

January 2010

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### Recommended Citation

Kulacki, Gregory (2010) "Chinese Intentions in Space: A Historical Perspective for Future Cooperation," *Space and Defense*: Vol. 4: No. 0, Article 6.

DOI: 10.32873/uno.dc.sd.04.01.1168

Available at: <https://digitalcommons.unomaha.edu/spaceanddefense/vol4/iss0/6>

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# Chinese Intentions in Space: A Historical Perspective for Future Cooperation

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The United States (U.S.) is opening a new dialogue with China on cooperation in space that includes human space flight. The announcement appeared in the Joint Statement issued by U.S. President Obama and Chinese President Hu in Beijing, China on 17 November 2009. The two leaders also agreed “the two countries have common interests in promoting the peaceful use of outer space and agree to take steps to enhance security in outer space.”<sup>1</sup> These are significant shifts in U.S. civilian and military space policy. The U.S. ended cooperation in space with China more than a decade ago<sup>2</sup> and consistently refused to discuss Chinese concerns about security in outer space.

In January 1999, a Select Committee of the U.S. House of Representatives chaired by Representative Christopher Cox issued its Report on U.S. National Security and Military/Commercial Concerns with the People’s Republic of China (PRC). The report claimed “The PRC (China) has stolen or otherwise illegally obtained U.S. missile and space technology that improves the PRC’s military and intelligence capabilities.”<sup>3</sup> The

Cox Commission concluded many of the alleged illegal transfers of American space technology occurred in the wake of “the Reagan administration’s decision to permit satellite launches in the PRC” and that the factors that led to the Reagan decision, which was left unaltered by subsequent administrations, were “no longer applicable.”<sup>4</sup> The U.S. Congress and the Executive branch responded by enacting highly restrictive export control laws and regulations that ended U.S. - China cooperation in commercial satellite launches and prevented cooperation in civilian space exploration.<sup>5</sup>

Just a few months later, in March 1999, the Chinese government refused to support a program of work at the United Nations (UN) Conference on Disarmament (CD) because it did not include negotiations on the Prevention of an Arms Race in Outer Space (PAROS).<sup>6</sup> The United States repeatedly opposed opening such a discussion, insisting on many occasions during the last ten years “there is no arms race in outer space” and therefore no need to

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<sup>1</sup>The White House Office of the Press Secretary, “U.S.-China Joint Statement,” 17 November 2009, Beijing, China, <http://www.whitehouse.gov/the-press-office/us-china-joint-statement> (accessed November 2009).

<sup>2</sup>Primarily consisting of U.S. government permission to allow commercial space activities, such as satellite launch services, consulting and satellite and component purchases.

<sup>3</sup>Select Committee of the U.S. House of Representatives, *Report on U.S. National Security and Military/Commercial Concerns with the People’s Republic of China Volume III*, U.S. Government Printing Office, Washington, D.C., 1999.

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p. xii, <http://www.access.gpo.gov/congress/house/hr105851> (accessed January 2010).

<sup>4</sup>*Ibid.* p. xxiv.

<sup>5</sup>Joan Johnson-Freese, “Becoming Chinese: Or, How U.S. Satellite Export Policy Threatens National Security,” *Space Times*, January/February 2001. Also, see Joan Johnson-Freese, “Alice in Licenseland: U.S. Satellite Export Controls Since 1990,” *Space Policy* 16: 3 (2000).

<sup>6</sup>Statement by H. E. Mr. Li Changhe, Ambassador for Disarmament Affairs of the People’s Republic of China, Plenary Meeting of the Conference on Disarmament, 27 May 1999, Geneva, Switzerland, [http://www.nti.org/db/china/engdocs/lichangh\\_0599.htm](http://www.nti.org/db/china/engdocs/lichangh_0599.htm) (accessed December 2009).

discuss space security issues in the CD.<sup>7</sup> In June 2009, the U.S. and China agreed to form an ad-hoc committee in the CD to discuss PAROS. The change in the U.S. position on space in the CD is consistent with the agreement in the U.S. - China Joint Statement to “take steps” on space security.

These shifts in U.S. civilian and military space policy towards China are supported by the head of the U.S. Strategic Command, General Kevin Chilton. Just before President Obama’s trip to China, the general told reporters that China was “on a fast track to improving capabilities,” that space was “a competitive domain” and that the United States needed “a forum that provides an open dialogue between our nations.”<sup>8</sup> General Chilton hopes the new dialogue with China will help the United States “understand exactly what China’s intentions are.”<sup>9</sup> The chief coordinator of U.S. military activities in space admitted “where they are heading is one of the things that a lot of people would like to understand better.”<sup>10</sup>

General Chilton’s open-minded approach to Chinese intentions is at odds with many U.S. analysts of China’s space programs, who claim to know that Chinese investments in space, including the large sums spent on their human space flight program, are guided by military objectives. The head of U.S. Strategic

Command is likely aware of the limited value of many existing U.S. assessments of Chinese intentions in space, which often lack credibility because they are based on questionable information from a small set of poorly evaluated Chinese sources.<sup>11</sup> The unwarranted concern generated by U.S. analysts over the comments of Chinese General Xu Qiliang on 1 November 2009 is a good example. Xu was discussing general trends in the development of military space technology in the context of comments on the 60<sup>th</sup> anniversary of the People’s Liberation Army Air Force (PLAF). American press accounts, took highly edited fragments of Xu’s full remarks out of context, making it appear the head of the Chinese Air Force said war in space was inevitable, which he did not.<sup>12</sup>

The new willingness to talk about cooperation in space is a welcome sign that both the U.S. and China recognize the undesirable consequences of maintaining the post-Cox Commission status-quo. If the bilateral dialogue on space is to succeed, both sides need to be prepared to manage the inevitable

<sup>7</sup>The most notable among these was the statement of the Delegation of the United States of America to the Conference on Disarmament on 13 June 2006, which states: “The Cold War is over, Mr. President, and there is no arms race in outer space. Thus there is no – repeat, no – problem in outer space for arms control to solve.” The statement was delivered by John Mohanco, then the Deputy Director of the U.S. State Department’s Office of Multilateral Nuclear and Security Affairs, <http://www.reachingcriticalwill.org/political/cd/speeches06/13JuneUS.pdf> (accessed December 2009).

