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Dr. Joan Johnson-Freese, Naval War College
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Testimony Before the U.S.-China Economic and Security Review Commission
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China's Military Modernization and Cross-Strait Balance

China's Space Program: Capabilities & Intent

China is a country of such size and complexity that evidence can be found for about any thesis sought to be proved. Subsequently, questions and uncertainties are more commonly the result of inquiry than concrete conclusions. Ultimately, however capabilities and intent should inform our analysis and ultimately our decision-making. Part of the difficulty with assessing both capabilities and intent regarding China is that it is largely a country opaque to outsiders, and deliberately so. Further, China's routine opaqueness, partially a function of culture and partially of a closed political system, is exacerbated in space-related areas by often excessive security concerns common to authoritarian states. But in the end, it is the inherently dual-use nature of space technology itself that multiplies the already difficult aspects of analyzing Chinese intent. A submarine has few uses outside the military sector. The same is not true regarding a satellite. With an estimated 95% of space technology having both civil and military applications and hence considered "dual-use," the complexities of determining "intent" increase exponentially.

China is clearly committed to increasing its space capabilities across a broad spectrum of areas. Two programs are illustrative. On October 15, 2003 China joined the U.S. and Russia in the exclusive club of manned spaceflight capable countries. While Colonel Yang Liwei's 21 hour flight on the Shenzhou 5 was of only mild interest to Western publics, the techno-nationalist (technological prowess as an external indicator of power) implications for China were significant. Enthusiastic congratulations and invitations for expanded space cooperation were sent from Europe and Russia. Asian publics and governments were impressed, some grudgingly, by the Chinese accomplishment. Yan Xuetong, a political scientist at Tsinghua University, stated: "Now, people will realize that we don't only make clothes and shoes." The second event took place on October 30, 2003. On that date, China joined an increasing growing consortium of countries working with Europe on development of the Galileo navigation satellite system. While the agreement remains a shell and the ultimate role China will play in Galileo is unclear, it is clear that other countries are willing and in fact anxious to work with China in space. That has significant planning implications for the U.S.

MOTIVATIONS AND CAPABILITIES

The Chinese are adept students of history. China watched and learned of the benefits yielded to the U.S. through the Apollo program; space asset utilization by the U.S. military from the 1991 Gulf War through OEF and OIF; and the European rationale of space leading to technology, technology leading to industrialization, and industrialization leading to economic development. So, although the successful development of space technology is inherently expensive, it also offers a very high rate of return. Because of the dual-use nature of the technology, the links between technology and development, and the techno-nationalist prestige accompanying success, investing in space technology development can yield benefits in multiple areas, and the Chinese are interested in all of them, under the umbrella of development. The Chinese Information Office of the State Council

issued its first white paper on space, called "China's Space Activities," in November 2000. That paper stated broad Chinese goals and, equally important,

that these goals would be achieved through adherence to "the principle of long-term, stable and sustainable development and making the development of space activities… serve the state's comprehensive development strategy."

Clearly, China is developing technology for all it can wring out of it, and to develop the capability to develop more technology. It is not nearly as clear, however, that there is something specific that the Chinese are seeking. Space technology offers China domestic capabilities highly valued by numerous countries and considered essential to prosper in a globalized economy. Undoubtedly though, the technological advantages that accrue to defense and national security efforts are also advantageous in pursuit of their foreign policy goals. An expanded role in Asia and reunification with Taiwan are included in those goals. These require an ability to counter what they see as America's hegemony both in the Pacific and the world at large, and to close the science and technology gap between China and America. China's ability to continue development of space technology toward those ends rests on three related factors: political will, resources and technical capability.

