

It Can Get You into Trouble, but It Can't Get You Out

Missile Defense and the Future of Nuclear Stability

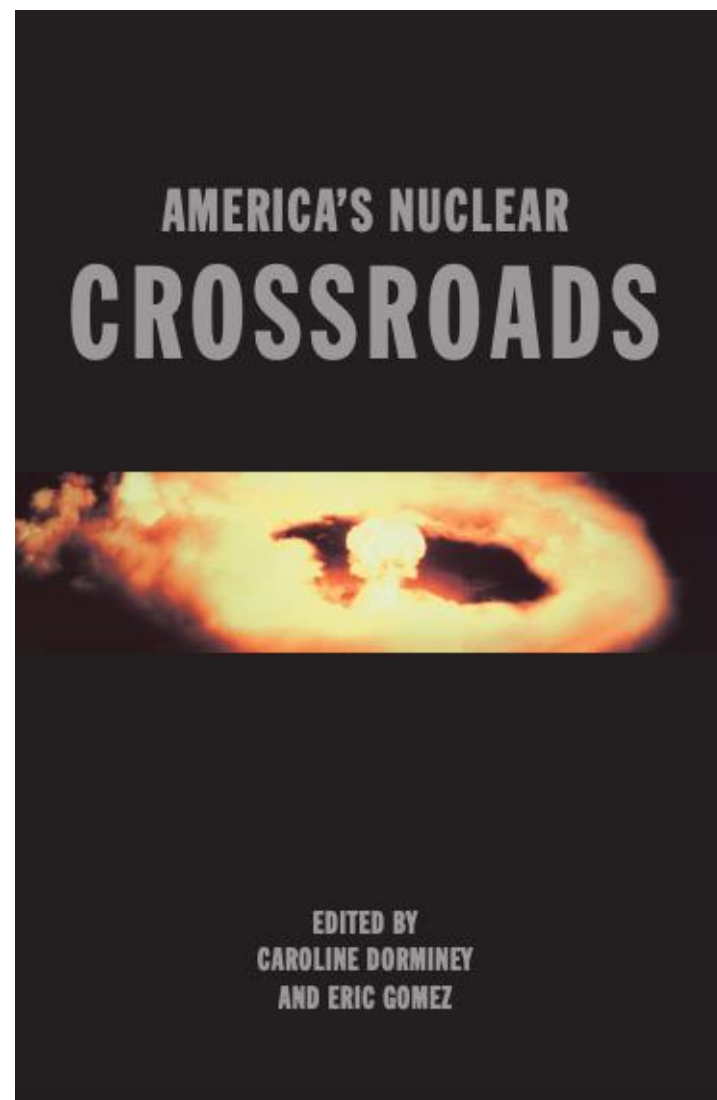
Eric Gomez

Wednesday, February 5, 2020

STRATCOM Academic Alliance Presentation

Introduction

- Chapter of broader anthology.
- Builds off previous research on missile defense and US-China nuclear stability.
 - I am more familiar with China than Russia.
- Nuclear stability refers to the incentive for nuclear first use.
 - Captures both intentional and inadvertent escalation risks.



BLUF

- 1) US missile defense architecture is slated for wide ranging expansion.
- 2) This expansion will aggravate existing problems that missile defense capabilities are creating for nuclear stability, especially with great power adversaries.
- 3) Restraining US homeland missile defense capabilities while expanding regional capabilities should reduce great power adversary's "use or lose" pressure while making it harder for them to initiate limited, regional conflicts.