<sup>8</sup>Phil Stewart, “U.S. Eyes Intent of China’s Space Programs,” *Reuters* 3 November 2009, <http://www.reuters.com/article/scienceNews/idUSTRE5A25XG20091103> (accessed December 2009).

<sup>9</sup>Ibid.

<sup>10</sup>Ibid.

<sup>11</sup>Gregory Kulacki, “Anti-Satellite (ASAT) Technology in Chinese Open-Source Publications,” Union of Concerned Scientists, Cambridge, Massachusetts, 9 June 2009, [http://www.ucsusa.org/nuclear\\_weapons\\_and\\_global\\_security/international\\_information/us\\_china\\_relations/anti-satellite-asat.html](http://www.ucsusa.org/nuclear_weapons_and_global_security/international_information/us_china_relations/anti-satellite-asat.html) (accessed December 2009).

<sup>12</sup>Analysts are made to appear to sanction the inaccurate interpretation that Xu’s remarks exposed hitherto unpublicized Chinese plans for space warfare. See Colin Clark, “China Declares Space War Inevitable,” <http://www.dodbuzz.com/2009/11/04/china-declares-space-war-inevitable> (accessed December 2009). The original story clearly indicates Xu was referring to longstanding public Chinese discussions of trends in the militarization of outer space, not plans for space war or space weaponization. See “China’s PLA Eyes Future in Space, Air: Air Force Commander,” *Xinhua General News Service*, Beijing, China, 1 November 2009, [http://eng.mod.gov.cn/TopNews/2009-11/02/content\\_4099975.htm](http://eng.mod.gov.cn/TopNews/2009-11/02/content_4099975.htm) (accessed December 2009). An extended Chinese language account of the full press conference from which the quotes in the prior source are derived is available at [http://news.mod.gov.cn/headlines/2009-11/01/content\\_4099571.htm](http://news.mod.gov.cn/headlines/2009-11/01/content_4099571.htm).

difficulties and frustrations of continued miscommunication and misunderstanding. For example, the United States and China began a similar dialogue on nuclear weapons nearly twenty years ago, but the participants still argue over the meaning of basic concepts, like deterrence.<sup>13</sup> China's nuclear weapons experts have an institutionalized aversion to the use of the Chinese word for deterrence "*weishe*." Elder Chinese leaders do not want them to use deterrence to describe the purpose of Chinese nuclear weapons because they associate the concept with the "nuclear blackmail" they believe China experienced at the hands of the Americans in the 1950s.<sup>14</sup> Today, younger

Chinese analysts are beginning to use the word "deterrence" the same way their American counterparts do. Ironically, this accommodation to the American nuclear vernacular is producing more confusion. Some American analysts, mistakenly according to the Chinese, are interpreting changes in their use of terminology as a sign China is changing its nuclear posture.<sup>15</sup>

The American side should prepare for the upcoming dialogue with China on space by learning more about the history of the Chinese space program. Familiarity with the choices China made in the past, as well as how and why those choices were made, should help the American participants be more effective in meeting whatever objectives they set for the talks. The best way to determine where China might be heading is to understand more about where they have been.

### **The 1980s: The Formative Decade for Contemporary Chinese Space Policy**

China's contemporary space capabilities, including the anti-satellite (ASAT) interceptor tested in January 2007 and their human space flight program, were made possible by a 1986 leadership decision to make an initial 10 billion Chinese Yuan (or Renminbi, RMB) investment in seven key areas of advanced technology, including aerospace.<sup>16</sup> This

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<sup>13</sup>The Committee on the U.S. - Chinese Glossary of Nuclear Security Terms, composed of members of the U.S. National Academy of Science Committee on International Security and Arms Control (CISAC) Policy and the Chinese Scientists Group on Arms Control (CSGAC) negotiated for months over the inclusion of the term "limited deterrence" in their English-Chinese, Chinese-English Nuclear Security Glossary. The aim of the glossary is to "reduce the likelihood of misunderstanding, and to remove barriers to progress in exchanges and diplomatic, cooperative and other activities where unambiguous understanding is essential." CISAC and CSGAC have been meeting for almost twenty years. In the end, the two sides agreed to disagree, saying it was "a term used by some scholars to describe a form of deterrence. However, there is no consensus on the definition." This may seem a small matter, but some of the scholars they refer to in the definition argue that China is in the process of changing its nuclear posture from a "minimal" to a "limited" deterrent. This change could have grave implications for U.S. perceptions of Chinese intentions regarding the alert status and possible use of their nuclear weapons. Committee on the U.S. - Chinese Glossary of Nuclear Security Terms, National Research Council, "English-Chinese, Chinese-English Nuclear Security Glossary," The National Academies Press, Washington, D.C., 2008, [http://books.nap.edu/catalog.php?record\\_id=12186](http://books.nap.edu/catalog.php?record_id=12186) (accessed January 2010).

