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The Rise of China and the US Response: Time for Australia to think about anti-access and area-denial warfare

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Abstract

This paper examines the challenge that the rise of China presents for Australian defence planning, especially in the context of the Australia-US alliance. It argues that the changing Asia-Pacific security environment, represented by the rise of China, its rapid military modernisation and its increasing assertiveness in several regional flashpoints, should prompt Australia to develop robust military options in case a future conflict arises that requires a counter to China's anti-access/area-denial (A2/AD) capabilities, as part of a US–led coalition.

This paper does not contend that war with China is inevitable but simply that it is plausible and that Australia should think more deeply about it. It proposes six options for how Australia might, if required and desired to secure Australia's strategic interests, operate alongside the US in a conflict with China in the Western Pacific as part of a counter-A2/AD effort. It concludes by proposing four force structure enhancements to the ADF which, if acquired, would enable it to more deeply participate in operations to counter China's A2/AD capabilities.

The Rise of China and the US Response: Time for Australia to think about anti-access and area-denial warfare

Introduction

Australia's 2013 *National Security Strategy* states that 'Australia's region is home to several major powers, but our major ally the US and our major trading partner China will have the greatest influence on the region'.[1] It goes on to state that 'the US-China relationship will be the single most influential force in shaping the strategic environment'.[2] Indeed, a recent Australia-US think tank study stated that:

> The locus of international power is returning to Asia, where it resided before the industrial revolution, America's emergence as a Pacific power and Australia's own federation. As resident powers on either side of the Pacific, the US and Australia have much to gain from this new ascent of Asia—and as staunch defenders of the neo-liberal order over the last century, much is at stake.[3]

The rise of China therefore presents a significant challenge for Australian defence planning, especially in the context of the Australia-US alliance. While 'China has brought hundreds of millions out of poverty and joined Japan as an engine for regional growth and integration', it has also focused on modernising its military capabilities and, at the same time, has become more confident and assertive in its use of military power to achieve national objectives.[4]

Some commentators, such as American offensive realist John Mearsheimer, believe that China cannot rise peacefully, that it will eventually challenge the US for hegemony in the Asia-Pacific, and that the US will do all it can to meet this challenge.[5] Liberals, such as G. John Ikenberry, believe that the international order is capable of peacefully adjusting to China's increased power.[6] From the perspectives of both alliance management and threat environment, however, the rise of China is arguably the most significant defence planning problem for Australia and the ADF since the end of the Cold War in 1989.

Much of China's military modernisation has focused on the development of capabilities to increase its ability to execute military operations in China's 'near seas', which include the key flashpoints of the Straits of Taiwan and the East and South China Seas, without foreign intervention. These counter–intervention forces aim to prevent adversary forces from entering an area of operations (known as 'anti-access' or 'A2') and are also designed to limit the freedom of manoeuvre of a force within the area of operations (known as 'area-denial' or 'AD'). Collectively they are known as anti-access/area-denial (A2/AD).[7] China's A2/AD capabilities have, therefore, become the principal focus of the US military in the Western Pacific.

The US response to China's rise at the strategic level has been its rebalance to the Pacific—initially referred to as 'the pivot'—where it is not only rebalancing its focus but also its military capabilities towards the Pacific over other theatres of operation.[8] To support the rebalance and to provide more concrete operational level military options to counter China's rise and military modernisation, the US has developed the 'Joint Operational Access Concept' and a supporting concept called 'Air-Sea Battle'.[9] These concepts have been specifically designed to counter China's A2/AD capabilities. In early 2015, Air-Sea Battle was renamed the 'Joint Concept for Access and Maneuver in the Global Commons' to give it an increased joint flavour.[10]

Despite these recent developments, however, the ideas behind A2/AD are not new. For example:

> At Pearl Harbor in 1941, the Empire of Japan attacked America's power projection capabilities in the Pacific in an attempt to sever US access to East Asia. And on the shores of France in 1944, Field Marshall Erwin Rommel and the German High Command attempted to deny Allied troops access to the European continent. Some of these strategies were more successful than others; each, however, complicated their opponent's decision calculus and made their efforts considerably more costly in blood and treasure.[11]

This paper does not contend that war with China is inevitable but simply that it is plausible and that Australia should think more deeply about it. Additionally, it should be noted that while the catalyst for this paper is clearly the rise of China, its strategic competition with the US, and Australia's requirement to be militarily interoperable with the US, this paper will have broader relevance. This is because China's success or otherwise in fielding A2/AD capabilities may serve to guide other nations intent on neutralising US or Australian capabilities in a range of possible scenarios.

The paper is intended to fill a void in the Australian academic discourse on A2/AD and what it means for Australia in the context of the rise of China. While the 'anti-access' part of A2/AD terminology started to be used in the US in the early 1990s, the full term has been in increasingly widespread use in both the US defence and academic communities since 2003.[12] It is interesting to note, however, that the term A2/AD or its sub-elements is not mentioned in either the 2009 or 2013 Australian Defence White Papers.[13] Terms such as 'control' and 'denial' are used, but loosely so, and often with a different intent to A2/AD. Nor was it used in the 2014 *Defence Issues Paper*, the public precursor to the 2016 Defence White Paper.[14] It will be interesting to see if it makes its way into this document.[15]

Additionally, in the research for this paper, only two Australian papers were found on A2/AD—and they were specifically on Air-Sea Battle and written in the 2012-13 timeframe.[16] While A2/AD, Joint Operational Access Concept and Air-Sea Battle are occasionally mentioned in the broader Australian strategic studies discourse, the concepts are rarely applied to a serious understanding on what the ADF is, or will likely be, capable of doing in the future; and force structure options are rarely considered in any realistic detail. This is an anomaly because, as noted by Benjamin Schreer:

> The potential implications of Air-Sea Battle for Australia are far from trivial. It's about a US strategy to fight a war with China and, given our geostrategic location, the high standard of the ADF and our political reliability as an ally, Australia (alongside Japan) is identified in US strategic debate as a key enabler for the concept.[17]

This paper will, therefore, argue that the changing Asia-Pacific security environment, represented by the rise of China, its rapid military modernisation and its increasing assertiveness in several regional flashpoints, such as the South China Sea, should prompt Australia to develop robust military options in case a future conflict arises that requires a counter to China's A2/AD capabilities in order to achieve desired effects as part of a US–led coalition. The paper will also argue that the select enhancement of its force structure is also required to maximise the ADF's counter-A2/AD capability.[18]

To support this contention, Part 1 will first analyse the strategic implications of the rise of China and three areas of geopolitical tension—or 'flashpoints'. These are the South China Sea, the East China Sea and Taiwan. Part 2 will then analyse China's military modernisation, focusing on the important areas of strategy and concepts that underpin this modernisation, as well as capabilities in the air, sea, land, space and cyberspace domains that have a direct bearing on its ability to conduct A2/AD warfare. It will focus on China's naval and air power modernisation, and its expanding ballistic and cruise missile capabilities.

Part 3 will then analyse the US response to China's military modernisation at the strategic level—or through its rebalance to the Pacific. Part 4 will examine the US operational level response—the Joint Operational Access Concept, and the supporting concept of Air-Sea Battle/Joint Concept for Access and Maneuver in the Global Commons—which are focused on how the US intends to counter A2/AD threats.

Part 5 of the paper will then analyse Australian strategic policy towards both the US and China, and also the evolution of its defence strategy since 1945. It will then propose six options for how Australia might, if required and desired to secure Australia's strategic interests, operate alongside the US in a conflict with China in the Western Pacific as part of a counter-A2/AD effort. Part 6 will propose four force structure enhancements to the ADF which, if acquired, would enable it to more deeply participate in operations to counter China's A2/AD capabilities.

Part 1: The rise of China and three regional flashpoints

Hugh White assesses that 'China is inherently a rich, strong country', while Jonathan Holslag notes that 'China is the geopolitical centre of Asia'.[19] The 2009 Defence White Paper supported these views when it stated that '[b]arring major setbacks, China by 2030 will become a major driver of economic activity both in the region and globally, and will have strategic influence beyond East Asia'.[20] It also noted that China now has the second biggest economy in the world, and '[b]y some measures, [it] … has the potential to overtake the US as the world's largest economy around 2020', although 'the US economy is likely to remain paramount'.[21]

China's economic growth has meant that its military strength has also grown. The 2009 Defence White Paper noted China's military strength, its increasing focus on its military modernisation and the reality that its neighbours are becoming increasingly unsettled by its military power.[22] The 2013 Defence White Paper noted that '[m]ore than any other, the relationship between the US and China will determine the outlook for our region'—and it is clear that the region is increasingly caught in the midst of a major strategic competition between the regional hegemon, China, and the global hegemon, the US.[23]

This competition is primarily because, as Holslag has noted, '[s]ince the Second World War, the US has maintained preponderance in the region by means of unequalled forward military presence and an extensive web of security alliances'.[24] China appears no longer to be willing to accept the *status quo* and is seeking to revise its place in the international community.

As a sure sign of concern about US-China competition in the Western Pacific, defence spending in Asia has increased markedly in the last five years. *The Military Balance 2015* states that '[d]efence budgets in Asia have continued to rise, by an estimated 27 per cent between 2010 and 2014' and '[b]y 2014, China's share of Asian spending had risen to around 38 per cent, up from 28 per cent in 2010'.[25] The 2013 Defence White Paper stated that '[b]etween 2000 and 2013, China's defence spending increased by over 140 per cent in real terms'.[26] In 2012, defence spending in Asia overtook that of Europe for the first time.[27]

Not everyone, however, is convinced of China's inexorable rise. Paul Dibb and John Lee, for example, argue that China will not emerge as the dominant power in Asia, nor will it surpass the economic and military power of the US.[28] They argue that much of the analysis showing China's rise is based on 'linear extrapolations about the future' and 'ignore the implications of China's economic, social and national fragilities, its lack of major friends or allies in the region, as well as the considerable military deficiencies and challenges faced by the People's Liberation Army'.[29] That said, while China may not surpass the US, it will nevertheless remain the major 'peer competitor' to the US in the Western Pacific for the foreseeable future and, as such, is deserving of serious attention when it comes to military threat-based planning.

Three flashpoints

The strategic competition in the Western Pacific is playing out in the potential flashpoints of the South China Sea, the East China Sea and Taiwan (see Figure 1).[30] In defining a flashpoint, Brendan Taylor, citing Timothy Hoyt, argues that:

> First, they exhibit a political dimension, meaning that they 'must be at the forefront of a significant and long-standing political dispute'. Second, proximity is key—flashpoints 'tend to become greater concerns if they are proximate to both adversaries'. And third, flashpoints also 'threaten to involve or engage more powerful actors in the international community, raising the possibility of escalation to a broader war'.[31]

It is, therefore, clear that all three areas of concern are indeed flashpoints.[32] Additionally, these flashpoints could also escalate to conflict at almost any time due to the ever-increasing possibility of miscalculation by the participants. Ross Babbage argues that there are two potential causes of miscalculation: first, by key political and military leaders who could 'misperceive the other side's intentions, plans and actions'; and second, by the 'sudden aggressive behaviour by operating units' such as ship's captains and fighter pilots.[33] There are recent instances of both these types

of miscalculations occurring in the East and South China Seas.[34] While none has been serious enough to turn a flashpoint into a hot war, or even a limited military confrontation, the risks appear to be increasing.

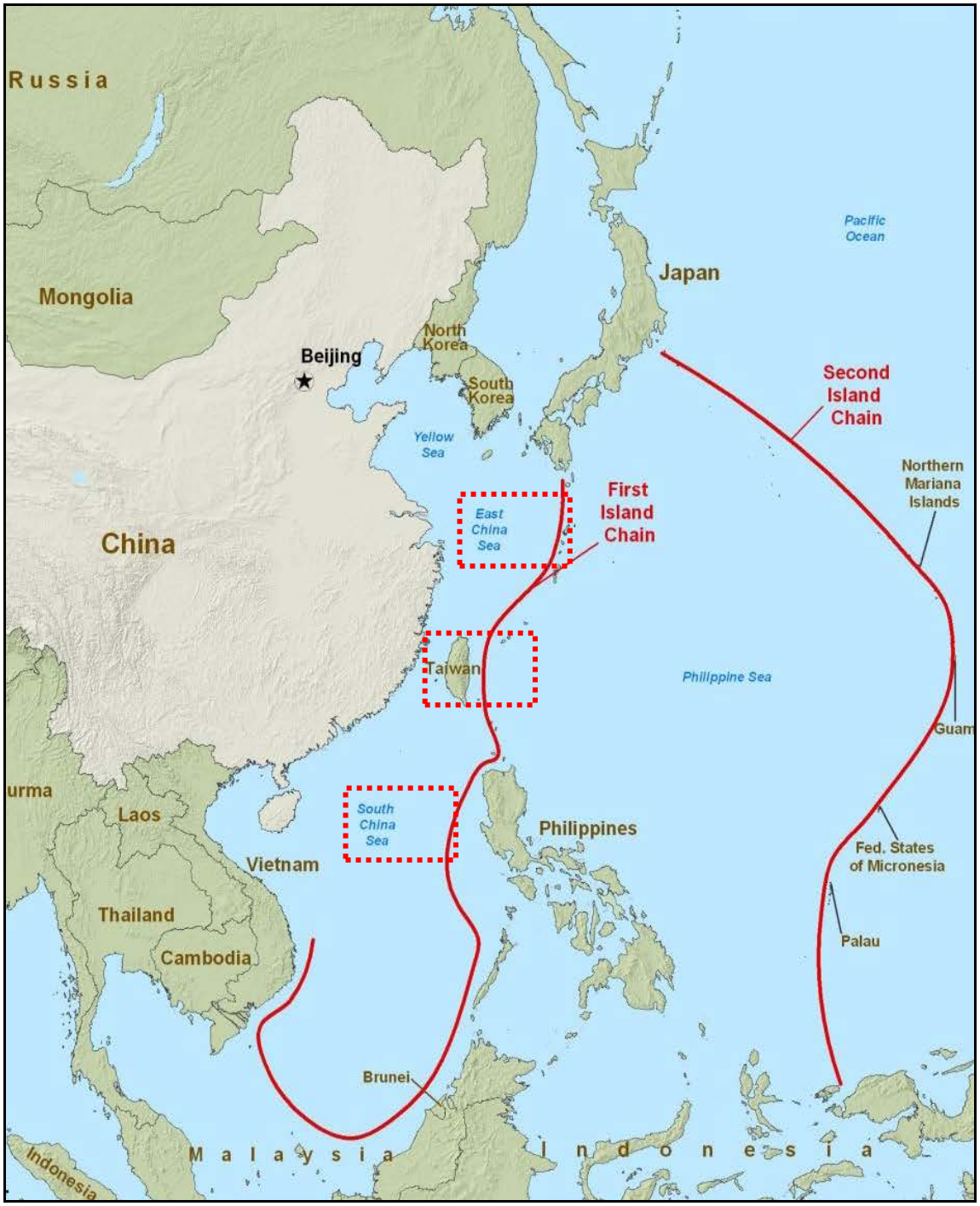

Figure 1: Regional flashpoints and the First and Second Island Chains[35]

It is also important to understand how China views its maritime environment, since all three flashpoints are maritime ones. In its strategic planning, China refers to the 'near seas', 'middle seas' and the 'far seas'.[36] The near seas are those waters to the west of what is known as the 'first island chain'—the waters contiguous to China, including the Yellow Sea, the East China Sea and the South China Sea. The first island chain extends south from Japan to the Ryukyu Islands

(including Okinawa), Taiwan, The Philippines, and then on to the island of Borneo. The 'middle sea', or the Philippine Sea, extends east to the 'second island chain', which is the chain of land masses that extends south from 'the Kuriles, Japan, and the Bonin Islands, the Marianas Islands [including Guam], Palau, and the Indonesian Archipelago'. The 'far sea' is the body of water that extends east and south beyond the second island chain. In strategic terms, these island chains appear to physically inhibit China's access to the high seas beyond the homeland (see Figure 1).

Robert Kaplan argues that 'the Chinese see all these islands as archipelagic extensions of the Chinese land mass'.[37] Bernard Cole argues that J.C. Wylie's statement 'that sea power's purpose is "the actual establishment of control on land" applies to China's determination to establish sovereignty over numerous land features in the East and South China seas'.[38] China, therefore, appears to have a continental view of the sea (although it is in the initial stages of developing a strategic maritime mindset).[39]

This is important in understanding the potential frictions between the US and China over freedom of navigation on the global commons—'those areas of the world beyond the control of any one state: sea, space, air and cyberspace—that constitute the fabric or connective tissue of the international system'.[40] The US 2015 *National Security Strategy* takes access to the global commons very seriously and notes that the US 'will continue to promote rules for responsible behavior while making sure we have the capabilities to assure access to these shared spaces'.[41]

China also has strong views of its sovereignty and territorial integrity. Its 2015 Defence White Paper argues that:

> On the issues concerning China's territorial sovereignty and maritime rights and interests, some of its offshore neighbors take provocative actions and reinforce their military presence on China's reefs and islands that they have illegally occupied. Some external countries are also busy meddling in South China Sea affairs; a tiny few maintain constant close-in air and sea surveillance and reconnaissance against China. It is thus a longstanding task for China to safeguard its maritime rights and interests.[42]

These strong words are backed by incremental but increasingly assertive behaviour. Robert Haddick argues that 'China's behaviour suggests the use of "salami slicing" … [which is] the slow accumulation of small changes, none of which in isolation amounts to a *casus belli* but which add up over time to a significant strategic change'.[43] This strategy has worked for China in the South China Sea, with its 'nine dashed line' claim, constant military and para-military presence, and land reclamation activities.[44] It is, therefore, being closely guarded against by Japan in the East China Sea.

China is also very much aware that its sea lines of communications (SLOCs) through the South and East China Seas, as well as the archipelagic straits, are vulnerable to interdiction. While China has attempted to mitigate this risk by developing alternatives, it is still very reliant on a small number of waterways, such as the Straits of Malacca, which carries 85 per cent of its crude oil imports.[45] This is known as China's 'Malacca Dilemma', as it would be extremely adversely affected if a foreign power was able to limit or stop China from receiving energy supplies via this route through either blockade or interdiction.[46] Other key SLOCs for very large crude carriers are the Sunda, Lombok and Makassar Straits of the Indonesian Archipelago.[47]

The South China Sea

The South China Sea is perhaps the most critical waterway in the world. Kaplan argues that the 'South China Sea functions as the *throat* of the Western Pacific and Indian Oceans—the mass of connective economic tissue where global sea routes coalesce … [and which are] punctuated by the Malacca, Sunda, Lombok, and Makassar straits'.[48] Huge amounts of maritime trade converge on the South China Sea through these straits before heading to the ports of East and North Asia. In terms of global trade, '[m]ore than half of the world's maritime trade goes through the Straits of Malacca, along with half of the world's liquefied natural gas and one third of its crude oil'.[49] Five countries—Brunei, China, Malaysia, The Philippines and Vietnam, plus Taiwan—have

substantial, competing and overlapping territorial and maritime claims in this body of water, which is also an important source of hydrocarbons and fisheries.

These competing claims have been the cause of confrontations, and even clashes, and '[t]oday, the clashes are becoming more heated, and the lulls between periods of tension are growing shorter'.[50] These clashes have occurred between China and the other claimants, principally Vietnam and The Philippines, with most constituting harassment and bullying tactics. Some, however, have ended in significant bloodshed, such as Chinese attacks against Vietnamese forces in the 1970s and 1980s.[51]

There has also been recent heightened tension between the US and China in this area. In March 2009, the surveillance ship USNS *Impeccable* was operating in international waters when it was harassed by five Chinese government vessels, forcing it to leave the area.[52] In December 2013, another incident occurred in international waters when a Chinese warship sailed dangerously near the USS *Cowpens*, a guided-missile cruiser.[53] In August 2014 and May 2015, the Chinese Navy warned US Navy P-8A Poseidon maritime aircraft to move away from its South China Sea territories—the first time by a fighter aircraft and the second time by a ground-based radar.[54] Whether intentional or by miscalculation, these incidents could have escalated into conflict, with many analysts believing an incident will eventually occur.

More recently, the land mass encompassed by the South China Sea has been getting larger because, as noted by Carl Thayer, 'China is building artificial structures on low tide elevations (submerged features at high tide) and rocks', 'building piers, harbors and multi-storey buildings', and completing airfields on some islands which are capable of supporting 'all types of military aircraft in China's current inventory'.[55] The US Department of Defense states that 'China will be able to use them as persistent civil-military bases of operation to significantly enhance its presence in the disputed area'.[56]

The South China Sea is, therefore, of increasing importance due to its strategic location in relation to the economic SLOCs between North Asia, the Middle East and Australia. It is also becoming increasingly important to the People's Liberation Army-Navy (PLAN) as an operating area for its fleet, as well as a source of logistics and air support for its forward-deployed forces.

The East China Sea

The East China Sea has significant potential as a catalyst for conflict between China and Japan and, by extension, its treaty ally the US. The International Crisis Group argues that '[t]he dispute over the sovereignty of [the] Diaoyu/Senkaku Islands in the East China Sea claimed by … China, Japan and Taiwan … has brought China-Japan relations to a new low'.[57] This is because the islands have significant geographic, historical, military and economic value to the claimants.[58] The stakes are high in this dispute because '[t]he US … asserts that the 1960 US-Japan Security Treaty covers the Diaoyu/Senkaku Islands'.[59]

Like China's assertive behaviour in the South China Sea, tensions have occasioned aggressive military actions by Chinese forces. In February 2013, a Chinese warship locked its fire control radar on to a Japanese warship and, in November 2013, China established an air defence identification zone over much of the East China Sea, including the airspace above the islands.[60] There are also regular penetrations of Japanese airspace by Chinese military aircraft.[61]

The International Crisis Group contends that militarily and strategically, 'Chinese naval analysts see control of the islands as critical to accessing the Pacific Ocean beyond the first island chain'.[62] For Japan, if the islands were ever taken by China, the PLA would be able 'to monitor Japanese and US military activities in Okinawa, about 400 kilometres in the east, and potentially curtail freedom of navigation'.[63] For the US, any Chinese break-out past the first island chain would increase the risk to its facilities and US sovereign territory, as well as the territory of some of its allies, in and beyond the second island chain. Therefore, in terms of A2/AD and counter-A2/AD operations, this area is critical to both China and the US-Japan alliance.

The East China Sea is, therefore, a significant potential area of conflict between China and the US. The islands themselves are not as valuable as their location, which is inherently strategic. These islands, however, may be deemed by China to be worth fighting for because, with Japanese and US forces removed, the PLAN would have unhindered access for its maritime and air forces through the first island chain into the 'middle seas'. They could then push US forces further east—placing China beyond the range of many US sensor and weapon systems—and hence increase their freedom of manoeuvre against Japan or Taiwan if that is their objective.

