

Space is not a vacuum: Australia's future in the new frontier

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Abstract: Australia's Senate Inquiry into Australia's Space Science and Industry Sector comes at a time when outer space, and the technology it supports, is of vital political importance. Our neighbours in the Asia-Pacific region are cognisant of the importance of space, and Australia's lack of vision for involvement in space means that we are rapidly being left behind in our region. This submission highlights the geo-technological manoeuvring occurring in the Asia-Pacific, and the forces that are shaping the space environment. I argue that, for Australia, any space presence will involve more than technological capability. It will require a political presence, political will, a strong knowledge of the current politics of space, and a clear political vision of the 'space' that Australia wants to participate in, in the future. For Australia to move from a user to a producer in space, we must firstly develop a comprehensive long-term policy that considers the shape that our *political* presence will take.

Recommendations:

In recognition of the changing political environment of space it would be in Australia's interests to:

- 1: Formulate a long-term political vision for our involvement in space.
 - This is reflective of a crucial point for this submission; *the political stage on which the space drama has been played out over the last 50 years is changing.*
- 2: Recognise the importance of space technology for Australia's future by consolidating existing space interests within a dedicated department.
 - Regional space-faring nations have dedicated space policies and bureaucracies which reflect long-term commitment and recognition of the growing importance of space technology, economically, socially, and politically.
 - A dedicated space bureaucracy will most effectively coordinate, mobilise and redistribute resources in relation to space issues.
- 3: Acknowledge the importance of space for Australia's future by ensuring the recruitment of staff that are experts in regional and global developments in both space politics as well as space technology.

- Knowledge of regional and global policies and technologies is crucial to a successful Australian space policy. Geo-technological manoeuvring, and space diplomacy are resulting in regional gains in access to space by non-traditional space-faring actors.

4: Diversify Australia's space interests, both in scope and source, and support those states that are endeavouring to strengthen international law and act responsibly in the space environment.

- The Sino-US space relationship will define the parameters of space politics in the near future. Uncertainty currently characterises the political atmosphere in relation to the weaponisation of outer space.
- Australia should ensure, at the very least, that its space products are sourced from a variety of space producing nations.
- If Australia does not partake in the space industry, we will not only remain technology 'takers' rather than technology 'makers', but also '*policy* takers', unable to define the rules of the game in which we seek to participate.

5: Promote Australia as an alternative source of space technology within the region and abroad.

- As a 'technology maker' Australia would have a geographically proximate market in which to operate.

6: Promote cooperation and collaboration amongst regional actors in space related issues.

- Australia could play a role in forestalling potentially damaging competition in the region by actively promoting regional collaboration in relation to scarce space resources.

Space is not a vacuum: Australia's future in the new frontier

Jo-Anne M. Gilbert

Space is not a vacuum; from a political point of view space is rich with complex political and strategic relationships.¹ The economic and technological prowess of the United States (U.S.) has resulted in the country dominating all sectors of space development. In space, as on earth, the U.S. is the dominant power. Space technology is a force multiplier and the means by which the United States maintains its superior military advantage.

However, technology has not been contained by geographical boundaries, despite the efforts of the U.S. The recent economic development of several countries has resulted in relative gains in military and technological modernisation. China, in particular, is reaping the benefits of a long-term, systematic programme to develop indigenous technological capacity, including space capabilities, and is arguably in transition to a knowledge-based economy.² On January 11, 2007, China became only the third country to successfully test an anti-satellite (ASAT) weapon. The test clearly demonstrated the level of China's growing technological capacity. Most importantly for this submission, it raised the awareness of space as a political and strategic arena to its highest point since the end of the Cold War. China's escalating space presence does not remain unchallenged. The United States' deployment of an SM-3 ballistic missile from a Navy vessel, which destroyed a failed reconnaissance satellite, dramatically re-emphasised U.S. space power. While the United States officially claimed that the interception was justified on the grounds that the failed satellite represented a danger to those on earth, many analysts claim that the test was a dramatic show of superior technological strength designed to garner the attention of the Chinese government.