Outline

- 1) The Present and Future of U.S. Missile Defense
- 2) Adversary Perceptions
- 3) Pressures on Nuclear Stability
- 4) Balancing Missile Defense and Stability

Outline

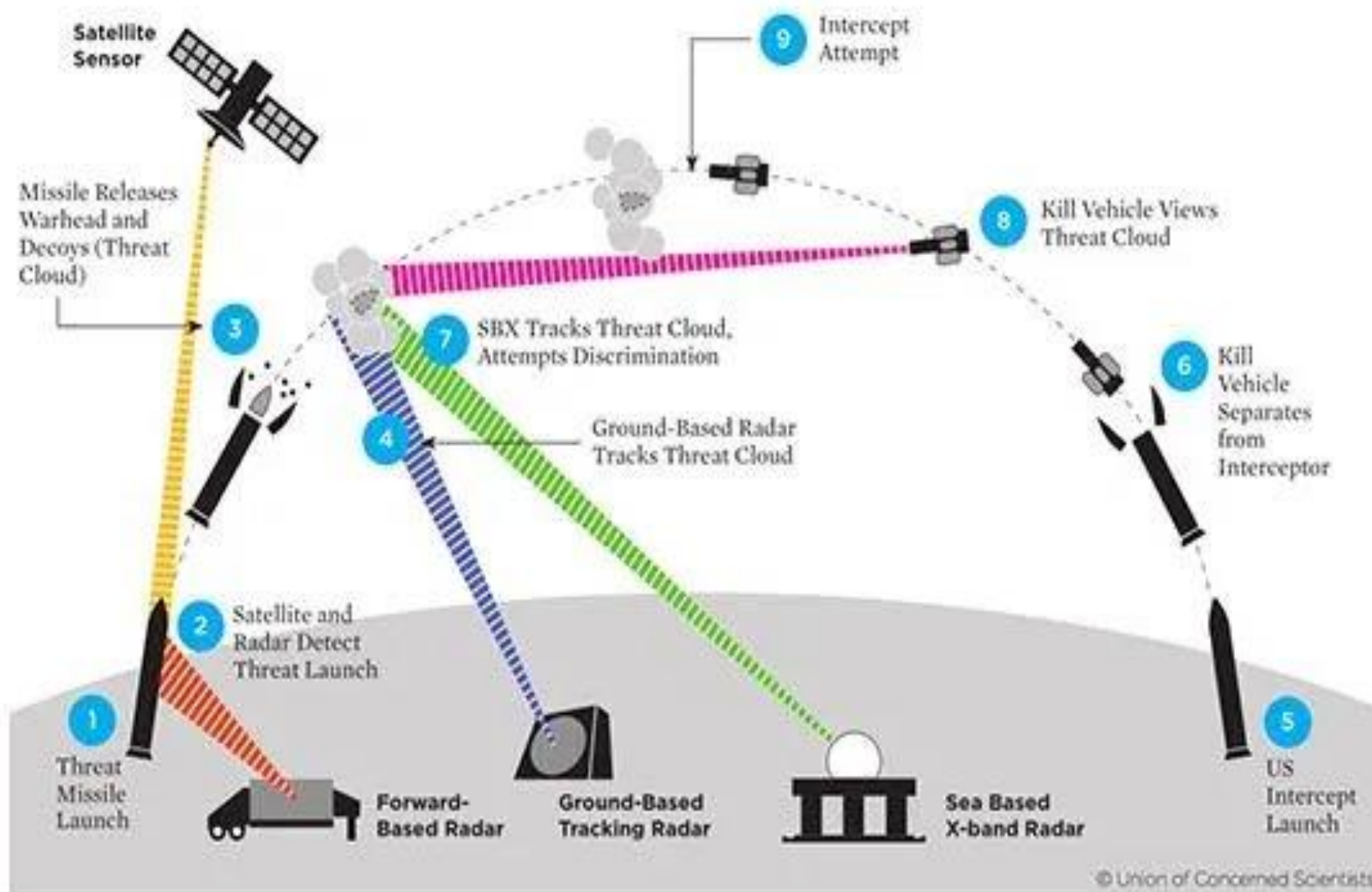
- 1) The Present and Future of U.S. Missile Defense
- 2) Adversary Perceptions
- 3) Pressures on Nuclear Stability
- 4) Balancing Missile Defense and Stability

Current State of US Missile Defense

- 2019 Missile Defense Review sets four goals:
 - Protect US homeland, forces abroad, allies, partners.
 - Deter attacks against US, allies, partners.
 - Assure allies.
 - Strengthen US diplomacy in peacetime and crises.
- Homeland defenses sized to deter rogue states, with nuclear deterrence to deter Russia and China.
- Regional defense is not limited to rogue states.
 - US regional systems are capable of protecting against both rogue state and great power capabilities.
 - This includes short- to intermediate-range nuclear missiles.