<sup>14</sup>This was the unanimous response from a panel of eight leading Chinese experts on nuclear strategy: Duan Zhanyuan, Second Artillery of the People's Liberation Army; Fan Jishe, China Academy of Social Sciences; Guo Xiaobing, China Institute of Contemporary International Relations; Hu Yumin, China Institute of International and Strategic Studies; Li Bin, Tsinghua University; Sun Xiangli, China Academy of Engineering Physics; Teng Jianqun, China Institute of International Studies; and Yang Mingjie, China Institute of Contemporary International Relations. These experts were responding to a question on the Chinese aversion to the term "deterrence" from James Acton at a workshop sponsored by

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the Carnegie Endowment for International Peace and Tsinghua University held at Tsinghua University.

<sup>15</sup>A description of the ongoing debate among scholars can be found in Stephanie Legge, "Going Beyond the Stir: The Strategic Realities of China's No-First-Use Policy," *NTI Issue Brief*, December, 2005, [http://www.nti.org/e\\_research/e3\\_70.html](http://www.nti.org/e_research/e3_70.html) (accessed December 2009). Legge notes the origins of the linguistic roots of the suspected Chinese posture change in Alastair Iain Johnson, "China's New Old Thinking: The Concept of Limited Deterrence," *International Security* 20: 3 (1995-1996).

<sup>16</sup>Gregory Kulacki and Jeffrey Lewis, "A Place for One's Mat," American Academy of Arts and Sciences, Cambridge,

decision was a direct result of a personal appeal to Deng Xiaoping by Chinese scientists who were closely associated with China's nuclear weapons and ballistic missile programs.<sup>17</sup> That appeal was contained in a letter written in response to U.S. President Ronald Reagan's 23 March 1983 speech announcing the Strategic Defense Initiative (SDI).<sup>18</sup>

Influential Chinese defense community scientists were not writing to Deng because of a concern about the possibility of a future military conflict with the United States. The contents of their letter and the state of U.S. - China relations at the time it was written make this clear. The United States and China were cooperating in efforts to contain the Soviet Union, and the United States was providing intelligence, technology and training to the Chinese military. President Reagan received a warm welcome in what he described as the "so-called Communist China" during his visit in April 1984. Reagan proclaimed, "My visit to China has convinced me that our future is bright," and "America is on the edge of a new era of peace, prosperity and commerce."<sup>19</sup> While the two nations were not allies, U.S. and Chinese mutual threat perceptions were low. The year the letter was sent to Deng Xiaoping *Time* magazine made him their

"Man of the Year." *Time* noted "his continuing reform of China and Marxism holds more promise for changing the course of history than anything else that occurred during 1985."<sup>20</sup>

The Chinese scientists who persuaded Deng Xiaoping to commit a large block of the nation's limited technical and fiscal resources to an ambitious space program believed that SDI was "not just a military program, but a far-reaching political striving to preserve American superiority."<sup>21</sup> The military implications of SDI were not the "real objective" behind a program they saw as an effort to "push forward new advanced technologies and national economic development."<sup>22</sup> The Chinese leadership, attentive to the concerns of their scientific advisers, wanted to ensure China kept pace in the international competition for technological and economic power. Military space capability was a secondary concern. This was reflected in the "Outline for National High Technology Planning" that codified the scientists concerns into national policy.<sup>23</sup> The

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Massachusetts, 2009, pp.23-24, <http://www.amacad.org/publications/spaceChina.aspx> (accessed December 2009).

<sup>17</sup>The scientists were Wang Daheng, Chen Fangyun, Wang Ganchang and Yang Jiachi. An excellent English language summary of their contributions to China's nuclear and ballistic missile programs is contained in Evan A. Feigenbaum, *China's Techno-Warriors: National Security and Strategic Competition from the Nuclear to the Information Age* (Stanford University Press, 2003): 154-157.

<sup>18</sup>Xiaohua Fan, *The Inside Story of Chinese Space Policy-Making* (China Literature and History Publishing House, 2005): 262 - 269.

<sup>19</sup>Robert A. Jemian, Laurence I. Barrett and Evan Thomas, "An Opening to the Middle Kingdom," *Time* 14 May 1984, <http://www.time.com/time/magazine/article/0,9171,955255,00.html> (accessed November 2009).

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<sup>20</sup>George J. Church, "Deng Xiaoping," *Time* 6 January 1986, <http://www.time.com/time/subscriber/personoftheyear/archive/stories/1985.html> (accessed November 2009). It was the second time Deng received high praise from *Time*, which named him "Man-of-the-Year" in 1978 for "leading one-quarter of mankind quickstep out of dogmatic isolation into the late 20<sup>th</sup> Century and the life of the rest of the planet." From the *Time* archive, "Person of the Year," *Time* 1 January 1979, <http://www.time.com/time/subscriber/personoftheyear/archive/stories/1978.html> (accessed December 2009).

<sup>21</sup>Xiaohua Fan, *The Inside Story of Chinese Space Policy-Making* (China Literature and History Publishing House, 2005): 262-269. Two of the four authors of the letter detail their political, economic and technological motivations for investments in space in an article entitled: "The Science of Technology and Our National Aerospace Technology Development," *Journal of the Chinese Academy of Science* 4 (1986), shortly after they transmitted their letter to Deng Xiaoping. The article can be found in Yang Jiachi, *The Selected Works of Yang Jiachi* (China Astronautic Publishing House, 2006): 102-109.

<sup>22</sup>Ibid.

<sup>23</sup>Ibid.