Strategic technology partnerships with the European Union (EU), Russia and the United Kingdom have aided China's space development. These partnerships represent a changing pattern of cooperation that has seen a retraction of interaction from the U.S., both as a technology provider and a partner, leading to a more dispersed pattern of cooperative relationships. This highlights a crucial fact for this submission; *the political stage on which the space drama has been played out over the last 50 years is changing*. For a long time space has been the domain of a few elite countries; this is not the reality of the present.

Our region is not untouched by these new relationships; increasingly the Asia-Pacific is the arena where space actors are converging. It is evident that "major space-faring

¹ The initial ideas for this paper were presented at the 7th Australian Space Science Conference, Sydney, 24-27 September, 2007. Some of the information published in the conference proceedings is reproduced here for the purposes of this inquiry.

² J. Sigurdson, with Jiang, J. and Kong, X, *Technological Superpower China*, Edward Elgar, Cheltenham U.K. 2006.

nations, are now using space as a political tool to reach non-traditional partners in order to build trusting relationships across political borders.”³ China is becoming a viable alternative to the U.S. in many cooperative endeavours. Space is no exception to this rule; China is assisting the development of space technology throughout the Asian region through its lead role in the Asia-Pacific Space Cooperation Organisation (APSCO). Furthermore, Russia, Japan and India are also looking to the Asia-Pacific to promote their own geo-political and geo-technical agendas. Space is becoming an important adjunct to traditional diplomacy, and geo-technological manoeuvring⁴ is a useful concept to explain the changing patterns of alliances that contribute to competition and cooperation in space.

Space is becoming more important politically, strategically and economically, and competing governments are taking a stronger role in the space industry to ensure benefits for defence and economic growth. This makes it clear that, for Australia, any space presence will involve more than technological capability. It will require a political presence, political will, and a clear political vision of the ‘space’ that Australia wants to participate in, in the future. Only one thing is certain: if Australia does not partake in the space industry, we will remain technology ‘takers’, not technology ‘makers’, but also ‘policy takers’, unable to define the rules of the game in which we seek to participate. This is a fact that our regional neighbours understand clearly.

In this submission I will outline two important developments that policy makers should be cognisant of when considering Australia’s future direction in space. I will firstly describe the recent space diplomacy that has been occurring in our region, and illustrate that there is considerable interest and investment in developing space industries and programs within the Asia-Pacific region, and a ready regional market in which we can operate. Additionally, geo-technological manoeuvring in the Asia-Pacific region will increasingly affect the future environment in which Australia may look for a space presence. Secondly, I will offer a brief overview of the current Sino-U.S. space relationship. On a less optimistic note, I argue that the geo-political and geo-technological competition between the United States and China will define the parameters for any Australian involvement in space for the foreseeable future. The regional partnerships that result from China’s geo-technological manoeuvring have implications for Australia’s regional security, situated as we are between the U.S. and China; in space relations, as in other matters of security, we face competing imperatives of economic pragmatism versus alliance relationships.

Geo-technological manoeuvring in the Asia-Pacific region

China’s activities in the Asia-Pacific have been gaining momentum, reflecting a desire to be the leader in its own ‘sphere of influence’. While the U.S. has been

³ N. Peter, “The Changing Geopolitics of Space Activities”, *Space Policy*, Vol. 22, No. 2, 2006, p. 108.