Missile Defense System of Systems

Anatomy of an Intercept



Homeland vs. Regional at a Glance

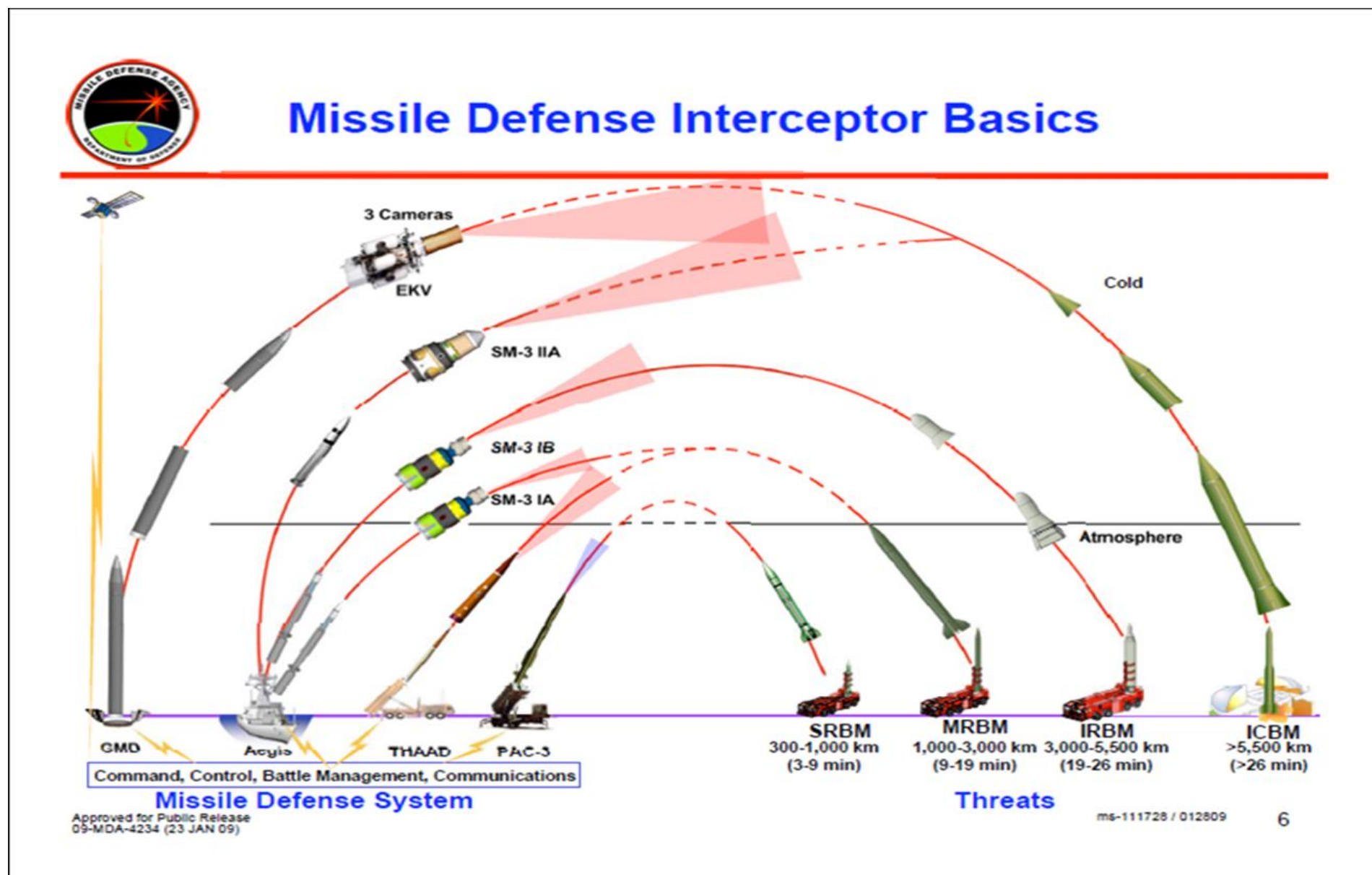
Homeland Missile Defense

- Protects continental United States from ICBM-range missiles.
 - Ground-based Midcourse Defense (GMD).
- Unreliable in testing (approx. 60% success rate).
 - Problematic development process has contributed to long-term problems and high costs.
 - Heterogenous kill vehicle mix casts doubt on overall success rate.
- Lifetime costs of GMD approaching \$70 billion.

Regional Missile Defense

- Protects relatively small areas from shorter-range threats.
 - Patriot, THAAD, Aegis.
- Very reliable testing records.
 - THAAD has a perfect record in intercept flight tests.
 - Aegis success record is above 80 percent.
- Mobility of regional systems allow for rapid deployment in crises.
 - Patriot, THAAD can be transported by air.
 - Missile defense capable warships.

Homeland vs. Regional at a Glance



Future Capabilities

- 2019 MDR outlines an ambitious expansion of missile defense capabilities.
 - Space-based sensor layer.
 - Hypersonic defense.
 - Kinetic and non-kinetic boost-phase defense vs. ICBM-range missiles.
 - Increasing stocks of existing interceptors.
- Greater integration of homeland and regional missile defense assets.
 - Linking radars to improve cueing, target discrimination, and tracking.
 - Onboard sensors that can improve both regional and homeland interceptor systems (e.g. SM-3 IIA onboard infrared seeker was set to be incorporated into the now-cancelled Redesigned Kill Vehicle).

Outline

- 1) The Present and Future of U.S. Missile Defense
- 2) Adversary Perceptions
- 3) Pressures on Nuclear Stability
- 4) Balancing Missile Defense and Stability

Adversary Threat Perceptions