Outline placed a priority on civilian and dual-use applications: a priority that continues to guide Chinese high technology investments, including aerospace investments, according to language in the current Chinese national plan.<sup>24</sup>

During Reagan's visit, Deng expressed frustration that the U.S. was unwilling to provide China with access to space technology.<sup>25</sup> Six year's earlier, U.S. President Carter's National Security Advisor, Zbigniew Brzezinski, brought what he described as "the most high powered science/technology delegation ever sent by the United States to a foreign country" when he visited China in 1978 for negotiations leading to the establishment of diplomatic relations.<sup>26</sup> NASA Administrator at that time, Robert Frosch, was a member of that delegation. Deng Xiaoping took the occasion to ask the United States for help developing China's first communication satellite. Their own effort had stalled and Deng wanted to jump start a long distance education effort designed to address the catastrophic damage to Chinese secondary and higher education caused by the Cultural Revolution of 1966-1976.<sup>27</sup>

The Carter administration was willing to sell China a satellite, but China wanted help overcoming the specific technical difficulties inhibiting progress on their existing communications satellite program. It had been a top Chinese national technology policy

priority since September of 1977.<sup>28</sup> The willingness of the Carter administration to provide technological assistance to China was encouraging and the immediate need pressing, so Deng took the extraordinary step of making a direct personal appeal to the United States against the wishes of his scientific advisers. They wanted to do it on their own. Fortunately for them, the negotiations broke down. Afterward, Deng and China's aerospace leaders came to believe that China could not rely on the U.S. for meaningful assistance in developing their own space technology. They went ahead with the communication satellite on their own. There were repeated setbacks and delays, but these proved to be invaluable learning experiences.<sup>29</sup> China eventually succeeded in placing their first communications satellite into space on 16 April 1984, ten days before Reagan arrived in China.<sup>30</sup> Deng may have been expressing frustration when he chided Reagan for not providing more access to American space technology, but he may also have been trying to let him know China could succeed without it.

China's disappointment in American reluctance to share advanced space technology has a historical precedent in the Soviet Union's hesitant assistance to China's nuclear

<sup>24</sup>An English Language copy of the complete document is available on-line at <http://www.cstec.org/uploads/files/National%20Outline%20for%20Medium%20and%20Long%20Term%20S&T%20Development.doc> (accessed December 2009).

<sup>25</sup>Jeff Gerth and Eric Schmidt, "The Technology Trade: A Special Report; Chinese Said to Reap Gains In U.S. Export Policy Shift," *New York Times* 19 October 1998.

<sup>26</sup>Richard Masden, *China and the American Dream: A Moral Inquiry* (University of California Press, 1995): 134.

<sup>27</sup>Xiaohua Fan, *The Inside Story of Chinese Space Policy-Making* (China Literature and History Publishing House, 2005): 199-201.

<sup>28</sup>Chinese General Zhang Aiping, the Director of the Committee on Science, Technology for National Defense (CSTND) first expressed his intention to make it a priority during a meeting of the Chinese Academy of Space Technology (CAST) in June 1975. Jisheng Li, *Far Road to Heaven: Record of Rocket and Satellite Launches* (Central Party School of the Chinese Communist Party Publishing House, 2005): 151.

<sup>29</sup>Carter's NASA Administrator Robert Frosch felt that the lesser risk was in helping China with their own communications satellite, since that would probably mean they learned less than if they did it themselves. Moreover, in his view there were no great secrets in the comsat (commercial satellite) business that cooperation would risk compromising. Personal communication with the author.

<sup>30</sup>Xiaohua Fan, *The Inside Story of Chinese Space Policy-Making* (China Literature and History Publishing House, 2005): 224-232.

and ballistic missile programs— assistance abruptly canceled shortly after it began. Chinese leaders call attention to this precedent when they compare the human spaceflight program to their earlier effort to develop nuclear weapons and ballistic missiles.<sup>31</sup> Although in practice human spaceflight has shown little military value, the common denominator between the two programs (nuclear weapons/ballistic missiles and spaceflight) is that in both instances the Chinese were forced to master the technologies on their own, or at least without substantial foreign assistance. The comparison is meant to be an object lesson for the Chinese in the continuing importance of indigenous technological development, even in this era of globalization and interdependence. This understanding of the importance the current leadership attaches to their space program is consistent with the concerns expressed in the past by the letter-writing Chinese scientists who got it started. Those scientists understood how technologically deficient China was in comparison to the world's most

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<sup>31</sup>Many American observers see the connection in military terms and describe the Chinese human spaceflight program as a "military run" program. One example, among scores of others, was an editorial published in *The Dallas Morning News* shortly after China put their first person in space. The editorial was accompanied by a picture of military officers surrounding the Shenzhou V space capsule. Standing at the front of the capsule were Chinese astronaut Colonel Yang Liwei and Chinese President Jiang Zemin, both dressed in their military uniforms. The editorial notes: "It is important to observe that Beijing's space program is not run by the Chinese equivalent of the National Aeronautics and Space Administration, but by the People's Liberation Army. Following the taikonaut's return to Earth, the country's science and technology minister called the event a "glorious achievement" as significant as China's explosion of its first atomic and hydrogen bombs. The comparison is telling." See "Red Star Rising: Space Venture Makes China a True Competitor," *Dallas Morning News* 17 October 2003. A similar assessment of the military character of China's human spaceflight program appeared on the eve of U.S. President Obama's visit to China: See Gordon Chang, "The Space Race Begins. Should the U.S. and China Cooperate," *Forbes.com*, <http://www.forbes.com/2009/11/05/space-arms-race-china-united-states-opinions-columnists-gordon-g-chang.html> (accessed December 2009).

technologically advanced nation, the United States., which they imagined was about to invest hundreds of billions of dollars in a new generation of space-related technologies.