Taiwan

Taiwan is a key flashpoint in the region that dates back to 1949 when the nationalist government, the Kuomintang under Chiang Kai-shek, evacuated there from the mainland when Mao Zedong's Chinese Communist Party won the civil war. While this situation has lasted 66 years, it is still a clear and present issue for China and remains 'China's most sensitive territorial dispute'.[64] For example, China's 2015 Defence White Paper stated that '[t]he Taiwan issue bears on China's reunification and long-term development, and reunification is an inevitable trend in the course of national rejuvenation'.[65]

Taiwan is still the PLA's primary mission and, of the PLA's eight strategic tasks listed in China's 2015 Defence White Paper, the second is to 'resolutely safeguard the unification of the motherland'; in other words, ensure Taiwan is eventually returned to China, by force if necessary.[66] However, Taiwan and the US are historically and strategically close and this presents a significant challenge for China. Despite the recognition of China by the US in 1979 and the simultaneous cancellation of the US-Taiwan Mutual Defense Treaty, the US Congress enacted the *Taiwan Relations Act* of 1979 which 'expressed Congress's intent to "maintain the capacity of the US to resist any resort to force or other forms of coercion that would jeopardize the security … of the people of Taiwan"'.[67]

While there have been several crises between the US and China over Taiwan, the most recent occurred in 1995-96 when pro-independence voices in Taiwan were getting louder. In response, China conducted several missile tests in the waters to the north and south of Taiwan. The US then dispatched two aircraft carrier battle groups to the Straits of Taiwan. Holslag notes that '[s]ince this incident, Beijing has consistently demonstrated its resolve by building up its military might and staging offensive exercises alongside the Taiwan Strait'.[68]

The issue of Taiwan has been the longest running of the three flashpoints and is still considered by many to be the most dangerous source of potential conflict. It is here that any conflict between the US and China would see China rely heavily on its A2/AD forces and the US on its counter-A2/AD capabilities in an attempt to thwart each other's objective—the invasion and subjugation of Taiwan, or its defence.

Potential for conflict

All three flashpoints have the potential to ignite conflict between the US and China. Justin Kelly, paraphrasing Thucydides, notes that 'China generally places sovereignty and national interest over the desire for cooperation—the strong do what they will and the weak suffer what they must'—suggesting it is likely to assert its 'sovereign' rights over other claimants and that this may eventually result in armed conflict.[69]

Opinions vary as to which flashpoint is the most likely to erupt in the near term. Nick Bisley and Brendan Taylor argue that '[t]ensions in the waters of the East China Sea have risen so markedly in recent years that this body of water is widely referred to as one of East Asia's most dangerous and combustible "flashpoints"'.[70] Alternatively, Rory Medcalf and James Brown argue that 'in the near term, a security crisis in the South China Sea—where many countries are involved in contending claims—seems more likely than the East China Sea, where China-Japan relations show signs of mutual, if brittle deterrence'.[71]

Of note, Taylor argues that the South China Sea is not a flashpoint as earlier defined because, in comparison with the East China Sea and Taiwan, it is relatively benign, China's interests in the

area are often overstated, and US military power is not waning as quickly as is often believed.[72] However, the increasing military presence and the continued attempted interception of US warships and aircraft exercising their right to freedom of navigation has significantly elevated the risks associated with the South China Sea. There is great potential for a tactical misunderstanding to quickly turn into a strategic error of judgment.

Few if any people, however, actually live on the islands of the East and South China Seas. The stakes are, therefore, much higher for Taiwan because the 'military conquest of an island with a population of over 23 million or an attack on a US vessel or aircraft in the vicinity of Taiwan would be another thing entirely'.[73] Medcalf and Brown argue that a 'return of pro-independence forces to power in Taipei [which China clearly fears] might prompt China to again consider military options for reunification'.[74] Moreover, 'it will be extremely difficult for a US-China conflict over Taiwan to be contained or limited' noting that '[t]he Pentagon's response to the Taiwan crises of the 1950s illustrates that China's physical proximity generates military imperatives to widen any conflict'.[75]

Taiwan, therefore, remains the most dangerous potential flashpoint in the Western Pacific, even if it is currently the least likely to ignite in the near term. That said, it is not necessarily the most likely cause of Australian involvement in any conflict with China (which is addressed further in Part 5). Many analysts consider it is more likely that a miscalculation resulting from an unplanned incident in the South or East China Seas between Chinese and US forces has a greater likelihood of seeing Australia involved in armed conflict with China under the terms of the ANZUS treaty—the central pillar of Australia's national security strategy.

Implications for Australia

Australia has important national security and economic interests in these areas. For example, Australia uses the critical trade routes in these East Asian waters to trade with the major economies of North Asia—Japan, South Korea and China. The South China Sea is also critical to Australia's economic security because 54 per cent of Australia's trade passes through the South China Sea to these markets.[76] Additionally, it has been noted that 51 per cent of Australia's petroleum products come from Singapore's refineries (at the southern end of the South China Sea) and that they are reliant on the strategic straits of Malacca, Sunda and Lombok.[77] Medcalf and Brown argue that:

> Tensions in East Asian waters are likely to worsen in the years ahead, as deep historical animosities, nationalism, resource pressures, and mutual perceptions of insecurity intersect in hazardous ways. Indeed, the chance of a near-war maritime security crisis in the disputed waters of the East China Sea or the South China Sea may be more likely in the next few years than in subsequent years, because it is difficult to see how the 'new normal' of regular maritime confrontation can continue indefinitely without a lethal incident and possible escalation.[78]

Why does this all matter to Australia? It matters because not only are North and East Asia key to Australia's economy but also because Australia strongly values the concept of a rules-based international order, where 'states recognise common interests and values, are bound by international law, respect each other's sovereignty, honour their agreements, and accept limitations in making and conducting war'.[79]

It also matters because Australia's key ally, the US, is obliged to defend a number of states in Asia by treaty or law, and this may in turn create the situation where Australia is required, by treaty, to go to the aid of the US. Therefore, as recently as October 2015, both Australia and the US 'urged claimants to exercise restraint, take steps to ease tensions and refrain from provocative actions that could escalate tensions'.[80] It is, therefore, clear that these flashpoints create a powerful intersection between Australia's national security and economic interests, great power rivalry, the increasing militarisation of Asia, and disconcertingly assertive Chinese behaviour.

Understanding these three flashpoints also assists in better understanding Australian defence policy, strategy and capability development, as it is plausible that Australian forces could operate alongside US forces against the PLA in a future war in one of these areas. China's military

modernisation has proceeded at pace and has given 'teeth' to China's assertiveness in dealing with its neighbours and the US in these flashpoints.

Part 2: China's military modernisation

As Kaplan notes, 'China, owing to a 9000-mile temperate coastline with many good natural harbours, is both a land power and a sea power'.[81] China has principally focused on the development and maintenance of land forces because of overland invasion threats and internal security and stabilisation issues. More recently, however, China has looked east across the sea and is significantly modernising its sea and air capabilities. This is not only because of Taiwan but also because the foreign intervention that resulted in the 'century of humiliation' came from the sea.[82] China is, therefore, reorientating its military power from the land to the maritime, with China's 2015 Defence White Paper stating that '[t]he traditional mentality that land outweighs sea must be abandoned, and great importance has to be attached to managing the seas and oceans and protecting maritime rights and interests'.[83]

As a result of its economic growth, its reorientation from the land to the sea, the realisation of its vulnerabilities, and its strategic competition with the US, China is rapidly modernising the PLA. In 2015, the US Department of Defense noted that China 'continues to pursue a long-term, comprehensive military modernization program designed to improve its armed forces' capacity to fight short-duration, high-intensity regional conflicts' and that 'the PRC [People's Republic of China] is increasing its emphasis on preparations for contingencies other than Taiwan, such as contingencies in the East China Sea and South China Sea'.[84] However, in a 2015 RAND report, Eric Heginbotham observes that '[t]he PLA is not close to catching up to the US military in terms of aggregate capabilities' but assesses that '[o]ver the next five to 15 years, if US and PLA forces remain on roughly current trajectories, Asia will witness a progressively receding frontier of US dominance'.[85]

Strategy and concepts

According to its 2015 Defence White Paper:

> China will unswervingly follow national defense policy that is defensive in nature, oppose hegemonism and power politics in all forms, and will never seek hegemony or expansion…. Building a strong national defense and powerful armed forces is a strategic task of China's modernization drive and a security guarantee for China's peaceful development.[86]

Fundamentally, China's defence strategy is one of active defence which, as its 2015 Defence White Paper explains, means that China will not attack unless it is attacked first but will 'surely counterattack if attacked'.[87] Holslag, citing Andrew Scobell, notes that 'the cult of defence produces a Beijing ready to employ military force assertively against perceived external or internal threats, all [the] while insisting that China possesses a cultural aversion to using force, doing so only defensively and solely at last resort'.[88] Holslag also observes that 'whereas its strategic objectives tend to be defensive, its tactical [or military] means to achieve them have become more and more offensive'.[89] China is, therefore, likely to adopt a military strategy of surprise in order to maximise its security and initiative.[90]

With the end of the Cold War in 1989, the US achieved supremacy as the sole superpower. Soon thereafter, the 1991 First Gulf War—where the US easily defeated an Iraq military equipped and trained in similar ways to the PLA (because of their shared Soviet/Russian doctrine and equipment)—forced China to realise the huge disparity between it and the US.[91] As Aaron Friedberg notes, 'China needed to catch up but, in the meantime, PLA planners had to devise a means of offsetting and countering US advantages, [thus] enabling the "weak to defeat the strong"'.[92] This situation was exacerbated during the 1996 Taiwan Crisis. China, therefore, immediately started to design and build a formidable A2/AD force.

In its strategic development, China determined that in a war against it in the Western Pacific, the US would 'have to project its forces over very long distances, which would take time, and it would be heavily dependent on gaining access to bases and facilities on the soil of its regional allies',

such as Japan.[93] If China was to win a war against the US, it would also have to acquire targeting quality intelligence against US forces, and deny that same level of intelligence to the US.

It would also have to conduct strike operations against US forces, while defending against the strike operations of the US through air defence, hardening, camouflage and concealment.[94] It would also have to stop US forces from deploying to the Western Pacific and, if required, inhibit them from operating freely once there by targeting command, control, communications and intelligence (C3I) 'nodes, weapons control centers, high value air assets on the ground, logistics bases, [as well as] … important sea combat platforms, ... air bases [and] logistics bases'.[95]

Counter-intervention, or A2/AD, is therefore a key Chinese military concept. But as M. Taylor Fravel and Christopher Twomey argue, while the US often refers to a Chinese strategy or concept of 'counter-intervention', the Chinese military rarely use this term.[96] They go on to argue that '[d]espite the prominence of the term "counter-intervention" in Western analysis of the PLA, Chinese military writings rarely use the term and never use it to describe a strategy', and that '[w]hen it does appear, it usually refers to one of a number of operations that the PLA would need to undertake in a potential conflict over Taiwan'. Notably, the US Department of Defense stated in 2015 that:

> As China modernizes its military and prepares for various contingencies, it continues to develop capabilities that serve to specifically dissuade, deter, or if ordered, defeat possible third-party intervention during a large-scale, theater campaign such as a Taiwan contingency…. China's military modernization plan includes the development of capabilities to attack, at very long ranges, adversary forces that might deploy or operate within the western Pacific in the air, maritime, space, electromagnetic, and information domains.[97]

The US, therefore, assesses that 'China's military modernization has the potential to reduce core US military technological advantages … [and that] China is investing in capabilities designed to defeat adversary power projection and counter third-party—including US—intervention during a crisis or conflict'.[98] Therefore, China has developed an array of conventional ballistic missiles and land/air/sea/submarine-launched cruise missiles, with ranges out to 2000 kilometres from the Chinese homeland, effectively constituting a powerful defensive perimeter and covering all of the 'near seas' and much of the 'middle seas'.[99] Haddick refers to these capabilities as China's land-based 'anti-navy'.[100]

Another part of China's A2/AD effort is the development of the concept of 'informationization'. In its 2015 Defence White Paper, for example, China places strong emphasis 'on winning informationized local wars'.[101] The US Defense Department states that 'Chinese military writings describe informationized warfare as an asymmetric way to weaken an adversary's ability to acquire, transmit, process, and use information during war, and discuss its use as a way to force an adversary to capitulate before the onset of conflict'.[102] In the past, this was referred to as *Shashoujian*—or 'Assassin's Mace'—where China was said to plan the use of 'asymmetric strategies to leverage China's advantages while exploiting the perceived vulnerabilities of potential opponents', using missile, space and cyber warfare.[103]

China has, therefore, developed a highly-capable A2/AD force which is designed to keep US forces away from the Taiwan Straits if it invades Taiwan. Schreer argues that China's 'strategic aim is to inflict such damage to US military capabilities that the prospect of a prolonged and costly conflict either deters the US from fighting in the first place or coerces it into ending the fight'.[104] In this task, China has three advantages over the US: 'America is a global power' with global interests, whereas China is 'primarily an Asian power'—thus US power is spread across the globe, while Chinese power is focused in the Western Pacific; 'China has the immense advantage that its competition with the US happens right on its doorstep', whereas 'American power must be projected across the wide Pacific Ocean'; and last, China's task is easier than [that of] the US' as it just has to undertake sea denial or A2/AD, whereas the US has to achieve sea control or counter-A2/AD.[105]

Chinese capability developments

As noted by many observers, 'the PLA appears to be acquiring weapon systems that are optimised for an anti-access strategy, particularly for attacking regional bases where US forces might be stationed'.[106] China's focus on its command, control, communications and intelligence (C3I) capability, along with its space, cyber, naval, air power, and cruise and ballistic missile forces, has been determined, focused and impressive. This section will analyse three of China's key force modernisation developments; its naval and air power, and its ballistic and cruise missile force. These three capabilities are important because of their ability to hold at risk US and ADF elements conducting counter-A2/AD operations, and their ability to directly threaten Australian territory and its interests. What matters, as Friedberg argues, 'is not … where the PLA is at present but where it is likely to be in five to ten years' time'.[107]

Naval power

China's navy has undergone significant development over the last several decades and, while initially focused on coastal defence or 'green water' capabilities, it has increasingly developed 'blue water' or open ocean capabilities. Notably in this regard, China's 2015 Defence White Paper stated that '[i]n line with the strategic requirement of offshore waters defense and open seas protection, the … [PLAN] will gradually shift its focus from "offshore waters defense" to the combination of "offshore waters defense" with "open seas protection"'.[108] This change is in order 'to safeguard the security of China's overseas interests'.[109]

These roles, if matched with real capabilities, will present a significant threat to any force wishing to operate against the PLAN.[110] This change is in many ways evidenced already by China's focus on nuclear attack submarines, larger surface combatants and, of course, its plans and initial actions to field aircraft carriers, the first of which is the *Liaoning*. Tellingly, the US Department of Defense noted in its 2015 report to Congress that:

> Over the past 15 years, China's ambitious naval modernization program has produced a more technologically advanced and flexible force … [and that its navy] now possesses the largest number of vessels in Asia, with more than 300 surface ships, submarines, amphibious ships, and patrol craft [which are also increasingly modern].[111]

The same report noted that 'China continues to build a variety of offensive and defensive capabilities that could permit the PLA to achieve sea control within the "near seas", as well as project limited combat power into the "far seas"—and that these are critical to China's A2/AD strategy'.[112] The sorts of capabilities that would allow the PLAN to undertake these roles include 'coastal defense cruise missiles, air/surface/sub-surface launched anti-ship cruise missiles, submarine-launched torpedoes, and naval mines'.[113] However, the PLAN 'continues to lack either a robust coastal or deep water anti-submarine warfare capability', and this is a critical deficiency because the US and its allies, such as Japan and Australia, have excellent submarine capabilities.[114]

What is notable about the PLAN is that not only does it have over 300 warships but that its past focus on quantity is increasingly being matched by quality. For example, 'between 2004 and 2008, it commissioned not less than ten new types of surface and subsurface combatants, amounting to a total of 85 new vessels'.[115] Moreover, China is now developing its naval capabilities by using spiral development processes which allows it to increase the rate of development through a risk aware production cycle where the positive aspects of capabilities are retained and built upon while the negatives are designed out.[116] Notably, modern ship designs are also being matched with modern weapons, and the weapon systems aboard these warships are increasingly long-ranged and difficult to counter.[117] As noted by Holslag, 'America's destroyers and cruisers are still more advanced than their Chinese counterparts' but China's rapid modernisation is 'creating substantial risk for the US Navy'.[118]

China has also made significant advances in developing its submarine capability and now boasts over 70 submarines, both conventional and nuclear, of various levels of modernity and quality.[119] Like the surface fleet, these submarines are increasingly being equipped with very modern and

lethal missiles and torpedoes. In an A2/AD operation, as Holslag observes, they have real capability because in sea 'denial operations, China is likely to deploy its submarines in conjunction with a large-scale use of sea-mines, which could complicate US anti-submarine warfare, certainly because the US Navy has limited mine-sweeping capabilities'.[120] Additionally, a key aspect of China's strategic nuclear deterrent is based on its six nuclear ballistic-missile submarines which operate from Hainan Island.[121]

Air power

China's air power has also been modernised over the last several years to the point where it is no longer a holdover from the 1950s, where quantity was considered more important than quality. Moreover, China's air power is now moving from the defence (primarily focused on short-range interceptors) to the offense (comprising multi-role and long-range strike aircraft). For example, China's 2015 Defence White Paper stated that 'the PLA Air Force [PLAAF] will endeavor to shift its focus from territorial air defense to both defense and offense, and build an air-space defense force structure that can meet the requirements of informationized operations'.[122]

Additionally, the US Department of Defense noted in its most recent report to Congress that '[t]he PLAAF … is the largest air force in Asia and the third largest in the world with more than … 2100 combat aircraft'.[123] It further noted that '[t]he PLAAF is rapidly closing the gap with Western air forces across a broad spectrum of capabilities from aircraft, command and control, to jammers … electronic warfare … [and] datalinks'.[124] It is, therefore, increasingly recognising that modern air forces are built on a system-of-systems approach and that combat aircraft are not the only constituents of a modern air force.

That said, of China's 2100 combat aircraft, nearly 1000 are single-role second and third generation aircraft (J-7s, J-8s, and Q-5s) but, importantly, approximately 750 are multi-role fourth generation aircraft (J-11/Su-27/Su-30 Flankers, J-10s and JH-7s), which are broadly equivalent to US F-16, F-15 and F/A-18 aircraft.[125] It also has approximately 100 cruise missile-armed B-6 bombers, which are assessed by the US to have a combined range with anti-ship cruise missiles of approximately 2000 kilometres and land-attack cruise missiles of approximately 3300 kilometres (see Figure 2 for China's B-6 bomber ranges with anti-ship cruise missiles and land-attack cruise missiles in a geographic context).[126] The Flankers also have an unrefuelled combat radius of approximately 1900 kilometres.[127] Importantly, all aircraft are paired with increasingly sophisticated air-to-air and air-to-surface weapon systems. While there are as yet no 'stealthy' fifth generation aircraft operationally deployed, China is currently developing the J-20 and J-31, which have flown, with the former assessed as possibly being operational in the 2017-19 timeframe.[128]

The PLAAF also has an array of combat enablers such as air mobility, tanker, intelligence, surveillance and reconnaissance (ISR), and early warning and control aircraft. While numbers are currently relatively low in terms of the combat aircraft numbers they support, the numbers and sophistication levels are nevertheless gradually increasing.[129] Remotely-piloted aircraft are also a key area of ISR and combat development, with 'a great deal of attention [being paid] to the medium-altitude, long endurance role'—with Predator/Reaper-like platforms—as well as armed and stealthy platforms.[130]

The PLA Naval Air Force (PLANAF) also fields over 330 combat aircraft of which approximately 230 are multi-role fourth generation types (J-8, JH-7, J-10, J-11/J-15/Su-30 Flankers), with the J-15 operating from its aircraft carrier.[131] Like the PLAAF, enabling types such as maritime patrol and anti-submarine aircraft are very limited in type and number, and are vulnerable without escort and other defensive measures.[132]

China has also been increasing the capability of its air defence ground environment with a complex array of sensors, missiles and command and control nodes, with the intent of denying the US the unrestricted use of one of its traditional advantages in war—its air power—against Chinese targets in any future war. Many of China's radars 'have a detection range of more than 300 kilometres and are claimed to have counter-stealth capabilities'; for 'detecting low-flying

aircraft and ships, China is also expanding its fleet of early warning and electronic intelligence aircraft'.[133]

In terms of its surface-to-air missile capability, the US Department of Defense notes that '[t]he PLAAF possesses one of the largest forces of advanced long-range surface-to-air missile systems in the world, consisting of a combination of Russian-sourced SA-20 (S-300PMU1/2) battalions and domestically-produced CSA-9 (HQ-9) battalions' (see Figure 2).[134] Additionally, '[i]n an effort to improve its strategic air defense systems even further, China plans to import Russia's S-400/Triumf [SA-21] surface-to-air system, as a follow-on to the SA-20, and may simultaneously develop its indigenous CSA-X-19 (HQ-19) to provide the basis for a ballistic-missile defense capability'.[135]

Conventional ballistic and cruise missile forces

According to the US Department of Defense, the 'Second Artillery Force [now called the People's Liberation Army Rocket Force] controls China's land-based nuclear and conventional ballistic missiles' and has a significant force of over 1200 weapons.[136] The US Department of Defense notes that 'the development of China's conventionally-armed missile capability has been extraordinarily rapid' and that 'China is [now] fielding an array of conventionally-armed ballistic missiles … as well as ground- and air-launched LACMs [land-attack cruise missiles] … to hold targets at risk throughout the region'.[137]

China has also developed the CSS-5/DF-21D anti-ship ballistic missile as a part of its 'anti-navy' force. This missile, 'with a range of 1500 kilometres and maneuverable warhead, gives the PLA the capability to attack ships in the western Pacific Ocean'.[138] Additionally, as shown at Figure 2, China's other ballistic and cruise missiles give it the capability to strike targets in the first island chain—especially Taiwan and Japan—where they could be expected to be most used against C3I facilities, airfields and logistics hubs.[139]

China has been developing a complex array of ISR sensor and fusion capabilities that have a key role in targeting China's sea, air and missile forces against threats within, and entering, the first and second island chains. This array also increases China's ISR redundancy and complementarity, and decreases its vulnerability to US strikes and countermeasures. China's space capability encompasses ISR, global positioning, communications and weather satellites and the relevant ground infrastructure.[140]

Long-range ISR aircraft and remotely-piloted aircraft are also being fielded.[141] China has also developed its *Skywave* over-the-horizon radar system—similar to Australia's Jindalee Operational Radar Network—which is believed to have a minimum range of 925 and a maximum of 3330 kilometres.[142] The system is located at Xiangfan, in central China, which is beyond US cruise missile range from the sea.[143] Friedberg notes that '[s]uch enhancements in the collection, fusion and distribution of data are deemed essential for the joint operations required to execute A2/AD'.[144]

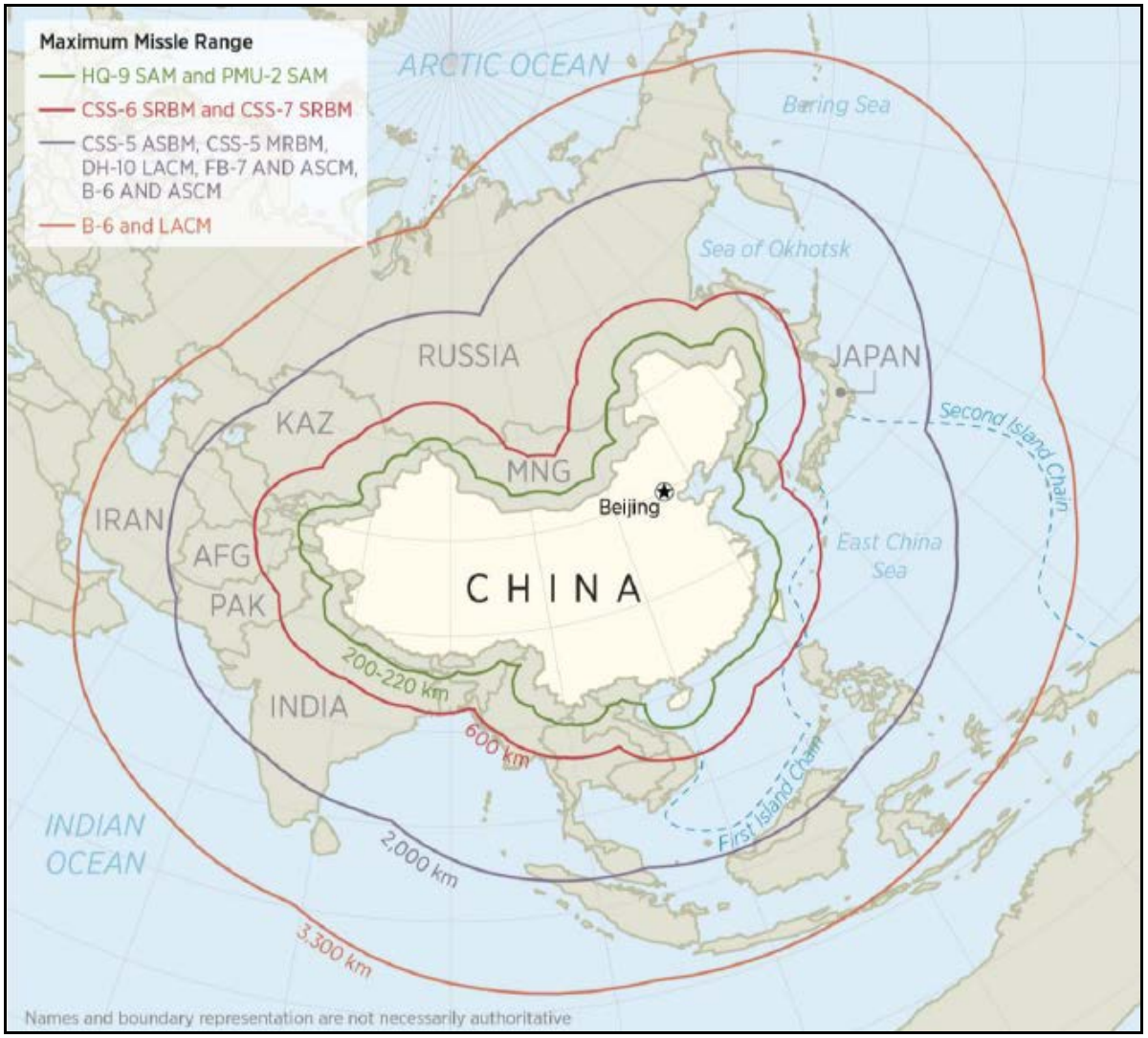

Figure 2: China's conventional strike capabilities[145]

Despite these developments, there appears to be some doubt about China's ability to create and operate a cohesive and robust C3I capability.[146] In 2015, when assessing China's A2/AD capabilities, the Pentagon noted that '[i]t is … unclear whether China has the capability to collect accurate targeting information and pass it to launch platforms in time for successful strikes in sea areas beyond the first island chain'.[147] China, however, would be working hard in this area, otherwise its investment in new weapon systems would be unable to be realised if called upon.