- Russia and China do not view missile defense as a unique or siloed program.
 - Instead, both see it as a component of broader US military strategy.
- This is useful for understanding threat perceptions and the action/reaction cycles that are generated or accelerated by missile defense.
 - Missile defense expansion coupled with improvements in nuclear and conventional offensive weapons makes missile defense more threatening.
- Reassurances based on technical limitations of US missile defense capabilities are unlikely to be effective.

Chinese Threat Perceptions

- “China’s strategic community views the US development and deployment of ballistic missile defense capabilities as the most serious threat to China’s nuclear deterrent.” –Fiona Cunningham and Taylor Fravel, 2015.
- China’s nuclear arsenal is much smaller than US arsenal, bound by No First Use.
 - Doctrine, force structure, training practices and modernization priorities suggest that Beijing wants to keep its arsenal “lean and effective.”
- Expansion of US missile defense capabilities puts pressure on China’s nuclear deterrence posture by making nuclear vulnerability more one-sided than mutual.

Why Should the United States Care?

- Adversary perceptions can become reality.
 - Russian decision to accelerate hypersonic weapons development was direct response to US leaving the Anti-Ballistic Missile Treaty in 2002.
 - US decisions have powerful shaping effect on Russian and Chinese reactions.

- Missile defense as component of great power competition.
 - Future arms control agreements will most likely have to include some form of limitation on missile defense.

- Judging stated US missile defense goals against reality is important for determining whether policies are successful or if change of course is prudent.