⁴ Joan Johnson-Freese and Andrew Erickson, in a paper on China’s technological rise, raise the proposition that “the development of advanced technology with its corresponding (and overlapping) economic and military benefits has replaced the dynamic of political alignment ... as a major international system variable. This century’s analogue to Cold War geopolitical competition,” they argue, “is geo-technological manoeuvring” Joan Johnson-Freese, and Andrew Erickson, “The Emerging China-EU Space Partnership: A Geotechnological Balancer”, *Space Policy*, Vol 22, No. 1, 2006, pp. 12-13.

concentrating on Iraq and the Middle East, China has made huge strides in diplomacy in our region, trying to buy influence in relation to Taiwan, but also increasing its soft power through the offer of aid, and cooperation in science and technology.⁵ As stated in the introduction, China has played a defining role in the creation of the Asia-Pacific Space Cooperation Organisation, which currently has nine members; Bangladesh, China, Indonesia, Iran, Mongolia, Pakistan, Peru, Thailand and Turkey. According to a 2005 report, the Republic of Korea, Malaysia, the Philippines and Russia were in the process of gaining domestic approval to also sign the APSCO Convention.⁶ The aims of the institution include enhancing cooperation in space science, earth observation disaster management, and environmental protection, to pool technological and financial resources to develop space programs, and to promote the education and training of space scientists.⁷ Space is becoming increasingly accessible to a number of developing nations in our region, due in large part, to China's continuing technological growth, and Russia's economic resurgence.

Additionally, the Asia-Pacific region provides 'prime real estate' for space tracking stations and equatorial launch facilities. Geo-technological manoeuvring is evident in the case of Kiribati, where the Chinese had commenced a project to build a launch facility. However, when the Kiribati President formally recognised Taiwan, China abandoned the project. In the following diplomatic furore allegations were raised that the United States had assisted Taiwan in raising \$11 million as an aid donation to the island nation.⁸

Other important developments are occurring in our region. Some analysts predict that a new space race is underway between Asian space-faring nations, citing the competitive space programs of China, Japan and India. China and Japan launched lunar orbiters in 2007, and India has plans to do so before the end of 2008. This competition gives states in our region increasing alternatives to U.S. technology as space-faring nations turn to space diplomacy as a form of soft power projection, or to facilitate bilateral trade deals. One important aspect of this development is the increasing probability that the United States will no longer *have* to be included in plans for space programs in the region. It is states in this position that can make a 'great leap forward' by aligning themselves with those space-faring nations keen to increase their regional influence and thereby avoiding the development of an expensive indigenous space industry. As an example, Malaysia's relationship with Russia gives it access to space, despite the fact that Malaysia does not have an existing indigenous space industry or infrastructure.

The Russian government's active role in promoting space ties contributes to its domestic economic growth, and increases its soft power in the region. In 2006, a

⁵ Paul Darcy, "Introduction: A new era in Chinese-Pacific engagement?" *CSCSD Occasional Paper*, 1 May, 2007.

⁶ Wang Keran, "Statement by Mr. Wang Keran, Deputy Secretary-General, Secretariat of Asia-Pacific Multilateral Cooperation in Space Technology and Applications (AP-MCSTA)" at the United Nations Economic and Security Council of the Asia-Pacific group meeting UNCC, Bangkok, Thailand, 22 June 2005. Available at http://www.unescap.org/icstd/events/egm_dms/docs/APMCSTA/Statement.doc accessed 14/04/2008.

⁷ Ministry of Commerce, People's Republic of China, "Convention of the Asia-Pacific Space Cooperation Organization" 28/10/2005, available at <http://tradeinservices.mofcom.gov.cn/en/b/2005-10-28/18583.shtml>, accessed 14/04/2008.

⁸ Susan Windybank, "Why China first wooed then jilted Kiribati" *Canberra Times*, 29 January, 2007

Russian Consortium entered into an agreement with the Malaysian government to cooperate in a commercial venture to develop a geosynchronous telecommunications satellite.⁹ Russia trained and transported the first Malaysian astronaut to the international space station in October 2007, as part of the sales arrangement to Malaysia of \$900 million worth of Russian jet fighters.¹⁰ Malaysian ambitions to have a man on the moon before 2020 may be reached through technology transfer and cooperation with Russia.¹¹ In a push towards a knowledge-based economy, Malaysia is encouraging an indigenous satellite manufacturing capacity, while promoting its geographic location as a suitable equatorial launching site. Lastly, a successful space program is likely to have a positive effect on Malaysian nationalism and has been promoted as a form of Islamic-nationalism, revitalising the “glorious days of Islamic science.”¹²

