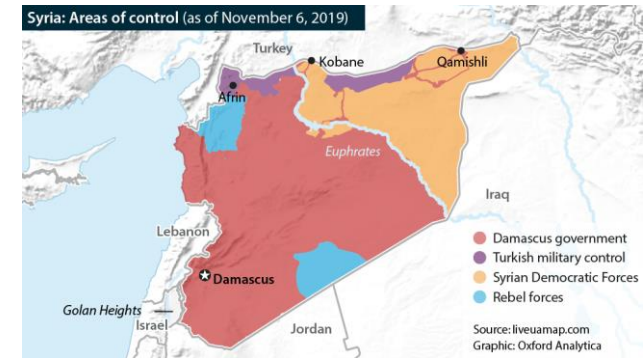
# Operation Inherent Resolve: Hybrid Response to ISIS as Quasi-State



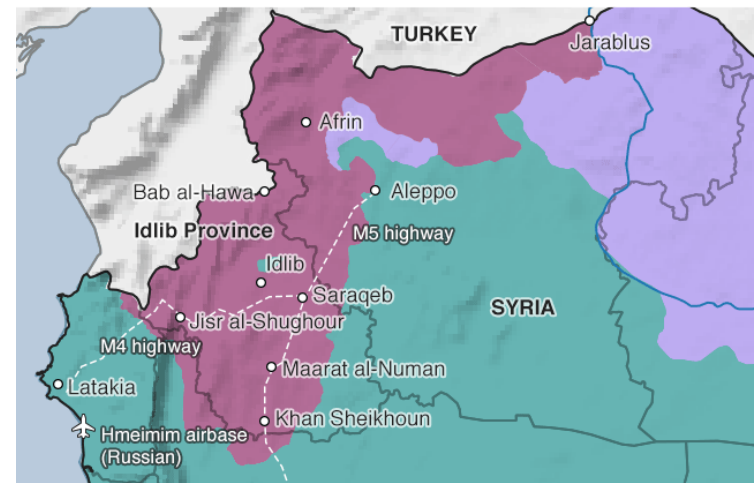
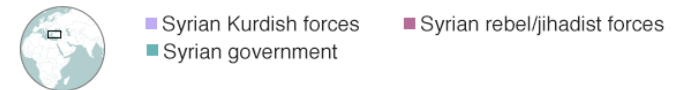
- Large strategic air campaign against ISIS: *Operation Tidal Wave II*
- “Hybrid” mix of large-scale of air power, SOF, UCAVs, ISR, Marine and Army Artillery, Army and USMC aviation and indigenous forces
- Kurds have been some of the most effective fighters
- Iraqi Special Forces have been a success
- Avoidance of use of large U.S. ground force elements
- After being “defeated” ISIS as an organization survives along the Syrian/Iraqi border
- Now that USG has betrayed Syrian Kurds to Turkish geo-strategic interests – what now in region

# Assad Regime on Verge of “Victory”?

- President Trump was talked out of pulling out all U.S. forces from eastern Syria
- Trilateral force of American, French and British forces still support the Syrian Kurdish forces and their Syrian allies - protecting them from both Turkey and the Assad regime
- Turkey has had major military success in Idlib Province in protecting local insurgent allies including major elements of a Syrian AQ



## Idlib province



BBC

# Collapse of the U.S.-Turkey Alliance?

- The destruction of the Wagner Group during February 7, 2018 was a Trump Administration warning to both Ankara, Tehran and Moscow
- President Trump's has agreed to President Erdogan's demands for U.S. to reduce military support to Syrian Kurds – key element for military victory over ISIS – likely immediate cause of Secretary of Defense Mattis' resignation
- Incirlik AFB is a very important air base for U.S. operations in the Greater Middle East
  - Nuclear weapon storage has been a feature of this base since the Cold War
- President Erdogan has defied Trump Administration by buying Russian S-400 surface to air missiles (SAM) systems
- U.S. cancelled Turkey's industrial participation in the F-35 program
- Turkey's military success in northwestern Turkey and western Libya – Erdogan's neo-Ottoman ambitions





