

Tallying the U.S.-China Military Scorecard

Relative Capabilities and the Balance of Power, 1996–2017

Key findings:

- Although China continues to lag behind the United States in terms of aggregate military hardware and operational skills, it has improved its capabilities relative to those of the United States in many critical areas. Moreover, China does not need to catch up fully to the United States to challenge the U.S. ability to conduct effective military operations near the Chinese mainland.
- China’s ability to threaten air bases, challenge U.S. air superiority, and attack U.S. aircraft carriers is of particular concern.
- Despite overall negative trends, the U.S. military has maintained—or perhaps even extended—its relative lead in some operational categories.
- Nevertheless, if current trends continue, the frontier for U.S. dominance in Asia will progressively recede as China’s ability to project power improves.
- The United States should adjust operational concepts, force structure, and diplomacy to stabilize the balance of power and strengthen deterrence.

Over the past two decades, China’s People’s Liberation Army (PLA) has transformed itself from a large but antiquated force into a capable, modern military. Although China continues to lag behind the United States in terms of aggregate military hardware and operational skills, it has improved its capabilities relative to those of the United States in many critical areas. Moreover, China does not need to catch up fully to the United States to challenge the U.S. ability to conduct effective military operations near the Chinese mainland. Ensuring an adequate defense and deterrent capability in the face of these trends will require careful consideration of U.S. strategy, procurement priorities, and relations with regional allies.

Much of the discussion about China’s military modernization in the United States has focused on new PLA weapon systems. There has been little comparative analysis of Chinese

and U.S. military forces and developments—and even less rigorous analysis of how those inventories and systems would perform against each other in a potential conflict or how the balance of relative capabilities has evolved over time.

This brief summarizes RAND Project AIR FORCE analysis that seeks to fill this gap. The research uses a set of “scorecards” to assess the relative capabilities of U.S. and Chinese forces in diverse types of conflict, at varying distances from the Chinese mainland, and at different points in time from 1996 to 2017. Based entirely on open sources, the scorecards provide a basis for deeper public discussion of how the balance of power in Asia has evolved and the challenges the United States can expect to face in the future.

To be clear, *the goal is to avoid war*, which the authors do not anticipate and which would be disastrous for both China and the United States. The scenarios and the operational activities described here are not meant to signify either the likelihood of a future conflict or the course of events should one occur. Nor do they represent U.S. national or military policy with regard to whether or how such a war would be fought. Rather, this research provides an open-source assessment of trends that could affect U.S. defense and deterrence strategy and establishes a baseline for future analysis.

Using Scorecards to Analyze Trends in Relative Capabilities

The core of the analysis is a set of ten scorecards, each addressing relative U.S. and Chinese capabilities in a specific operational area. The scorecards, listed on the left of the figure on the next page, cover the air, maritime, space, cyber, and nuclear domains. To illustrate trends over time, each scorecard examines U.S. and Chinese military capabilities at seven-year intervals, beginning in 1996 (concurrent with the Taiwan Strait Crisis) and projecting out to 2017. To provide insight into the impact of geography, each scorecard considers two plausible scenarios: a Chinese invasion of Taiwan (roughly 160 km from China’s coast) and a campaign to occupy the Spratly Islands (centered roughly 960 km from China’s coast).

The figure presents the results for each scorecard. The first nine scorecards employ a five-color stoplight approach to depict varying degrees of Chinese or U.S. advantage or

Summary of Scorecard Results

Scorecard	Taiwan Conflict				Spratly Islands Conflict			
	1996	2003	2010	2017	1996	2003	2010	2017
1. Chinese attacks on air bases	Major advantage	Major advantage	Disadvantage	Major disadvantage	Major advantage	Major advantage	Major advantage	Disadvantage
2. U.S. vs. Chinese air superiority	Major advantage	Disadvantage	Disadvantage	Disadvantage	Major advantage	Disadvantage	Disadvantage	Disadvantage
3. U.S. airspace penetration	Disadvantage	Disadvantage	Disadvantage	Disadvantage	Major advantage	Major advantage	Major advantage	Disadvantage
4. U.S. attacks on air bases	Disadvantage	Major advantage	Disadvantage	Disadvantage	Major advantage	Major advantage	Major advantage	Major advantage
5. Chinese anti-surface warfare	Major advantage	Disadvantage	Disadvantage	Major disadvantage	Major advantage	Major advantage	Disadvantage	Disadvantage
6. U.S. anti-surface warfare	Major advantage	Major advantage	Disadvantage	Disadvantage	Major advantage	Major advantage	Major advantage	Major advantage
7. U.S. counterspace	Major disadvantage	Major disadvantage	Disadvantage	Disadvantage	Major disadvantage	Major disadvantage	Disadvantage	Disadvantage
8. Chinese counterspace	Major advantage	Disadvantage	Disadvantage	Disadvantage	Major advantage	Disadvantage	Disadvantage	Disadvantage
9. U.S. vs. China cyberwar	Major advantage	Major advantage	Disadvantage	Disadvantage	Major advantage	Major advantage	Disadvantage	Disadvantage