At the same time, China made a diplomatic push for international restrictions on the military use of space technology. In March 1985, Chinese Ambassador Hu Xiaodi delivered China's first official position paper on the peaceful use of outer space to the CD. It stated "China fully subscribes to the objective of the non-militarization of outer space and the exclusive use of outer space for peaceful purposes." Non-militarization was understood to mean "both space weapons with actual lethal or destructive power and military satellites of all types from limited and prohibited." China was willing to postpone discussions on a ban on all military uses in lieu of an immediate effort to ban the "development, testing, production, deployment and use of any space weapons" including "all devices or installations either space, land, sea, or atmosphere-based, which are designed to attack or damage spacecraft in outer space, or disrupt their normal functioning or change their orbits."<sup>32</sup>

Had the United States, China and the other members of the CD negotiated such a prohibition, the research and development (R&D) effort that produced the ASAT interceptor China tested in January of 2007, and other suspected Chinese counter space technologies, would have been legally proscribed. In the absence of an agreement, Chinese concerns about ASAT weapons gradually evolved from observations and analysis of foreign ASAT systems to

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<sup>32</sup>See China's Basic Position on the Prevention of an Arms Race in Outer Space Conference on Disarmament, CD/579, 19 March 1985 in Jeffrey Lewis, *The Minimum Means of Retaliation: China's Search for Security in a Nuclear Age* (The MIT Press, 2007): 209-210.

diplomatic efforts to restrain them, and eventually to R&D programs of their own.

China had been watching the development of U.S. and Soviet ASAT systems since the early 1970s.<sup>33</sup> By the end of the decade, they noted then that while the Soviet Union seemed to be farther ahead in ASAT technology, U.S. R&D on missile defense had also produced capabilities that could be used to “track, approach, discriminate and destroy” satellites.<sup>34</sup> These early observations led China’s defense aerospace experts to anticipate, several years before Reagan’s SDI speech, “technological breakthroughs... in infrared sensing, adaptive optics, lasers, precision guidance, micro-computing, aerospace, particle beam and other weapons that will lead to a fundamental change in strategic defenses.”<sup>35</sup> China’s scientists also predicted these technological changes would “undermine arms control efforts between the United States and Soviet Union that restrict the development of missile defense and ASAT systems.”<sup>36</sup> This early connection between missile defense and ASAT technology is a persistent theme in Chinese discussions about the two technologies that continues today. The ASAT interceptor China tested in 2007 uses the same basic technologies as those used in U.S. missile defense interceptors. China appears to have begun the R&D program that

produced their ASAT interceptor in the mid-1980s.<sup>37</sup>

By the end of the 1980s, China had committed to a long-term R&D effort that would eventually lead to the acquisition of the civilian and military space capabilities they are bringing on-line today. China expressed “strong interest” in international negotiations to control the military use of space technology, including all types of ASAT weapons, but also set about developing the same military space capabilities they sought to have controlled.<sup>38</sup> When China made these commitments, neither the technologies nor the negotiations to control them appear to have been specifically intended to resolve concerns about a possible military conflict with United States. For understandable reasons, many Americans do not see it that way today.

### **Historical Perspective on American Perceptions of Chinese Intentions in Space**

American perceptions of Chinese intentions in space have a history of their own that is disconnected from the history of China’s space programs. When Ronald Reagan agreed to allow China to launch U.S. commercial communications satellites in September of 1988, U.S. threat perceptions of China were even lower than they had been when he visited China four years earlier. *Time* magazine made fun of a Chinese military “whose power and prestige have been diminished by Chinese leaders determined to de-emphasize military

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<sup>33</sup>Gregory Kulacki, “Anti-Satellite (ASAT) Technology in Chinese Open-Source Publications,” Union of Concerned Scientists, 9 June 2009, [http://www.ucsusa.org/nuclear\\_weapons\\_and\\_global\\_security/international\\_information/us\\_china\\_relations/anti-satellite-asat.html](http://www.ucsusa.org/nuclear_weapons_and_global_security/international_information/us_china_relations/anti-satellite-asat.html) (accessed December 2009).

<sup>34</sup>Ji Shipan and Li Minghu, “Kongjian Zhanzheng yu Jiguang Wuqi: Dandao Daodan Fangyu de Fazhan Qushi” (Space Warfare and Laser Weapons: Trends in the Development of Missile Defense), *Xiandai Fangyu Jishu* (Modern Defense Technology) 3 (1979): 1-31.

<sup>35</sup>Ibid.

<sup>36</sup>Ibid.

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<sup>37</sup>Gregory Kulacki and Jeffrey G. Lewis, “Understanding China’s Antisatellite Test,” *The Nonproliferation Review* 15: 2 (2008).

<sup>38</sup>The Chinese wanted to ban all military uses of space. This was a much stronger arms control measure than what China and Russia are currently proposing. Links to the UN documents on the current Chinese-Russian proposal can be found on-line at <http://www.reachingcriticalwill.org/legal/paros/osdocuments.html>.

might in favor of agricultural and industrial reform.”<sup>39</sup> The U.S. security concern at the time was Chinese missile sales. Reagan administration officials, including Defense Secretary Frank Carlucci, were “fully satisfied” their discussions with Deng Xiaoping had resolved those concerns. Sanctions imposed in the wake of missile sales to Iran were lifted, and the U.S. continued to provide assistance and equipment to the Chinese military.<sup>40</sup>

Less than a year later American threat perceptions changed dramatically after the Chinese military used lethal force to repress anti-government demonstrations throughout China in June of 1989. What is known in the United States as the “Tiananmen Massacre” was a massive nationwide military campaign to put down protests in major cities throughout China. Televised images of the violence in Beijing on the evening of June 3 and the early morning of June 4 horrified the American public. CNN reporter Mike Chinoy, who was responsible for getting those images out of China, later called it the defining moment in American perceptions of China.<sup>41</sup>