# Key Options for U.S. Forces to Meet Challenges Posed by Salafist-Jihadi Groups

- Grow USSOCOM capacity while maintaining quality
- Expand intelligence collection and analysis assets
- Acquire light reconnaissance-attack aircraft
  - Promote acquisition by partner states
- Pursue R&D of next-generation systems:
  - New generation VTOL aircraft
  - Swarming and autonomous unmanned vehicles
  - Powered human exo-skeletons – major technological challenges – will not be realized until there is a high energy density power source – sorry no Iron Man suit soon

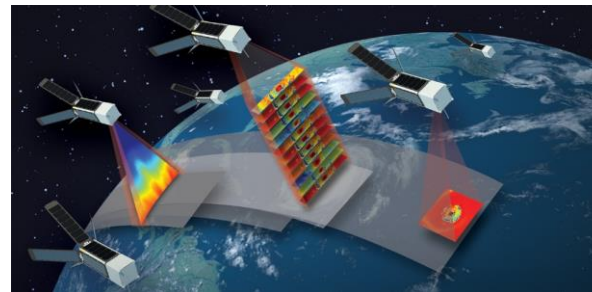


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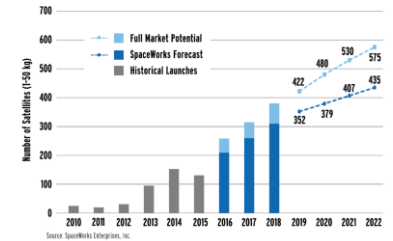
# The Rise of Large Small Satellite Constellations

- Question: What is the real demand signal for large constellations of small satellites in LEO?
- Second question: What is the real demand signal for small SLVs?



## Nano/microsatellite launch history and forecast

Projections based on announced and future plans of developers and programs indicate as many as 3,000 nano/microsatellites will require a launch from 2016 through 2022.



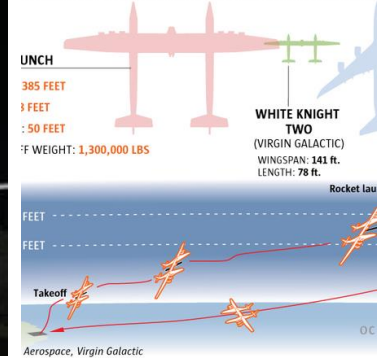


# Space Tourism and Large Aircraft as a 1st Stage Booster Game Changer or Pipe Dreams?



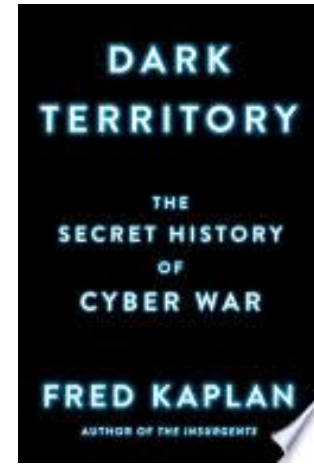
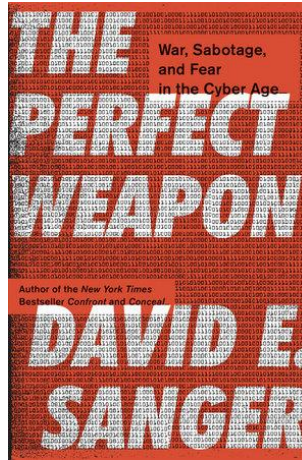
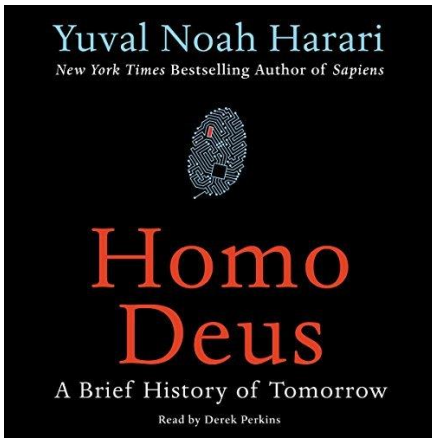
## ers call it 'the Roc'

After a giant mythical bird, the six-engine plane has a larger name. Stratolaunch is designed to carry a rocket to 35,000 feet for launch.