Political Will. In some respects, China's political will is unique and advantageous. Authoritarian systems tend to develop all programs in a top-down manner, driven by the requirements of the political center. What the leadership decides it wants, it gets, within the parameters of resources and technical capabilities. They can shift resources nearly at will, which democracies cannot do except in times of great duress. For example, China is likely the only country in the world currently possessing the political will to initiate and carry out a manned spaceflight program, because the leadership is less accountable to its constituents. In democracies, voters often find spaceflight, especially manned flight with its exorbitant costs, a nice thing to do but expendable relative to other priorities, like schools, roads and health care. Centralization can, however, be a disadvantage if the leadership loses interest. Whereas true elsewhere as well, including in the U.S., other branches of government – e.g. Congress - can slow or stave off program demise. While support for the Chinese manned program remains strong, scientists and engineers are already being asked about long-term rationales much as is always the case in the United States. That has led to "testing-the-waters" remarks by Chinese scientists about potentially mining Helium-3 on the Moon, for example, as an energy resource.

For reasons of both control and to maximize resources, China's space program was not originally bifurcated into civil and military programs. The military controlled all program aspects, using a Soviet organizational model. While efforts began in 1998 to separate management aspects to accommodate international demands when China began offering commercial launches, ultimately, the PLA still maintains control of the launch facilities as well as many of the key research and development facilities, even for the manned program. There are drawbacks here, as well: the Soviet model was good at getting things done fast, but not well and not with finesse. It is a management model that is "all thumbs and no fingers," able to powerfully organize resources but

hindered by command-style thinking that undermines change and innovation, and limits Beijing's "local wars under high-technology conditions" strategy.

Resources. National resources include money, human capital and technology development potential. Xinhua News Agency stated on October 16, 2003 that China has spent approximately 18

billion yuan ($2.2 billion) on their manned space program through the first manned launch. However, not knowing what was actually included in that figure, low labor costs and other factors limit the utility of this figure for comparative purposes. Clearly, however, China has made a substantial investment in space. Further, if China's economic growth continues at projected rates, at some point in the future the U.S. ability to outspend China on technology will no longer be viable, and we had best start thinking about that sooner rather than later.

In terms of human capital, because space goals are not carried out in a vacuum, national will regarding other governmental goals can spill over and not always positively. The Chinese government strains mightily to keep its populace employed, with technical jobs considered highly desirable. Consequently, though changing slowly, aerospace industries are still largely State Owned Enterprises (SOEs), behemoth organizations known more for their stovepiping and inefficiency than flexibility and innovativeness, hence impacting human capital. The Chinese space industry employs in excess of 200,000 workers. Whether all are needed and meaningfully contribute is another matter.

Competent engineers and scientists, nevertheless the Chinese are not averse to learning from others —or in a less charitable explanation, lifting ideas from others, just as they learned to do from watching Soviet military design emulate U.S. systems in the 1950's and 1960's. In terms of technical capability, in fact, they see learning from others as pragmatically avoiding reinventing the wheel, choosing instead to assume that other technologically advanced nations must know what they're doing. Not coincidentally, China's Xichang launch site is at approximately 28 degrees N latitude and Kennedy Space Center is at 28.5 degrees N latitude. A similar location was selected to allow China to emulate U.S. post-launch procedures and expectations, described in some detail and published in open-source U.S. literature; gleaning information from open source literature being a skill at which the Chinese excel. Even today, although the Shenzhou (Divine Vessel) spacecraft used to launch Chinese taikonauts, or yuhangyuans, to orbit bears similarities to the Russian Soyuz design, the Chinese avidly defend it as their own product, which technical comparisons seem to bear out. They view beginning with the Soyuz design to then initiate their own work as simply a smart business practice, and while it may be, they often miss accruing the benefits required to engage in innovation.

Shenzhou and Soyuz both have service modules housing the propulsion system, a command module, and an orbital module with a docking ring; a Russian design compatible with the space shuttle or the International Space Station. The Shenzhou orbital module, however, has a second set of solar panels, enabling it to remain independently in orbit for periods of up to eight months; important depending on what payload(s) the module is carrying. While China bought some Russian equipment and system upgrades, price was sometimes prohibitive. With no prior manned spaceflight experience, for example, China bought Russian docking, flight control and life-support systems. In other cases, China built its own technology to better understand the fundamentals

involved, thus building internal expertise. Whether the U.S. likes it or not, however, the fact is that China is able to buy or buy-into space hardware from other countries not available from the United States. While that hardware might not be as good as ours, it's good enough.