Implications for Australia

Chinese military power, and its ongoing modernisation, is increasingly affecting Australia. Not only is this because of its impact on US power, and its leadership role in the Western Pacific (see Part 3), but also because of its direct implications for Australia. This is principally through Australia's alliance with the US, with its potential to take Australia to the aid of the US in the Western Pacific against Chinese aggression. Additionally, China's military is increasingly undertaking more and more 'open seas protection' operations at considerable distance from China, thus bringing its military closer to Australia and its direct interests.

For example, in early 2014, a PLAN task force comprising two destroyers and an amphibious vessel sailed south through the Sunda Strait, then turned eastward along the southern coast of Java, then sailed north through the Lombok Strait and continued on through the Makassar Strait. As noted by Medcalf, this was the first 'substantial Chinese military exercise in the eastern part of the Indian Ocean and in Australia's maritime approaches. It seems also to be the first time a Chinese taskforce has transited the Sunda and Lombok straits as alternatives to the Malacca Strait'.[148] Australia is unused to Chinese warships operating so close to Australian waters, so this is an issue that it will be increasingly forced to deal with as China continues to develop its 'open seas protection' capabilities and experience.

Australian forces are also increasingly finding themselves in proximity to PLA activity in the South China Sea. This is primarily through Operation GATEWAY missions by RAAF maritime patrol aircraft or RAN warships exercising their rights to innocent passage and/or freedom of navigation.[149] While the US Navy has often been assertively warned by the PLA to keep away from its forces or territory, this may also increasingly happen to Australian forces as evidenced by the interaction between an Australian AP-3C Orion aircraft with the PLA in November 2015 while flying over the South China Sea.[150]

Additionally, 'Australian officials have indicated deep concern about Chinese activities, and some have suggested that the ADF might conduct joint patrols with the US military, although no decision has yet been made public'.[151] The matter was reportedly discussed at the October 2015 Australia-US Ministerial Consultations and while the concluding joint statement stated that both nations 'emphasized the importance of the rights, freedoms, and lawful uses of the sea enjoyed by all states to fly, sail, and operate in accordance with international law', nothing was specifically mentioned about joint patrols.[152]

China's air power has also developed significantly in both quality and quantity, and is now capable of holding at risk US and allied forces at considerable range from Chinese territory, both from the Chinese homeland and its South China Sea territories. If US forces are required to penetrate Chinese airspace, then China's increasingly formidable air power would probably mean that only US low-observable platforms such as its B-2, F-22 and F-35 aircraft could be safely used.

China's ballistic missile capability is also increasingly capable, and a key part of this recent capability increase has been the growing accuracy and range of its systems. While Chinese conventional ballistic and cruise missiles cannot yet reach Australian territory, its nuclear inter-continental ballistic missiles can. Additionally, based on the rate of its past development, it is likely in the not too distant future that China will develop conventional ballistic missiles that could reach Australian territory. Already, a sizable percentage of Southeast Asia is within range of some Chinese air and missile systems.

As noted by Michael Green *et al*, 'China's expanding military capabilities and self-declared line of defence have created [realistic] scenarios that could involve … Australia in direct conflict with … [its] largest trading partner'.[153] Australian forces, either operating with the US or independently within a counter-A2/AD context against China, must therefore be capable of operating in high-threat and logistically-challenging environments in both Asia and Australia's approaches. Deployment and capability options for the ADF that maximise operational utility and survivability will be analysed in Parts 5 and 6. That said, the primary counter to China's increase in economic power, military modernisation and assertiveness is the US' 'rebalance'.

Part 3: The US strategic response – the 'rebalance'

The US has recognised that China is competing against it for supremacy in the Western Pacific, and a number of its analysts have become increasingly vocal on the subject. For example, Thomas Mahnken believes 'that a struggle between the US and China is underway for mastery of the Asia-Pacific region' and that the 'course and outcome of this struggle will be vital to the security of the US, its allies, and other nations in the region'.[154] Mahnken goes on to argue that since the end of the Second World War, 'the US position in Asia has rested on a set of alliances, ground and air forces deployed on allied and US territory, nuclear-strike forces, and carrier-strike groups operating in the Western Pacific'.[155] Although in train since the 1995-96 Taiwan crisis, in the last

several years it has become increasingly clear that China is no longer willing to accept the presence of US forces so close to its shores—especially on the first island chain.

Australian observers have also noticed the competition and have increasingly come to highlight the issue and advocate options for the US. In 2010, White argued that:

> America has three options for responding to China's rise. It can withdraw from Asia, share power with China, or compete with it for primacy. The least likely choice for America is to make way for China by withdrawing, at least if you believe what American leaders say. Ever since the end of the Cold War, they have been resolutely affirming their determination to stay. They say America has more reason than ever to be engaged in the world's most dynamic region, especially as it is so important to them economically.[156]

The US has not taken White's advice. Instead, it has developed a strategy of 'rebalance' to shift America's resources to the Pacific to meet China's challenge, and a series of operational concepts on how it would fight a war against China if required.

First 'pivot', then rebalance

Since White's controversial analysis, US policy has solidified. In October 2011, then Secretary of State Hillary Clinton argued that 'the US stands at a pivot point' between the wars in Iraq and Afghanistan, and its future in the Asia-Pacific.[157] A month later, President Barak Obama stated to a joint sitting of the Australian Parliament that '[a]fter a decade in which we fought two wars that cost us dearly, in blood and treasure, the US is turning our attention to the vast potential of the Asia-Pacific region' and that '[o]ur new focus on this region reflects a fundamental truth—the US has been, and always will be, a Pacific nation'.[158] Obama also went on to say that 'as we end today's wars, I have directed my national security team to make our presence and mission in the Asia-Pacific a top priority. As a result, reductions in US defense spending will not—I repeat, will not—come at the expense of the Asia-Pacific'.[159]

Since November 2011, therefore, the importance of the Asia-Pacific to the US has been constantly and consistently reiterated through speeches, policies and strategies and, as such, '[t]he Obama Administration is the first administration ever to explicitly elevate Asia to the primary global regional strategic priority'.[160] As David Shambaugh has noted, '[t]he new Asia pivot is both new and not new. That is, the Asia-Pacific region has long been a high priority for the US, but not always the highest priority'.[161]

Formal US policies have followed these statements of intent. The 2012 *Defense Strategic Guidance* was the first key US policy document after Obama's speech and Clinton's paper.[162] It stated that 'US economic and security interests are inextricably linked to developments in the arc extending from the Western Pacific and East Asia into the Indian Ocean region and South Asia' and that the US 'will of necessity rebalance toward the Asia-Pacific region'.[163]

Following on from this strategic guidance, the 2014 *Quadrennial Defense Review* stated that '[t]he centerpiece of the Department of Defense commitment to the US Government's rebalance to the Asia-Pacific region continues to be our efforts to modernize and enhance our security alliances with Australia, Japan, the ROK [the Republic of Korea], The Philippines, and Thailand'.[164] The 2015 US *National Security Strategy* also stated that 'the US has been and will remain a Pacific power'.[165] Sitting underneath the *National Security Strategy*, the 2015 *National Military Strategy* stated that:

> The presence of US military forces in key locations around the world underpins the international order and provides opportunities to engage with other countries while positioning forces to respond to crises. Therefore we will press forward with the rebalance to the Asia-Pacific region, placing our most advanced capabilities and greater capacity in that vital theater. We will strengthen our alliances with Australia, Japan, the Republic of Korea, The Philippines and Thailand.[166]

In terms of military capabilities, the 2012 *Defense Strategic Guidance* focused on the ability to counter 'asymmetric capabilities, to include electronic and cyber warfare, ballistic and cruise

missiles, advanced air defenses, mining, and other methods, [designed] to complicate our operational calculus' and specifically named China as a state pursuing such means to counter the US.[167]

The 2014 *Quadrennial Defense Review* also stated that by 2020 the US Navy would have 60 per cent of its fleet in the Pacific and that it would develop a US Marine Corps 'force posture that is more geographically distributed, operationally resilient, and politically sustainable'.[168] It also asserted that the US Air Force would 'move additional forces such as ISR assets to the region, operating in concert with allies and partners to improve land, air, and maritime domain awareness', and that the US Army would refocus itself from the land wars in Iraq and Afghanistan to the requirements of the rebalance.[169]

The 2015 *National Military Strategy* provided increased focus on the sustainment and command and control of global operations, and specifically mentioned the requirement for counter-A2/AD forces.[170] Although not a military issue, another key aspect of the rebalance from an economic perspective has been the Trans-Pacific Partnership free trade agreement, which was agreed by 12 nations on 5 October 2015.[171]

However, despite these policies and announcements, the US strategy in relation to China is still unclear, as deeds have not necessarily followed words. For example, there were confused US responses towards China's declared air defence identification zone in the East China Sea and its increasing assertiveness in the East and South China Seas.[172] As a result of these 'inconsistencies in US policy towards China', 'some Asian observers [have become] confused about overarching US strategy'.[173]

It has also become increasingly apparent that the US has once again become distracted by the Middle East, notably the war against Islamic State in Syria and Iraq which started in 2014, and the 2015 nuclear deal with Iran.[174] Russia again weighs heavily on US policy making, with its actions in the Ukraine and Syria, and its more muscular foreign policy. US financial woes have also impacted the rebalance, as has Congressional behaviour through sequestration cuts.

Australia and the rebalance

Australia has a key role in the US rebalance, not only because it is a key US ally in the Asia-Pacific but also because of its strategic location. Noting Australia's location, Andrew Davies *et al* observe that in 'a more contested Asia–Pacific environment, Australia becomes more important as a relatively small but capable US ally and because of its geostrategic location close to the intersection between the Indian Ocean and maritime Southeast Asia'.[175] Indeed, Australia's location is also of paramount importance because it can provide 'a sanctuary from China's [A2/AD] capabilities', such as its ballistic and cruise missiles, for US forces.[176]

Australia has supported the rebalance through both political and diplomatic statements, as well as practical military measures. Politically, there have been statements made at both prime ministerial and ministerial level on Australia's role in and support for the US rebalance, especially from the annual Australia-US Ministerial talks. Diplomatically, Australia has provided significant support to the US in the Western Pacific since late 2011. For example, it has significantly increased the length and depth of its strategic relationship with Japan since 2007 with several high-level agreements.[177] Additionally, Hayley Channer contends that Australia's 'strong and immediate response to China's November 2013 declaration of … [the air defence identification zone] … was greatly appreciated in Washington' with 'Australia's tougher diplomatic tone in relation to China … seen as underscoring the rebalance'.[178]

Militarily, the first significant sign of Australia's involvement in the rebalance was in 2012, with the first annual six-month deployment of US Marine Corps force elements to Darwin. These deployments started soon after Clinton's article and Obama's speech, and continue to serve to disperse forces and tighten links with Australia. The first deployment consisted of only 200 Marines but the commitment will grow to a full 2500-person Marine Air-Ground Task Force in 2017.[179] In August 2014, Australia and the US also signed a 25-year force posture agreement that will see Australia 'host US warplanes such as B-52 bombers and fighter jets out of RAAF Darwin

and Tindal and provide enhanced access for US Navy ships, including nuclear submarines, to ports around Australia'.[180] Australia has also agreed 'to deepen military cooperation with the US on special forces' operations and training, interoperability, space, cyber capabilities and ballistic missile defence'.[181]

These political, diplomatic and military statements and actions have significantly tightened the US-Australia alliance and greatly improved Australia's reputation in the US. As the rebalance continues at the strategic level, the US has simultaneously devoted considerable effort in developing operational concepts to defeat China's A2/AD threats that will drive both strategy and force structure development.

Part 4: The US operational response – counter-A2/AD warfare

Sam Tangredi argues that 'anti-access and area-denial are modern terms referring to warfighting strategies focused on preventing an opponent from operating military forces, into, or within a contested region'.[182] As has been previously noted, this is China's strategy when it comes to neutralising the US in the Western Pacific—or the 'near seas'. The aim would be to neutralise US forces already in the first island chain and stop the US from entering the Western Pacific. If US forces do manage to enter, the aim would be to stop them from manoeuvring against China and its forces. China principally would aim to stop 'America's long-range air power and carrier-based sea power—two unrivalled forms of US military power'—from operating against it. [183]

According to Andrew Krepinevich, China assesses that US forces operating from within or entering the 'near seas' are vulnerable to Chinese offensive air and missile action, as key forward operating and logistics bases in Japan and Okinawa are fixed, their locations precisely known, and therefore hard to defend; also US 'carrier task force or surface action group [forces possess] … neither the mobility nor the stealth to function as the spear tip of forcible entry operations'.[184] China's offensively-oriented defensive forces have therefore effectively pushed US forces out beyond the first island chain because those already within the chain are vulnerable to surprise attack.

Tangredi argues that 'anti-access and area-denial can be described as strategies intended to prevent an attacker from being able to bring forces to bear in a strike at a defender's center of gravity', which is China's ultimate A2/AD military objective.[185] Centres of gravity, as described by Carl von Clausewitz, are 'the hub of all power and movement, on which everything depends' and 'is the point against which all [of one's] energies should be directed'.[186] China's centre of gravity is likely to be its strategic leadership (including the Chinese Communist Party), its C3I capabilities and even its A2/AD forces, especially its naval, air, and ballistic and cruise missile forces. Either way, the aim would be to keep US forces away from China and ensure the cost of the US attempting to close with Chinese objectives is too high for it to sustain.

Military access to the Western Pacific is a challenging exercise, as the expanse of air and water space are immense and the time and space issues associated with operations are extremely complex. Modern technology, however, has mitigated many of these challenges through the use of 21st century long-range and persistent air power, undersea capabilities, ballistic and cruise missiles, and ubiquitous space, cyber and the electromagnetic warfare capabilities. These capabilities are, therefore, at the forefront of China's A2/AD warfare capabilities—and are also at the forefront of the US response. Additionally, noting the sheer distances involved in potential operations in the Western Pacific, China is much closer to the theatre than the US.[187] Therefore, '[a]ny consideration of concepts of operation in the Western Pacific must also account for the huge asymmetry in distances'.[188]

As Krepinevich observes, due to China's A2/AD force structure and concept development efforts, the US 'is [now] faced with a strategic choice: begin adapting the way it projects power into [the region]—along with corresponding changes in its military capabilities and force structure—or face the prospect of paying an ever-increasing and perhaps prohibitive price for sustaining military access'.[189]

A2/AD concepts

The US has increasingly come to realise that the ease of access to operational areas that it has experienced since the end of the Cold War is becoming less of a given as more nations develop capabilities designed to hinder, or even stop, the US from projecting military force from the global commons.[190] The US Department of Defense notes that '[d]uring the Gulf War of 1990-91, for example, Coalition forces flowed into the operational area unhindered for six months in the build-up to Operation DESERT STORM'.[191] This was repeated for Afghanistan in 2001-02 and Iraq in 2003.[192]

While several nations have built up forces capable of hindering or stopping the US military from nearing its coastline or entering its airspace, such as Russia and Iran, the most powerful of these is clearly China. This operational problem set has been deeply analysed by the US and new terms such as operational access, anti-access and area-denial have been coined. As Tangredi notes, '[t]he actual terms anti-access and area-denial are decidedly modern [and] … [b]y 2013 it [had] become repeated wisdom that anti-access or anti-access/area-denial is the form of conventional warfare the US would most likely face in a regional conflict'.[193]

The Air-Sea Battle concept was initiated in September 2009 by the US Navy and Air Force to 'create a coordinated approach by both services in aligning doctrine and possibly force structure' to deal with a range of A2/AD threats, but especially those from China.[194] The concept has also become a key part of the rebalance, as it is important that US friends and allies in the Western Pacific, such as Japan and Taiwan, be assured that the US is capable of coming to their aid as required by relevant treaties and laws.

If they could not, Kelly argues they might 'inevitably be forced to accommodate China's demands with the result that the US will be excluded from the West Pacific … [which] is arguably China's proximate grand strategic objective'.[195] As noted by Schreer, Air-Sea Battle therefore 'signals America's willingness to stay engaged in the region through a strong military presence and if necessary to impose significant costs in response to conventional aggression by the PLA'.[196]

The Joint Operational Access Concept, published in January 2012, is the overarching concept of which Air-Sea Battle is part. It defines anti-access as 'those actions and capabilities, usually long-range, designed to prevent an opposing force from entering an operational area' and area denial as 'those actions and capabilities, usually of shorter range, designed not to keep an opposing force out, but to limit its freedom of action within the operational area'.[197]

More succinctly, 'anti-access affects movement to a theater' and 'area denial affects maneuver within a theater'.[198] Tangredi also notes that the reference to 'long-range' is 'most likely driven by capabilities being developed by such potential anti-access powers' as China and which were analysed in Part 2.[199] Together the two concepts are known as A2/AD and, while they are separate definitions, they are closely related in operational and capability terms; therefore, there is no real benefit in separating them into discrete categories for the purposes of this paper.

The 'big idea' of the Joint Operational Access Concept is 'cross-domain synergy'.[200] As the concept explains, cross-domain synergy is 'the complementary vice merely additive employment of capabilities in different domains such that each enhances the effectiveness and compensates for the vulnerabilities of the others'.[201] Examples might include 'airpower to defeat anti-ship weapons', 'naval power to neutralize air defenses', 'ground forces to neutralize land-based threats to air and naval forces' or 'cyber operations to defeat space systems'.[202] As Kelly observes, 'the aspiration of cross-domain synergy is to create opportunities to open assailable flanks'.[203] Tangredi also notes that cross-domain synergy 'could be the decisive factor' in any counter-A2/AD operation.[204]

In May 2013, the first public document on Air-Sea Battle was released and it noted that:

> The Air-Sea Battle concept seeks to ensure freedom of action in the global commons and is intended to assure allies and deter potential adversaries. Air-Sea Battle … provides a detailed view of specific technological and operational aspects of the overall A2/AD challenge in the

> global commons. The concept is not an operational plan or strategy for a specific region or adversary.[205]

Air-Sea Battle's central idea is a supporting one to that of the Joint Operational Access Concept—the development of 'networked, integrated forces capable of attack-in-depth to disrupt, destroy and defeat adversary forces'—or NIA/D3—with NIA standing for 'networked, integrated and attack-in-depth' and D3 standing for 'disrupt, destroy and defeat'.[206]

The NIA objective is threefold: employ a networked force capable of exerting a joint force commander's command and control of operations in the air, sea, land, space and cyber domains; employ integrated forces across all five operating domains on operations; and project force through territory denied by the adversary.[207] The *D3* objective is also threefold: to disrupt adversary C3I and ISR networks to 'gain decision advantage'; to destroy adversary A2/AD capabilities to 'regain freedom of action'; and to defeat adversary weapon systems such as ballistic and cruise missiles in order to 'sustain offensive operations'.[208]

In January 2015, the US Department of Defense ceased using the term Air-Sea Battle and adopted the new term 'Joint Concept for Access and Maneuver in the Global Commons'.[209] The new term not only better represents the concept but also makes it sound more joint, as Air-Sea Battle was often perceived as a US Air Force and Navy (including US Marine Corps) concept only, without a role for the Army.[210]

The US has not developed operational concepts in relative isolation from strategy or policy but has increasingly brought concepts, strategies and policies together into a coherent hierarchy. The 2012 *Defense Strategic Guidance* listed ten primary missions for the US military—one-third of which was about A2/AD—stating that 'the US military will invest as required to ensure its ability to operate effectively in anti-access and area-denial environments…. [which] will include implementing the Joint Operational Access Concept'.[211]

Two years later, the 2014 *Quadrennial Defense Review* noted that 'China will continue seeking to counter US strengths using' A2/AD and noted the requirement to invest in counter-A2/AD capabilities.[212] The 2015 *National Military Strategy* mentioned A2/AD from two perspectives: interoperability between 'Services, allies, interagency, and commercial partners' and the investment required to counter A2/AD, such as long-range strike and missile defence (which are discussed further in Part 6).[213]

An A2/AD campaign

Jan van Tol's 2010 work, *AirSea Battle: a point-of-departure operational concept*, although developed earlier than the previously-cited 2012 Joint Operational Access Concept and 2013 Air-Sea Battle documents, is generally acknowledged as still providing the best scenario for how a Chinese A2/AD and US counter-A2/AD campaign might take place in the Western Pacific.[214] This scenario is detailed below.

