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**The China-U.S. Aerospace Relationship: Competition, Cooperation, or Both?**

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Opening Observation

“Muddled.” That is what one knowledgeable specialist earlier this year called the U.S. space policy regarding China.[[1]](#footnote-1) There is something to this characterization. Actually, the matter is even worse, inasmuch as the over-all U.S. space program itself is muddled. Neil Armstrong, the first astronaut to walk on the Moon, recently testified to Congress that the current state of the American space program is “embarrassing,” and the last astronaut to walk on the Moon, Eugene Cernan, calls the present program “a mission to nowhere.”[[2]](#footnote-2)

Indeed, the U.S. program is in an apparent confused and rudderless state, replete with seemingly indifferent national leadership, noisome political and professional bickering, funding uncertainty, and faltering public support.

This unfortunate situation comes at a time when, financially, China seems on the ascendant and the U.S. is in apparent relative decline, a comparison made all the more uncomfortable by the U.S. having become the most indebted nation in history, while China is its largest creditor.

And this is all underscored by what is now happening in the heavens above: China has just launched successfully Tiangong-1 (on September 29) as it purposefully prepares the way for its own future independent sky lab and Moon exploration programs. Thus does China continue to make deliberate, notable progress, just as the U.S. no longer has the means to send astronauts to low Earth orbit (LEO), much less to deeper space, at least for the time being. Instead, the U.S. is now entirely dependent on the Russians for several years, paying Russia $50 to 60 million to transport each American astronaut to the International Space Station (ISS). Moreover, we saw recently that the ISS might have had to be temporarily vacated this fall had the Russians been unable to determine an unexpected problem in August with their usually dependable Soyuz rocket. This made clear just how tenuous space transportation is at present, especially when the U.S. doesn’t have a backup ready to launch.

Under such overall circumstances, might this not be an opportune time to begin clarifying and honing our space policy? And, at the same time, might we not consider keeping a door open for cooperative ventures in space with China? Let’s consider this proposition, at least preliminarily. But first, let me cite an example of the awkward confusion on space policy regarding China.

The AMS-02 Anomaly

The 30-year old American manned space shuttle program came to an end this summer. This extremely expensive limited purpose program did produce a highly sophisticated fleet of Earth orbiting spacecraft. Altogether, these space shuttles carried out 135 manned missions to LOE, but no higher than LOE. Among their spectacular achievements was the placement and subsequent repair of the Hubble telescope, whose breathtaking images have transformed our appreciation of the cosmos, and the completion of the construction of the ISS, another marvel both of human technological achievement and of international cooperation in space. It was on the penultimate mission of the shuttle (i.e., STS-134, the final flight for the shuttle Endeavor) in May of this year that the largest, most important, and most expensive single scientific instrument, the $1.5 billion, 15,000-pound Alpha Magnetic Spectrometer (AMS-02) was finally affixed to the ISS.

What is especially interesting, and ironic, about this singular accomplishment is that after years of denying Chinese participation either on the shuttle or the ISS, what is now the most important instrument aboard the space station includes 400 lbs of essential Chinese components.[[3]](#footnote-3) Yet, as I understand it, and this seems scarcely believable, Chinese were excluded even from being on hand to witness the spectacular launch of STS-134 and its AMS-02!

Is there not something remiss here?! Yet we can be reminded of this curious anomaly several times daily as the ISS tracks its orbit a couple of hundred miles overhead. As it does so, the attached AMS pursues its truly significant astrophysical mission, i.e., the processing of cosmic particles in the deeply intriguing search for dark matter, dark energy, and antimatter. For those with any interest in physics or the cosmos, it is hard to imagine a more fascinating scientific study these days.

The lesson of the ISS experience so far is that, with effort, international cooperation in space can and does work, as it has among the principals involved, i.e., the U.S., Russia, Europe, Canada, and Japan, with input from several other nations. The anomalous AMS-02 situation shows that even apparently inadvertent cooperation happens and can be constructive. But, it also underscores what is a muddled and embarrassing policy. The responsible agency for the AMS was the U.S. Department of Energy, not NASA.