China is actively pursuing a strategy of cooperation to supplement its independent efforts to expand its capabilities. Galileo offered just such an opportunity. Many countries are seeking to expand their space capabilities as tools of globalization, as part of military modernization, and to decrease their dependence on U.S. systems and largess. Galileo and China's involvement in Galileo illustrates three key points: that the U.S. does not have a monopoly on space technology; that many countries consider dual-use technology development as a positive rather than a negative, to maximize return on investment; and that other countries are willing and anxious to work with each other, including China, on space-related programs.

Technology. Finally, in terms of current technical capability, it is useful to examine those areas which in the United States we would consider "space support." These are capabilities a space power must possess to accomplish space-related missions: launching payloads to orbit, satellite construction and satellite maintenance once in orbit. Many of these are dual-use.

China maintains multiple launch sites: Xichang Space Center in Sichuan province for satellites headed for geosynchronous orbit; Taiyuan Space Launch Center in northcentral Shanxi province for satellites destined for polar orbits and; Jiuquan Space Launch Center in northwest Gansu province for spacecraft destined for low (LEO) and medium Earth orbits, including China's manned Shenzhou spacecrafts (recovered at a landing site in Inner Mongolia). A new facility on Hainan Island is reportedly under development. China's Satellite Launch and Tracking Control Center near Xi'an facilitates mission control, supported by domestic and overseas tracking facilities, including a fleet of eight tracking ships. The Beijing Spaceflight Command and Control Center serves as the flight control center for manned missions.

Chinese launchers are derived from hardware originally designed as missiles, as is the case with the U.S. Titan, Delta and Atlas launchers. China's Long March expendable launch vehicle family originate from Dong Feng 4 & 5 missiles designs, providing for increasing lift capabilities by lengthened tanks and use of strap-on booster stages, up to a current capability of about 10-tons to LEO. A next generation vehicle, called the Long March 5-500, requisite to lift heavy commercial communications satellites (a priority for the currency generated), for interplanetary missions or to place a large (20 ton) space station in orbit – is under development. Whether it is flight tested in the next 5-8 years will be indicative of potential future capabilities. China is also developing a small commercial satellite launch vehicle called the KT-1, (Kaituozhe) based on the DF-31 solid-fueled, three-stage missile. Reportedly the KT-1 could be launched from a mobile, truck-based platform anywhere in China. Tests in 2002 and 2003 were unsuccessful.

Besides launch vehicles, China has numerous satellite programs. *Dong Fang Hong* (DFH) communications satellites have gone through multiple iterations. DFH-1, also known as Mao 1, was launched in 1970. The latest and most sophisticated DFH iteration, DFH-3, was cooperatively developed with Germany. It is three-axis stabilized, has 24 transponders for both telephone and

television transmissions, and has an intended lifespan of eight years, twice that of the DHF-2. *Feng Huo-1*, launched in January 2000, is believed the first of a series of dedicated military communications satellites. The *Fanhui Shi Weixing* (FSW) recoverable satellites were originally developed for photoreconnaissance, but now are also used for remote sensing. The *Ziyuan* (ZY) series is also used for remote sensing and provides significant advances over the FSW series. ZY-1,

was developed in conjunction with Brazil as the China-Brazil Earth Resource Satellite (CBERS). ZY-2, also known as *Jian Bian* or Pathfinder, is an upgraded system believed specifically used for military intelligence. Another application satellite is the *Feng Yun* (FY) series, used for meteorology and remote sensing. The Chinese have also launched a series of *Shi Jian* satellites, carrying science payloads. In 2002, the Chinese launched their first marine surveying satellite, called Haiyang-1 (HY). Three *Bei Dou* navigation satellites (one a spare) have also been launched, providing regional coverage.