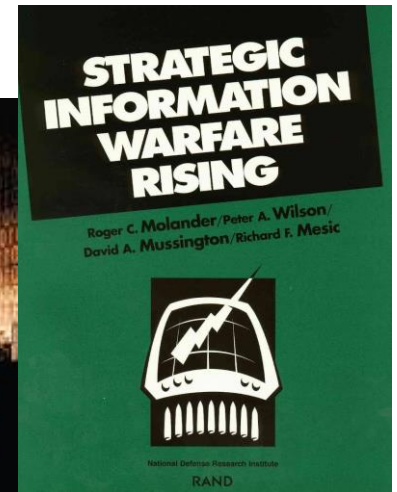
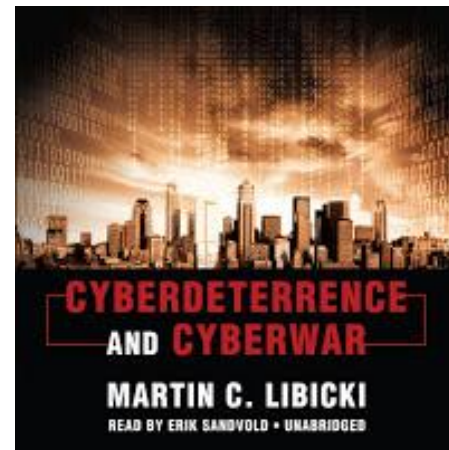
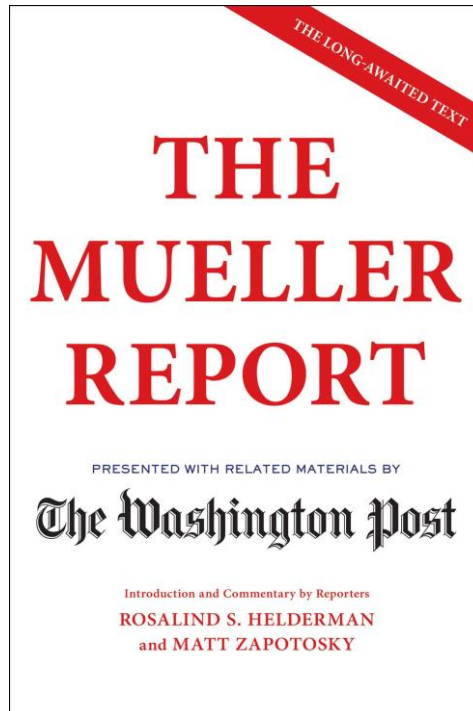
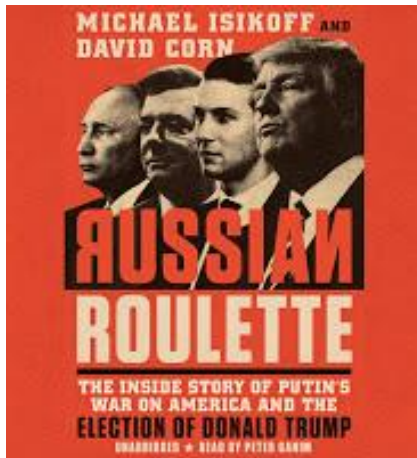


- Virgin Galactic's *White Knight* and *Spaceship II* and Blue Origin's *New Sheppard* – 100 km high roller coaster
- *Stratolaunch* - needed a family of RLVs – program terminated and “Roc” up for sale
- Virgin Orbit's *Launcher One* SLV with converted B-747 launch vehicle