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Chinese leader Deng Xiaoping was instantly transformed from *Time* magazine’s reform-minded “Man-of-the-Year” into the “Butcher of Beijing.” In the next few years, the fall of the Berlin Wall and the collapse of the Soviet Union left China as the only major nation ruled by a communist party. Over the next decade, Americans developed “a picture of China solely as a country of brutal dictators, beleaguered dissidents and corrupt deal-makers intent on using its economic clout and its military might to dominate its neighbors and challenge the United States for regional supremacy.”<sup>42</sup>

Changing American perceptions of China did not bring a halt to U.S. commercial satellite launches from China until 1998. Initially this may have been due to the temporary shortage of U.S. launch capacity created by the loss of the Space Shuttle Challenger in 1986. Later in the next decade, the Clinton administration continued to permit the launches because it believed the policy encouraged China to keep the promise not to sell missile technology it made just before President Reagan authorized them.<sup>43</sup> Republican opponents on Congress, however, began to define Chinese space programs as a grave threat to U.S. national security and charged President Clinton “sold to a Chinese Military Intelligence front the technology that defense experts argued would give Beijing the capacity to blind our spy satellites and launch a sneak attack.”<sup>44</sup>

<sup>39</sup>Michael S. Serrill, Sandra Burton and Jaime A. FlorCruz, “China Sprucing Up the Troops,” *Time* 11 July 1988, <http://www.time.com/time/magazine/article/0,9171,967873,00.html> (accessed 29 November 2009).

<sup>40</sup>See Don Oberdorfer, “U.S. and China Mark 10 Years of Ties,” *New York Times* 16 December 1988; “China Assures Carlucci On Mideast Arms Sales; Peking Seen Curbing Missile Supply Role,” *New York Times* 8 September 1988; and “U.S. to Lift Sanctions Against Beijing; Chinese Agree to Accept Peace Corps,” *New York Times*, 10 March 1988.

<sup>41</sup>Mike Chinoy, “Speech Before the Los Angeles World Affairs Council,” 18 April 1997, <http://www.lawac.org/>

[speech/pre%20sept%2004%20speeches/chinoy.html](http://www.lawac.org/speech/pre%20sept%2004%20speeches/chinoy.html) (accessed November 2009).

<sup>42</sup>Ibid.

<sup>43</sup>Jeff Gerth and David Sanger, “How Chinese Won Rights to Launch Satellites for U.S.,” *New York Times* 17 May 1998, <http://www.nytimes.com/1998/05/17/us/how-chinese-won-rights-to-launch-satellites-for-us.html?scp=2&sq=Rubin&st=nyt&pagewanted=all> (accessed November 2009).

<sup>44</sup>William Safire, “Essay; U.S. Security for Sale,” *New York Times* 18 May 1998, <http://www.nytimes.com/1998/05/18/opinion/essay-us-security-for-sale.html?scp=5&sq=China&st=nyt> (accessed November 2009).

This claim was made in May 1998, when China had 14 satellites in orbit including ten communication satellites, mostly of foreign manufacture, that were used primarily for television, phone and fax services. China also had one weather satellite and one scientific satellite.<sup>45</sup> Also, China's space investments, and the Chinese military's space work force, were developing the human spaceflight program, which had yet to launch the first experimental capsule and would not put an astronaut into space for another five years. Even though China had mastered the use of recoverable reconnaissance satellites and was developing experimental positioning satellites,<sup>46</sup> they had no demonstrated counter space capabilities. Yet the "Space Pearl Harbor" narrative quickly emerged as the consensus interpretation of Chinese intentions among U.S. analysts. In January 2001, the supposed Chinese threat was highlighted in the Report of the Commission to Assess U.S. National Security Space Management and Organization— a Congressional commission chaired by Donald Rumsfeld until President-elect George W. Bush nominated him to serve as Secretary of Defense. The Space Commission report claimed: "China's military is developing methods and strategies for

defeating the U.S. military in a high-tech and space-based future war."<sup>47</sup>

Prominent American analysts of China's military modernization program believed these methods and strategies were inspired by concerns within the Chinese military about the American use of space technology in the 1991 Gulf War.<sup>48</sup> One of the most frequently was Mark Stokes, whose 1999 U.S. Army War College publication on Chinese strategic modernization was cited frequently by American analysts. Stokes called the supposed Chinese preoccupation with military space technology "China's Gulf War Syndrome." He described it "a rude awakening for the

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<sup>47</sup>Report of the Commission to Assess U.S. National Security Space Management and Organization, 11 January 2001, p. xiv and p. 22, <http://www.fas.org/spp/military/commission/report.htm> (accessed January 2010).

<sup>48</sup>The claim appears in many American analyses. Some of the more prominent are James A. Lewis, *China as a Military Space Competitor*, Center for Strategic and International Studies, August 2004, [http://www.csis.org/media/csis/pubs/040801\\_china\\_space\\_competitor.pdf](http://www.csis.org/media/csis/pubs/040801_china_space_competitor.pdf) (accessed January 2010); Phillip Saunders, Jing-dong Yuan, Stephanie Lieggi and Angela Deters, *China's Space Capabilities and the Strategic Logic of Anti-Satellite Weapons*, Center for Non-proliferation Studies, July 2002, <http://cns.miis.edu/stories/020722.htm> (accessed January 2010); David O. Meteyer, *The Art of Peace: Dissuading China from Developing Counter-Space Weapons*, INSS Occasional Paper 60, USAF Institute for National Security Studies, USAF Academy, Colorado, August 2005; Mark A. Stokes, "Space, Theater Missiles, and Electronic Warfare: Emerging Force Multiplier for the PLA Aerospace Campaign," presented at Chinese Military Affairs: A Conference on the State of the Field, 26-27 October 2000, Fort McNair, Washington DC, Aerospace I Panel; and Mary C. FitzGerald, "China's Evolving Military Juggernaut," in *China's New Great Leap Forward: High Technology and Military Power in the Next Half-Century*, Hudson Institute, 2005. The assertion was also a focal point of a review of China's space program presented by Dean Cheng of the Center for Naval Analysis (CNA) at the Henry L. Stimson Center on 3 March 2005. A somewhat less definitive agreement with this consensus appears in Joan Johnson-Freese, "Strategic Communication with China: What Message about Space?" *China Security* 2 (2006): 51, [http://www.wsichina.org/attach/china\\_security2.pdf#search=Strategic%20Communication%20with%20China:%20Space](http://www.wsichina.org/attach/china_security2.pdf#search=Strategic%20Communication%20with%20China:%20Space) (accessed January 2010).