China has built a strong cooperative arrangement the UK's University of Surrey Space Centre. Surrey specializes in microsats performing a wide range of missions, including Earth surveillance. Their customers include Chile, Malaysia, Taiwan, Egypt, Algeria, Nigeria, China, and the U.S. Air Force. In December 2004, China announced the creation of a National Engineering and Research Center for Small Satellites, toward development of large-scale production capability. While widely reported that China wants to build six to eight small observations satellites per year, toward having over 100 in orbit by 2020, other interpretations of Chinese press reports suggest that China's contribution to the total Geostationary Operational Environmental Satellite network of some 100 satellites would be 8 by 2010. The stated purpose of these satellites is to create a "large surveying network" of Chinese territory, for monitoring water reserves, forests and farmland.

It has been questioned whether China's manned program, Project 921, is just a Trojan Horse for development of military capabilities. It is not. Manned spaceflight is likely the least efficient, most ineffective method for developing hardware. Nevertheless, both direct and indirect benefits are gained from the program. In an October 21, 2003 article in *People's Daily*, Zhang Qingwei, deputy commander of China's manned space program, said that China had achieved breakthroughs in thirteen key technologies, including reentry control of manned spacecraft, emergency rescue, soft landing, malfunction diagnosis, module separation and heat prevention. Earlier Chinese publications have cited additional areas of technical advancement through Project 921, including computers, space materials, manufacturing technology, electronic equipment, systems integration and testing. Spacecraft navigation, propulsion, and life support were specifically cited for potential application to dual-use civil/military projects. Moreover, the Chinese military will benefit from experience in areas such as on-orbit maneuvering, mission management, launch-on-demand, miniaturization and computational analysis. Experience extends not just to building hardware, but program management and integration as well.

In terms of direct military benefit from expanded space capabilities, the Chinese have upgraded their Jiquan launch site and their entire tracking system. Further, while both the U.S. and the Soviet military initially tried but were unable to identify any advantages to a man in space rather than unmanned systems, the Chinese seem determined to explore that premise for themselves, likely through the use of the orbital module. At some point, they may leave a taikonaut in orbit for a period of time. Most significantly, the Shenzhou III and IV precursor missions both left their

orbital module aloft for six months (with up to an eight month capability), both with complete nose-mounted electronic intelligence (ELINT) packages. Shenzhou V also left its orbital module aloft, unmanned, and again carrying ELINT equipment. China had not previously flown a major ELINT satellite, believed important for tracking the U.S. Navy, particularly carrier groups, and hence potentially valuable in China-Taiwan conflict scenarios. An imaging reconnaissance package was

also flown on Shenzhou, consisting of two cameras. The use of two differing cameras indicates a hyper-spectral, multi-resolution, combination mapping/close-look system. With the Chinese manned program likely drawing funds from more direct military space modernization efforts, the PLA is clearly anxious to maximize its return on investment.

BEIJING'S MILITARY SPACE INTENTS

Deciphering Chinese intent regarding space is considerably more difficult than surveying known capabilities. Analysis must be based on information from a variety of official and unofficial sources, with interpretations falling along a spectrum. Underestimating capabilities and best-case intent evaluations risks being less prepared to deal with the threats posed; overestimating capabilities and worst-case intent evaluations can lead to actions which produce unintended consequences and potentially increase the threat to U.S. capabilities.

Open source material, particularly technical journals, are often used as sources of information regarding what the Chinese are working on, or even just thinking about. However, most technical journals are very technical, focusing on detailed discussions of optics, trajectories, sensors, etc. Those that do discuss intent have limited utility as well. As pointed out by Commissioner Wortzel in an October 15, 2003 Heritage Foundation WebMemo, part of the difficulty with "intent analysis" is that "most technical articles from the science digests in China, admittedly, only deal in the theoretical aspects of how to fight war in space and analyze U.S. strengths and vulnerabilities."