Cooperation

This paper is a preliminary thought piece on the subject of cooperation with China in aerospace. That is, cooperating with a country that is not an ally and with whom we have a singularly important but complex relationship. Accordingly, we often speak of “engaging” with China rather than dwell on either cooperation or competition. Even so, as one might in fact expect, the intense bilateral relationship is marked with numerous examples, of both competition and cooperation.

China was a serious foe for a couple of decades in the mid-20th century. Rapprochement in the 1970s and thickening connections ever since have significantly improved ties. But tensions remain and are exacerbated by China’s contemporary spectacular rise. So, notable competition is built in, particularly as China seeks to catch up technologically, by, it would seem, all means possible.[[4]](#footnote-4)

That there has come about an exceedingly uncomfortable imbalance in the economic relationship complicates matters considerably. This imbalance is worsened by the realization that U.S. indebtedness may be approaching an historic, perhaps catastrophic tipping point. This is serious and more so than many realize. The U.S. interest payments on its debt to China may soon be enough to cover the costs of China’s space program, and soon enough maybe even that of its entire military modernization. It does bear keeping in mind, of course, that China has its own problems. Its spectacular economic growth is not necessarily predestined to continue. And if the U.S. does fall hard, China is not likely to be unaffected.

More, just as the Chinese manned space program is getting wide attention for its steady accomplishments, achieved with a good measure of self-reliance and much cash at hand,

There are very specific reasons to be wary of China’s increasing military power. Under such circumstances, it is incumbent upon the U.S. to maintain a technological edge. But an open society also knows the value of cooperation, to the extent that it is feasible and not counterproductive. At the very least, there is usually an expectation or hope that even as some technology and know-how may be conceded through cooperation, there also may be opportunities presented that might otherwise be missed. At the very least, cooperative engagement affords better insights into who are the specific players and what they are doing and thinking. This is information that is especially desirable amidst rapid institutional change in such a dynamically charged country as is China these days. Finally, we think of our relationship as a more enduring one with the Chinese people and not just with their current political leadership structure and its uncertain ideological bent.

What is happening in Chinese aerospace is spectacular, and sobering. As Andrew Erickson puts it “Chinese aerospace capabilities are improving in a rapid, broad-based fashion that can properly be described as a ‘revolution.’”[[5]](#footnote-5) It is not a uniformly even development or revolution. But some aspects of the phenomenon have done especially well. This has become a matter of some importance, particularly as China’s capability to deny access to their air space is enhanced and as it is able to project its power eastward, enveloping Taiwan and reaching beyond into the Western Pacific. The formidable DF-21D missile and latest generation stealth-enabled aircraft, the J-20, still in development, are game-changing weapons that any U.S. carrier battle group and American forward bases must increasingly take into account. Chinese anti-satellite capabilities are similarly a potential threat.

Of course, China cannot be denied the acquisition of such military capability, which is in keeping with the legitimate commercial and strategic interests of a formidable economic continental and maritime power. But the opaqueness of this military development program, a symptom of a self-acknowledged temporary relative weakness, remains a matter of concern for American observers, as it does for American allies in East Asia.

Disentangling “Aerospace”

The title of this paper is descriptive, but a bit general. Let me disentangle the concept of aerospace somewhat. I emphasize here the space side of aerospace. The term aerospace is used in this paper’s title to put our topic in a fuller perspective and to call attention to the fact that China is making notable progress across the entire aerospace spectrum. Thus, although there is an interesting and vibrant China-US relationship in the general area of aeronautics, I only touch on aviation here and then move on to space.

Military Aviation

First of all, with regard to military aviation, there is no real US-China relationship at all. It is worth remembering that there had been a very promising such connection in the first half of the twentieth century, i.e., in the first decades of the history of powered flight itself. Sun Yat-sen’s first air force prominently included Chinese-American pilots, one of whom, Young Sen-yet, a Chinese-American from Hawaii, Dr. Sun dubbed the “father of Chinese aviation.” The first military plane to be entirely designed and built in China, with American help, was a variant of the venerable Curtis Flying Jenny. It was christened “Rosamond,” the American name of Madam Song Qingling, Dr. Sun’s wife, who actually flew in the aircraft. Later, Claire Chennault’s Flying Tigers fought for the Republic of China on the Chinese Mainland.