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<sup>45</sup>The communications satellites were: Apstar 1, 3 and 4 (APT Satellite); Asiasat 1, 2, 3S, and Asiasat G (Asia Satellite Telecom); Dongfanghong 3R (China Telecom Satellite Broadcasting); Sinosat-1 (Sino Satellite Communications); and the Chinastar-1 (Zhongwei 1) built by Lockheed, owned and operated by China Satellite Communications. The weather satellite was the Feng Yun 2B (China National Space Administration), and the scientific satellite was the Shijian 4 (CAST). See *Aviation Week & Space Technology* 148: 2 (1998): 141-147; and *Aviation Week & Space Technology* 154: 3 (2001): 167-176. Also, see the Union of Concerned Scientist Satellite Database, which is available at [http://www.ucusa.org/nuclear\\_weapons\\_and\\_global\\_security/space\\_weapons/technical\\_issues/ucs-satellite-database.html](http://www.ucusa.org/nuclear_weapons_and_global_security/space_weapons/technical_issues/ucs-satellite-database.html) (accessed January 2010).

<sup>46</sup>This includes the FSW recoverable satellite program which was used for a variety of experiments as well as photo reconnaissance, the Ziyuan imaging satellites developed in cooperation with Brazil and the Beidou positioning satellites.

CMC [China's Central Military Commission] and the military-industrial complex."<sup>49</sup>

However, the history of China's space program reviewed earlier in this paper demonstrates that Stokes was mistaken. There is ample documentary evidence that the defense scientists who ran China's "military industrial complex" anticipated the military applications of space technology the U.S. demonstrated in the Gulf War more than a decade before that war started.<sup>50</sup> They petitioned the Chinese government for the funding to develop their own military space capabilities five years before it started. And at the time these senior figures in China's "military industrial complex" wrote their petition to the most influential military decision-maker in the CMC, Deng Xiaoping, the U.S. was assisting the development of Chinese military capabilities. Mutual threat perceptions were low and the probability of a U.S. - China military conflict was remote.

The mistake Stokes makes in interpreting Chinese thinking about space is revealing, and it is one that is repeated by American analysts who cite Chinese publications without considering their historical, institutional and social context. The claim that China was acquiring the capability to launch a "Space Pearl Harbor" is based on American interpretations of the selected quotations of Chinese military personalities culled from Chinese military publications and press interviews. The quotations used to demonstrate Chinese intent that appear in the

Space Commission Report, in the Stokes' study and in many other U.S. analyses of China's space programs are not from the scientists who work in the aerospace community and advise the senior leadership of the Chinese "military-industrial complex." The quotations are from a very different set of Chinese authors writing for publications with a different purpose and a different audience.

The Gulf War was a global media phenomenon that carried the now iconic televised images of "smart bombs" to hundreds of million of Chinese viewers for whom television itself was advanced technology. In the wake of this media event, a new and very different group of Chinese authors began writing about military space technology for a new audience. The authors

*...China made a diplomatic push for international restrictions on the military use of space technology.*

were not aerospace experts or strategists writing for Chinese leaders, but non-experts writing for average Chinese readers who were, like many others all over the world, rudely awakened by the images of modern warfare they saw on

television. Their articles were part of a political campaign meant to reassure both soldiers and officers that the Chinese leadership was aware of the changing nature of modern military technology and would take steps to prepare the PLA to respond to these developments, but without saying in a detailed or authoritative way how it would respond.<sup>51</sup> American analysts were confusing Chinese military space policy with Chinese military propaganda. This confusion is still a problem today.

<sup>49</sup>Mark A. Stokes, *China's Strategic Modernization: Implications for the United States*, Strategic Studies Institute, U.S. Army War College, September 1999, p. 12.

<sup>50</sup>Gregory Kulacki, "Anti-Satellite (ASAT) Technology in Chinese Open-Source Publications," Union of Concerned Scientists, 9 June 2009, [http://www.ucsusa.org/nuclear\\_weapons\\_and\\_global\\_security/international\\_information/us\\_china\\_relations/anti-satellite-asat.html](http://www.ucsusa.org/nuclear_weapons_and_global_security/international_information/us_china_relations/anti-satellite-asat.html) (accessed December 2009). This study is based on over 1,500 source articles over a four-decade period.

<sup>51</sup>Ibid.

### **Lesson for Policy Makers: Let the Scientists Do the Talking**

The dialogue on cooperation and the peaceful use of outer space President Obama and President Hu agreed to begin in their Joint Statement of November 17, 2009 will not last for long if both sides continue to be suspicious of the other's intentions. Before the dialogue begins in earnest, and before any agreement on cooperation is signed, both sides should take steps to correct past mistakes.