In April 2008, South Korea sent its first astronaut to the International Space Station, again with the aid of Russia, as part of the “Space Korea” mandate. The Korean Aerospace Institute President, Pak Hong Yak, extolled the mission as the “beginning of global interaction between Russia and [South] Korea, including in space.”¹³ In April, the chief of South Korea’s Air Force visited Russia, China and Japan to promote “technological exchanges in the aerospace sector.”¹⁴ South Korea will also open the country’s first space centre and launch pad in 2008, launch a Korean made satellite using an indigenous launch vehicle, and has plans to develop a lunar rocket by 2025.¹⁵ The country also has a commercial communication satellite program, and an ocean and meteorological satellite program which will enable independent observation and communication capabilities.¹⁶ Elsewhere in the region, at the 2005 ASEAN summit Russia disclosed intentions for cooperation in space with Thailand as part of a joint agreement on military-technical cooperation, space and high technology.¹⁷ Two months after the ASEAN summit, private commercial interests in Russia were anticipating the fruits of the Russian government’s efforts, claiming a growing market for space systems in the ASEAN region.¹⁸ In April this year, Vietnam launched its first satellite, Vinasat-1, thereby securing “state sovereignty” in space, according to the Vietnamese Prime Minister.¹⁹ The Vietnamese Government has focused on space technology as a national priority, in recognition of its

⁹ The Moscow-based Intersputnik International Organization of Space Communications and Industrial Scientists Consortium see: "Russia and Malaysia Agree on Joint Communications Satellite Project," *BBC*, 3 January 2006.

¹⁰ "Putin Arrives in Malaysia for First ASEAN-Russia Summit," *RIA Novosti*, 13 December 2005.

¹¹ "Malaysia Floats Plans to Set Foot on the Moon," *Agence France Presse*, 17 August 2005.

¹² Chief of the Malaysian National Space Agency, Mazlan Othman, as quoted in "One for the Record Books as Malaysian Heads into Space," *Agence France Press*, 7 June 2006.

¹³ "S. Korea to continue taking part in piloted space flights", *Russia & CIS Military Newswire*, 11 April, 2008 (Factiva).

¹⁴ "Air Force chief to visit Russia, China and Japan" *Korea.net news*, 6, April, 2008 (Factiva)

¹⁵ "Korea to enter space race in 2008" *News Press*, 4 January, 2008 (Factiva); "KSLV" *KBS World*, 16.4.2008, available at: http://world.kbs.co.kr/english/news/news_zoom_detail.htm?No=4143 accessed 16/04/2008.

¹⁶ United Nations Committee on the Peaceful Uses of Outer Space, "International cooperation in the peaceful uses of outer space: activities of Member States", 21 December, 2007, A/AC.105/907/Add.1.

¹⁷ Russian Foreign Minister Sergei Lavrov as quoted in "Foreign Ministers Discuss Preparation for Russia-Asean Summit," *Organisation of Asia-Pacific News Agencies*, 30 November 2005.

¹⁸ Leslean Arshad, "Russian Company Expects Demand for Space Systems in ASEAN to Grow," *Bernama Daily Malaysian News*, 13 December 2005.

¹⁹ "Vietnam has secured space sovereignty", *Xinhuanet.com*, 19 April, 2008.

contribution to socioeconomic growth. The examples provided above illustrate the depth of involvement in space activities in our region.²⁰ Australia is a developed country, surrounded by developing countries with space programs.²¹ Geo-technological manoeuvring by non-traditional space-faring actors is clearly taking place in the Asia-Pacific region and this will have a clear impact on Australia.

The Sino-US space relationship: Why it matters.