China attacks

A scenario where China would use A2/AD forces against the US is likely to emanate from one of the three flashpoints analysed in Part 1. The main Chinese objective would be to keep US forces out of striking distance from Chinese forces or territory and ensure its own freedom of manoeuvre. It would thus likely strike hard and early against any US forces within the first and second island chains in an attempt to ensure the US could not immediately respond to the crisis—and then seek to keep US forces away from the Western Pacific in an attempt to significantly raise the costs of interference for the US.[215] Van Tol contends that 'China would seek to achieve its strategic objectives and end hostilities as rapidly as possible before US forces could regroup and seize the initiative'.[216]

For China to execute the above strategy, it would have to do the following. First, China would attempt to neutralise US ISR capability across the air, sea, land, space and cyber domains that allows the US to understand adversary capability and intent, as well as find, fix, target, track,

engage and assess targets for kinetic and non-kinetic action. Second, through the use of its ballistic and cruise missile capabilities, and air power, China would strike US forward bases in the first and second island chains, including Guam. Third, China would also attempt to employ submarines and air/ship/submarine-launched anti-ship cruise missiles against US and allied warships wherever possible out to 3300 kilometres. Fourth, using its nuclear submarines, China would attempt to interdict US naval forces further away from China thus forcing the US to incur significant convoy and anti-ship warfare costs.[217]

If the Chinese attacks were successful, the US would lose access to its forward bases in Japan, Okinawa and Guam, and its Japanese and South Korean alliance partners. It would lose much of its ability to understand what was happening and to communicate with its own forces. Its forces would be pushed out to the second island chain by China's ability to neutralise its forces and suppress its ability to manoeuvre. And finally, the US would have lost all initiative and be on the defensive.[218]

America fights back

A US counter-A2/AD campaign would likely comprise two stages. The first stage would start on the immediate commencement of hostilities and heavily utilise the Joint Operational Access Concept's of cross-domain synergy. It would likely comprise the following four lines of operation. First, the US would aim to withstand the initial attacks and limit damage to its bases through dispersal, hardening and battle-damage repair. Second, the US would execute a 'blinding campaign' against the PLA's C3I networks, using computer network and electronic attack operations as well as air, ship and submarine-launched land-attack cruise missiles. Third, the US would aim to suppress the PLA's long-range strike and air defence systems. Fourth, the US would aim to seize and maintain the initiative in all operational domains through employing its full range of offensive and defensive kinetic and non-kinetic capabilities.[219]

Air-Sea Battle's second stage 'would comprise various subsequent operations and measures that would contribute to the larger US strategy creating options to resolve a prolonged conventional conflict on favourable terms and reverse any initial military gains by the adversary'.[220] It would also comprise four lines of operation. First, the US would continue to attrite the PLA's offensive capabilities wherever possible and neutralise any PLA forces outside the Western Pacific on the commencement of hostilities. Second, a 'distant blockade' would be conducted which would actualise China's 'Malacca Dilemma'. Third, the US would sustain its stretched logistics by repairing its forward bases and defending its extended SLOCs. Fourth, US industrial capacity, especially for precision-guided munitions, would be mobilised and expanded as the expenditure rates for weapons of all types would be exceptionally high.[221]

US capability issues

While China has been rapidly modernising and putting real effort into operationalising its A2/AD capabilities and concepts, the US appears to have not significantly adjusted its capabilities in the face of an increasing level of Chinese threat. The US is still very reliant on the sorts of capabilities that it used through the last 70 years of Cold War and post-Cold War operations, which include vulnerable and isolated forward-deployed bases in Japan, Okinawa and Guam; short-range air power and cruise missiles; and vulnerable aircraft carriers.[222]

How the US force structure is modernised over the coming years will be key to its success in any future Joint Operational Access Concept-like operation, and two key capabilities will need significant investment in particular in order to defeat China's advantages, namely long-range precision strike, and air and missile defence. There are also lessons here for Australia, which will be analysed in Parts 5 and 6.

Views in the negative

It is evident that there are a number of contrary views on the US' counter-A2/AD efforts because some planning assumptions in Joint Operational Access Concept and Air-Sea Battle documents may not hold true. Van Tol makes the point that it 'is worth re-emphasizing at this point that

thinking about a warfighting concept in this way does not imply a belief that a Sino-US war will occur'.[223] That said, there are a number of analysts who believe that China has been alienated and that the US is almost talking itself into war.

Amitai Etzioni notes that '[f]ormer Vice Chairman of the Joint Chiefs of Staff General James Cartwright stated in 2012 that "AirSea Battle is demonizing China…. [which is] not in anybody's interest"'.[224] Etzioni also decried the lack of public awareness and debate regarding the Joint Operational Access Concept and Air-Sea Battle, as well as the absence of executive and legislative oversight of its development.[225] White observes that Air-Sea Battle 'raises very grave questions', such as US conventional force ability to compel China to accede to its wishes and the escalatory impacts of direct strikes against China's homeland.[226] White also has significant concerns with the way that the US assumes that nuclear mutual deterrence will hold.[227]

Even supporters of American intent have concerns with the two concepts. T.X. Hammes, for example, is concerned that they are often mistaken for strategies instead of concepts—and a review of the literature confirms that this mistake is indeed made often. He also believes that the direct approach entailing deep strikes against the Chinese homeland is fraught. Hammes has, therefore, proposed a strategy of 'offshore control' to combine a US sea-denial operation within the first island chain and a distant blockade beyond China's A2/AD reach to harm its trade—with the objective of achieving stalemate, returning to the *status quo*, and avoiding escalation to nuclear war. Chinese airspace would not be penetrated but US allies in the first island chain would be heavily defended.[228] This proposed strategy, however, goes significantly against the American preference for the use of long-range fires to achieve decisive effects against adversary C3I and offensive weapons systems, and then, through 'brutal, paralysing efficiency', forcing the enemy into submission.[229]

The Joint Operational Access Concept and Air-Sea Battle are US operational-level responses to the rise of China, its military modernisation and its increasing and disconcerting assertiveness in dealing with its maritime territorial disputes—but they are not strategies. How Australia might be involved in Joint Operational Access Concept and Air-Sea Battle/Joint Concept for Access and Maneuver in the Global Commons-like operations against China in the future will have significant impact on Australian defence policy towards the US and China, Australia's defence strategy, and the ADF's ability to effectively operate in a very high threat environment against China and alongside the US.

Part 5: A2/AD options for Australia

Australia relies on a rules-based global order for its safety and security. Medcalf and Brown argue that 'Australia's interests are [not only] extensive, including the scale of its territory and maritime jurisdiction' but also that Australia 'benefits from exceptional interconnectedness with the world, through flows of trade, finance, information and people'.[230] They go on to state that this 'brings with it a reliance on rules, order, and secure access to the global commons'.[231]

This all means that Australia is an inherently outward-looking nation—and this is how Australia has not only fought its wars but also how it has conducted its peace through trade and diplomacy. These perspectives have, therefore, fundamentally shaped Australian defence policy and strategy. Key among this policy and strategy is the US alliance. Although Australia is geographically isolated, with the advent of long-range ballistic and cruise missiles, this isolation is lessening as every year passes and weapons technology improves.

Australia's geography, does, however still have meaning in grand strategy. Babbage has recently argued that 'Australia now finds itself close to the centre-stage of global strategic competition and a likely theatre of any future major war' and that the 'US, China and a range of other major powers are already manoeuvring to exploit Australia's enhanced strategic significance'.[232] Manoeuvring they may be but, as Peter Dean argues, 'Australia has already made its "China choice"…. [and it] is a friend of both countries but an ally of only one'.[233] Schreer also argues that Australia's 'geostrategic location means that Australia isn't a frontline state in an Air-Sea Battle context' and that 'our biggest value for the US comes from our being a reliable political ally,

providing strategic depth and potentially making some selected yet noteworthy military contributions if need be'.[234]

The Australia-US alliance

Australian policy has consistently stated that the Australia-US alliance is Australia's most 'important defence relationship and is recognised in Australia's [2013] *National Security Strategy* as a pillar of Australia's strategic and security arrangements'.[235] The 2014 *Defence Issues Paper* reiterated that the 'alliance with the US is based on our shared values, support for democracy and the rule of law and many shared strategic perspectives'.[236]

This view is largely shared by Australia's population, with 80 per cent of poll respondents in 2015 saying they believed the alliance with the US was either 'very' or 'fairly' important to Australia's security.[237] A recent joint US-Australia think tank report argued that '[t]he US and Australia have enjoyed a long and storied relationship, fighting together in every major conflict since the First World War…. [and] over the last century, Australia has transformed from a distant friend into a vital ally'.[238]

The legal treaty between Australia and the US is ANZUS, the *Security Treaty between Australia, New Zealand and the United States of America*, signed on 1 September 1951.[239] Initially an insurance policy against a future rise of Japanese militarism, the alliance has since become the legal foundation for Australia's strategic relationship with the US.[240] There are three key components, or articles, of the treaty.

Article three requires that the 'parties will consult together whenever in the opinion of any of them the territorial integrity, political independence or security of any of the parties is threatened in the Pacific'.[241] Article four states 'that an armed attack in the Pacific Area on any of the parties would be dangerous to its own peace and safety and declares that it would act to meet the common danger'.[242] Article five states and that 'an armed attack on any of the [p]arties is deemed to include an armed attack on the metropolitan territory of any of the [p]arties, or on the island territories under its jurisdiction in the Pacific or on its armed forces, public vessels or aircraft in the Pacific'.[243]

Unlike the North Atlantic Treaty Organisation, however, there is no security guarantee and, unlike the US treaties with Japan and South Korea, there are no permanent large-scale military forces deployed. Notably, the only time the treaty has ever been invoked was by Australia immediately after the 11 September 2001 attacks on the US.[244]

Although the alliance is often associated with Australian dependence and reliance on a 'great and powerful friend'—and its deep fear of abandonment by that friend—it was recently noted in the context of US-China strategic competition that 'it is Australians who [increasingly] worry about entrapment by Washington, and Americans [who] … worry about abandonment by Canberra'.[245] It is also important to note that 'the ANZUS treaty is deliberately ambiguous' and this means that there is considerable room for manoeuvre in terms of alliance management.[246]

When it comes to Taiwan and the Senkaku/Diaoyu dispute, there have been comments made by senior Australian politicians that the alliance may not take Australia to war. In 2004, then-Foreign Minister Alexander Downer stated in the context of whether a US-China war over Taiwan would draw in Australia that 'there would be no problem: the ANZUS Treaty would not require Australia to support the US in such a war because it fell outside the treaty's geographical scope'.[247] In 2014, then-Defence Minister David Johnston 'stated his belief that the ANZUS alliance would not commit Australia to a conflict where the US had sent forces to support its Japanese ally in a confrontation with China over the disputed Senkaku/Diaoyu islands'.[248] While the former 'elicited a public rebuke from Washington stating that Australia's ANZUS obligations were clear', and another from the then-Prime Minister John Howard, the reaction to the latter was muted.[249]

The alliance is also more than just ANZUS. This is because it is also built around a complex array of technology, logistics, scientific, training and intelligence support agreements that ensure

Australia's 'capability edge' in comparison with its regional peers.[250] The closeness of the alliance in this regard is shown not just by the quality of intelligence shared but also the capabilities that the US allows Australia to buy from it. For example, Australia is the only other operator of the E/A-18G Growler electronic attack aircraft.[251]

Since the early 2000s, but especially since the policy and acquisition programs highlighted in the 2009 and 2013 Defence White Papers, Australia has started to develop select capabilities more suited to 'forward defence' than 'defence of Australia', and has increased its interoperability with the US. Moreover, Australia's focus on the acquisition of advanced air and sea capabilities, such as F-35A Lightning II Joint Strike Fighters, P-8A*s*, MQ-4C Triton remotely-piloted aircraft, guided-missile destroyers and long-range submarines armed with US sensor and weapon systems, has built a force structure that is capable of operating in the highest of threat environments alongside US forces anywhere in the world.[252]

Bisley and Taylor also note that 'Australia's capability to participate in alliance activity may not be as great as some would like but it is already able to do a good deal and [it] is planning to do more in the future'—and that this 'sends very clear signals to Washington and beyond about the alliance relationship and Australia's expectations and commitments'.[253]

Medcalf and Brown have noted that in terms of conflict with China, it is clear that '[a]ny potential Australian involvement in a conflict with China would most likely come about through a request from the US' and that '[i]t is difficult to imagine that the Australia-US alliance would avoid fundamental damage were Australia to refuse to support America in a military conflict or confrontation with China'.[254] That said, while ANZUS is the key to the Australia-US alliance, how Australia is actually reacting to the rebalance is a fundamental part of how credible it is seen by the US—especially as it starts to react in practical ways to the rise of China. As noted by Channer, the 'alliance with the US is interwoven with the rebalance: support for the rebalance strengthens the alliance; lack of support weakens it'.[255]

Australian defence policy towards China

Australian defence policy towards China has evolved considerably since 1949 when it became a communist state. Until the last decade, Australia has seen China as a potentially powerful but relatively-benign state. In 2009, but before the 2009 Defence White Paper was published, Ric Smith argued that there were 'two enduring themes' that emerged from a review of Australian defence policy towards China: that 'China's military planning is primarily defensive'; and that 'China's economic growth would change regional strategic relativities'.[256] Both the 2009 and 2013 Defence White Papers, however, have moved away from this 'peaceful rise' consensus on China.

The 2009 Defence White Paper articulated a harder-headed analysis of China than had previously been seen. It stated that China would 'be the strongest Asian military power, by a considerable margin' and that '[i]ts military modernisation will be increasingly characterised by the development of power projection capabilities'.[257] It also noted that 'the pace, scope and structure of China's military modernisation have the potential to give its neighbours cause for concern if not carefully explained'.[258]

Taylor observes that the 2009 Defence White Paper's 'depiction of China … was arguably its most contentious aspect'.[259] Dibb also notes that it 'drew the anger of Beijing in no uncertain terms'.[260] The most significant force structure announcements by the 2009 Defence White Paper were the doubling of the submarine fleet from six to 12 and the intention to acquire land-attack cruise missiles, which were no doubt to 'hedge against emerging strategic risks' such as an even more assertive China and a responding US.[261]

The 2013 Defence White Paper, as Taylor notes, had an 'ostensibly softer tone and approach' towards China than the 2009 paper.[262] It stated that 'Australia welcomes China's rise' and that 'China's defence capabilities are growing and its military is modernising, as a natural and legitimate outcome of its economic growth'.[263] That said, it also states Australia's clear concerns about the key flashpoints of the South and East China Seas, which are mentioned many times,

whereas Taiwan is mentioned only once.[264] On the force structure issue, the 12 submarine commitment of the 2009 Defence White Paper was retained but the land-attack cruise missiles were quietly dropped.[265]

The release of the next Defence White Paper is likely to occur in early 2016. Little is known of its contents but there is unlikely to be any departure from the substance of the 2009 and 2013 papers. There has, however, been some suggestion that '[t]he white paper will not publicly single out China as a potential threat but that its 'navy-first strategy' will reflect concerns inside Defence about Beijing's double-digit defence spending in recent years'.[266]

Geoffrey Barker has also speculated that the 2016 Defence White Paper will have several themes: China's military modernisation and its assertive behaviour in the East and South China Seas; terrorism, the defence budget and the naval shipbuilding program.[267] Of these, the China theme is the most strategic and is the principal driver for two of the other three themes—money and warships. Barker also contended that the document will be 'cautious, anodyne and crafted not to inform and not to offend', unlike the 2009 Defence White Paper, and that it would be strategically ambiguous. He also assessed that, in many ways, it would be similar to the 2013 paper.[268]

China is increasingly significant in Australian defence policy and, since the 2009 Defence White Paper, has probably been its biggest influence. Australia has gone from viewing China's rise as a passive onlooker to a nation that is actively concerned about the impacts of an increasingly powerful, modernised and assertive China. Indeed, probably no other nation other than the US has given more thought to the rise of China in the last decade than Australia.[269] However, how Australia's policy towards China meets its defence strategy will be key to how Australia is able to prepare for any future conflict between China and its principal ally, the US.

Australian defence strategy

For much of the period since the end of the Second World War, Australian strategic policy has generally been characterised by either one of two schools—'forward defence' or 'defence of Australia'. Forward defence was the pre-eminent school until the mid-1970s, and was a classic Cold War strategy that entailed supporting Australia's alliance partners (such as the UK and US) in combat zones far away from Australian territory, in places such as Korea, Malaya and Vietnam. This was in an attempt to ensure threats did not end up closer to Australia through a domino-like effect of states falling to communism.

From the mid-1970s, the defence of Australia strategy was based on the concepts of 'self-reliance' and 'defence-in-depth' and stated 'that the ADF should prepare to fight independently, rather than as part of a larger allied force'.[270] This strategy reached its zenith with the 1986 *Dibb Review* and the follow-on 1987 Defence White Paper. Defence of Australia became simply 'DOA', and it symbolised the preference for air and naval forces to defeat threats in the air-sea gap and for the army to contain and defeat low-level enemy forces that managed to get through these air and naval forces to land in Australia. It also gave the option for 'air and special forces to strike against enemy bases in the archipelago'.[271] The 1994 Defence White Paper saw no real change to this strategy. [272]

It has been said that 'Australia's defence policy required elements of both [defence of Australia] and forward defence'.[273] Indeed, both schools of thought, as Medcalf and Brown have argued, have 'characterised Australia's relative isolation mainly as an asset'; however, as the country has become 'more dependent than ever on global flows of trade, energy, information, people, and money, Australia's best defence involves securing its lifelines to the wider world'.[274]

The 2000 Defence White Paper replaced defence of Australia as the primary strategy with a more flexible approach built around five 'strategic objectives'. The defence of Australia remained the primary objective but it was then followed by objectives for the security of the 'immediate neighbourhood', security of Southeast Asia, security of the broader Asia-Pacific and last, global security.[275] This led to the impression that Australia's interests radiated out from the direct defence of Australia to its broader and global interests like 'concentric circles'.[276]

This basic prioritisation, with only relatively minor changes, has been Australia's defence strategy in both the 2009 and 2013 Defence White Papers, and is likely to be the case for the 2016 paper.[277] As Stephan Frühling argues, this is because 'it [now] represents what might be called the current bi-partisan orthodoxy of Australian defence policy'.[278] Further, the ADF's force structure would be only determined by the defence of Australia and immediate neighbourhood tasks, such as the South Pacific and Timor-Leste, and the remaining tasks would be serviced from within that force structure on an as required basis. The 2013 Defence White Paper lists four principal tasks for the ADF:

- Principal Task One: deter and defeat attacks on Australia.
- Principal Task Two: contribute to stability and security in the South Pacific and Timor-Leste.
- Principal Task Three: contribute to military contingencies in the Indo-Pacific region, with priority given to Southeast Asia.
- Principal Task Four: contribute to military contingencies in support of global security.[279]

As it turns out, the defence of Australia and Indo-Pacific contingencies are yet to eventuate.[280]Australia has, however, in the last several decades, deployed forces for security and stability operations in the immediate region, especially Bougainville, Timor-Leste and the Solomon Islands, and has supported global security with deployments to Afghanistan and Iraq. That said, much of this part of the paper will focus on principal tasks one and three—against a rising and militarily modernising China.

Frühling saliently observes that since the development of the 'defence of Australia' strategy in the mid-1970s, 'Australian strategic guidance … has acknowledged that the emergence of a direct threat would result from a long development, which Australian governments would seek to influence beforehand, including through the use of armed force'.[281] This warning time was often stated and given at 10 years. However, as Frühling notes, with the rise of China, its military modernisation and its increased territorial assertiveness, 'these developments are [now] potentially in train'.[282]

The strategy espoused in the 2013 Defence White Paper to undertake the direct defence of Australia, or principal task one, is a maritime one and requires a force capable of '[c]ontrolling the sea and air approaches to our continent … in order to deny them to an adversary and provide maximum freedom of action for our forces'.[283] It should be noted, however, that 'maritime' is not the same as 'naval', because 'maritime strategy has a much broader scope: the combined use of all arms—Army, Navy and Air Forces—in seaborne operations'.[284] To these should be added the domains of space and cyberspace, bearing in mind the key Chinese military threats of ballistic and cruise missiles, space, counter-space and cyber.[285]

In terms of the first principal task, the 2013 Defence White Paper goes on to state that 'Australia's military strategy seeks to deter attacks or coercion against Australia by demonstrating our capability to impose prohibitive costs on potential aggressors and deny them the ability to control our maritime approaches'.[286] For the third principal task, it states that '[c]ontributions would be determined by government based on consideration of Australia's direct interests' and that they 'may include assisting Southeast Asian partners with external challenges and meeting our alliance commitments to the US'.[287]

The 2013 Defence White Paper also noted that Australia will need to 'consider Australia's direct defence in the event that an aggressor takes retaliatory military action against us'.[288] Babbage notes that 'some PLA units [are likely] to operate at longer ranges to attack follow-on and logistic forces in Hawaii, Alaska, on the US west coast and also in base and staging areas in Singapore, Australia and Diego Garcia'.[289] This gives some indication as to likely ADF contributions to any Joint Operational Access Concept-like operation against China where ANZUS has been invoked. The last point also gives some indication that a war in the Indo-Pacific would not only be extensive but would be unlike anything Australia has seen since the end of the Second World War.

Within the Australian academic discourse, the strategy and force structure debate has also oscillated between a number of camps. On the one hand is White's 'sea denial' oriented 'self-reliant' force structure which tries not to antagonise China.[290] Then there is Babbage's US alliance focus with a force structure to 'rip an arm off' any adversary (that is, China) which attempted to attack Australia.[291] In between lies an alliance-aware, geography-oriented, economically-responsible and independently-minded Dibb, and many others such as Dupont and Medcalf to name but a few.[292]

With China having become a key focus of Australian defence policy in the last decade, and the evolution of Australian defence strategy over the last 50 years, how will Australia balance the requirements to 'deter and defeat attacks on Australia' with the requirement to 'contribute to military contingencies in the Indo-Pacific region' with emphasis on a role in Southeast Asia? One such contingency could possibly include how the ADF could contribute to a US-led counter-A2/AD campaign against China in the Western Pacific, while simultaneously ensuring that Australia was also adequately defended against possible attack.

What could Australia do in a war against China?

According to van Tol, Australia would almost certainly have a key role in any Joint Operational Access Concept -like war against China, arguing that 'AirSea Battle is not a US-only concept' and that 'allies such as Japan and Australia, and possibly others, must play important enabling roles in sustaining a stable military balance'.[293] He goes on to argue that 'Australia would provide strategic depth and capable forces for peripheral campaigns, perhaps involving sea control and support operations in the eastern Indian Ocean, Oceania and the South China Sea'.[294]

Australia's status as a US ally has risen in recent years due to its military commitments to Afghanistan and Iraq, and the increasing US focus on the Pacific. The US Center for Strategic and Budgetary Assessments issued a report in 2013 which stated that 'Australia has moved from "down under" to "top center" in terms of geopolitical import'.[295] As Dean notes, while exaggerated, 'there is an underlying veracity to this claim' and this is playing out in terms of US expectations of Australia as a treaty ally.[296] The Center for Strategic and Budgetary Assessments' report also articulated a number of options for Australia's participation in a war against China—even though they were overly specialised, US focused, and did not factor into account Australia's broader sovereign defence requirements.[297]

It is clear, however, that there is an increasing expectation by the US that it is not a matter of 'if' Australia would be involved in counter-A2/AD operations against China in the event of war but 'how'. There is also an increasing desire in Australia to understand what the US expects of it. Frühling, for example, argues that:

> Australian strategy will need to be developed in the context of US strategy for the region. That strategy is only slowly emerging and the speed and direction in which it will develop strongly depends on decisions that are yet to be taken in Washington, Beijing and other capitals in the region. However, increased interest in the US defence debate in possible Australian contributions is already clear.[298]

So how might Australia contribute to a US-led operation against a Chinese A2/AD threat? According to Kelly, an Australian contribution could either supplement or complement the US.[299] It could supplement by developing 'the capabilities to add' to US counter-A2/AD capabilities, such as providing high-end capabilities to the main fight which is likely to be conducted between the first and second island chains.[300] Alternatively, it could complement the US strategy by developing 'capabilities in other areas' that would operate away from the main area of combat.[301] It is assessed, therefore, that there are six possible options for Australia involvement which, for the purposes of discussion, are titled *Western Front, forward defence, distant blockade, peripheral operations, safe base* and *knowledge edge.*[302]

It should also be noted that these options are not an either/or, as all of them might be selected in full or in part, such as one of the first four options as well as *safe base* and *knowledge edge*. This is because the latter two options effectively already occur in time of peace, and it would be

reasonable to assume that they would continue, if not be enhanced, in time of war—even without the active commitment of the ADF. Also, only those capabilities currently endorsed by the 2013 Defence White Paper will be included in this analysis. Capabilities that could be acquired to enhance the ADF's commitment to these options will be assessed in Part 6 of this paper.