Beyond technical journals, the volume of information and analysis produced within China and commercially available is increasing exponentially. A wider range of "tolerable" opinions are appearing within academia and in the media. Media outlets are proliferating, driven by market competition. Whereas, however, Americans understand the risks of relying on *The National Enquirer* or a lone blogger for "fact," the need for similar discrimination among open Chinese sources does not always seem to be understood by U.S. analysts. Similarly, while a statement on defense policy from a university professor or a War College student being encouraged to "think outside the box" is understood by Americans as not necessarily reflective of U.S. government policy, the same appears not always true about Chinese writers. Perhaps one of the most often-cited Chinese quotes on "intent" is that of Chinese analyst Wang Hucheng. "For countries that can never win a war with the United States by using the methods of tanks and planes, attacking an American space system may be an irresistible and most tempting choice." The quote is one of braggadocio – attempting to make the point that the U.S. can be beat – pulled from an article printed in *Liaowang*, a decidedly anti-American publication. While this quote is often cited to describe Chinese space ambitions, it is not necessarily particularly useful. The increasing information available from China from numerous sources increases the potential for communication misfires. That being the case, careful source checking by analysts is imperative.

Both the FY 03 and 04 Pentagon Annual Report on the Military Power of the People's Republic of China contained references to Chinese "parasite" satellites for potential use as anti-satellite weapons. According to Union of Concerned Scientist researchers Gregory Kulacki and David Wright, however, a relatively easy internet search in China places the origin of the story about those satellites with a self-proclaimed "military enthusiast" named Hong Chaofei from a small town in

Anhui. Multiple iterations and citations of his story have resulted since it first appeared on the Internet in October 2000. Hong's website also contains scores of stories on "secret" Chinese weapons to defeat America in a war over Taiwan. China is working on small satellites, but the parasite satellite appears more one-man's fiction than fact.

There are other instances of misinterpretation as well. *Challenges to Space Superiority,* published by the National Air and Space Intelligence Center at Wright-Patterson Air Force Base in March 2005, highlighted quotes suggesting that China will "threaten on-orbit assets" by Liying Zhan of the Langfang Army Missile Academy. Kulacki and Wright again tracked down the quotes and the source, and again found several key errors; fully documented in a yet-to-be published UCS research paper on Chinese military space capabilities. Key words were omitted from the actual Chinese quote and that there were misinterpretations of what was included. For example, "should" (indicating a recommendation about a decision not yet made) was misinterpreted as "will," (indicating what China intends to do or is doing). Further, the author was found to be a junior faculty member at a facility primarily responsible for live-fire and simulated training for junior artillery officers, where ASAT research is likely not going on, and which has subsequently been shut down. Not exactly an authoritative source for U.S. government planning purposes.

Beliefs about China's true aims and goals are strongly held on all sides of this debate in the United States, and the apparent willingness among some U.S. analysts to indiscriminately accept any source written in Chinese means that sooner or later all sides can claim evidence to support their views. This does little to further a useful understanding of China's intentions.

TAIWAN AND DUAL-USE TECHNOLOGY

Mark Stokes' quote "China's space assets will play a major role in any use of force against Taiwan and in preventing foreign intervention," is often cited, but with little follow up as to specifically how. As a warfighting tool, Chinese advancements in ballistic and cruise missiles, including potential use of differential GPS for improved guidance, as stand-off, coercive weapons, appears most relevant. Beyond missiles, Beijing would be happy to reap any force enhancement capabilities space assets can provide. For example, supplementing commercial imagery already available from international sources including France, Israel, and Russia, the ZY-2 satellite provides optical imagery potentially useful for monitoring U.S. forces and for targeting, and without the time delay that can occur with commercial imagery. ELINT capabilities are increased by the equipment carried on Shenzhou. The Chinese are also expanding and upgrading their meteorological satellites, providing operational data especially important in planning an amphibious strike or air attacks. Dedicated military communications satellites have been in use since 2000. But given Taiwan's access to similar technologies, Beijing's space capabilities are not likely to be determinative.