The Sino-US space relationship will define the parameters of space involvement for the near future, and I argue that concerns about this relationship have contributed to the development of a number of space programs in our region. The pre-eminent debate in the United States focuses on the legitimacy of the weaponisation of outer space in response to a growing perception that the space system that contributes so vitally to U.S. military force, is increasingly vulnerable to the Chinese.²²

During the early stages of Chinese space development the United States was relatively indifferent to China's technological advances, in fact seeking to increase China's material capabilities to suit its broader political purpose during the Cold War. The United States was focused on the rise of the USSR in space, and the political, ideological and psychological imperative to surpass Soviet expertise. The U.S. response to the USSR included organisational responses such as the instigation of NASA, and Congress Committees such as the Senate Special Committee on Space and Astronautics (1958), the House Select Committee on Astronautical and Space Exploration, and the Standing Committee on Aeronautical and Space Sciences. Space was divided neatly into sectors, civilian, commercial and military. Thus, the rising importance of space during the Cold War resulted in the creation of various bureaucracies, and an increasing number and variety of companies that both directly and indirectly constitute 'commercial interests' in space. All of these actors have their own agendas, some of which are in competition with one another.

As the terrestrial order has moved from a bipolar arrangement into a uni-polar system, the impetus is no longer on trying to curtail the advantages of another party, but instead on maintaining the dominance of the uni-power in space. Since the 1990s the domestic political imperatives of the United States have overtaken the international imperatives of the Cold War as the driving force behind U.S. responses to China in space.²³ One method by which dominance is maintained is ensuring that international law, created to deal with the bipolar competition, remains ambiguous and that no progress is made in clarifying outstanding issues of the delimitation of aerospace

²⁰ This is without considering in any depth the role India or Japan are also playing in the region.

²¹ Jeff Kingwell, "Punching Below its Weight: Still the future of space in Australia?" *Space Policy*, 21, 2005, pp. 161-163

²² On the justification of weaponisation of space see for example: Tellis, A. J. "China's Military Space Strategy". *Survival*, 49(3), 2007; Wortzel, L., & Cheng, D., *Washington Roundtable on Science and Public Policy: China's Military Ambitions in Space*. Washington DC: George C. Marshall Institute, 2006. For U.S. involvement in international treaties regarding "Rules of the road" see: Michael Krepon, "Lost in Space: the misguided drive toward antisatellite weapons" *Foreign Affairs*, 80(3), 2001.

²³ What I am suggesting here is that responses to China's space rise are limited due to the bureaucratic arrangements that are still in place, but that were originally set up to deal with the Cold War and bipolar competition. In reading the U.S. literature on space it becomes evident that Cold War paradigms are still influential in sections of the administration.

boundaries, the weaponisation of space, and definitional ambiguities, therefore no progress can be made to enact treaties that curtail U.S. utilisation of space – particularly in relation to the military sector.

Further, sections of the United States' bureaucracy, in particular the military, make strong accusations that China has gained technological transfer by stealth, but the potential transfer of knowledge that occurred in the 1980s when courting China suited a particular strategic goal is not generally acknowledged. Additionally, many analysts accuse China of being opaque and their military programs shrouded in mystery. This, it is claimed, makes it difficult to determine Chinese intentions. However the U.S. administration also defends its national security: classified budgets increased almost 60% between 2006 and 2007, an unknown distribution of which is being directed towards "space-related weaponry research."²⁴ The United States vociferously defends its right to space dominance, and explicitly outlining this in the 2007 National Space Policy document, with the expectation is that other states should acquiesce.

The perception of China as a competitor has been the catalyst for the resurrection of the United States' flagging space programs, thereby recapturing the American political and public imagination and nullifying the 'anti-risk' attitudes of the American populace after the Columbia and Challenger space shuttle disasters.²⁵ Having a potential competitor in space loosens budgetary restraints, and allows for extraordinary decisions to be taken to counteract the threat – such as the weaponisation of space. The United States' response to China's space presence is driven not only by China's increasing capability, but also United States fears of a decline in their own capacity including fiscal restraints, resource considerations and declining human capital.