But this special aviation relationship came to an end with the victory of communism in China. At which point, the Russians took over as China’s military aviation partner. For the most part, the Russians have been profitably cooperative over the years, but they too try to limit technology sharing. They don’t always find cooperation with China easy.

Meanwhile, in recent years, there have been only occasional China-US military aviation exchanges and discussions. None have gone very far. There is no real cooperation at present and the prospects are not promising, despite the visit of Chairman of the Joint Chiefs of Staff Admiral Mike Mullen to China this July. Only the previous month there had been another incident of an American reconnaissance plane shadowed by Chinese jets[[6]](#footnote-6). Despite the cordial Mullen visit, marked by a photo of him in a Su-27 cockpit, a demand by Beijing for discontinuing such reconnaissance flights off the Chinese coast was explicitly rejected by the Pentagon. Even so, the recently released Pentagon annual report to Congress on military and security developments involving the PRC urges stronger U.S.-China military-to-military relationships, as “a critical part of our strategy to shape China’s choices as we seek to capitalize on opportunities for cooperation while mitigating risks.”[[7]](#footnote-7)

Then there is the matter of the repeated request by Taiwan for 66 new F-16C/Ds, which is, after all, a modestly reasonable response to China’s rapidly modernizing air fleet and especially its ever growing array of missiles adjacent the Taiwan Strait. However, Beijing does not consider this a small matter. As this paper was being completed in late September, Washington had already bent to pressure from Beijing, withholding the F-16C/Ds from a disappointed Taiwan, but partly mollifying the latter with a better alternative F-16A/B upgrade package.[[8]](#footnote-8) Beijing dislikes this arrangement as well, but in the end is likely to accept the compromise, particularly as the prospect of its coming military dominance in the area continues to become more likely. Hence, it may be expected that the Taiwan military at some point will be mulling a request for F-35s. But, considering how hard a sell just an upgrade of the F-16A/B has been, the prospects for receiving the fifth generation fighter is not a promising one, although the issue will remain an irritant.[[9]](#footnote-9)

Finally, one more interesting irony these days with regard to military aviation is that the latest training aircraft slated for use by the U.S. Air Force Academy is the Cirrus SR20, manufactured by formerly financially strapped Cirrus Aircraft in the United States, which is now owned by China Aviation Industry General Aircraft (CAIGA). CAIGA will supply the same training aircraft to the Civil Aviation Flight University of China.[[10]](#footnote-10)

Civil and General Aviation

In civil aviation, the US-China relationship is mostly a commercial one. China is a leading global buyer of commercial airplanes, but it is determined to manufacture its own increasingly sophisticated aircraft and has made it a matter of national focus and pride to do so. Thus it is that even as Americans and others vigorously compete with each other in the lucrative China market, they have little choice but to help an upcoming indigenous competitor gain the knowledge and wherewithal that is needed to realize priority Chinese objectives.

Similarly, in the sub-field of general aviation, the Chinese are also systematically learning from the increasing manufacture of foreign aircraft in China, from coproduction arrangements with foreigners, and from outright acquisition of established American general aviation companies (such as Cirrus). Nowhere was the vibrancy of this phenomenon better symbolized than this July at the world’s premier annual general aviation event (Airventure) at Oshkosh, Wisconsin. For the first time ever, the gargantuan event featured a China Pavilion. This was the base for 60 Chinese aviation-minded delegates led by Jin Yong Fa, representing the fixed base operator for business aviation at Beijing Capital Airport.[[11]](#footnote-11) The one disappointment at the event was that the much anticipated Chinese entry for the electric flight competition did not show, but only because of an unfortunate recent fatal crash in China. This particular Chinese aircraft, the pioneer experimental electric-powered Yuneec E-430 of Shanghai, had made a sensational appearance in Oshkosh last year.