Outline

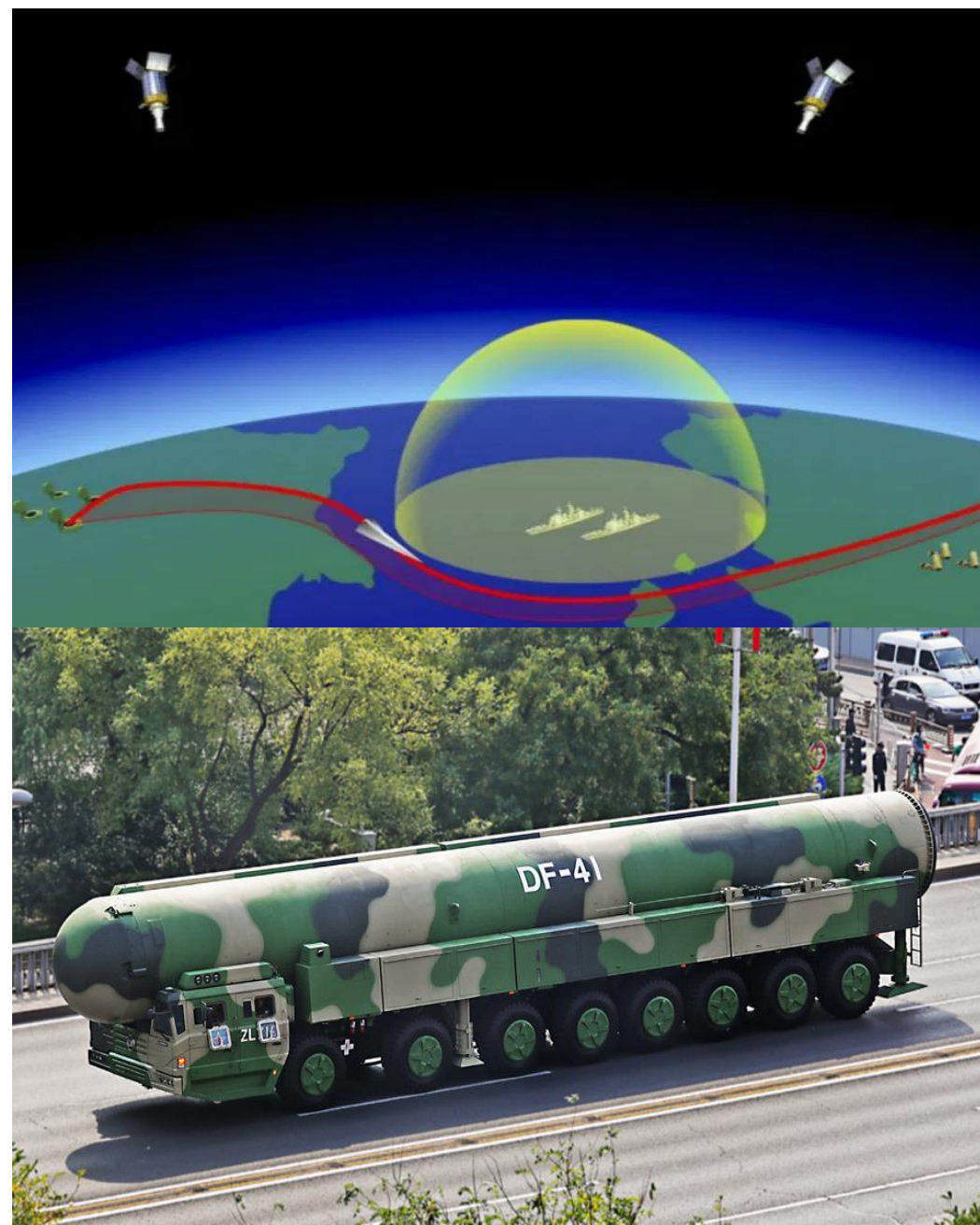
- 1) The Present and Future of U.S. Missile Defense
- 2) Adversary Perceptions
- 3) Pressures on Nuclear Stability
- 4) Balancing Missile Defense and Stability

Missile Defense and Nuclear Stability

- Missile defense is neither inherently stabilizing or destabilizing. Implications for nuclear stability flow from two factors:
 - 1) How missile defense factors into a state's broader approach to nuclear deterrence.
 - Defensive systems coupled with strong offensive capabilities can decrease stability by lowering the threshold of a first strike.
 - Intentional nuclear escalation risks.
 - 2) The strategies that other countries adopt to counteract the threat posed by growing missile defenses arrayed against them.
 - Inadvertent nuclear escalation risks.