However, while conceiving of China's space program in relation to something else – such as the context of its relationship to the United States - is, of course, a worthwhile endeavour, how do you determine what is in response to the US and what is not? This prescribes a set of motivations, interests and intentions that necessarily neglect issues that may be central to China's decision making; that is, the internalities particular to Chinese domestic, historical and political events. On some occasions it may be a worthwhile endeavour to isolate the particular subject in order to better understand other perspectives. When this is done in relation to China's space program it is clear to see that it is more the result of a long, sustained and far-sighted plan for modernisation than a response to U.S. dominance, or as part of an "Asian Space Race."²⁶

The following broad conclusions can be drawn that may have some implications for the future of Sino-U.S cooperation or competition in space, and therefore for Australia. Firstly, commercial interests in space have risen exponentially in recent times. The impact of commercial space interests on U.S. policy making is unlikely to diminish in the near future. Additionally economic imperatives indicate that the number of new

²⁴ Theresa Hitchens, et al. *Space Weapons Spending in the FY 2008 Defense Budget*. Washington DC: Center for Defense Information, 2007.

²⁵ John Schwartz, "New Horizons Beckon, Inspiring Vision if Not Certainty". *New York Times*, 25 September, 2007.

²⁶ Jo-Anne Gilbert, "The Great Leap Forward? China's Space Program and Regional Security." *Proceedings of the 7th Australian Space Science Conference*, Sydney, 24-27 September, 2007.

actors in the space industry will only increase, internationally and domestically. A corollary of this is that the actors that are already participants in space will need to increase their output to maintain competitiveness, so as well as an increased number of actors, quantities of material 'goods' will also only increase. As part of this process new applications for space technology will be found and promoted. Space technology will become more pervasive in our society.

International Trafficking in Arms Regulations (ITAR) and U.S. export controls have had some effect in protecting the U.S. commercial launch market from a competitive Chinese option, and effectively slowed the flow of funding to the Chinese space program via the lucrative launch market. However a side-effect of this tactic is that United States satellite companies have been denied access to the Chinese market.²⁷ Further, as demonstrated earlier in this submission, these policies have resulted in the Chinese seeking partners other than the United States, and China's growing success rate makes it an attractive alternative to the U.S. Added to this the United States faces an unprecedented crisis as the space shuttle is phased out, with launches to the International Space Station needing to be carried out by market competitors. While the renewed emphasis and funding for space development may appease commercial interests for a while, in the long-term this internal growth would have to be sustained to appease commercial actors, potentially creating a perpetual spiral of 'need' which would drive an ever expanding space presence, including the weaponisation of space.

Militarily, the Iraq war has highlighted that U.S. military dominance relies on fragile and exposed space systems. China no longer needs substantial traditional military capabilities to be perceived as dangerous; its "asymmetrical abilities" are now enough to pose a threat to US space interests due to the realisation of this vulnerability. The Defense Department's plans for Operationally Responsive Space (ORS) will mean a larger investment in space hardware and associated systems. Everett Dolman highlights the evolution of Unmanned Aerial Vehicles (UAVs) which are "completely reliant on satellite communications and navigation for their operation."²⁸ This route is predicted to be the way of the future for the Air Force, counteracting the potential lack of military recruits, and minimising the risk to human lives. Increasing pressure on space budgets mean that the dual-use utility will only become more important to space hardware, making it more difficult to differentiate the commercial from military activities in space. This is prompted in part by the U.S. administration's plea to the commercial sector to actively participate in the civilian and military sectors to decrease the fiscal drain on the government, and distance the administration from the large element of risk that accompanies space programs. Additionally the U.S. Air force is advocating a stronger role in space, particularly the creation of a Space Force. While the physical weaponisation of space would almost certainly lead to a classic security dilemma, perhaps the rhetoric alone about weapons coming from the United States is enough to stimulate such a scenario; as Smith claims, we have the tendency to 'sing our world into existence'.²⁹

²⁷ For a discussion of ITAR see Taylor Dinerman, "ITAR's failure", *Space Review*, 17 March, 2008. Available at: <http://www.thespacereview.com/article/1086/1>, accessed 20 March, 2008.