In terms of using space assets to prevent U.S. intervention, two scenarios are most common. First, Chinese reconnaissance satellites would identify the location of U.S. aircraft carriers and target them with Chinese long-range, anti-ship missiles. Whether the Chinese currently have that capability is unclear, and realistically, satellites are not the only assets used for identifying the location of U.S. carriers. But the larger point here is that if China strikes the American carrier fleet, there are bigger problems brewing than whether Chinese satellites were used. If the Chinese

executed a preemptive strike against U.S. aircraft carriers, this would be a move so audacious and aggressive that Beijing would have to expect a formidable response and rapid escalation. Not only would this be a foolhardy risk, it is one likely to end up forever losing Taiwan in the process. The second scenario envisions the PLA disabling American satellites as preparation for an invasion of Taiwan. This would require a Chinese ASAT capability. Less audacious than attacking a carrier, the intent would be to hobble our ability to react for the 24-48 hour period Beijing feels critical to overpower Taiwan. Both scenarios demand a closer look at what technology Beijing is working on potentially useful for ASAT development.

China is working on a wide variety of dual-use research potentially applicable to ASAT development, including micro-sats and small-sats. In the 2005 DOD Annual Report to Congress on The Military Power of the People's Republic of China, the medium-resolution earth observation Tsinghua series being built with Surrey is cited (resolution for Tsinghua-1 is stated as 40m; it is actually 30 m). Its follow-on, the Naxing-1, not mentioned in the report, is in many ways more interesting as a totally Chinese effort with some sophisticated upgrades. In fact, it is currently the smallest satellite with three axis stabilization. Its purpose is stated as "high tech experiments." Chinese commitment to commercial smallsat development, for applications including mapping and environmental monitoring, is evidenced by the December 2004 opening of a Microsat Industrial Park in Beijing, a commercial venture with over 16,000 square meters of floor space. Beyond that is speculation.

Lasers can also be used as ASATs, and, accordingly to the 2005 Pentagon assessment, "China is also conducting research to develop ground-based ASAT weapons." In fact, the Chinese have been working on laser technology since the 1960's. Ground-based lasers are also the most cost-efficient (no launcher is needed) and offers the most plausible deniability. The Chinese program is considered technically similar to the U.S. Army's MIRCLE program.

While there are numerous indications that Beijing is interested in having the competence to develop an ASAT capability if decided desirable to do so, it is still technically limited. China's tracking capabilities, even after recent upgrades in connection with the manned program, do not have global reach. China's space surveillance capabilities are still limited as well, though probably sufficient to identify and track most U.S. military satellites. China's immobile infrastructure is also vulnerable to attack, making retaliatory risk high. And, China lacks the launch-on-demand capacity essential for an effective ASAT system. But, the technical characteristics of the KT-1 mobile launcher that the Chinese are developing appear a very suitable lift vehicle for direct-ascent ASATs. Mobile launch vehicles paired with micro-satellite interceptors would allow pre-positioning to coincide with the expected orbits of enemy satellites, rather than having to target to come within range as is the case with fixed launch vehicles.

While it has been suggested that Beijing might be interested in a small-sat ASAT capability to "accidently" destroy a U.S satellite with plausible deniability, it seems highly unlikely that the United States, or anybody, would accept such an occurrence coinciding with Chinese hostility toward Taiwan as an "accident." And, taking out one U.S. satellite would not be sufficient to meaningfully incapacitate the U.S., and could further spur U.S. determination to limit Chinese aggression. Again, in such a scenario, Beijing would end up running great risks for little benefit.

More likely, Beijing would consider ground-based lasers as offering the most plausible deniability, the potential for a lower proportional response, and most technically feasible approach to denying the U.S. its space assets. The 2005 Pentagon report states: "China is also conducting research to develop ground-based laser ASAT weapons." Beijing may be looking to low-power lasers to temporarily blind space assets, with high powered lasers requisite to damage or destroy satellites. Low power laser capabilities are likely within Beijing's reach; development of high power ground-based lasers would require significant advances in optics and large fixed-power sources that would be visible and vulnerable to attack.

Clearly, Beijing has adopted a "hedging" strategy to development of ASATs. They are developing capabilities. A basis for the statement in the 2005 DOD report that: "China is working on, *and plans to field*, (emphasis added) ASAT system" is not provided. China's vocal advocacy, with Russia, of a ban on space weapons likely reflects their desire not to have to spend money on development of such systems. China will not engage in a budget-busting SDI-like space race. They see no need to do so as parity is not their goal. China's economy has incredible potential, but could also implode along the way. That option could be the worst of all worlds not just for China, but the U.S. as well due to the spillover economic security implications.