Another symbolic boost this July for general aviation was the first global circumnavigation in a single-engine private aircraft by a Chinese; the 169th pilot to do so, but the first by a Chinese. Businessman Wei Chen made the flight in his Daher-Socata TBM 850 in just shy of 68 days. Notably, he was allowed to make an unprecedented passage through China en route, signaling yet another cooperative concession by Chinese authorities in their grudgingly gradual opening of air space for general aviation.[[12]](#footnote-12)

Americans have been generous in providing assistance in the development of China’s civil aviation. In recent years there have been numerous visitations by Chinese officials and specialists to American aviation manufacturing, service facilities, and universities.[[13]](#footnote-13) The American Pilots and Owners Association (AOPA) co-sponsored with AOPA China the latter’s first convention in Beijing in late September, with more than 400 people attending the two-day event. The AOPA China Summit focused on providing prime opportunities for dialogues and networking among the Chinese government, general aviation organizations and industry members worldwide. Accordingly, Chinese officials conceded that the Civil Aviation Administration of China (CAAC) needed AOPA China as a strategic partner for every step of the nation's general aviation development.[[14]](#footnote-14) In conjunction with this summit there was to have been a first ever fly-in in Beijing, but, unfortunately, this was cancelled following a fatal police helicopter crash.

What the Chinese are energetically accomplishing in both civil and general aviation these days, the latter in the face of formidable domestic obstacles, is impressive. Yet, sad to say, despite all the popular interest and availability of funding at the moment there is still concern as to whether general aviation in China ever will genuinely take off on a satisfactorily sustainable basis. The incubus of the Chinese military and state bureaucratic system remains a formidable obstacle.

It also bears noting here that given the uncertain nature of U.S.-China relations, some Americans are concerned about undue technology transfer on the civilian side as well. In fact, the U.S.-China Economic and Security Review Commission in its 2010 report to Congress explicitly recommended monitoring the transfer of such technology and know-how from China’s commercial aviation sector to its military. Also of concern is the impact that “new cooperative production, technology-sharing or other arrangements by US or foreign firms might have in promoting China’s civilian and/or military aviation production capabilities.”[[15]](#footnote-15)

Nevertheless, the lure of China market share is powerful. General Electric, whose CEO is Jeffrey Immelt, the head of an Obama administration panel on U.S. jobs and competitiveness, has recently inked an agreement with Aviation Industry of China (AVIC) to provide cutting edge avionics aboard China’s new C-919. GE Aviation Systems executives claim that “the deal was too important to pass up, even at the cost of sharing the avionics technology.”[[16]](#footnote-16) Ultimately, the C-919 will compete with Boeing commercial aircraft in China and in all likelihood elsewhere as well.

However, the larger point here is that this is an arena characterized by both competition *and cooperation*, however qualified, between Chinese and foreigners, including Americans. The numerous instances of cooperation in civil and general aviation would seem to constitute tangible precedent for cooperation elsewhere in the overall field of aerospace. After all, it is only in military aviation that there is no real cooperation. But even here there are recurrent efforts to maintain a dialogue.

Space

The foregoing brief note of the situation in aviation suggests the key complication with regard to facilitating cooperation between the American and Chinese space programs. China’s program is dominated by the Chinese military. Of course, the US military had a principal role at the beginning of the American space program as well, but in the United States the military has its own separate space program. That is, it is distinct from NASA, which from its beginning under President Dwight Eisenhower has been explicitly a civilian agency. There is an effort in the United States to maintain the civil-military distinction in space, although there are instances of overlap, and financial exigencies may dictate more such overlap ahead. But in China the apparent equivalent to NASA is the lightweight China National Space Agency (CNSA), which takes a backseat to the military and in recent years has been further reduced in importance.

Much of the high-end technology involved in the space program is dual-use and of strategic security significance. Therefore, it is not as easy in the space program to define areas of cooperation. Rockets that heave huge payloads into space can also deliver seriously destructive precision strikes upon an adversary on earth. Moreover, we all have become so dependent upon space satellites that we are instinctively aware of the need to protect such vitally important space-related assets. Nowhere is this more important than in safeguarding the operational viability of our armed forces, either as engaged in war or in observing an ever greater concentration in China of modernized weaponry, especially missiles. All of this makes it imperative to try to stay technologically ahead of the competition, especially of a rising power that is perceived as a possible or latent threat. This is particularly so if that rising power is so obviously in the business of acquiring sensitive information by intensive spying, of which we are repeatedly reminded.[[17]](#footnote-17)