²⁸ Everett C. Dolman, "U.S. Military Transformation and Weapons in Space" *S AIS Review*, 26 (1) , 2006, pp. 163-175.

²⁹ Steve Smith, "Singing Our World into Existence: International Relations Theory and September 11". *International Studies Quarterly*, 48(3), 2004.

China will not be immune to either the military or commercial issues that have been outlined. China's Eleventh Five Year Plan details the Chinese Communist Party's intent to launch up to 100 satellites between 2006 and 2010.³⁰ As China deepens cooperative ties in space with various stakeholders it will have a greater prerogative to protect the environment from which it benefits. China's space industry will offer an alternative source of technology to other states affected by U.S. export controls. Militarily, there is no doubt that China, and the rest of the world, are aware that U.S. military dominance is supported by space systems. It should come as no surprise that this is worthy of emulation. However, China has been steadfast in its disavowal of a 'space race' and space weaponisation for the last forty years. Non-weaponisation can be said to have been a 'norm' of state behaviour since the Cold War realisation that damage from space debris was indiscriminate, and the ban on nuclear weapons testing extends into space for the same reasons. Of course it would be naïve to state that China would insist on non-weaponisation if it was in a different position in the balance of power, but likewise the downside of 'worst case' scenarios is that they tend to be self-fulfilling.

Moreover, material interests also can play a part in cooperation. Weaponisation of space is not cost effective; one report states that it would be "many tens of times more expensive" to attack a ground target from space than from the ground.³¹ Space technology is expensive to create and maintain. The progressive nature of technology, and the destructive environment in which the technology operates mean not only that constant modernisation of space hardware is required, but also requires that old equipment be maintained – NASA still uses computer hardware and programs from decades ago to communicate with the Voyager space probe. The expensive nature of space technology forces cooperation in order for nations to maximise their interests in the environment of space. This holds true for corporate interests seeking to maximise profit in a globalised world within an ever expanding space market, and the US market has seen a number of corporate mergers within the space industry.

The U.S. set a precedent of cooperation during uncertainty with its early response to the Soviet space program, and has been successful in maintaining a relatively cooperative relationship with Russia in space science technology, despite other political and economic tensions.³² This historical incident of cooperation, which occurred despite issues of material gains and U.S. perceptions of the Soviet Union as an 'enemy', illustrates that conflict is not the sole outcome of 'gains seeking'. Whether or not this will occur in the case of China remains unanswered.

The political relationship between the United States and China is complex, and will shape the environment of space for the foreseeable future. The United States perceives China's involvement in space as a zero-sum game; that is every advance that China makes in space, comes at a cost to the U.S. space program. China, on the other hand, seeks to ensure its rights to access space – a place where the United States can claim technological dominance, but not legal sovereignty. The United States has

³⁰ Kevin Pollpeter, "Building for the Future: China's Progress in Space Technology during the Tenth 5-Year Plan and the U.S. response", *Strategic Studies Institute*, Monograph, 2008, available at: <http://www.strategicstudiesinstitute.army.mil/pdf/files/pub852.pdf> accessed 10 April, 2004.

³¹ James C Moltz, "Protecting safe access to space: Lessons from the first 50 years of space security".

Space Policy, 23, 2007

³² Ibid.

attempted to control the outward flow of technology, while China has increased its soft power by making space accessible to countries that would not otherwise have the capacity. China's level of space capability and competitiveness means that it is more attractive, especially financially, to countries in our region than the United States. For countries that lack space infrastructure, China's approach is the preferable option.