Western Front

The provision of highly-capable and survivable forces to operate with the main US force anywhere in the 'middle seas' between the first and second island chains would be almost entirely through naval and/or air capabilities. These forces are among the most capable and 'high payoff' that Australia could field.

A naval contribution, for example, could be similar to when the 'Australian frigate HMAS *Sydney* was embedded with the USS *George Washington* Carrier Strike Group, based in Yokosuka, Japan, for three months in 2013'.[303] From about 2020, due to capability and survivability reasons, this role would likely best be filled by a Hobart-class guided-missile destroyer.[304] These ships will be equipped with the AEGIS combat system and SM-6 Standard surface-to-air missiles with a range of 370 kilometres—and will have a terminal phase anti-ballistic missile capability.[305] Even a single guided-missile destroyer could provide a valued contribution to the defence of US and allied forces and bases, and also participate in US sea control efforts. Three such ships should be able to sustain the permanent presence of one. It should be noted, however, that surface combatants are increasingly vulnerable to submarines and long-range precision strike.[306]

Another option might be an air task group of F-35A fighters, E/A-18G electronic attack aircraft, E-7A Wedgetail airborne early warning and control aircraft and KC-30A tankers to operate out of a US forward operating base, such as Guam or even Japan. It might, for example, comprise a full squadron of 16 fighters, a flight of four E/A-18Gs, and two to three each of E-7As and KC-30As.[307] This force could conduct both defensive and offensive operations and, for the latter, conduct both land and maritime strike. As noted by Davies *et al*, 'Australia will be uniquely well set up to make substantial future contributions to coalition air-power operations in even the most demanding environments' due to the balance and quality of its air power capabilities.[308]

However, air power is dependent on air bases, which are not only large and immobile, but their location is generally, if not precisely, known to the adversary. Aircraft and their support systems are also fragile, and they are at their most vulnerable when on the ground without their key attributes of speed and manoeuvre. Therefore, any air task group would require both active (anti-aircraft and anti-missile systems) and passive (dispersal, hardening, camouflage and concealment) defences, provided by either Australia or the US.[309]

In many respects, however, this would be a 'one shot force' as Australia only has four fighter squadrons (with 71 F/A-18A/Bs being replaced with 72 F-35As, and 24 F/A-18Fs), 12 E/A-18Gs, six E-7As and five (soon to be seven) KC-30As in the force.[310] Therefore, a force of 16+4+2+2 would be at the outer margins of sustainable capability, using the standard force planning methodology of one-third deployed, one-third working up to deploy, and one-third reconstituting post-deployment.

It is worth noting that such a capability would be relatively short-ranged and would not provide the US with anything it could not realistically provide itself. It would also have a relatively low platform-to-weapon load ratio due to the limitations of the F-35A's internal weapons capacity (if low observability was to be maintained). The force would, however, be a powerful alliance commitment that could be used in high-intensity combat operations. It is also important to note that an air defence/air strike capability would have to be retained in Australia to mitigate the risk of attack on the Australian homeland.

The provision of a single guided-missile destroyer to a *Western Front*-style contribution would be achievable but mean that Australia would be without a sustainable anti-ballistic missile capability in home waters, as the remaining two vessels would be on pre- or post-deployment, albeit with some residual operational capability.[311] The commitment of an air task group would be demanding and leave little at home for the defence of Australia (other than a similar sized

capability working up to deployment) or the ability to deploy a similar force package to Southeast Asia. It is, therefore, unlikely that an air task group would be committed that far north or, if it was, it would likely be for a limited initial four- to six-month period to demonstrate Australia's will and alliance cohesiveness.

Forward defence

Southeast Asia, including the South China Sea, has strong resonance with Australian defence policy and strategy as evidenced by it taking its place within the third principal task. As Dibb argues, 'Southeast Asia forms a strategic shield to Australia's vulnerable northern approaches'.[312] Here the main point of focus would be the maritime and littoral environments, with the major target set being Chinese forces operating there as well as the outposts that have been built up over the last several decades—most recently on reclaimed land. Not only might Chinese manoeuvre forces have to be neutralised but the outposts may have to be captured so as to deny their use by China as ISR collection nodes, forward operating bases for Chinese air and sea power, or as cruise missile and/or sea-mine laden defensive barriers.

Like the *Western Front*, Australian air and naval forces allocated to this region would have to be both survivable and capable due to the threat posed by Chinese A2/AD capabilities. Potentially the highest payoff naval capability that could be committed by Australia to the South China Sea would be its submarines, which are capable of operating effectively in the deeper waters of its southern end.[313] Australia currently has six Collins-class submarines and the 2009 Defence White Paper announced that a fleet of 12 future submarines would enter service from 2030 to replace them, which was reiterated in the 2013 paper. The 2016 Defence White Paper may, however, reduce this to eight, with an option for four more, due to risk issues and financial constraints.[314]

A fleet of eight future submarines would allow two to continuously operate in the South China Sea.[315] A fleet of 12 would logically allow three for South China Sea operations and several more for tasking closer to home. If conflict were to start prior to 2030, Australia would have only the six current Collins-class submarines, meaning that only one would be available for continuous South China Sea operations and several for operations closer to home. Any Australian submarines in the South China Sea could also act as the northern screen of the *distant blockade* option (analysed below) operating in the key straits to the south. They could be employed on the full range of anti-surface, anti-submarine warfare and ISR operations. However, the lack of a land-attack cruise missile capability would limit the fleet's operational utility against China's outposts in the South China Sea.

Another likely force option would be an air task group similar to that described above in the *Western Front* option. As Australia really only has the ability to field one high-end air task group at any time, a choice would have to be made between the *Western Front* and *forward defence* options—unless a surge to both was initially undertaken with one tapering off after four to six months and the other being sustained (but this would be very logistically challenging).

An additional capability that would likely be added to this force would be long-range persistent ISR and anti-submarine warfare aircraft, such as P-8As and MQ-4Cs. The 2009 Defence White Paper stated that eight P-8As (with a later announced option for four aircraft pending the 2016 Defence White Paper outcomes), with the first entering service in 2017 and the eighth in 2021.[316] Up to seven MQ-4C remotely-piloted aircraft are also likely to be acquired.[317] This capability could suppress Chinese submarine activity and significantly increase allied maritime domain awareness of the South China Sea. If any Chinese air threat was possible, then these aircraft would have to be escorted by fighters. Additionally, like the *Western Front* option, air bases, and aircraft when on the ground, would remain vulnerable to air and missile attack, unless adequately protected by both active and passive defensive measures.

With the possible requirement to seize and hold Chinese-held islands in the South China Sea as a part of a roll-back strategy, there is potential for Australian amphibious and ground forces to be employed in this task. With the Australian amphibious capability comprising two Canberra-class Landing Helicopter Docks and one Bay-class Landing Ship Dock, the ADF is capable of putting a

sizeable combat force, with sufficient overmatch ability, ashore in a relatively short space of time. Alternatively, submarines could be used to land special force raids. The US Navy Amphibious Ready Group's amphibious vessels and the Marine Air-Ground Task Force's ground and air elements located at Darwin would likely operate alongside the ADF in this option, bringing with them considerable US combat power and enabling capabilities.[318]

Although the amphibious warfare debate in Australia has often focused on conventional army operations, it is clear from allied experience that this amphibious capability could also have a significant role in supporting special forces operations, such as raids and recovery operations, due to their inherent C3I, medical, aviation, and landing and assault craft capabilities.[319] In an amphibious operation, special forces would usually land as 'first entry' forces 'to seize and hold an entry point long enough for the main [conventional] force to enter' and garrison the islands.[320] It should be noted, however, that such an operation could only occur if China's A2/AD capabilities had been sufficiently attritted, as these islands are within range of China's strike capabilities, and the airfields on these islands are increasingly able to operate combat aircraft.

The defence of Australian offshore territories, such as Cocos and Christmas Islands, would also be a key task for the ADF. Not only would they be important forward operating bases for Australian and US aircraft but they might also present valuable targets for Chinese forces locked out by a *distant blockade.*[321] They would, therefore, need to be appropriately defended and garrisoned, and their environs subjected to enhanced ISR operations.

The same could also be said of Australia's 'bare bases' in the north and northwest, which are effectively 'islands' but with very significant runways and fuel storage, and therefore key to Australian and US ISR and anti-ship warfare operations into the Indian Ocean. Such operations would require the significant allocation of naval and air forces (which would be in high demand everywhere), unless suitable alternatives, such as air and missile defence, land-based anti-ship cruise missiles, and sea-mines, could be acquired.

The *forward defence* option in Southeast Asia and South China Sea is an important military option as the 'security of Southeast Asia is an enduring strategic interest because of its proximity to Australia's northern approaches and crucial shipping lanes'.[322] It is also 'the fulcrum point between the Indian Ocean and the Pacific'—and hence critical to the security of trade.[323] Therefore, if Australia were to fight China, alongside the US, then a focus on Southeast Asia and the South China Sea would have sound strategic reasoning. Such an option is also proximate enough to Australia as to not be a significant logistics burden and there are ample forward operating bases that are likely to be made available by regional nations. Air power, submarines and high-end surface combatants would therefore be the most likely, capable and survivable force elements in this option.

Distant blockade

Distant blockade is an option espoused as part of Air-Sea Battle (and by Hammes as part of *offshore control*) due to the likely difficulty in defeating China's A2/AD capabilities within the first island chain, and the almost certain long duration of hostilities.[324] Dibb argues that a 'useful contribution in the event of high-intensity conventional war in Northeast Asia would be to "a distant blockade", which would be a more proximate military operation for Australia in Southeast Asian waters'.[325]

In terms of Australia's role in such a blockade, the US Center for Strategic and Budgetary Assessments has noted that 'Australia's relative proximity to the southern Indonesian archipelago … mean[s] that it could play a vital role policing the Lombok and Sunda Straits'.[326] To this should be added the Straits of Malacca between Malaysia and Indonesia, the Makassar Strait between the Indonesian islands of Kalimantan and Sulawesi, and the Wetar Passage north of the island of Timor.[327]

Australia would have a number of advantages operating in these straits because they act as natural chokepoints which would funnel vessels through a very limited number of possible routes.[328]Australia, therefore, could have a leading role in actualising China's 'Malacca Dilemma'.

China's extended SLOCs across the Indian Ocean are also vulnerable to interdiction during such a blockade. Australia could, therefore, contribute to the interdiction of China's trade and have a significant effect on China's economic strength, and by extension, its strategic centre of gravity—its leadership.[329]

Australian participation in a blockade and chokepoint control operation of this nature would require a significant proportion of its surface combatant and submarine fleet. The 2009/13 Defence White Paper-approved Offshore Combatant Vessel, if fitted with appropriate sensor and weapons systems, could play a valuable role in anti-submarine warfare and search-and-seizure type operations (as well as security for Australia's offshore territories and North West Shelf offshore oil and gas platforms) and alleviate much of the strain on the destroyer and frigate force.[330] Australia could also employ a Canberra-class Landing Helicopter Dock in a headquarters, anti-submarine warfare and search-and-seizure support role, if it was not being used in its primary amphibious role.[331]

A blockade or chokepoint control operation would also require much of the P-8A and MQ-4C fleet. Additionally, a significant proportion of Australia's F-35A and F/A-18F air combat fleets would also be required to either provide combat air patrol near Australian warships or strike Chinese warships attempting to break the blockade. This ISR and air combat commitment would in turn utilise the majority of the E-7A and KC-30A fleets. This level of air power commitment would likely reduce the amount of capability pushed forward in the *Western Front* or *forward defence* options.

The lack of true sea-denial capabilities, such as sea-mines and ground-based anti-ship missiles, however, means that only air power, and surface and sub-surface naval combatants, could be used for blockade operations—thus increasing the operational stress on these potentially over-tasked capabilities, and under-utilising the Army. Australian special forces, however, could deploy to the key straits 'and provide on the ground intelligence to allied naval and air assets'.[332]

In conflict between China and the US in the Western Pacific, the *distant blockade* option is not an unlikely one. It would play to Australia's strengths in that the likely operating areas in the Indonesian archipelago are close to Australia and are well known to the ADF, and the Indian Ocean SLOCs are also within reach. While the area of operations is broad, and would thus likely consume the majority of the ADF, it is nevertheless a feasible option for Australia to meet its alliance commitment to the US.

Peripheral operations

Linked to the concept of *distant blockade* is that of *peripheral operations*. China has global interests and this means that the PLA increasingly has a global presence. Chinese forces are, therefore, starting to operate at considerable distances from the homeland, such as conducting counter-piracy operations in the Arabian Sea and evacuation operations from areas such as Yemen in 2015. This means that in the event of war between China and the US in the Western Pacific, China will likely have military capabilities spread around the globe. Van Tol argues that 'the US and its allies [will have] to maintain the capability to neutralize PLA bases outside the Western Pacific' and that this 'would [also] involve removing the threat of diversionary PLA operations'.[333] Van Tol further argues that Australia 'could conduct operations to neutralize any small PLA forces in the [South West Pacific] region'.[334]

Australia's amphibious and air mobility capabilities could, therefore, be used to conduct peripheral operations to secure areas beyond the Western Pacific. Australian warships, such as the current frigates or the 2009-13 Defence White Paper-approved future frigates, formed into a surface action and anti-submarine warfare task group, could also 'make a useful contribution by leading or participating in operations against isolated Chinese naval task forces in the Eastern and Southern parts of the Indian Ocean', which might 'pose a threat to allied naval assets and commercial shipping transiting through the Indian Ocean'.[335]

Peripheral operations are thus almost certain to occur in any war between China and the US, and Australia would be well placed to play its part. Along with *distant blockade* operations in the Indonesian archipelago, it is likely that operations in the Indian Ocean would be quite taxing for Australia due to the sheer time and space issues—and the likelihood of a Chinese military presence to some degree or other that would have to be found, fixed and appropriately neutralised.

Safe base

Australia's geographic position is critical to US defence posture and operational planning in the Western Pacific. Because of China's A2/AD threat envelopes (see Figure 2), 'Australia can provide US forces … [a *safe base*] in the region with strategic depth, forward operating bases, a logistical hub, and training facilities'.[336] This has not been lost on US military planners and, when describing the strategic location of Australian bases, the Center for Strategic and Budgetary Assessments has noted that:

> Airbases on Australia's sparsely populated Northern Territory, Cape York Peninsula in Queensland, and Western Australia lie approximately 2700 miles from the Taiwan Strait and only 1700 miles from the South China Sea. The airstrip on Cocos Island in the eastern Indian Ocean is even closer to the South China Sea—within 700 miles of the strategic maritime chokepoints at the Sunda and Lombok Straits. Although the distance between the base at HMAS *Stirling* (near Perth) and the South China Sea is roughly the same as the distance between Guam and the South China Sea, HMAS *Stirling's* use as a forward operating location for US nuclear-powered submarines would help to diversify port options in-theater, while also increasing the operational availability of US submarines in the Indian Ocean and the Persian Gulf.[337]

Unlike Guam, all of these locations are outside the reach of the PLA's existing conventional missile forces, as well as those known to be in development. As the US intensifies its focus on the South China Sea, Australia's northern airbases and Fleet Base West near Perth will become even more attractive as safe bastions for US forces. [338]

Australian capabilities would also have to be allocated to the defence of Australia against possible Chinese action. These would include the Navy's mine countermeasures force to ensure HMAS *Stirling* and the port of Darwin were kept safe from Chinese submarine-laid mines. An air-defence force of F/A-18A/F-35AF/A-18F fighters, E-7A airborne early warning and control aircraft, and/or TPS-77 ground based radars, and KC-30A tanker aircraft would also have to be retained for the air defence of Australia, especially Darwin. Army's current ground-based air-defence missile capability would, however, be of little use against Chinese aircraft and/or air/submarine/ship-launched land-attack cruise missiles capable of striking Australia.

Australia, therefore, could provide US forces relative safety and security against Chinese A2/AD threats and an increased choice of tactical and operational options in prosecuting combat operations against China if it had to do so.

Knowledge edge

Australia maintains its *knowledge edge* in the region through its access to significant intelligence from its role in the alliance, and the broader 'Five Eyes' structure—where it is not just an intelligence consumer but also an intelligence producer.[339] The Australian intelligence community incorporates the intelligence collection and analysis disciplines of signals, imagery and human intelligence, and all-source assessment.[340]

The ADF also has significant ISR capabilities, such as its own military intelligence capability, the Jindalee Operational Radar Network, special forces, submarines, surface vessels, E/A-18G, E-7A, AP-3C, and soon P-8A aircraft and MQ-4C remotely-piloted aircraft to replace the AP-3C force. The F-35A will also have significant ISR capabilities. Additionally, the 2016 Defence White Paper will reportedly authorise the purchase of eight MQ-9 Reaper remotely-piloted aircraft and two ground stations as an armed ISR capability and a useful supplement to the longer range MQ-4Cs.[341]

Key to all of these platforms and sensors is the ability to transform data into information and intelligence, in order to undertake targeting and inform decision makers. An important aspect of this is Australian expertise in assessing the capability and intent of regional actors. In order to represent this information and intelligence, a 'common operating picture' is required, which has been defined as:

> [A] compilation of data drawn from many sources and fused into information repositories and information systems and networks that are accessible to multiple users. The 'common operating picture' is as close to real time as can be obtained and provides actionable information from classified and unclassified sources in time for officials to detect, deter and, if necessary, defeat.[342]

Platforms and sensors are important but analytical capability and capacity, as well as the ability to represent information and intelligence in near real time on a common operating picture is critical. It is also critical, in terms of the US alliance, that the Australian common operation picture be fused with that of the US to maximise combined operations situational awareness. This common operating picture, or elements of it, could also be made available to regional partners in any conflict with China to improve maritime domain awareness, especially across the archipelago to Australia's north.[343] Frühling *et al* have also argued that:

> Australia's geography, its relationship with the US and its own technical and human resources [are an essential element of its *knowledge edge* and that] … Australia should sustain and extend its contribution to the global American C4ISR system in the areas where Australia can add most value, and where Australia will be able to gain most from being able to access the data that flows across it.[344]

The analysis of these operational options has shown several key force structure weaknesses which should be remediated to maximise the effectiveness, usefulness and survivability of the relevant ADF force elements.

Part 6: A2/AD force structure enhancements for Australia

As noted in Part 5, Australia's defence policy has changed significantly in the last decade, and its defence strategy has become more expeditionary and more focused on Australia's values and interests, rather than only on Australian territory. Alan Dupont argues that it is a nation's 'defence strategy … [that] provides a rationale for the use of the country's defence force and its size, structure and capabilities'.[345]

Coming the other way, Richard Brabin-Smith argues that 'the structure and posture [of the ADF] are the culmination of the government's response to the challenges of Australia's strategic environment'.[346] While there have been occasional inconsistencies between Australia's defence strategy and the ADF's force structure, Australia's defence capabilities have in the last decade nevertheless become more able to meet the demands of a globally-minded nation with global interests.

The Joint Operational Access Concept and its supporting Air-Sea Battle/Joint Concept for Access Maneuver in the Global Commons concept will have a significant impact on Australia, how it thinks about war in the Asia-Pacific, how it thinks of itself as an ally of the US, the development of its defence policy and strategy towards the US and China and, lastly, how it will structure and prepare the ADF for operations. In analysing Air-Sea Battle and what it means for Australia, Kelly argues that Air-Sea Battle:

> … will inevitably lead to a model of US power that is different to the one we see today. This has an impact on Australia. The reality is that the US shapes the character of warfare between states either directly, by defining how first rank states fight, or indirectly, by triggering avoidance behaviours. The US defines 'the conventional' as that for which we prepare. It is inevitable then that Air-Sea Battle provides [much of] the context for ADF concept and force development.[347]

Capability enhancements

Based on the six A2/AD warfare options from the previous section, it is assessed that there are four force structure enhancements to ADF capability that would reap significant dividends for Australia if they were pursued. This is because they would substantively add to the ADF's ability to undertake any of the aforementioned force options in the event of war in the Western Pacific. These are air and missile defence; long-range precision strike; chokepoint control; and enhanced logistics.

While these enhancements are required to counter A2/AD forces, they would also constitute an A2/AD capability in their own right. These enhancements would all find a place in the current defence principal tasks; they are not hamstrung by a 'concentric circle' view of defence strategy; they are not inflexibly aligned with either forward defence or defence of Australia; and they add balance to the ADF. They also align with the threat that exists to Australia, her territory and her interests in the 21st century. While a list of these enhancements could be very long, this paper will focus only on the abovementioned four, due to their assessed high payoff nature.

Funding for these options is critical as Australia's force structure 'aspirations must match … projected budget and resource allocations' because, in the words of then-Secretary of the Department of Defence Duncan Lewis, in recalling a maxim of former Secretary of Defence Sir Arthur Tange, '[i]f you haven't talked dollars, you haven't talked strategy'.[348] Therefore, indicative costs in Australian dollars have been included wherever practicable, noting that pricing details are approximate and derived from open-source literature. While none of the options is cheap, 'affordability' will be directly impacted by the nature of the threat as the situation in the Western Pacific evolves.

Air and missile defence

Ballistic missile defence is a critical issue for both the US and Australia—and Australia should address it far more cogently than it has. Andrew Davies and Rod Lyon have noted that there are two reasons why 'Australia should be interested in ballistic missile defence … [namely] national defence and theatre defence for deployed ADF elements'.[349] While they argue that there is no immediate need for a national defence capability, because only nuclear-tipped intercontinental ballistic missiles can reach Australia, they do reservedly note that 'as tactical/theatre ballistic missiles become more widespread—and become more effective against moving targets, such as ships—their potential applicability in the ADF's force structure will increase commensurately'.[350]

Dupont, however, strongly argues that '[a] balanced ADF also requires a capacity for theatre-level ballistic missile defence in order to combat advances in the range, use and lethality of ballistic missiles in the Indo-Pacific region', while Babbage also adds that 'in some future wars, Australia territory will be targeted' by an adversary's ballistic missiles.[351] Australia, therefore, needs to think more deeply about the threat and how to counter it.

In terms of theatre defence for deployed ADF elements, Davies *et al* have also noted that 'the arrival of the three AWDs [air warfare destroyers] could revive the debate about possible cooperation on sea-based … [theatre ballistic missile] defence, given that the ships will be equipped with the AEGIS combat system'.[352] In order to do this, Australia would also have to acquire the 'SM-3 interceptor, designed to intercept missiles in the mid-course phase, and an SM-2 interceptor, designed to intercept in the terminal phase'.[353] These missiles would, therefore, allow these ships to fully participate in a *Western Front* scenario where they could add significant value to the alliance.

While most of the current debate on ballistic missile defence in Australia has been fixated on the guided-missile destroyers and their AEGIS system, little thought appears to have been given to acquiring a land-based capability to defend Australia itself, probably because the threat is not yet clearly present and system effectiveness has not yet been sufficiently demonstrated. However, in just a few short years China's ballistic missile capability has moved ahead considerably and it is probably inevitable that it will eventually field conventional ballistic missile capabilities capable

of striking the Australia, because it already has nuclear-tipped intercontinental ballistic missiles that can. As Davies and Lyon concede, 'force structure thinking on a timescale of two or three decades is appropriate', so this is something Australia should give more thought to than it has.[354]

Additionally, China currently has a significant land-attack cruise missile capability that can be launched from ground launchers, long-range aircraft, warships and submarines. Hence, it already has the ability, through ships and submarines, to close with targets in Australia and launch attacks on them at ranges of 1500 kilometres. Therefore, theoretically nearly all Australian major military and C3I facilities could be struck from the sea, as they are generally not very far inland and Canberra itself is only several hundred kilometres inland. There are related issues here for Australia in retaining sufficient capabilities for its own defence in time of war.