# Conflict Through Cyberspace



# Internet Enabled 21<sup>st</sup> Century Multi-media

- **Using the Internet to self-organize**
  - The rise of Twitter, Facebook, LinkedIn, and Snapchat
  - Neo-Victorian assumption that this technology was only benign proven false
  - A communications and self-organizing breakthrough for extremist organizations of all types
- **The “Dark side” of the Internet**
  - **Salafist-jihadi use of the Internet**
    - Propaganda
    - Training
    - Intelligence Collection
    - Recruiting for an ideologically inspired form of strategic warfare
      - See “Lone Wolf” and complex terrorist attacks in Europe and the U.S.
  - **State Sponsored IO campaigns**
    - Cyber operations to cause disruption and damage to critical infrastructures
    - Sustaining a cadre of “Trolls”
    - The creation and dissemination of news with “false facts”
      - Become a feature of U.S. political campaigns
      - Likely to major feature of upcoming European and U.S. political campaigns
    - Cambridge Analytics and Facebook revelations
      - Studies showing the more rapid and complete diffusion of fake news with factual news
        - Humans appear hard wired in this regard



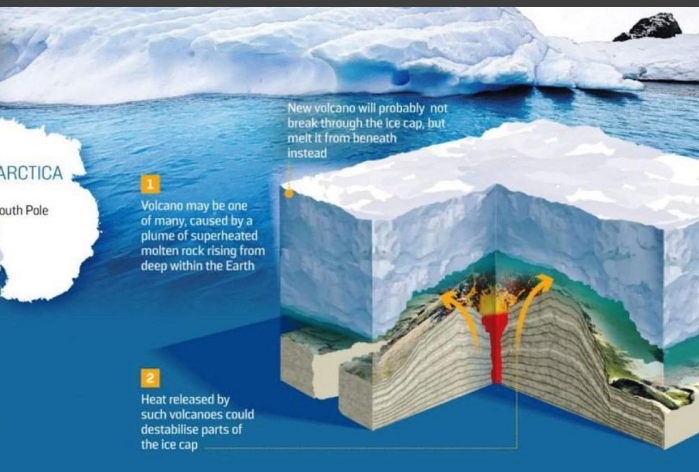
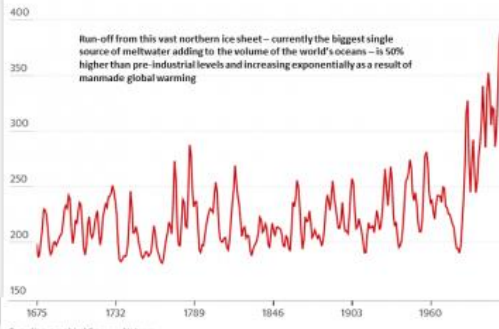
# Climate Change as an Accelerant to Conflict and Claimant for Federal Funding

- What if forecasts of water runoff from Greenland and Antarctica are too optimistic?
- Rising sea level coupled with cyclonic storms creates massive demand for coastal city protection
- May produce rapid disruption of North Atlantic currents
- The strategic surprise is the velocity of this change

## Abrupt Accelerating Greenland Melt

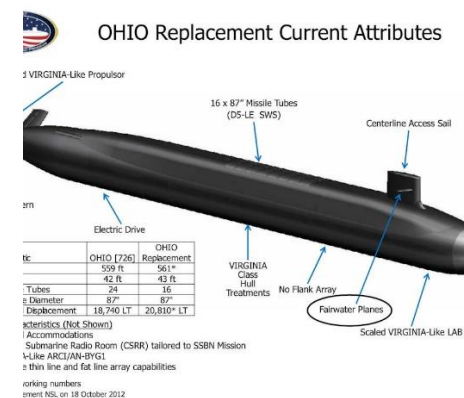
Run-off from the Greenland ice sheet has risen dramatically over the past 20 years

Meltwater runoff reconstructed using ice-core-derived melt records, gigatonnes per year



# Study Group Outline

- Overview
- Rise of China as near-peer competitor
- Russia as a revisionist power
- North Korea as a nuclear-armed regional power
- Iran as a revisionist power
- The long-war with Salafist-jihadism
- Conflict through space, cyberspace and the global energy system
- **On nuclear weapons**
- On the near future of war