But why does this matter for Australia?

International law on matters of outer space is scant and immature – more relevant to Cold War tensions than to today's political climate. This means that there is plenty of scope for constructive involvement in formulating new rules for space interactions, including the prohibition of weapons in space. Perceptions are not immutable. Strategic dialogue, analysts with a comprehensive understanding of the subjects of their analysis, and political will, can change perceptions. The role of mediator and responsible power is a role that Australia has been proud to play in the past.

There is little chance that Australia will remain untouched by these geo-technological developments. Our security alliance to the United States vis-à-vis regional proximity and economic relationship with China in general has already been recognised as a possible source of tension for Australian policy makers.³³ Australia's military dependence on the United States complicates any vision of our space future. Our reliance on others for space technology makes us more vulnerable to the vagaries of great power games – and these 'games' are being played out in space. William Tow argues that "the risk of miscalculation in orchestrating such a great power-related strategy," as Australia is, "always looms large on the horizon."³⁴ Our alliance with the United States is already being tested by China's economic rise. Our relationships with these nations as space powers reflect similar traits; the U.S. is attractive from a security perspective and China from an economic one. Further, from a regional standpoint, by remaining merely a 'user' of space technology we are at risk of being isolated technologically from our neighbours who are clearly seeking to take advantage of China and Russia as an alternative route to space.

As such a sustainable space policy or program will require more than just technological advances and political will; it will require careful consideration, and a strong understanding of the complexities of the political and strategic environment that we hope to engage in. How does our lack of independence in space shape our political choices in the future? How would an independent space program affect those choices and what would be the political and strategic consequences? For Australia to move from a user to a producer in space, we must firstly develop a comprehensive long-term policy that considers the shape that our political presence will take. We live in an 'information age' where information is crucial to national security, and yet *our* information, our communications and therefore our security is dependent on others because we have no independent capacity.

This matters because the politics of space are no longer the same as they have been. The concept of space as a 'commons' for the benefit of mankind is becoming increasingly difficult to envisage in the long-term. Space technology has become

³³ William Tow, "Sino-American relations and the Australian Factor", *Australian Journal of International Affairs*, vol 59, No. 4, 2005, p. 455.

³⁴ Tow, "Sino-American relations and the Australian Factor", p. 459.

ubiquitous in our society, and therefore a larger and more diverse group of actors seek to utilise its benefits. Space technology has become something to protect, space dominance something to ensure. Given the circumstances described, the strong potential for space to be weaponised, and a growing regional presence in space, Australia should, at the very least, ensure that our interests in space are diverse both in source and scope, thereby decreasing our dependence and reducing our risk.

On a more positive note, every future age of man will be a space age.³⁵ In this case, Australia has time - time to instigate a solid educational basis, and strong human capital, on which a space program can flourish. However, the political vision to instigate these processes is required now. We have the economic advantage of being fast followers, of learning from the technological mistakes of others. We have proven in the past, with Woomera, that we have the capability to succeed in space – and now we have the knowledge of how crucial space technology is to human existence. We have the political advantage of being seen to be a responsible stake holder in the international community. Australia is surrounded by nations who have ambitions of becoming space-faring nations. At the very least, we have a geographically close market in which to operate. The former Prime Minister John Howard concluded that Australia's security interests intersect globally and regionally.³⁶ I argue that our security interests also include space. What role will Australia play?

³⁵ Adapted from RS McNamara, *The Essence of Security*, Hodder and Stoughton, London, 1968, who stated that “every future age of man will be an atomic age”, as quoted in Williams, R., *Politics and Technology*, The Macmillan Press Ltd, London 1971, p. 59.

³⁶ John Howard, “Address to the ASPI Global Forces 2006 Conference - Australia's Security Agenda” Hyatt Hotel, Canberra, 26 Sept 2006, accessed 1 October, 2007 at <http://www.pm.gov.au/media/speech/2006/speech2150.cfm>