As there are only three air-warfare/guided-missile destroyers, with only one, possibly two, available for deployment at any one time, Australia should therefore consider acquiring a number of modern ground-based air and missile defence systems capable of not only intercepting enemy ballistic and cruise missiles but also aircraft and remotely-piloted aircraft at all ranges and altitudes. If Australia was to acquire a land-based and missile defence capability, then systems such as Patriot and the Terminal High Altitude Area Defence (THAAD) system might be suitable.

Indicative pricings for two Terminal High Altitude Area Defence units (sufficient for the Darwin area and one forward deployed joint task force), including launchers, radars and logistics support, would be in the order of $9.3 billion.[355] Indicative pricings for four Patriot batteries (sufficient for the protection of the Darwin area, HMAS *Stirling* and two forward operating bases such as RAAF Curtin and/or RAAF Learmonth, infrastructure in the North West Shelf, Cocos and Christmas Islands, or bases that an air task group allocated to a *Western Front* or *forward defence* activity might operate from) with six launchers each (including radars, launchers, missiles, logistics and training) would likely cost approximately $7 billion.[356]

These systems would also free the RAAF from having to devote a significant proportion of its capability to defensive roles, thus increasing its ability to generate larger and hence more survivable strike missions. The defence, however, cannot compete with the offence in terms of numbers and costs, as only a small number of ballistic missiles need to successfully impact their targets in order to achieve significant operational effects. Therefore, the US and Australia would most likely intend to strike China's ballistic missiles before they could be launched—and this in turn would rely on long-range and survivable aircraft and missiles able to operate against very high threats.[357]

Long-range precision strike

The US manned strategic bomber force has, since the end of the Cold War, declined significantly. The US currently has only 155 bombers that have the range to strike across the Western Pacific—but only the B-2 is survivable in a high threat environment.[358] The US is starting to remediate these capabilities with the acquisition of between 80 to 100 Long Range Strike Bombers to replace the B-52 and B-1 but they will only be available in significant numbers by the mid to late 2020s.[359] The Long Range Strike Bomber is reported to cost US$550 million per aircraft, will operate alongside the B-2 fleet, and have an operational range of over 4500 kilometres.[360]

Australia's strike capability resides in its air combat fleet of 71 F/A-18A Hornets and 24 F/A-18F Super Hornets, with the former being replaced by 72 F-35As from 2018, with the first squadron operational from 2021, and with all operational by 2023.[361] The eight to 12 P-8As will also have a maritime strike capability in permissive environments. Notwithstanding the P-8As, all of Australia's strike aircraft have relatively short ranges of approximately 1100 to 1300 kilometres—and the KC-30A fleet is too small (even with seven aircraft) to make a substantive difference to a strike campaign.[362] As noted by the Centre for Strategic and Budgetary Assessments, '[t]here is therefore an urgent need for Australia to consider rebalancing its portfolio of short- and long-range … strike systems and to acquire additional tankers' in order to hold Chinese targets at risk.[363]

Longer range and more survivable strike options are clearly required. While additional tankers could be acquired, it is unlikely that the fleet could be doubled or even tripled due to their size and relatively low peacetime tasking level. [364] Land-attack cruise missiles are an option, as is engagement with the US on the Long Range Strike Bomber. In terms of the latter, Davies *et al* notes that:

> If it's possible to share in some of the development, or at least the end product, Australia would be a natural customer. While such a step would have seemed implausible once, being the only country to acquire a dedicated American electronic warfare aircraft (the Growler) shows that Australia can be a trusted recipient of sensitive American equipment. The capability would complement Australia's geography and would boost the total allied 'throw weight' for strike operations in the theatre. The first step would be for Australia to sound out the feasibility of collaboration.[365]

While the likely cost would be high, a fleet of 12 Long Range Strike Bombers aircraft could probably be acquired for approximately $10 billion, with another 50 per cent required for simulators, operational support systems, training, spares and dedicated facilities, thus totalling $15 billion.[366] When taken in the context of $19 billion for 14 Offshore Combatant Vessels, and in realisation of the strategic benefits of the Long Range Strike Bombers to Australia and the US alliance, the cost is arguably not unreasonable.[367] These strategic benefits not only include the ability to strike at very long range, with a significant quantity of weapons, in a highly survivable and low observable platform, against very high value targets, but also add significant value to the alliance and operate effectively from Australia.[368] An alternative could be to procure very long-range low-observable strike capable remotely-piloted aircraft, when this technology matures.

To complement rather than replace strike aircraft, the acquisition of land-attack cruise missiles, such as the Tomahawk Land Attack Missile (with a range of 1600 kilometres) or its even longer range replacement, would be another viable option to increase long-range strike options.[369] In an A2/AD scenario against China, submarine-launched Tomahawk Land Attack Missiles might be one of the few low-risk ways to strike high-value targets on either the Chinese homeland or its South China Sea territories in the early stages of conflict.

The 2009 Defence White Paper stated that the 'acquisition of a maritime-based land-attack cruise missile capability for the ADF will provide the Government with additional options to conduct long-range precision strike operations against hardened, defended and difficult to access targets' and that they would also minimise 'the exposure of ADF platforms and personnel to attack by enemy forces'.[370] However, as noted earlier, the 2013 Defence White Paper did not progress the land-attack cruise missile option.

Although 'submarines are slow to deploy and re-arm, and surface vessels will be at risk in future conflicts as potent anti-shipping weapons proliferate', and neither can be re-armed at sea, land-attack cruise missiles do increase the strike options available and they also increase the defensive challenges for the adversary.[371] Having a land-attack capability spread across a fleet of eight to 12 submarines and approximately 12 major surface combatants would provide significant operational flexibility.

Therefore, a total Tomahawk Land Attack Missile force could number between 144 and 192 weapons, with between 52 and 62 missiles at sea at any one time.[372] A Tomahawk missile costs approximately $850,000, so an operational capability, with an additional 50 per cent for logistics, infrastructure and training costs, could be achieved for between approximately $66 (52 missiles) and $245 (192 missiles) million, noting that if significant engineering works were required on the firing platforms, the costs would increase.[373]

With Long Range Strike Bombers and land-attack cruise missiles, Australia would have significant precision strike options across considerable ranges, and in high-threat environments, especially as China's 'ability to detect and intercept … stealthy aircraft and cruise missiles appears, at this point, to be limited'.[374] Together, they would act as a significant deterrent within Australia's defence strategy.

Long-range strike is not only conducted kinetically. It is, therefore, important that Australia continues to develop its 'defensive and offensive cyber capabilities, partly by expanding cooperation with the US and other close allies'.[375] Such capabilities would allow Australia to fully participate in Air-Sea Battle's cross domain synergy operations, such as using offensive cyber to selectively 'blind' China's air defence capabilities so as to allow manned strike aircraft to attack their targets without undue risk, or to infiltrate, disrupt and/or damage 'an opponent's critical command and control and other high-value electronic systems'.[376]

Chokepoint control

In reference to China's 2015 Defence White Paper and its move towards 'open seas protection', Raoul Heinrichs argues that '[t]he challenge now for Australian defence planners is to transform the ADF into a ship-killing A2/AD force, beginning with a comprehensive study of the threat and the capability sets needed to meet it'.[377] This line of logic is particularly relevant to the *distant blockade* option. It is assessed that two capabilities that could allow the ADF to better meet the requirement of controlling or denying the use of the strategic straits in the Indonesian archipelago are land-based anti-ship missiles and sea mines.

Both land-based anti-ship missiles and sea mines are classic sea-denial capabilities and constitute A2/AD capabilities in their own right. Notably, both of these weapons could also enhance Australia's defence of the Cocos and Christmas Islands against peripheral or intentional Chinese operations to attack or seize them.[378] Frühling has also argued that the use of the Army on islands (defensively or offensively) in Southeast Asia (and by extension the Australian offshore territories) 'would likely call for high-end capabilities including amphibious forces, land-based anti-ship cruise missiles and organic air defence'.[379]

A land-based anti-ship missile capability is rarely contemplated in Australia but received some attention in a lively Australian Strategic Policy Institute debate over late 2014 and into 2015.[380] Such a weapon system would be ideally suited to control the narrow strategic straits and stop Chinese warships from traversing them to the north or the south. Other nations already use this type of weapon—such as Japan in the Ryukyu Islands against a possible Chinese threat.[381]

As Jan Gleiman argues, '[l]and-based systems, especially if they are mobile, deployable and of limited range, will provide … a denial option' that lessens risk, provides flexibility and mitigates the system's vulnerability.[382] Four batteries of three launchers and missiles each (total of 12 launchers), and associated sensor and logistics vehicles, could be purchased for approximately $1 billion.[383] This acquisition could provide the ability to control or defend up to four straits or islands and free up Australia's limited number of aircraft, surface combatants and submarines to undertake more complex sea control and counter-A2/AD tasks.

Mine warfare in the academic discourse is, like ballistic missile defence, relatively one dimensional. The majority of intellectual effort goes into mine countermeasures rather than thinking about sea mines as an ADF weapon system. The capability to lay sea mines in the archipelago to Australia's north would have significant benefits in a *distant blockade* option. The RAN states that:

> The laying of even a limited minefield in port approaches, in focal areas, or in choke points can deny an adversary free access. A known or suspected minefield will compel an adversary to either accept the loss of access and associated costs or commit resources to lengthy and costly mine countermeasures operations. Minefields can be used protectively in support of allied shipping or aggressively against an adversary. A mining threat will affect an adversary through disruption of plans, hindrance of maritime activity, lowering of morale, and disruption of national economy.[384]

Australia has previously employed a limited type and number of air-dropped sea mines but no longer has this capability.[385] The US capability is also declining.[386] Australia should, therefore, re-acquire the capability to lay mines using aircraft, warships and submarines, so as to deny China the ability to traverse the key straits in the Indonesian archipelago and provide a useful

capability to the alliance. While costs are unavailable, it is often noted that 'their low cost belies their potential for harm'.[387]

A sea denial, or Australian A2/AD capability, built around land-based anti-ship missiles and sea mines would be a powerful deterrent to China from entering or attempting to traverse the archipelago, and would significantly add to the US' overall 'distant blockade' strategy. Missiles and mines would also best work together, as the anti-ship missiles could stop the minefields from being cleared by Chinese mine counter-measure vessels.[388]

Enhanced logistics

Weapons and fuel are key elements of logistics which are especially critical to a counter-A2/AD campaign in the Western Pacific, because targets would be numerous and well defended, and the operational distances to them are significant. All of the aforementioned force options in Part 5 will, therefore, heavily tax ADF logistics. Fuel and ammunition, especially US-sourced precision-guided munitions, will likely be used at extremely high rates in any counter-A2/AD operation.

Van Tol argues that 'expenditure rates of precision-guided munitions during previous conflicts have been extraordinarily (and always unexpectedly) high' and that 'precision-guided munition expenditures in a Sino-US conflict of the type … would almost surely be similarly high'.[389] Australia, therefore, needs to think through what this means since all of its precision-guided munitions are purchased from the US. Babbage for example, argues that 'the assumption that, in the event of a major security crisis in the Pacific, Australia could rely on speedy and tailored military resupply from the US is almost certainly invalid'.[390] Realistic and, no doubt, expensive stock holding options therefore need to be developed and appropriately resourced if Australia is to be, and be seen to be, a committed alliance partner of the US.

The 2012 *Force Posture Review* argued that 'fuel supply [was] a critical factor in the sustainability of our force posture' and cited real concerns with the capacity and limitations of a number of Air Force bases.[391] It also cited concerns with Australia's national stockholding levels. This theme has been picked up by John Blackburn who notes that '51 per cent of Australia's imported petroleum products come from Singapore', at the southern end of the Straits of Malacca and the South China Sea, and hence in a key area of vulnerability in terms of any potential conflict between China and the US.[392] Additionally, he points out that Australia has 'about three weeks' worth of oil and refined fuels' as its strategic reserve—backing the *Force Posture Review* concerns.[393] Blackburn also notes that '[i]f a scenario such as a confrontation in the Asia-Pacific region were to happen, our fuel supplies could be severely constrained and we do not have a viable contingency plan in place to provide adequate supplies'.[394]

Australia clearly needs to address its weapons and fuel stockholdings policy, and ensure that the ADF is appropriately provisioned for what could be a lengthy and high tempo future war against China. All of the possible force deployment options analysed above require weapons and fuel for the ADF to operate and succeed. If nothing else, building up Australia's stockholdings would also be a move supportive of the US alliance.

The analysis of these force structure options has shown that, without unbalancing the ADF, it is possible for it to acquire several capabilities that would significantly enhance its effectiveness, usefulness and survivability, and add significant value to the US alliance.

Conclusion

This paper has entered into the realm of 'thinking about the unthinkable'—Australia fighting China, alongside the US, in the face of a modernised Chinese military with a very capable A2/AD force.[395] This is something clearly no-one would want—but that does not mean that it may not happen one day. Indeed, van Tol argues that 'it should be emphasized … that the purpose of "thinking about the unthinkable" is that by doing so, ways can be found to sustain and enhance a stable military balance in the Western Pacific, thus keeping conflict in the domain of the "unthinkable".[396]

In this case, such an outcome is likely to be achieved through the concept of deterrence. Paraphrasing Clausewitz, deterrence requires that a country wishing to deter another country should not only have the capability to compel the enemy to do its will but that it should be ready to do so.[397] By Australia thinking about and then articulating a clear defence policy and strategy, and then developing an ADF force structure that, while fundamentally balanced, has within it key high-end counter-A2/AD and A2/AD capabilities that would allow it to fight alongside the US, Australia could add real weight to the US' ongoing rebalance efforts to deter China.

This paper has argued that the rise of China, its rapid military modernisation, and its increasing assertiveness in the South and East China Seas and the Taiwan Straits has not only heightened concern within the region and by the US but that there is increasing potential, due to miscalculation, for a flashpoint to cause confrontation or conflict. It has also argued that America's strategic and operational responses to these challenges, through the 'rebalance', and the Joint Operational Access Concept and Air-Sea Battle concept, should prompt Australia to think more clearly about A2/AD warfare in the Western Pacific.

This means that Australia should develop a range of robust military options to counter China's A2/AD capabilities alongside the US if required to do so. The six options developed in this paper are *Western Front, forward defence, distant blockade, peripheral operations, safe base* and *knowledge edge.*

The paper has assessed that in the event of confrontation or conflict, Australia could provide limited but highly-capable and survivable forces that could be easily integrated with the main US effort against China in the Western Pacific. This force could operate anywhere in the 'middle seas'. Such a capability, allocated to the 'main fight', would provide Australia with access to the campaign's key strategic and operational level decision-making and also be a visible reminder of Australia's alliance commitment. It would be akin to Australia's commitment to the *Western Front* in the First World War—against the main enemy in the main theatre.

Additionally, the South China Sea is likely to be a significant area of concern for Australia because it is much closer than the other flashpoints and is in a region that Australia has consistently given heightened attention to, as evidenced by it being included as the 2013 Defence White Paper's third principal task. This would require a sustained presence—analogous to *forward defence*—and be pitted against Chinese forces and outposts in the southern flank of the first island chain.

Another option might be to participate in a *distant blockade* of China—out of range of most of China's A2/AD capabilities but nevertheless a very useful contribution to a key US line of effort, and well within Australia's capability and capacity. This option would include a focus on the strategic chokepoints of the Straits of Malacca, and the Sunda, Lombok and Makassar Straits.

Australian forces could also neutralise Chinese forces that were beyond the second island chain at the commencement of hostilities in the Indian and Pacific Oceans. These types of *peripheral operations* would be analogous to the early operations of the First World War in New Guinea and the South West Pacific, when the Navy, and the Australian Naval and Military Expeditionary Force, attacked and captured German colonies, radio outposts and shipping.

Regardless of the above options, Australia could be expected to support the alliance through *safe base,* by the provision of enhanced logistics and dispersal options for US forces so that they could be sustained and supported outside of China's A2/AD threat envelopes. Also, through *knowledge edge*, it could also be expected to provide a high level of ISR support to the war effort. Australia would also have to be capable of defending itself, and its offshore territories, against possible Chinese attack.

It is assessed that the abovementioned force options give Australia real options in how it might meet its alliance commitment to the US in a war with China. It is also assessed that any future Australian government, faced with such a critical decision, would in all likelihood select aspects of each of the options, where ADF concurrency requirements allowed.

The paper then turned its attention to the capabilities the ADF would be required to develop in order to more effectively undertake the aforementioned warfighting options. Four force structure options were developed: air and missile defence, long-range precision strike, chokepoint control, and enhanced logistics.

The acquisition of a defence to counter China's ever expanding ballistic and cruise capabilities should be pursued. Australia, like the US, should also address its deficiency in long-range strike and over reliance on relatively short-range platforms and weapons. It should, therefore, consider buying into the US Long Range Strike Bomber program, which is more affordable than most would think, and acquire land-attack cruise missiles—and place these missiles on as many firing platforms as possible to maximise force options.

In order to actualise the *distant blockade* option, the paper has also suggested that Australia should invest in capabilities that would allow key chokepoints and islands to be controlled—such as ground-launched anti-ship cruise missiles and sea mines—thus freeing up its air power, surface combatants and submarines for broader ranging and higher priority tasks. Australia also needs to significantly enhance its logistics capability, especially its weapons, ammunition and fuel holdings, and make their resupply more reliable and resilient.

It is clear that, however unpleasant, Australia needs to starting thinking about A2/AD and start planning the 'unthinkable'. Ignoring it will not make it a less likely event.

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73 Tangredi, *Anti-Access Warfare:* p. 166.

74 Medcalf and Brown, *Defence Challenges 2035*, pp. 5-6.

75 Ron Huisken, *Introducing China: The world's oldest great power charts its next comeback*, Australian National University: Canberra, 2010, pp. 62-3. In other words, the striking of Chinese airfields, ports and logistics facilities in China that are either supporting or undertaking direct offensive operations against Taiwan or US forces.

76 Michael Wesley, 'Australia's interests in the South China Sea', in Buszynski and Roberts, *The South China Sea and Australia's Regional Security Environment*, p. 46. If war were to take place in East Asia, much of this trade could be re-routed by other, albeit longer, sea lanes—except trade to and from China itself.

77 John Blackburn, *Australia's Liquid Fuel Security: A report for NRMA Motoring and Services*, February 2013, p.13, available at <http://www.mynrma.com.au/media/Fuel_Security_Report.pdf> accessed 4 February 2015.

78 Medcalf and Brown, *Defence Challenges 2035,* pp. 5-6.

79 Hedley Bull, *The Anarchical Society: A study of order in world politics*, 4th Edition, Columbia University Press: New York, 2002, p. 13; used in Richard Keir, 'What are Australia's national security interests in the South China Sea?', Australian Defence College, Canberra, August 2015, p. 2, available at <http://www.defence.gov.au/ADC/Publications/IndoPac/KeirIPSPaper.pdf> accessed 16 September 2015.

80 US Department of State, '2015 Australia-US ministerial joint statement', *State Department* [website], 13 October 2015, available at <http://www.state.gov/r/pa/prs/ps/2015/10/248170.htm> accessed 16 October 2015.

81 Kaplan, 'The geography of Chinese power', p. 22.

82 The 'century of humiliation' is the Chinese term for the period between the First Opium War in 1839 and the Communist victory in 1949. It is the period of Chinese history where it was the subject of Western and Japanese invasion and its loss of independence.

83 The State Council Information Office of the People's Republic of China, *China's Military Strategy*. It goes on to state that 'it is necessary for China to develop a modern maritime military force structure commensurate with its national security and development interests, safeguard its national sovereignty and maritime rights and interests, protect the security of strategic SLOCs and overseas interests, and participate in international maritime cooperation, so as to provide strategic support for building itself into a maritime power'.

84 US Department of Defense, *Annual Report to Congress (2015)*, p. i.

85 Eric Heginbotham, *The US-China Military Scorecard: Forces, geography, and the evolving balance of power 1996-2017*, RAND: Santa Monica, 2015, pp. xxx-xxxi. It goes on to state 'but it does not need to catch up to the US to dominate its immediate periphery.The advantages conferred by proximity severely complicate US military tasks while providing major advantages to the PLA'.

86 The State Council Information Office of the People's Republic of China, *China's Military Strategy*. The document also states that the PLA's strategic tasks include: 1. To deal with a wide range of emergencies and military threats, and effectively safeguard the sovereignty and security of China's territorial land, air and sea; 2. To resolutely safeguard the unification of the motherland; 3. To safeguard China's security and interests in new domains; 4. To safeguard the security of China's overseas interests; 5. To maintain strategic deterrence and carry out nuclear counterattack; 6. To participate in regional and international security cooperation and maintain regional and world peace; 7. To strengthen efforts in operations against infiltration, separatism and terrorism so as to maintain China's political security and social stability; and 8. To perform such tasks as emergency rescue and disaster relief, rights and interests protection, guard duties, and support for national economic and social development.

87 The State Council Information Office of the People's Republic of China, *China's Military Strategy*.

88 Holslag, *Trapped Giant,* p. 26, quoting from Andrew Scobell, *China's Use of Military Force*, Cambridge University Press: Cambridge and New York, 2003, p. 193.

89 Holslag, *Trapped Giant,* pp. 70-1.

90 For example, China has pre-emptively attacked other states during the Korean War, the 1962 Sino-India War and the 1979 Sino-Vietnamese War and, as previously mentioned, it has used force on several occasions in the South China Sea.

91 Friedberg, *Beyond Air-Sea Battle,* p. 17.

92 Friedberg, *Beyond Air-Sea Battle,* p. 17.

93 Friedberg, *Beyond Air-Sea Battle*, p. 22.

94 Mark Stokes, *China's Strategic Modernization: Implications for the United States,* Strategic Studies Institute: Carlisle, 1999, p. 97.

95 Stokes, *China's Strategic Modernization*, p. 97.

96 M. Taylor Fravel and Christopher Twomey, 'Projecting strategy: the myth of Chinese counter-intervention', *The Washington Quarterly*, Vol. 37, No. 4, Winter 2015, p. 175.

97 US Department of Defense, *Annual Report to Congress (2015)*, p. 33.

98 US Department of Defense, *Annual Report to Congress (2015)*, p. i.

99 US Department of Defense, *Annual Report to Congress (2009)*, p. 87.

100 Haddick, *Fire on the Water*, p. 182.

101 The State Council Information Office of the People's Republic of China, *China's Military Strategy.*

102 US Department of Defense, *Annual Report to Congress (2015)*, p. 37.

103 US Department of Defense, *Annual Report to Congress: Military and security developments involving the People's Republic of China 2009*, US Department of Defense: Washington DC, 2009, p. 20. The term has not been used officially by the US since the 2009 report.

104 Schreer, *Planning the Unthinkable War*, p. 8.

105 Hugh White, *The China Choice*, Black Inc Books: Collingwood, 2012, pp. 69-70.

106 Tangredi, *Anti-Access Warfare,* p. 163.

107 Friedberg, *Beyond Air-Sea Battle,* p. 48.

108 The State Council Information Office of the People's Republic of China, *China's Military Strategy*.

109 The State Council Information Office of the People's Republic of China, *China's Military Strategy*.

110 At the same time, however, these force structure changes may in the future present opportunities for other A2/AD oriented nations, just as the US and its allies currently present opportunities to China's A2/AD forces.