10. Nuclear stability (confidence in secure second-strike capability)	Country	1996, 2003, and 2010	2017
		China	Low confidence
	U.S.	High confidence	

NOTES: To prevail in either Taiwan or the Spratly Islands, China's offensive goals would require it to hold advantages in nearly all operational categories simultaneously. U.S. defensive goals could be achieved by holding the advantage in only a few areas. Nevertheless, China's improved performance could raise costs, lengthen the conflict, and increase risks to the United States.

Key for Scorecards 1-9

U.S. Capabilities		Chinese Capabilities	
Major advantage	Major disadvantage	Major disadvantage	Major advantage
Advantage	Disadvantage	Disadvantage	Advantage
Approximate parity	Approximate parity	Approximate parity	Approximate parity
Disadvantage	Advantage	Advantage	Disadvantage
Major disadvantage	Major advantage	Major advantage	Major disadvantage

a heavily contested environment defined by approximate parity. *Advantage*, in this context, means that one side is able to achieve its primary objectives in an operationally relevant amount of time, estimated in these scenarios as a period of weeks. For the nuclear scorecard, the results indicate the degree of confidence that each side could reasonably expect to have in the survivability of its second-strike strategic nuclear capability. Because survivability does not necessarily correlate with advantage, no color-coding is used for this scorecard. The report details the sources and analyses underlying each scorecard assessment.¹

¹ Three companion briefs summarize trends specific to China's capability to attack air bases (scorecard 1), U.S. versus Chinese air superiority (scorecard 2), and Chinese anti-surface warfare (scorecard 5). These scorecards indicate especially worrisome trends for the United States.

Overall Trends across Scorecards

Looking across the scorecards, several broad trends emerge:

- ***The PLA has made tremendous strides since 1996.*** Although it is not close to catching up to the United States in terms of aggregate capabilities, the overall trend of military modernization is moving in favor of China. China has made particular gains in its ability to threaten air bases, challenge U.S. air superiority, and attack U.S. aircraft carriers. Many of these changes have come with breathtaking speed by any reasonable historical standard. For example, China would have had trouble locating a fleet beyond visual range of its coast in 1996, much less attacking it; today, China not only has a broad and increasingly redundant complex of over-the-horizon intelligence, surveillance, and reconnaissance capabili-

ties, but it also has various ways of holding U.S. aircraft carriers and other surface ships at risk of attack.

- ***Trends vary by mission area, and China's gains have not been uniform.*** In some areas, the United States has been able to mitigate Chinese gains or shift the relative balance. This is most evident in submarine warfare, in which the United States still holds a commanding technological lead, and in long-range air strike, in which a combination of new generations of air-launched cruise missiles and stealth would allow the United States to hold Chinese targets at risk despite China's improving air defense capabilities.
- ***Geography and distance have major impacts on each side's ability to achieve critical objectives.*** China has the advantage of proximity in most plausible conflict scenarios. This asymmetry in proximity, combined with specific geostrategic features of the environment (most notably a paucity of U.S. basing access), would offset many U.S. military strengths. Moreover, China has developed capabilities that capitalize on geography and could threaten U.S. forward bases and units.
- ***China's ability to project power to more distant locations is limited, but its reach is growing.*** The analysis suggests that the PLA's effective military power atrophies quickly at even moderate distances from China's coast, and the United States retains the ability to decisively defeat Chinese action at distances of 1,000 km or more. Nevertheless, if the United States and China remain on their current trajectories, the frontier for U.S. dominance in Asia will progressively recede.
- ***The United States would likely still prevail in virtually any scenario, but the costs and time required could be significant.*** In conflicts close to China, PLA forces may be able to establish temporary local air and naval superiority at the outset of a conflict and inflict significant losses on the United States. In certain regional contingencies, Beijing might believe that its ability to contest dominance could dissuade U.S. intervention in a conflict. In the worst case, this could undermine U.S. deterrence and encourage more adventurous behavior on China's part.