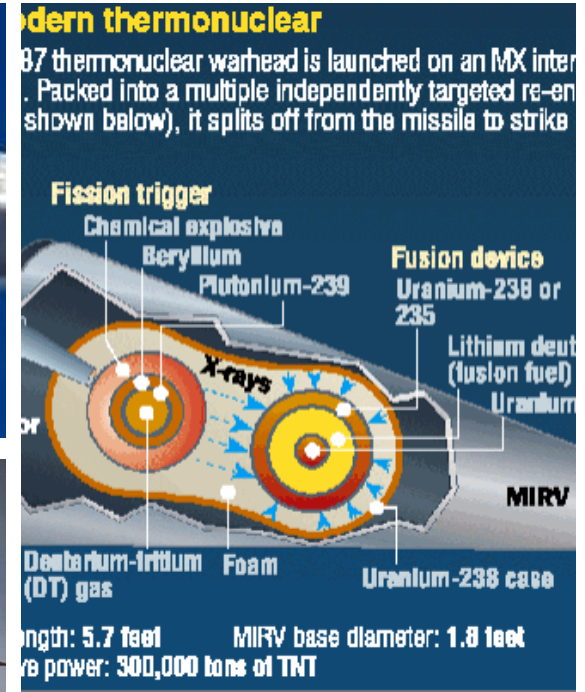
# The 2018 U.S. Nuclear Posture Review (NPR)

- Continue modernizing the "Triad"
  - Columbia class SSBN to replace the Trident SSBN
    - Continued produced and modernization of the Trident II SLBM
  - Replace the B-2 and B-1B with the B-21
  - Keep the B-52 with new avionics and engines
    - Replace the Advanced Cruise Missile (ACM) with the Long-range standoff weapon (LSRO) – LO or hypersonic?
  - Replace the Minuteman III with the Ground Based Strategic Deterrent (GBSD) ICBM – possibly armed with a boost-guide vehicle (BGV)
  - Modernize the B61 bomb arsenal with the precision guided B-61-12 –with low yield option
- Additional initiatives
  - Deploy low yield variant of the W-76 on the Trident II SLBMs
  - Develop a Tomahawk –N follow-on – Nuclear-armed SLCM – LO or hypersonic



# Is there a Nuclear Counterforce Option?

- Nuclear-armed B-2s, F-15E or F-35s could be deployed to Guam as deterrent – provide nuclear strike options if Seoul is attacked with chemical and/or biological weapons
- This is the rationale for the rapid deployment of a low yield warhead on some the Trident II SLBMs
- This is the underlying rationale for the U.S. to leave the INF Treaty



# Study Group Outline

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# Key Themes of the “Third Offset” aka War in the Near Future

- **Autonomous and/or Swarming Unmanned Air and Ground Vehicles**
- **Unmanned Vehicle Challenge to the Submarine**
- **The Emergence of Enhanced and Armored Infantry**
- **Extending the Operational Life of Large Combat Vehicles**
- **Global-Range Precision Strike**
- **Conflict Through Cyberspace**
- **Emergence of War in the Space Domain**
- **Prospect of non-nuclear transoceanic bombardment**
- **Innovations in Transoceanic Logistics**

# Some Near-term “Gray Swan” Scenarios (High Consequence, Low Probability, Forecastable )

## **Bad Syrian Civil War End Games**

- **Collapse of U.S. –Turkey geo-strategic relations**
- **Severe military conflict between Turkey and Assad allies – Russia & IRI**
- **Road to war between Israel and IRI**
- **Road to war between the KSA and IRI**
- **KSA acquires nuclear weapons**

**Road to war between Turkey and “the rest” over Libyan civil war/undersea Eastern Mediterranean territorial claims**

**Road to war between India-Pakistan-China**

**Road to war between China and the United States**

**Bad end games to the nuclear negotiations between U.S. and DPRK**

- **U.S. and regional acquiescence to a nuclear-armed DPRK**
- **Road to war between Japan-China**
- **ROK and Japan acquiring nuclear weapons**