THE FUTURE

In the short term, Beijing's military focus is on being prepared for a military encounter over Taiwan should the need arise, and Beijing is anxious to take advantage of whatever advantages advanced C4ISR can yield. Keeping the U.S. out of any encounter is considered critical to Chinese success. However, regardless of Chinese capabilities, any preemptive attack on U.S. assets, space or otherwise, would likely result in significant retaliation, perhaps even a full-scale war that China knows it cannot win. That would cost them not only what they seek in Taiwan but would undermine their economy and destroy the fruits of years of carefully cultivated diplomacy designed to reassure their neighbors that they are not aggressive or expansionist.

In the longer term, Beijing's military space plans are likely not yet set beyond being part of modernization. The Chinese are acutely aware of the 2001 U.S. Space Commission and the statement that space would inevitably become a battleground, so the U.S. would be remiss not to prepare, the unspoken assumption being that "preparation" meant the development of space weapons. They also paid careful attention to the first-ever U.S. space war game, Schriever I in 2001, where U.S. forces were pitted against an opponent threatening a small island neighbor, one about the size and location of Taiwan. The Chinese quickly concluded that they would be remiss not to prepare for the inevitability of U.S. development of space weapons, as they might be the target of those weapons.

The Chinese also pay close attention to events and activities in the United States: issuance of the Air Force's 2003 Transformational Flight Plan and 2004 Counterspace Doctrine; development of the Counter Communications System; the XSS microsat program and Air Force statement that, "XSS-11 can be used as an ASAT weapon"; missile defense and its potential for power projection and as an ASAT; and money being spent on exotic space weapons programs. While suggested that

much of the space weapons talk in the U.S. is merely Air Force "bold rhetoric" with little substance behind it, the problem is that just as the U.S. appears to have difficulty sorting Chinese fact from rhetoric, so too apparently do the Chinese. They believe what they hear, especially from U.S. government officials. Clearly, communication and transparency issues are impacting accurate analyses in both China and the United States.

The dual-use technology genie is out of the bottle and cannot be put back. Since the U.S. does not control all space technology, the pace and level of technology China has access to might be controlled, but denial is impossible. While the U.S. has vigorously tried to stop U.S. and U.S.-derived dual-use space technology from reaching China, other countries now advertise products as ITAR-free, meaning not subject to U.S. export controls, and specifically targeting the Chinese market. Russia, Israel, and increasingly Europe and other countries are anxious to build economic relationships with China, for the market potential, to create balance to U.S. hegemony, and because these relationships are seen as part of globalization.

A second Chinese manned launch is expected in Autumn 2005. China's overall approach is ambitious, cautious, incremental and aimed at the record books. They understand that space spectaculars are just that – but so too are failures. With no need to hurry, they will maintain a slow, steady pace, and aim for achievements that magnify small technical steps forward. Clearly too, manned spaceflight with its prestige and cooperative outreach potential is part of Beijing's "charm campaign" that has been waged of late. Regionally, with the new millennium China has done remarkably in transforming its image from that as a "regional bully" to a "regional power." Beyond Asia, a June 2005 Pew Poll found that, "Strikingly, China now has a better image than the U.S. in most European nations surveyed." In terms of space, Chinese activity creates relatively more opportunities for potential partners, and more challenges for the United States.

Responding to these challenges will require use of a full range of options on the part of the U.S. Building the best and most advanced technology is necessary, but not sufficient. It would benefit the U.S. as well to encourage other countries to establish parameters in space for acceptable and "threatening" behavior – distances between satellites, for example - to lessen opportunities for coincidental "accidents." China is at, or quickly approaching, a crossroads in space development. It behooves the U.S. to shape their program as much as possible in directions of our liking, rather than encouraging, intentionally or unintentionally, partnerships, directions or escalations not in the best interests of the United States.