111 US Department of Defense, *Annual Report to Congress (2015)*, p. 8. Of note, the International Institute for Strategic Studies in *The Military Balance 2015,* pp. 239-40, lists the following types and numbers:

70 submarines (including 4 SSBN, 5 SSN, 60 SSK and 1 SSB), one aircraft carrier, 17 destroyers, 54 frigates, 223 plus coastal combatants, 53 mine warfare vessels, 88 amphibious vessels (ships, not craft) and 211 logistics and support vessels. The Pentagon report goes on to state that 'whereas "near seas" defense remains the PLA Navy's primary focus, China's gradual shift to the "far seas" has necessitated that its Navy support operational tasks outside the first island chain with multi-mission, long-range, sustainable naval platforms with robust self-defense capabilities'.

112 US Department of Defense, *Annual Report to Congress (2015)*, p. 35.

113 US Department of Defense, *Annual Report to Congress (2015)*, p. 35.

114 US Department of Defense, *Annual Report to Congress (2015)*, p. 35.; US Office of Navy Intelligence, *The PLA Navy: New capabilities and missions for the 21st century*, Office of Navy Intelligence: Washington DC, 2015, p. 17.

115 Holslag, *Trapped Giant*, pp. 45-6.

116 Holslag, *Trapped Giant*, pp. 46-7.

117 For example, the supersonic YJ-83 surface to surface missile has a range of 200 kilometres.

118 Holslag, *Trapped Giant*, p. 47.

119 Although still not assessed as being near the US, Japan or Australia in capability.

120 Holslag, *Trapped Giant*, pp. 43-5.

121 Haddick, *Fire on the Water*, pp. 15-6.

122 The State Council Information Office of the People's Republic of China, *China's Military Strategy*.

123 US Department of Defense, *Annual Report to Congress (2015)*, p. 11.

124 US Department of Defense, *Annual Report to Congress (2015)*, p. 11.

125 International Institute for Strategic Studies, *The Military Balance 2015*, p. 242. For an excellent explanation of what differentiates the five generations of fighter aircraft, see Air Power Development Centre, *Five Generations of Jet Fighter Aircraft*, Air Power Development Centre: Canberra, January 2012, available at <http://airpower.airforce.gov.au/Publications/List/41/Pathfinder.aspx?page=4> accessed 3 August 2015.

126 US Department of Defense, *Annual Report to Congress (2015)*, p. 87.

127 Andrew Krepinevich, *Why AirSea Battle?*, Center for Strategic and Budgetary Assessments: Washington, DC, 2010, p. 21.

128 Thomas McCabe, *China's Air and Space Revolutions: China as an emerging air and space superpower*, Mitchell Institute: Portland, April 2013, p. 4.

129 International Institute for Strategic Studies, *The Military Balance 2015*, p. 242.

130 McCabe , *China's Air and Space Revolutions*, pp. 5-6.

131 International Institute for Strategic Studies, *The Military Balance 2015*, p. 241.

132 International Institute for Strategic Studies, *The Military Balance 2015*, p. 241.

133 Holslag, *Trapped Giant*, p. 45.

134 US Department of Defense, *Annual Report to Congress (2015)*, p. 12.

135 US Department of Defense, *Annual Report to Congress (2015)*, p. 12.

136 US Department of Defense, *Annual Report to Congress (2015)*, p. 8. This number includes short-range ballistic missiles, medium-range ballistic missiles, intermediate-range ballistic missiles, intercontinental ballistic missiles and land-attack cruise missiles. The name of the Second Artillery Force was changed on 1 January 2016 to the 'People's Liberation Army Rocket Force'.

137 US Department of Defense, *Annual Report to Congress (2015)*, pp. 33-4. The report goes on to state that 'US bases in Japan are in range of a growing number of Chinese MRBMs [medium-range ballistic missiles] as well as a variety of LACMs [land-attack cruise missiles]. Guam could also possibly be targeted by air-launched LACMs. Foreign press and Chinese military bloggers indicate that China is also developing a new advanced IRBM [intermediate-range ballistic missile] with the capability to strike targets at ranges up to 4000 kilometres from the Chinese coast, which would include US bases on Guam.'

138 US Department of Defense, *Annual Report to Congress (2015)*, p. 8. The DF-21D, for example, had a prime role in the 70th anniversary of the Second World War victory parade held on 3 September 2015, so it continues to be a key part of China's deterrence measures against the US.

139 It is worth noting that the difficulty in attempting to hit an underway ship at 1500 kilometre range with a DF-21D missile is much greater than attempting to hit a stationary target, such as an airfield or port at the same distance, and is reliant on an exceptionally capable, robust and functioning ISR system and C3I network.

140 US Department of Defense, *Annual Report to Congress (2015)*, p. 8.

141 US Department of Defense, *Annual Report to Congress (2015)*, pp. 36-7.

142 Heginbotham, *The US-China Military Scorecard*, p. 157.

143 Heginbotham, *The US-China Military Scorecard*, p. 157.

144 Friedberg, *Beyond Air-Sea Battle*, pp. 28-9.

145 US Department of Defense, *Annual Report to Congress (2015)*, p. 87.

146 Holslag, *Trapped Giant*, p. 45.

147 US Department of Defense, *Annual Report to Congress (2015)*, p. 35.

148 Rory Medcalf, 'China makes statement as it sends naval ships off Australia's maritime approaches', *The Interpreter* [website], 7 February 2014, available at <http://www.lowyinterpreter.org/post/2014/02/07/China-makes-statement-as-it-sends-naval-ships-off-Australias-maritime-approaches.aspx> accessed 8 October 2015.

149 Department of Defence, *Defence Issues Paper 2014 – A discussion paper to inform the 2015 Defence White Paper*, p. 44.

150 Andrew Greene, 'South China Sea: audio reveals RAAF plan issuing warning to Chinese navy during 'freedom of navigation' flight', 15 December 2015, available at <http://www.abc.net.au/news/2015-12-15/audio-captures-raaf-challenging-chinese-navy-in-south-china-sea/7030076> accessed 15 December 2015.

151 Green *et al*, *The ANZUS Alliance in an Ascending Asia*, p. 25.

152 US Department of State, '2015 Australia-US Ministerial joint statement'. The USS *Lassen*, a guided-missile destroyer, conducted the most recent US freedom of navigation patrol in the South China Sea on 27 October 2015. Several days later, an RAN task group made up of the frigates HMAS *Stuart* and HMAS *Arunta* and the replenishment vessel HMAS *Sirius*, sailed south through the South China Sea on their return from visiting PLAN bases.

153 Green *et al*, *The ANZUS Alliance in an Ascending Asia*, p. 7.

154 Mahnken, *Asia in the Balance*, p. 5.

155 Mahnken, *Asia in the Balance*, p. 1.

156 White, 'Power shift', p. 36.

157 Hillary Clinton, 'America's pacific century', *Foreign Policy*, 11 October 2011, available at <http://foreignpolicy.com/2011/10/11/americas-pacific-century/> accessed 7 August 2015.

158 Barak Obama, 'Remarks by President Obama to the Australian Parliament', *White House* [website], 17 November 2011, available at <https://www.whitehouse.gov/the-press-office/2011/11/17/remarks-president-obama-australian-parliament> accessed 31 May 2015.

159 Obama, 'Remarks by President Obama to the Australian Parliament'.

160 David Shambaugh, 'Assessing the US "pivot" to Asia', *Strategic Studies Quarterly*, Vol. 7, No. 2, Summer 2013, p. 10.

161 Shambaugh, 'Assessing the US "pivot" to Asia'.

162 And incidentally is still the latest version of this document.

163 US Department of Defense, *Sustaining US Global Leadership: Priorities for 21st century defense*, US Department of Defense: Washington DC, 3 January 2012, p. 2, available at <http://www.defense.gov/news/Defense_Strategic_Guidance.pdf> accessed 4 July 2015.

164 US Department of Defense, *2014 Quadrennial Defense Review*, US Department of Defense: Washington DC, 4 March 2014, p. 16, available at <http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf> accessed 4 July 2015.

165 The White House, *National Security Strategy*, p. 24.

166 US Department of Defense, *The National Military Strategy of the United States of America*, US Department of Defense: Washington DC, June 2015, p. 9, available at <http://www.jcs.mil/Portals/36/Documents/Publications/2015_National_Military_Strategy.pdf> accessed 4 July 2015.

167 US Department of Defense, *Sustaining US Global Leadership*, pp. 4-5.

168 US Department of Defense, *2014 Quadrennial Defense Review*, pp. 34-5.

169 US Department of Defense, *2014 Quadrennial Defense Review*, pp. 34-5.

170 US Department of Defense, *The National Military Strategy of the United States of America*, p. 16.

171 Robert Fensom, 'Asia's winners and losers from $30 trillion Trans-Pacific Partnership', *The National Interest* [website], 20 October 2015, available at <http://nationalinterest.org/feature/asia%E2%80%99s-winners-losers-the-30-trillion-trans-pacific-14132> accessed 21 October 2015. The Trans-Pacific Partnership currently has agreement from Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, US and Vietnam. Other nations are likely to follow.

172 Green *et al, The ANZUS Alliance in an Ascending Asia*, p. 11.

173 Green *et al, The ANZUS Alliance in an Ascending Asia*, p. 11.

174 Some of this reorientation has also been caused by the natural inclination towards the Middle East by Secretary of State John Kerry, who replaced Clinton in February 2013.

175 Andrew Davies, Peter Jennings, Daniel Nichola and Benjamin Schreer, *Expanding Alliance: ANZUS cooperation and Asia-Pacific security*, ASPI: Canberra, September 2014, p. 8.

176 Green *et al*, *The ANZUS Alliance in an Ascending Asia*, p. 12.

177 Yusuke Ishihara, 'Japan-Australia defence cooperation in the Asia-Pacific region', in William Tow and Tomonori Yoshizaki (eds,), *Beyond the Hub and Spokes: Australia-Japan security cooperation*, National Institute for Defense Studies: Tokyo, 2014, pp. 92-122; Green *et al*, *The ANZUS Alliance in an Ascending Asia*, p. 13.

178 Hayley Channer, *Steadying the US Rebalance to Asia: The role of Australia, Japan and South Korea*, ASPI: Canberra, 2014, p. 3.

179 Gordon Arthur, 'US Marine deployment in Darwin – "bordering on the remarkable"', *Asia-Pacific Defence Reporter,* 30 October 2012, available at <http://www.asiapacificdefencereporter.com/articles/266/us-marine-deployment-in-darwin-bordering-on-the-remarkable> accessed 13 September 2015.

180 Channer, *Steadying the US Rebalance to Asia*, p. 3.

181 Channer, *Steadying the US Rebalance to Asia*, p. 3.

182 Tangredi, *Anti-Access Warfare*, p. 1.

183 Krepinevich, *Why AirSea Battle?*, p. 6.

184 Krepinevich, *Why AirSea Battle?*, p. 9.

185 Tangredi, *Anti-Access Warfare*, p. 2.

186 Carl von Clausewitz, *On War*, translated by Michael Howard and Peter Paret, Oxford University Press: Oxford, 2007, p. 242.

187 Although the US can withdraw (either temporarily or permanently) to its homeland in North America if it either has to or wishes to, China cannot. I am indebted to Commodore Lee Cordner, AM, RANR, for this observation.

188 Jan van Tol, *AirSea Battle: A point-of-departure operational concept,* Center for Strategic and Budgetary Assessments: Washington DC, 2010, pp. 12-3. Van Tol goes on to state that 'the US military must transport virtually everything it needs across thousands of miles to sustain operations against an adversary operating in its "front yard". Yet another unfavorable asymmetry confronting US forces is the concentration of their logistics around a few key nodes. The main Air Force and Navy

bases on US territory in the Western Pacific are located on the island of Guam, the major logistics node for all US military operations in the Western Pacific. This creates enormous logistical vulnerabilities that could offer the PLA the opportunity (and perhaps even the *incentive*) to cripple US power-projection capability by attacking and incapacitating a handful of soft facilities. In contrast, China enjoys the advantages of the strategic depth conferred by its large landmass'.

189 Krepinevich, *Why AirSea Battle?*, p. 2.

190 Indeed, not since the Second World War, when US forces had to cross the Atlantic Ocean in the face of the German U-Boat menace in order to fight in Africa and Europe (and to a lesser degree, Japanese submarines in the Pacific War), has the US truly faced a capable anti-access threat in time of war.

191 US Department of Defense, *Joint Operational Access Concept*, p. 2.

192 US Department of Defense, *Joint Operational Access Concept*, p. 2.

193 Tangredi, *Anti-Access Warfare*, p. 32.

194 Tangredi, *Anti-Access Warfare,* pp. 52-3. *Air-Sea Battle* has a philosophical connection to *AirLand Battle*—the joint US Air Force and US Army concept of the 1970s and 1980s which was designed to defeat the Soviet Army on the plains of Europe by combining conventional land and air power to attack in depth.

195 Kelly, 'Fighting China', p. 157.

196 Schreer, *Planning the Unthinkable War*, p. 17.

197 US Department of Defense, *Joint Operational Access Concept*, p. i.

198 US Air-Sea Battle Office, *Air-Sea Battle*, p. 2.

199 Tangredi, *Anti-Access Warfare,* p. 33.

200 Tangredi, *Anti-Access Warfare,* p. 34.

201 US Department of Defense, *Joint Operational Access Concept*, p. ii. The document goes on to state 'to establish superiority in some combination of domains that will provide the freedom of action required by the mission. The combination of domain superiorities will vary with the situation, depending on the enemy's capabilities and the requirements of the mission. Superiority in any domain may not be widespread or permanent; it more often will be local and temporary. Attaining cross-domain synergy to overcome future access challenges will require a greater degree of integration than ever before'.

202 US Department of Defense, *Joint Operational Access Concept*, p. 16.

203 Kelly, 'Fighting China', p. 159.

204 Tangredi, *Anti-Access Warfare,* p. 181.

205 US Air-Sea Battle Office, *Air-Sea Battle*, p. 4.

206 US Air-Sea Battle Office, *Air-Sea Battle*, p. 4.

207 US Air-Sea Battle Office, *Air-Sea Battle*, p. 4.

208 US Air-Sea Battle Office, *Air-Sea Battle*, p. 4.

209 US Joint Staff, *Joint Concept for Access and Maneuver in the Global Commons*; Sam LaGrone, 'Pentagon drops Air Sea Battle name, concept lives on', *US Naval Institute* [website], available at <http://news.usni.org/2015/01/20/pentagon-drops-air-sea-battle-name-concept-lives> accessed 19 April 2015.

210 LaGrone, 'Pentagon drops Air Sea Battle name, concept lives on'. There have been recent indications that a 'Third Offset Strategy' might displace the Joint Concept for Access and Maneuver in the Global Commons. The First Offset Strategy was a US nuclear strategy to offset the Soviet Union's larger conventional force in the 1950s, and the Second Offset Strategy utilised US advantages in conventional long-range precision strike to offset the larger Soviet ground force in Europe in the 1970s: see Greg Raymond, 'What's displacing Air Sea Battle in US military planning?', *East Asia Forum* [website], 1 October 2015, available at <http://www.eastasiaforum.org/2015/10/01/whats-displacing-air-sea-battle-in-us-military-planning/> accessed 21 October 2015.

211 US Department of Defense, *Sustaining US Global Leadership*, pp. 4-5.

212 US Department of Defense, *2014 Quadrennial Defense Review*, p. 6.

213 US Department of Defense, *The National Military Strategy of the United States of America*, p. 16.

214 van Tol, *AirSea Battle*; Friedberg, *Beyond Air-Sea Battle*, p. 79; Tangredi, *Anti-Access Warfare*, p. 58.

215 Tangredi, *Anti-Access Warfare*, p. 169.

216 van Tol, *AirSea Battle*, p. 29.

217 van Tol, *AirSea Battle*, pp. 20-1; Friedberg, *Beyond Air-Sea Battle,* pp. 73-104; Tangredi, *Anti-Access Warfare*, pp. 161-82.

218 van Tol, *AirSea Battle*, p. 23; Friedberg, *Beyond Air-Sea Battle*, pp. 73-104; Tangredi, *Anti-Access Warfare*, pp. 161-82.

219 van Tol, *AirSea Battle*, p. 53; Friedberg, *Beyond Air-Sea Battle*, pp. 73-104; Tangredi, *Anti-Access Warfare*, pp. 161-82.

220 van Tol, *AirSea Battle*, p. 53.

221 van Tol, *AirSea Battle*, p. 53; Friedberg, *Beyond Air-Sea Battle*, pp. 73-104; Tangredi, *Anti-Access Warfare*, pp. 161-82.

222 Haddick, *Fire on the Water*, pp. 61-70; Heginbotham, *The US-China Military Scorecard*, pp. xxxi-xxxii. If China's 'anti-navy' capabilities have a range of 2000 kilometres, and short-ranged aircraft such as F-35s and F/A-18s have a range of approximately 1100-1300 kilometres, and Tomahawk Land Attack Cruise Missiles have a range of 1600 kilometres—all US platforms and weapons have to enter the range of China's systems.

223 van Tol, *AirSea Battle*, p. 17.

224 Amitai Etzioni, 'Who authorised preparations for war against China?', *Yale Journal of International Affairs*, Summer, 2013, p. 42.

225 Etzioni, 'Who authorised preparations for war against China?'; Amitai Etzioni, 'Air Sea Battle: a case study in structural inattention and subterranean forces', *Armed Forces & Society,* 2014, pp. 1-23, available at <http://aladinrc.wrlc.org/bitstream/handle/1961/16859/Etzioni_Air%20Sea%20Battle.AFS.pdf?sequence=1> accessed 2 May 2015.

226 White, *The China Choice*, pp. 76-7.

227 White, *The China Choice*, pp. 78-81; van Tol, *AirSea Battle*, p. 50.

228 T.X. Hammes, *Offshore Control: A proposed strategy for an unlikely conflict*, Institute for National Strategic Studies, National Defense University: Washington DC, June 2012; Stephan Frühling, *Defence Planning and Uncertainty: Preparing for the next Asia-Pacific war*, Routledge: London, 2014, p. 157; Schreer, *Planning the Unthinkable War*, p. 19.

229 Friedberg, *Beyond Air-Sea Battle*, p. 21.

230 Medcalf and Brown, *Defence Challenges 2035*, p. 2.

231 Medcalf and Brown, *Defence Challenges 2035*, p. 2.

232 Babbage, *Game Plan – The case for a new Australian grand strategy*, p. 2.

233 Peter Dean, 'ANZUS: the 'Alliance' and its future in Asia', in Peter Dean, Stephan Frühling and Brendan Taylor (eds.), *Australia's Defence: Towards a new era?*, Melbourne University Publishing: Melbourne, 2014, pp. 225-6.

234 Schreer, *Planning the Unthinkable War*, p. 32.

235 Davies *et al*, *Expanding Alliance*, p. 6; Department of the Prime Minister and Cabinet, *Strong and Secure*, p. 22.

236 Department of Defence, *Defence Issues Paper 2014 – A discussion paper to inform the 2015 Defence White Paper*, pp. 16-7.

237 Alex Oliver, *The Lowy Institute Poll 2015*, Lowy Institute for International Policy: Sydney, June 2015, p. 9.

238 Green *et al, The ANZUS Alliance in an Ascending Asia*, p. 9.

239 As a result of the 1986 decision by the US to suspend its treaty obligations with New Zealand, because of its unwillingness to allow US nuclear-armed or -powered warships into its territorial waters, ANZUS is now a two-party agreement.

240 Bisley and Taylor, *Conflict in the East China Sea*, p. 20.

241 Dean *et al*, *Australia's Defence*, p. 306 (copy of the Treaty).

242 Dean *et al*, *Australia's Defence*, p. 306 (copy of the Treaty).

243 Dean *et al*, *Australia's Defence*, p. 306 (copy of the Treaty).

244 Green *et al*, *The ANZUS Alliance in an Ascending Asia*, p. 19.

245 Green *et al*, *The ANZUS Alliance in an Ascending Asia*, p. 8.

246 Bisley and Taylor, *Conflict in the East China Sea*, p. 22.

247 White, 'Power Shift', p. 8; Rod Lyon, *Strategic Contours: The rise of Asia and Australian strategic policy*, ASPI: Canberra, July 2012, p. 10.

248 Bisley and Taylor, *Conflict in the East China Sea*, p. 17.

249 Bisley and Taylor, *Conflict in the East China Sea*, pp. 16-7.

250 Dean, 'ANZUS', p. 214.

251 Dean, 'ANZUS', p. 219.

252 Bisley and Taylor, *Conflict in the East China Sea*, pp. 27-8.

253 Bisley and Taylor, *Conflict in the East China Sea*, pp. 27-8.

254 Medcalf and Brown, *Defence Challenges 2035*, p. 6. It goes on to state that 'at the same time, Australian interests would be grievously affected by US-China or Japan-China conflict, even if Australia endeavoured to stay out; the regional and global economic and rules-based order would be shaken even if hostilities were quickly brought under control. All of this makes a major war in Asia one of the relatively low-probability but very high-impact risks that Australia cannot afford to ignore'.

255 Channer, *Steadying the US Rebalance to Asia*, p. 6.

256 Ric Smith, *The Long Rise of China in Australian Defence Strategy*, Lowy Institute: Sydney, April 2009, pp. 6-7.

257 Department of Defence, *Defending Australia in the Asia Pacific Century*, p. 34.

258 Department of Defence, *Defending Australia in the Asia Pacific Century*, p. 34.

259 Brendan Taylor, 'The Defence White Paper 2013 and Australia's strategic environment', *Security Challenges*, Vol. 9, No. 2, Winter 2013, p. 15.

260 Paul Dibb, 'Defence policymaking', in Dean *et al*, *Australia's Defence*, p. 177.

261 Department of Defence, *Defending Australia in the Asia Pacific Century*, p. 86.

262 Taylor, 'The Defence White Paper 2013 and Australia's Strategic Environment', p. 15.

263 Department of Defence, *Defence White Paper 2013*, p. 32.

264 Taylor, 'The Defence White Paper 2013 and Australia's strategic environment', p. 16.

265 Andrew Shearer, *Australian Defense in the Era of Austerity: Mind the expectation gap*, American Enterprise Institute: Washington DC, 22 August 2013, available at <https://www.aei.org/publication/australian-defense-in-the-era-of-austerity-mind-the-expectation-gap/> accessed 13 July 2015.

266 Cameron Stewart, 'China fear prompts maritime spending', *The Australian*, 12 September 2015.

267 Geoffrey Barker, 'White paper – expect more ambiguity', *Australian Financial Review*, 16 September 2015, p. 3.

268 Barker, 'White paper – expect more ambiguity', p. 3.

269 Pradeep Taneja, 'Australian and Southeast Asian Perspectives on China's military modernization', *Journal of Asian Security and International Affairs*, Vol. 1, No. 2, 2014, p. 158.

270 Stephan Frühling, 'Australian strategy and strategic policy', in Dean *et al*, *Australia's Defence'*, p. 192.

271 Frühling, 'Australian strategy and strategic policy', p. 194.

272 Stephan Frühling (ed.), *A History of Australian Strategic Policy Since 1945*, Defence Publishing Service: Canberra, 2009, p. 38.

273 Michael Evans, *The Tyranny Of Dissonance: Australia's strategic culture and way of war 1901–2005*, Land Warfare Studies Centre: Canberra, 2005, p. 30; paraphrasing from Sir Arthur Tange, 'Defence and foreign policies—some interactions', *Australian Foreign Affairs Record*, Vol. 53, No. 1, January 1982, p. 8.