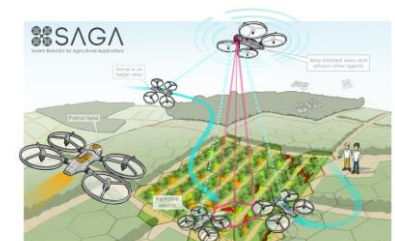
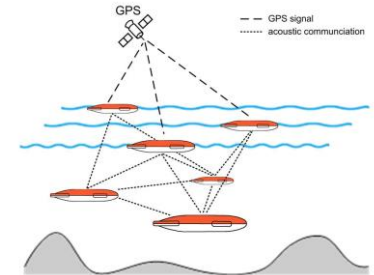
**Road to war between Russia and NATO**


- **Post Belarus crisis**

# Back Up

# Swarming Takes Off

- Swarming reconnaissance and strike systems rapidly emerging – key is power source and endurance of these systems
- Commercial demand signals may be as important as military demand signals to develop this aspect of UAS





# Loyal Wingman – Multiplying the Capacity of the LO Fighter Bomber

Near-term innovation: The “loyal wingman”

# Move to Larger Vehicles

- U.S. Navy AUV missions increasing in duration (with goal 46 to 70 days) requiring more stored energy
- Possible solutions
  - Increase energy density (requires technology breakthrough)
  - Increase volume (being pursued)
- LDUUV concept under development with limited operational capability planned for 2015
- Six Boeing designed “Orcas” under construction



Image source: U.S. Navy Program Guide 2013



Image source: AUVAC



# Rise of the "Super" Soldier?

Will the armored/enhanced soldier supported by robots be the wave of the future to land warfare?



# Major Increases In Infantry Firepower and Situation Awareness?

Question: How will these trends and new capabilities affect squad/platoon/company-level tactics, training, and doctrine?

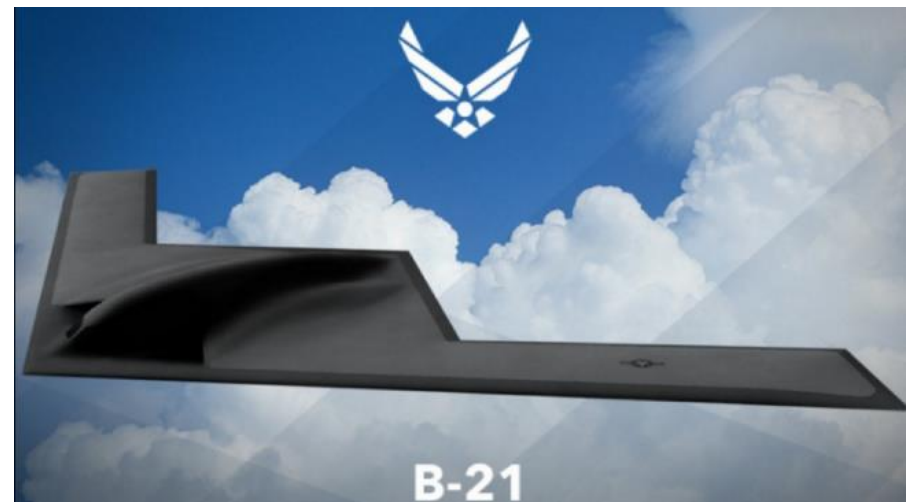




# Evolution of Stealth Aircraft

## On the top an “S” Curve?

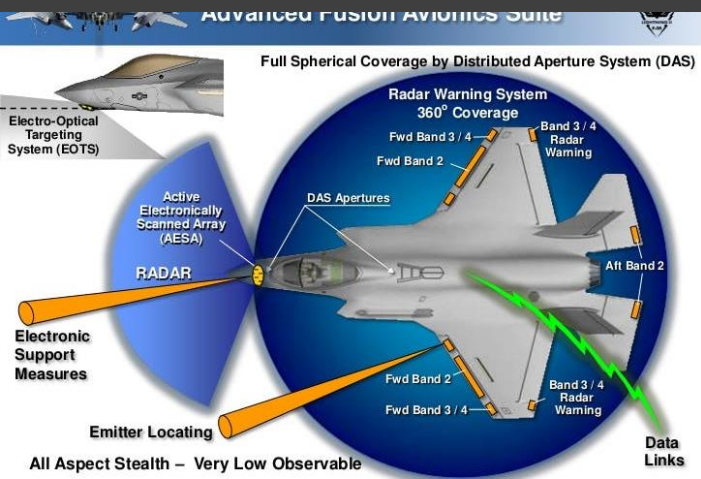
- The B-49 Flying Wing leads to the B-2, F-22, F-35, and B-21