Chinese and Russian Reactions

- Investments in new nuclear delivery platforms.
 - Ability to penetrate missile defenses frequently touted.
 - China increasing number of dual-capable ballistic missiles (e.g. DF-26).
- Targeting missile defense enabling capabilities.
 - Satellites, radar sites, etc.
 - Part of a broader approach to countering the US way of war.
- China is intentionally increasing ambiguity about its NFU posture.
 - Does not want to abandon entirely, but ambiguity reduces credibility of NFU.
 - Extent of real policy change is unclear.



How Reactions Impact Nuclear Stability

- Intentional nuclear escalation is unlikely but inadvertent escalation risks growing.
- Impact of new delivery systems is unclear.
 - HGVs could enhance or degrade stability depending on how they are used.
 - Arms race potential.
 - Risks of US targeting dual-capable ballistic missiles in a conflict.
- Targeting sensors has worrying implications.
 - Entanglement of NC3.
 - Difficulty of distinguishing regional and homeland sensors.
- Nuclear instability much more of a problem in US-China relationship.
 - Both sides approaching conventional conflict in ways that increase inadvertent escalation incentives.
 - Missile defense isn't the only problem but it is an important contributor.



It Gets Us into Trouble, but It Can't Get Us Out

- Steady expansion of US missile defense architecture fosters destabilizing counter strategies by great power rivals without providing the ability to protect the United States from the consequences.
- The 2019 MDR plan may not accelerate the slide into nuclear instability, but it certainly won't stop it.
- United States has an interest in slowing or reversing these trends, as current policies make deterrence harder in the long run.

Outline

- 1) The Present and Future of U.S. Missile Defense
- 2) Adversary Perceptions
- 3) Pressures on Nuclear Stability
- 4) Balancing Missile Defense and Stability

Balancing Missile Defense and Nuclear Stability

- Missile defense can strengthen US deterrence in ways that are less damaging to nuclear stability.
- The United States should set restraints on homeland missile defense capabilities and focus its efforts on improving regional systems.
- Objective: reduce great power adversary's "use or lose" pressure in crises while making it harder for them to initiate limited, regional conflicts.

Restraining Homeland Missile Defense

- Spectrum of potential policies:
 - Capping number of deployed GMD interceptors but allowing for technology improvements.
 - Rolling back the GMD stockpile/reducing numbers.
 - High costs and low reliability make GMD low-hanging fruit.

- Increase credibility of US reassurances toward other great powers.
 - Reduce “use or lose” incentive for other great powers.
 - Reduce entanglement issue for some US satellites.

- Use homeland missile defense restraint as part of a new arms control approach.



Focusing on Regional Missile Defense

- Densely-layered air and missile defense capabilities can buttress nuclear stability by enhancing conventional deterrence.
 - Raise the costs of attack and reduce likelihood of fait accompli military action.
 - Regional systems are less expensive, more reliable, and have a better track record of program management than homeland systems.

- Stronger regional missile defense allows the United States opportunity to slow down the pace of a conflict if deterrence fails.
 - If forward-deployed forces are more survivable, then demand to rapidly escalate to strikes against deep targets is reduced (though not eliminated).

- Stronger regional and weaker homeland missile defense should help prevent the most likely form of great power conflict (limited regional war) while reducing risks of inadvertent nuclear escalation.



Eric Gomez
Policy Analyst, Defense and Foreign Policy Studies
egomez@cato.org
@EricGomezAsia