Chinese military propaganda on space may not be an indication of the intentions driving Chinese space policy, but it is a cause for concern. Repeated unsettling statements from military officers published in Chinese newspapers, magazines and journals have the same effect on U.S. policy-makers as the rhetoric from the U.S. Air Force about "space dominance" has on Chinese policymakers. Because Chinese leaders are unwilling to censure their military propagandists and American leaders cannot prevent U.S. space hawks from advocating visions of space dominance to Congress, policy-makers in both nations find it difficult to navigate the maze of heated rhetoric that drives their respective domestic debates over the merits of cooperation and negotiation.

Mutual reassurances of peaceful intentions issued regularly by the Chinese Foreign Ministry and the U.S. Department of State are routinely dismissed by both governments as the wishful thinking or disingenuous decorum of diplomats. In the United States, this perception was strongly reinforced by the Foreign Ministry's apparent lack of

*China had been watching the development of the U.S. and Soviet ASAT system since the early 1970s.*

knowledge about the Chinese ASAT test in 2007, which some ministry functionaries originally dismissed as U.S. government slander.<sup>52</sup> The U.S. State Department enforcement of discriminatory U.S. legal restrictions on space cooperation with China is interpreted by many Chinese space scientists and engineers as a sign of persistent U.S. hostility towards China's efforts to join the international community of spacefaring nations.<sup>53</sup> This explains, in their view, why China is not treated on an equal basis with other less-developed Asian space programs, specifically those of Japan, India, Malaysia and South Korea, which all have cooperative relationships with NASA.

A look back at the record of Chinese decisions about space suggests that neither the PLA nor the Foreign Ministry has played a decisive role in the formation and direction of Chinese space policy. The limited historical materials available on Chinese space policy, from the decision to launch China's first satellite in the early days of the People's Republic to current Chinese plans to build their own space station, suggest that China's scientists guided Chinese space policy and convinced the Chinese political leadership to make the investments necessary to carry it out. Since this is the audience most likely to influence Chinese policymakers, a dialogue on cooperation and negotiations on space between U.S. and Chinese scientists is more likely to produce credible, productive and sustainable outcomes than a dialogue between military officers or diplomats. This is also what we have observed in the bilateral dialogue on nuclear weapons policy.

<sup>52</sup>David E. Sanger and Joseph Kahn, "U.S. Tries to Interpret China's Silence Over Test," *New York Times* 22 January 2007.

<sup>53</sup>Interviews with Chinese space scientists and engineers conducted by author in China during the course of managing the China Project of the Union of Concerned Scientists between 2002 and 2009.

The publications of both militaries suggest they will have difficulty discussing space with the nation they believe to be their most likely adversary in a future military conflict. This is especially true of Chinese military publications because of their propaganda function. Military to military exchanges should begin with less controversial and less technologically complex problems. Adding space to that agenda is more likely than not to derail it. Diplomats will be inclined to see discussions on space as a vehicle for addressing other problems in the bilateral relationship, or to hold the discussions hostage to those problems if they become worse. The Clinton Administration's use of licensing procedures for sensitive space technology as a bargaining chip in a diplomatic effort to constrain Chinese missile sales is an instructive example of how this common diplomatic practice can go awry.

### Conclusions

The history of American perceptions of China suggests that U.S. Congressional concerns about technology transfer will continue to be the most volatile and disruptive factor in U.S. - Chinese relations in space. The new dialogue on cooperation will be more likely to produce sustainable programs if it is conducted by individuals who can apply their scientific competencies to the problem of preventing the exchange of technologies the United States wants to protect and the Chinese want to acquire. Given the substantial gap in their respective national capabilities, many cooperative space endeavors, including human spaceflight, are likely to result in transfers of technology and expertise from the United States to China. Having scientists organize and conduct the discussions could help both parties identify and assess the relative costs and benefits of specific technology transfers early in the process. This could help avoid

inappropriate expectations that could provoke Congressional opposition and undermine progress.

The history of China's space programs suggests that a U.S. - China dialogue on the peaceful uses of outer space is more likely to diminish mutual threat perceptions if scientists are at the table. Contemporary Chinese space policy is the product of a reaction to a U.S. plan for national missile defenses that Chinese scientists misread as a new Apollo program. The objective of their subsequent investments in space was to keep China from falling too far behind the pace of the global space technology leader, primarily because of the imagined economic consequences. If the science delegation Zbigniew Brezinski brought to China in 1978 had been charged with beginning a long-term scientific dialogue about space technology with their Chinese counterparts, it is possible the four anxious scientists who wrote to Deng Xiaoping would have been better informed about the politics of missile defense in the United States. They

*Contemporary Chinese space policy is the product of a reaction to a U.S. plan for national missile defenses that Chinese scientists misread as a new Apollo program.*

might have been able to see that SDI was more science fiction than science. They might have been able to predict that it would be immediately scaled back and eventually terminated. Had there been an on-going relationship between Chinese and American scientists in 1983, the history of China's space program, as well American perceptions of Chinese intentions in space, might have taken a radically different course in a healthier direction. In planning a new relationship with

China in space, this historical perspective suggests it would be in the best interest of the United States to consider the long term. The U.S. Congress and Executive should avoid making the dialogue on space a hostage of unrelated troublesome contentions in the bilateral relationship. They should use cooperation to build relationships between Chinese and American scientists and engineers who share an interest in the peaceful exploration and utilization of outer space. Once established, this cross-cultural community of space scientists and engineers could help reduce miscommunication and misunderstanding, especially during moments of crisis. Dialogue and cooperation may not produce a bilateral consensus on space security or space policy, but it can establish the reliable channels of communication to the Chinese aerospace community that General Chilton said the United States Government needs to better assess Chinese intentions in space.