# F-35 As an Aerial Networked Targeting Node

- Aside from its low observable (LO) features F-35 represents a major advance in avionic
- Major improvement in 360 degree situation awareness for pilot
- ASEA, advanced electro-optical and EW sensors provides F-35 with new intelligence, surveillance, and reconnaissance capability
- Individual fighter can be networked with companion F-35s and 4<sup>th</sup> Generation fighters
- F-35 can provide forward targeting for long-range SAM systems through cooperative engagement scheme – See recent USN tests involving USMC F-35B and Arleigh Burke guided missile destroyer and Project RIOT test of F-35 as ballistic missile defense sensor



NATO SEASPARROW The Evolution of the SEASPARROW Missile



# Countermeasures to Anti-Ship Missiles

- Rapid fire cannon to short range SAMs
- Close in gun and missile defenses can be overwhelmed by near simultaneous multiple ASMs



# Naval Directed Energy Weapons (DEW)



- USN taking the lead in developing tactical directed energy weapons – first step – multi-shot capacity against small UAVs and swarming unmanned and suicide boats



# Emergence of Active Protection



- Global Diffusion of Active Protection Systems (APS)
- Effective against low velocity RPG and ATGMs
- Not effective against sabot and rapid fire medium caliber rounds

# Innovations in Global Logistics?

The Russians and/or Chinese may attempt to carry out a mining campaign along the U.S. coasts especially in response to a similar U.S. campaign.

- Very large UUVs could be used as arsenal barges to deal with the fleet “Winchester” problem.
- Sea planes could prove attractive in SEA
- In this regard, the modernized Panama Canal becomes a prime strategic logistics node and target for the PLAN.
- Australia becomes a key to any sustained Asian campaign – replay of the SWP campaign .
- Will Europe and Brazil be a secure source of war material? Both providing “Lend Lease”?
- hat expeditionary force be sustained?
- Will large portions of the civilian large capacity air fleet be mobilized through an expanded CRAF program?
- What role for very large hybrid air ships?
- What about the mobilization of U.S. and non-U.S. cargo vessels? How might these ALOCs and SLOCs be protected from air and submarine attack?
- Australia becomes a key to any sustained Asian campaign – replay of the SWP campaign .
- Will Europe, India or Brazil be a secure source of war material? Both providing “Lend



# What is National Mobilization Circa 2040?

- Using the U.S. industrial capacity *to produce “war robots”*
- By the 2030s the U.S. will have a very large capacity to produce mobile and autonomous vehicles.
- How might that industrial capacity be reconfigured to produce unmanned autonomous fighting vehicles?
- Should the U.S. be prepared to replace manned with unmanned combat aerial vehicles that are designed for mass production?
- Should this approach to ground fighting vehicles and naval warships be taken?
- How might the tools and technique of 3D manufacturing be employed in this regard?
- Is this the way the address the prospect of a large land war in Eurasia – to replace human combat soldiers with robots?



# What is National Mobilization Circa 2040?

## (II)

### *On Replacing the Arsenal of Long-range PGMs –*

- It is likely one of the highest priorities is the creation of additional and protected production facilities of long-range PGMs.
- These long-range PGMs will include not only cruise and ballistic missiles but long-range underwater attack systems.
- Boost-glide vehicles may be in vogue
- The surge production capacity of these weapons will be highly dependent as to whether their design is amenable to rapid mass production including the likely use of 3D aka additive manufacturing techniques.
- Additive manufacturing may facilitate dispersed and concealed manufacturing – 21<sup>st</sup> century version of Japanese WW - II industries