274 Medcalf and Brown, *Defence Challenges 2035*, p. 3.

275 Frühling, *A History of Australian Strategic Policy Since 1945*, pp. 39-40.

276 Frühling, 'Australian strategy and strategic policy', p. 196.

277 The 2009 Defence White Paper introduced four 'principal tasks', by taking the five 2000 Defence White Paper strategic objectives and combining the Southeast Asia and Asia-Pacific objectives into one.

278 Frühling, 'Australian strategy and strategic policy', p. 195.

279 Department of Defence, *Defence White Paper 2013*, p. 32.

280 Although it could be argued that the Middle East (at least the Persian Gulf, Gulf of Oman, Gulf of Aden and Red Sea) are part of the Indo-Pacific. Therefore, the 1990-91 and 2003 Gulf Wars against Iraq and the anti-piracy operations off the coast of Somalia could be seen as broadly consistent with Principal Task Three. I am indebted to Commodore Lee Cordner, AM, RANR, for this observation.

281 Frühling, 'Australian strategy and strategic policy', p. 198.

282 Frühling, 'Australian strategy and strategic policy', p. 198.

283 Department of Defence, *Defence White Paper 2013*, p. 29. This requires the ADF to 'deter adversaries from conducting attacks against Australia or attempting coercion; achieve and maintain air and sea control in places and at times of our choosing in our approaches, deny or defeat adversary attacks and protect key sea lines of communication; deny adversary forces access to forward operating bases or the freedom to conduct strikes against Australia from beyond our maritime approaches; and project power by deploying joint task forces in the Indo-Pacific region and support the operations of regional partners when required'.

284 Evans, *The Tyranny Of Dissonance*, p. 37, quoting from Clark Reynolds, 'Douglas MacArthur as maritime strategist', in Clark Reynolds (ed.), *History and the Sea: Essays on maritime strategies*, University of South Carolina Press: Columbia, 1989, p. 167.

285 Alan Dupont, *Full Spectrum Defence: Re-thinking the fundamentals of Australian defence strategy*, Lowy Institute for International Policy: Sydney, March 2015, p. 3.

286 Department of Defence, *Defence White Paper 2013*, p. 30.

287 Department of Defence, *Defence White Paper 2013*, p. 31. It goes on to state that 'uncertainty surrounding strategic transformation of our region means Australia should be prepared to make substantial contributions if necessary'.

288 Department of Defence, *Defence White Paper 2013*, pp. 31-2.

289 Babbage, *Game Plan – The case for a new Australian grand strategy*, p. 27.

290 Hugh White, *A Focused Force: Australia's defence priorities in the Asian century*, Lowy Institute for International Policy: Sydney, 2009; Hugh White, 'A middling power: why Australia's defence is all at sea', *The Monthly* [website], September 2012, available at <https://www.themonthly.com.au/issue/2012/september/1346903463/hugh-white/middling-power> accessed 7 July 2015.

291 Ross Babbage, 'Learning to walk amongst giants: the new Defence White Paper', *Security Challenges*, Vol. 4, No. 1, 2008, pp. 13-20; Ross Babbage, *Australia's Strategic Edge in 2030*, Kokoda Foundation: Canberra, February 2011; Babbage, *Game Plan – The case for a new Australian grand strategy*.

292 Geoffrey Barker and Paul Dibb, 'Is China a military threat to Australia? The Babbage fallacies', *East Asia Forum* [website], 21 February 2011, available at <http://www.eastasiaforum.org/2011/02/21/is-china-a-military-threat-to-australia-the-babbage-fallacies/> accessed 7 July 2015; Paul Dibb, 'Defence policymaking', in Dean *et al*, *Australia's Defence*, pp. 165-83.

293 van Tol, *AirSea Battl* , p. xi.

294 van Tol, *AirSea Battle*, p. 51.

295 Jim Thomas, Zack Cooper and Iskander Rehman, *Gateway to the Indo-Pacific: Australian defense strategy and the future of the US alliance*, Center for Strategic and Budgetary Assessments: Washington, DC, 2013, p. 1.

296 Dean, 'ANZUS', p. 224.

297 See Thomas *et al*, *Gateway to the Indo-Pacific*. These options included 'supportive sanctuary' (a logistics and basing option), 'Indo-Pacific watch tower' (an enhanced ISR option), 'green water warden' (a blockade and chokepoint control option), and 'peripheral launchpad' (a peripheral operations option).

298 Frühling, 'Australian strategy and strategic policy', p. 202. He goes on to argue that 'sooner or later, Australia will be confronted with the need or expectation to contribute forces to specific US commitments in the region, if it wants to gain and maintain influence, or even mere insight into the policy and operational planning of its major ally. That, at least, is a significant lesson from Australia's experience during the Forward Defence era'.

299 Kelly, 'Fighting China', p. 161.

300 Kelly, 'Fighting China', p. 161.

301 Kelly, 'Fighting China', p. 161.

302 While four of these six options might be considered similar to the four proposed by Thomas *et al* in *Gateway to the Indo-Pacific* (see endnote 296), their options are focused on complementing rather than supplementing US capability, and were derived from viewing the situation through a US lens, rather than a sovereign Australian one. Additionally, the options put forward in this paper are more fulsome, considered and relevant to Australian defence strategy and ADF capability.

303 Green *et al*, *The ANZUS Alliance in an Ascending Asia*, p. 16.

304 Often called Air Warfare Destroyers (AWD), they are in fact Guided Missile Destroyers (DDG).

305 Department of Defence, *Defending Australia in the Asia Pacific Century*, p. 71.

306 Andrew Davies, 'Stand back: the perils of longer-ranged sensors and weapons', *The Strategist* [website], 22 April 2015, available at <http://www.aspistrategist.org.au/stand-back-the-perils-of-longer-ranged-sensors-and-weapons/> accessed 24 October 2015; Andrew Krepinevich, *Maritime Competition in a Mature Precision Strike Regime*, Center for Strategic and Budgetary Assessments: Washington DC, 2014.

307 This force, similar in type to the Operation OKRA Air Task Group deployed to operate against Islamic State in 2014, would however have to be substantially larger in order to be able to operate in such as high-threat environment as China's A2/AD capabilities would necessitate, and also in order to make a substantive difference to US force levels. It should be noted that a standard US Air Force fighter squadron is based on 24 aircraft.

308 Davies et al, *Expanding Alliance*, p. 15.

309 I am indebted to Commodore Lee Cordner, AM, RANR, for his advice that the vulnerabilities of air and sea power forces be treated as equally as possible.

310 If the F-35 aircraft to unit allocation is like the current F/A-18A/B fleet of 71 aircraft, then of the 72 F-35s, 48 will be allocated to three operational fighter squadrons (16 each), approximately 16 to the operational conversion squadron, and 8 to the maintenance and attrition reserve.

311 The implication of this is that Australia should have indeed purchased a fourth air warfare/guided-missile destroyer.

312 Dibb and Lee, 'Why China will not become the dominant power in Asia', p. 21.

313 Peter Layton, 'Australia's next submarine – will it be the Soryu?', *Defence today* [website], July-September 2015, p.10, available at <http://www.defence-today.com.au/australias-next-submarine-will-it-be-the-soryu> accessed 14 January 2016.

314 Cameron Stewart, 'China fear prompts maritime spending', *The Australian*, 12 September 2015.

315 Layton, 'Australia's next submarine – will it be the Soryu?', pp. 10-1.

316 Department of Defence, *Defending Australia in the Asia Pacific Century*, p. 80; RAAF, 'P-8A Poseidon', *Air Force* [website], available at <http://www.airforce.gov.au/Boeing-P8-A-Poseidon/?RAAF-Z4PUOpGXH/eLtWmc6qxYl9xYycb+rKng> accessed 11 October 2015.

317 Department of Defence, *Defending Australia in the Asia Pacific Century*, p. 80.

318 The Marine Air Ground Task Force is made up of a Marine Expeditionary Unit, which has 2000+ Marines, and is basically a reinforced infantry battalion with integrated armour, artillery, helicopters/tilt rotors and fast air. An Amphibious Ready Group carries the Marine Air Ground Task Force and is normally made up of three amphibious vessels, a Landing Helicopter Dock/Landing Helicopter Assault/Amphibious, a Landing Platform Dock and a Landing Ship Dock.

319 For example, see Ken Gleiman and Peter Dean, *Beyond 2017: the Australian Defence Force and amphibious warfare*, ASPI: Canberra, July 2015; also Mike Ellis, 'Tailored air groups – the UK experience', presented to Sir Richard Williams Foundation seminar, 'Australia's Landing Helicopter Docks and Australian Defence Force aviation' on 5 October 2011 at the Australian Defence College. Slides 11 and 12 show seven CH-47 Chinook helicopters on the deck of the British aircraft carrier, HMS *Illustrious*. The Chinooks were used to insert and sustain British special forces in Afghanistan as part of Operation ENDURING FREEDOM in late 2001 to early 2002. Additionally, in the past, such as Fiji in 2006, the marriage between amphibious capability, aviation and special forces has been a capability of first resort by Government.

320 Andrew Davies, Peter Jennings and Benjamin Schreer, *A Versatile Force: The future of Australia's special operations capability*, ASPI: Canberra, April 2014, pp. 15-6.

321 Additionally, while they are currently outside the 3300 kilometre-range of China's current B-6/land attack cruise missile force, they could be targeted by submarine or ship-launched land-attack cruise missiles. In the not too distant future, it is likely that other Chinese ballistic and cruise missiles will also be able to hold these islands at risk.

322 Paul Dibb, 'Defence policymaking', in Dean *et al*, *Australia's Defence*, p. 174.

323 Dibb, 'Defence policymaking', p. 174.

324 Although it does not appear at all in the Joint Operational Access Concept.

325 Dibb, 'Defence policymaking', p. 175.

326 Thomas *et al*, *Gateway to the Indo-Pacific*, p. 24.

327 The critical and complex diplomatic aspects of such an operation, including approval by regional countries to operate within their territory, is beyond the operational level scope of this analysis. I am indebted to Commodore Lee Cordner, AM, RANR, for this observation regarding the Wetar Passage.

328 Thomas *et al*, *Gateway to the Indo-Pacific*, p. 24.

329 For this observation, I am indebted to Commodore Lee Cordner, AM, RANR.

330 For example, the Offshore Combatant Vessels would need a helicopter capable of anti-surface and anti-submarine warfare operations, self-defence surface to air missiles, anti-submarine warfare torpedoes, a minimum of a mid-size gun or anti-ship missiles, and a mine laying capability. There are a number of 2000 tonne designs on the market that meet these capability requirements. They would thus effectively cease being a 'patrol boat' like their predecessors and become a corvette or light frigate. If they are not immediately fitted with these weapon systems, then the vessels need space and weight reserved for them in future upgrades as the threat develops. First announced in the 2009 Defence White Paper as consisting of a 20 vessel fleet, a 2015 media report indicates the fleet may instead consist of 10 offshore combatant vessels, with four multi-role vessels built later: see Stewart, 'China Fear Prompts Maritime Spending'.

331 Albert Palazzo and Anthony Trentini, 'The LHDs and air power: the rotor-wing option', *The Strategist* [website], 17 February 2015, available at <http://www.aspistrategist.org.au/the-lhds-and-air-power-the-rotor-wing-option/> accessed 13 October 2015. A Landing Helicopter Dock in this role could carry a number of MH-60R Seahawk helicopters that have dual surface combat and anti-submarine warfare capabilities, supplementing those on the frigates/destroyers. It could also carry a task group headquarters, dedicated intelligence facility, special forces teams, rigid hull inflatable boats, and MRH-90 troop carrying helicopters, so as to be able to command and control blockade operations and conduct search and seizure operations. If this force option was pursued further, then Australia would need to increase its force of 24 MH-60Rs to over 30-35. If the 10 to 14 Offshore Combatant Vessels are helicopter capable, as they are likely to be, then a force of approximately 50 MH-60Rs may be required in the end, which is likely to be financially challenging.

332 Thomas *et al*, *Gateway to the Indo-Pacific*, p. 25.

333 van Tol, *AirSea Battle*, p. 75.

334 van Tol, *AirSea Battle*, p. 76.

335 Thomas *et al*, *Gateway to the Indo-Pacific*, p. 27.

336 Dean, 'ANZUS', p. 224.

337 Thomas *et al*, *Gateway to the Indo-Pacific*, p. 15.

338 Thomas *et al*, *Gateway to the Indo-Pacific*, p. 15.

339 'Five Eyes' means the intelligence-sharing structure between the US, UK, Canada, New Zealand and Australia.

340 The Australian Intelligence Community comprises the following organisations: Office of National Assessments for strategic all-source intelligence assessment; Australian Secret Intelligence Service for overseas human intelligence collection and analysis, Australian Security Intelligence Organisation for domestic security intelligence collection and analysis, Australian Signals Directorate for foreign signals intelligence (comprising communications and electronic intelligence) collection and analysis, the Australian Geospatial-Intelligence Organisation for geospatial and imagery intelligence collection and analysis, and the Defence Intelligence Organisation for military strategic and technical intelligence all-source intelligence assessment.

341 Ian McPhedran, 'The Australian government is about to spend $300 million on self-piloted killer drones', *news.com.au* [website], 25 February 2015, available at <http://www.news.com.au/world/the-australian-government-is-about-to-spend-300-million-on-self-piloted-killer-drones/story-fndir2ev-1227237502536> accessed 11 October 2015; Stewart, 'China fear prompts maritime spending'.

342 Brett Biddington, *Girt by Sea: Understanding Australia's maritime domains in a networked world*, Kokoda Foundation: Canberra, November 2014, p. 12.

343 Babbage, *Game Plan – The case for a new Australian grand strategy*, p. 74.

344 Stephan Frühling, James Goldrick and Rory Medcalf, *Preserving the Knowledge Edge: Surveillance cooperation and the US-Australian alliance in Asia*, ASPI: Canberra, December 2014, p. 2. C4ISR is a combination of C4 and ISR—and stands for command, control, communications, computers, intelligence, surveillance and reconnaissance.

345 Dupont, *Full Spectrum Defence*, p. 2.

346 Brabin-Smith, 'Developing ADF force structure and posture', p. 283.

347 Kelly, 'Fighting China', pp. 154-5.

348 Duncan Lewis, 'Talking dollars and strategy: the challenging link in defence planning', speech at the ASPI Annual Dinner, 23 August 2012, pp. 3-4, available at <https://www.aspi.org.au/__data/assets/pdf_file/0019/17371/Secretary-of-Defence-ASPI-speech.pdf> accessed 24 October 2015.

349 Andrew Davies and Rod Lyon, *Ballistic Missile Defence: How soon, how significant, and what should Australian policy be?*, ASPI: Canberra, May 2014, p. 5.

350 Davies and Lyon, *Ballistic Missile Defence*, p. 5.

351 Dupont, *Full Spectrum Defence*, p. 13; Babbage, *Game Plan – The case for a new Australian grand strategy*, p. 85.

352 Davies *et al*, *Expanding Alliance*, p. 11.

353 Davies and Lyon, *Ballistic Missile Defence*, p. 5.

354 Davies and Lyon, *Ballistic Missile Defence*, p. 13.

355 Deagle.com, 'FMS: Qatar wants two Terminal High Altitude Area Defense systems', *Deagle* [website], 5 November 2012, available at <http://www.deagel.com/news/FMS-Qatar-Wants-Two-Terminal-High-Altitude-Area-Defense-Systems_n000010916.aspx> accessed 24 October 2015. The price included 2 fire units, 12 launchers, 150 interceptors, 2 fire control and communications systems, and 3 radars. Also included were the associated maintenance, support and training elements.

356 Global Security.org, 'Patriot TMD - foreign military sales', *Global Security* [website], available at <http://www.globalsecurity.org/space/systems/patriot-fms.htm> accessed 24 October 2015. If $16.3 billion is not possible for a combined THAAD/Patriot purchase, then Patriot should be purchased first, progressively building up the theatre ballistic missile capability as the technology improves and threat increases.

357 Against Chinese submarine-launched land-attack cruise missiles, persistent anti-submarine warfare and airborne early warning and control capabilities would also be required: the former to detect and destroy Chinese submarines before they can launch their missiles; the latter to detect land-attack cruise missiles once they have been launched but still at ranges beyond surface-based detection systems.

358 International Institute for Strategic Studies, *The Military Balance 2015*, pp. 49-50. This 155 bomber fleet consists of 72 B-52s, 63 B-1s and 20 B-2s.

359 James Drew, 'New details emerge about LRS-B as contract announcement nears', *Flight Global* [website], 2 September 2015, available at <https://www.flightglobal.com/news/articles/new-details-emerge-about-lrs-b-as-contract-announcem-416426/> accessed 27 September 2015.

360 Robert Farley, 'America's LRS-B stealth bomber: headed for a "crash landing"?', *The National Interest* [website], 11 September 2015, available at <http://nationalinterest.org/feature/americas-lrs-b-stealth-bomber-headed-crash-landing-13820> accessed 12 October 2015; Haddick, *Fire on the Water*, pp. 162-3; the International Institute for Strategic Studies' *The Military Balance 2015*, pp. 49-50, indicates that as at 2015 only the US' 20 B-2 bombers and 177 F-22 fighters have the survivability characteristics to operate against Chinese forces with relatively low risk and only the former has the range to operate against Chinese targets from beyond the second island chain. The arrival of operational F-35 squadrons will increase the number of survivable platforms but they are still short-ranged.

361 RAAF, 'F-35A Lightning II', *Air Force* [website], available at <http://www.airforce.gov.au/Boeing-P8-A-Poseidon/?RAAF-Z4PUOpGXH/eLtWmc6qxYl9xYycb+rKng> accessed 11 October 2015.

362 Long-range weapons for all these aircraft include the Harpoon, Joint Standoff Weapon, Joint Air to Surface Standoff Missile, and potentially the Joint Strike Missile and Long Range Anti-Ship Missile.

363 Thomas *et al*, *Gateway to the Indo-Pacific*, p. 36.

364 That said, consideration should be given to increasing the fleet to at least 10 aircraft thus allowing the simultaneous deployment of two, two-aircraft detachments in support of two forward-deployed air task groups, while also providing a capability to support long-range strike bomber missions and defensive counter-air operations from Australia.

365 Davies *et al*, *Expanding alliance*, p. 18. This proposal was also raised in Babbage, *Australia's Strategic Edge in 2030*, p. 84.

366 This cost does not include sustainment over the life of the capability which would probably be in the order of $1 billion a year for 25 years.

367 Stewart, 'China fear prompts maritime spending'.

368 RAAF Tindal to Hainan Island is approximately 4500 kilometres and thus within the long-range strike bomber's likely operational range.

369 Sea Power Centre-Australia, 'The capability of sea-based land strike missiles', *Semaphore*, Issue 9, June 2005, states that 'long-range maritime land strike missiles have the potential to complement the strategic strike capability delivered by crewed aircraft, but cannot completely replace it. Both delivery methods are almost the mirror image of one another in terms of relative strengths and weaknesses; they complement one another and do not substantially overlap'; also US Navy, 'Tomahawk Cruise Missile', *Navy* [website], 14 August 2014, available at <http://www.navy.mil/navydata/fact_display.asp?cid=2200&tid=1300&ct=2> accessed 12 October 2015.

370 Department of Defence, *Defending Australia in the Asia Pacific Century*, p. 81.

371 Davies *et al*, *Expanding Alliance*, p. 18.

372 If, like the US Navy, there are four Tomahawk Land Attack Missiles allocated to each of the 12 surface combatants and 12 for each of the eight to 12 submarines, then the Navy's total could be between 144 and 192 weapons. If a third of the fleet (four surface combatants and between three and four submarines) was deployed at any one time, then the Navy could have between 52 and 64 such missiles continuously at sea: see Haddick, *Fire on the Water*, p. 69.

373 US Navy, 'Tomahawk Cruise Missile'.

374 Friedberg, *Beyond Air-Sea Battle,* p. 37.

375 Babbage, *Game Plan – The case for a new Australian grand strategy*, p. 82.

376 Babbage, *Australia's Strategic Edge in 2030*, p. 85.

377 Raoul Heinrichs, 'China's defence white paper is historic for Australia, and not in a good way', *The Interpreter* [website], Raoul HeinrichsPrevious PostsFollow Me3 June 2015, available at <http://www.lowyinterpreter.org/post/2015/06/03/Chinas-defence-white-paper-is-historic-for-Australia-and-not-in-a-good-way.aspx?p=true> accessed 8 July 2015.

378 See Medcalf and Brown, *Defence Challenges 2035*, p. 16, for an interesting Cocos Islands 2015 deterrence scenario against China.

379 Frühling, 'Australian strategy and strategic policy', pp. 201-2.

380 Jan K. Gleiman, 'Time to start thinking about land-based anti-ship missiles', *The Strategist* [website], available at <http://www.aspistrategist.org.au/time-to-start-thinking-about-land-based-anti-ship-missiles/> accessed 7 October 2015; Mark Ascough, 'Land-based strike capability: a force multiplier for the ADF?', *The Strategist* [website], available at <http://www.aspistrategist.org.au/land-based-strike-capability-a-force-multiplier-for-the-adf/> accessed 7 October 2015; Harry White, 'A maritime denial role for the Army', *The Strategist* [website], 31 October 2014, available at <http://www.aspistrategist.org.au/a-maritime-denial-role-for-the-army/> accessed 7 October 2015; Alex Calvo, 'Shore-based anti-ship missiles: when the land commands the sea', *The Strategist* [website], 13 January 2015, available at <http://www.aspistrategist.org.au/shored-based-anti-ship-missiles-when-the-land-commands-the-sea/> accessed 7 October 2015.

381 Andrew Krepinevich, 'How to deter China: the case for archipelagic defense', *Foreign Affairs*, March/April 2015, available at <https://www.foreignaffairs.com/articles/china/2015-02-16/how-deter-china> accessed 12 July 2015.

382 Gleiman, 'Time to start thinking about land-based anti-ship missiles'.

383 Deagle.com, '*NSM*', Deagle [website], available at <http://www.deagel.com/Anti-Ship Missiles/NSM_a001123001.aspx> accessed 24 October 2015.

384 Sea Power Centre-Australia, 'Australian naval mine warfare', *Semaphore*, Issue 10, November 2010.

385 Alan Hinge, 'Mine warfare in Australia's first line of defence', Strategic and Defence Studies Centre, Australian National University: Canberra, 1992.

386 Friedberg, *Beyond Air-Sea Battle,* pp. 127-8.

387 US Navy, *21st Century US Navy Mine Warfare: Ensuring global access and commerce,* Program Executive Office Littoral and Mine Warfare: Washington DC, 2009, p. 7.

388 Krepinevich, 'How to deter China'.

389 van Tol, *AirSea Battle*, p. 93.

390 Ross Babbage, 'Strategic competition in the Western Pacific: an Australian perspective', in Thomas Mahnken (ed.), *Competitive Strategies for the 21st Century: Theory, history and practice*, Stanford University Press: Stanford, California, 2012.

391 Department of Defence, *Australian Defence Force Posture Review,* Commonwealth of Australia: Canberra, 2012, p. 49.

392 Blackburn, *Australia's Liquid Fuel Security*, p. 13.

393 John Blackburn, *Australia's Liquid Fuel Security Part 2: A report for NRMA Motoring and Services*, February 2014, available at <http://www.mynrma.com.au/media/Fuel_Security_Report_Pt2.pdf> accessed 4 February 2015, p. 3.

394 Blackburn, *Australia's Liquid Fuel Security Part 2*, p. 3.

395 van Tol, *AirSea Battle*, p. 50; Schreer, *Planning the Unthinkable War*, p. 10.

396 van Tol, *AirSea Battle*, p. 50.

397 von Clausewitz, *On War*, p. xxvi.

http://www.defence.gov.au/adc/publications/publications.html

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