What Can the United States Do to Mitigate These Trends?

Although the United States will probably not have the resources to prevent all further erosion of the balance of military power, it can adjust its operational concepts, force structure, and diplomacy in ways that will slow the process and limit the impact on deterrence and other U.S. strategic interests. Ideally, it will address these issues in ways that

decrease both sides' incentives for preemptive attack and that buttress crisis stability, as well as defense. The following recommendations warrant additional research and analysis:

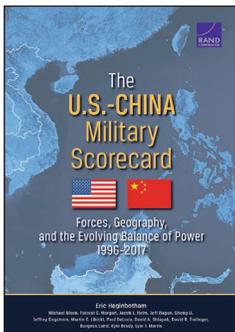
- ***Western governments and commentators should work to shape Chinese perceptions.*** While trends in the balance of power are moving against the United States, analysts should make it clear that a U.S.-China war would almost certainly be disastrous for China, even if it also carried costs for the United States.
- ***U.S. military leaders should ensure that planning for Pacific military operations is as dynamic and open as possible.*** The U.S. military should consider adopting an active denial strategy that capitalizes on potential advantages and prepares forces for the geographic size and depth of the theater. Defense planners should focus on enabling U.S. forces in the Pacific to absorb initial blows and fight their way back toward critical objectives, rather than on fighting from large, increasingly vulnerable forward bases from the first days of a conflict. An active denial strategy can enhance deterrence and stability simultaneously, even if U.S. dominance continues to wane.
- ***The United States should adjust its procurement priorities,*** emphasizing base redundancy and survivability, standoff systems optimized for high-intensity conflict, stealthy and survivable fighters and bombers, submarine and anti-submarine warfare, and robust space and counterspace priorities. To pay for these investments, the United States should consider more rapid cuts to legacy-fighter forces and a decreased emphasis on large aircraft carriers.
- ***The United States should intensify political and military initiatives with Pacific island states and Southeast Asian nations*** with the goal of expanding potential access in wartime. In addition to providing strategic depth, this will provide more options for bases from which U.S. forces might operate in the region. In addition to deepening defense cooperation with traditional allies and partners and those states most immediately threatened by China, the United States should increase its long-term partnerships in the southern states of Southeast Asia, including Indonesia and Malaysia.
- ***The United States should make a concerted effort to engage China on the issues of strategic stability and escalation.*** The deployment of new classes of conventional and nuclear weapons will likely complicate arms control and challenge crisis management in coming years, but discussions could nevertheless serve to make Chinese and U.S. policymakers more aware of emerging technical and structural dangers and, perhaps, lead to mutual restraint in some areas.

Further reading:

Chinese Attacks on Air Bases in Asia: An Assessment of Relative Capabilities, 1996–2017, RB-9858/2-AF (available at www.rand.org/t/RB9858z2)

U.S. and Chinese Air Superiority Capabilities: An Assessment of Relative Advantage, 1996–2017, RB-9858/3-AF (available at www.rand.org/t/RB9858z3)

Chinese Threats to U.S. Surface Ships: An Assessment of Relative Capabilities, 1996–2017, RB-9858/4-AF (available at www.rand.org/t/RB9858z4)



This research brief describes work done for RAND Project AIR FORCE documented in *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017*, by Eric Heginbotham, Michael Nixon, Forrest E. Morgan, Jacob L. Heim, Jeff Hagen, Sheng Li, Jeffrey Engstrom, Martin C. Libicki, Paul DeLuca, David A. Shlapak, David R. Frelinger, Burgess Laird, Kyle Brady, and Lyle J. Morris, RR-392-AF, 2015 (available at www.rand.org/t/RR392). The RAND Corporation is a nonprofit research institution that helps improve policy and decisionmaking through research and analysis. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark. © RAND 2015

Limited Print and Electronic Distribution Rights: This document and trademark(s) contained herein are protected by law. This representation of RAND intellectual property is provided for noncommercial use only. Unauthorized posting of this publication online is prohibited. Permission is given to duplicate this document for personal use only, as long as it is unaltered and complete. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please visit www.rand.org/pubs/permissions.html.

www.rand.org