Perhaps, it is said, if the U.S. had better counter intelligence capabilities with regard to what the Chinese are doing there might be more disposition to go forward with cooperative space ventures. This is the gist of an important joint commentary by the former NASA administrator Michael Griffin and former national counterintelligence executive Michelle Van Cleave who fear that without robust counterintelligence capability “we stand to lose more than we would gain.”[[18]](#footnote-18) Instead, however, the White House National Security Council had recently contrarily directed U.S. intelligence agencies to lower the priority placed on intelligence collection for China.[[19]](#footnote-19)

Cooperation Entangled with Embattled Space Policy

It is true that cooperation is desirable, if only one wishes not to miss opportunities that can accrue from cooperation. This is well appreciated by an open society. Hence, it is awkward to appear opposed to cooperation with a nation with whom we have so many other ties. But China is not an ally and it is building a formidable military. Even so, there is a disposition in the US to find a way to nurture the possibility of cooperation with such a country that hopefully might ultimately evolve in a more desirable direction. Hence, even under the previous administration there were efforts to explore cooperation with China, although this was discouraged somewhat by the surprise Chinese anti-satellite test in early 2007.

Clearly, the Obama Administration is open to some form of cooperation with China in space. This follows from the meetings between the two presidents, Barack Obama and Hu Jintao. It is seen even with regard to military space. Gregory L. Schulte, deputy assistant secretary of defense for space policy believes that China’s investments in counterspace capabilities “makes it that much more important that we talk to them to make sure they understand our policy.” The idea is “to minimize the risk of misperception, mishap or miscalculation, particularly in a crisis.”[[20]](#footnote-20)

Unfortunately, the subject of cooperation in space has also become entangled in the general confusion in which the US space program now finds itself. There is a perplexing confusion of goals and direction, and it is exacerbated by a political and budgetary struggle between Congress and the White House. The impasse is partly partisan politics, but it also more complex. At the outset this appeared to be a tug of war between Congress and the Administration on whether or not to have a huge government rocket. Here Congress has insisted on the new heavy rocket, while for long months the Administration seemed to evade compliance. Herein is yet one more irony, with many Republicans arguing for the greater government role in space entailed in the heavy rocket, while many Democrats champion more generous support for private sector commercial space ventures. But this is not simply a partisan political matter.

Much has revolved around which states stand to win or gain from the choice being made. Republican Representative Dana Rohrabacher of California is a staunch supporter of commercial crew, while former astronaut Democratic Senator Bill Nelson of Florida has advocated the heavy NASA Space Launch System (SLS) rocket, which is the new designation for what basically appears to be the Ares rocket of the now cancelled Constellation program. Supporters of the SLS have also disagreed among themselves on the appropriate use of allocated funds for the program.

One consequence of this intense political struggle is that it has stimulated a fascinating informal public debate about space, giving rise to both thoughtful ideas as well as considerable acrimony. It is a debate that should have been initiated openly before the present administration announced its new, but inadequately articulated space policy last year. The division in the space community is palpable. One of our leading aerospace historians, Roger Launius, had already warned more than a year ago: “Nothing like the rancor of this debate, its longevity, its very public nature and its intensity has taken place in the history of human spaceflight.”[[21]](#footnote-21) Yet the rancorous debate continues.

But, a main part of the Washington political dispute was provisionally settled on September 14, when NASA suddenly and hastily revealed its plans for the heavy rocket, greatly mollifying Congressional critics. The announcement apparently sought to quiet criticism of leaked misleading estimates of the rocket’s estimated cost and also to upstage a House hearing scheduled for the next week featuring Apollo heroes Neil Armstrong and Eugene Cernan. Both are critics of the Administration’s new space policy and believe that the Moon should remain an important intermediate destination in space. It was at this hearing that Armstrong said that the American space program is in an “embarrassing” state and Cernan exclaimed that the cancellation of Constellation has been replaced by a “mission to nowhere.”[[22]](#footnote-22)

Details of the new “monster” rocket are yet to be revealed and analyzed, but in its fullest configuration it will be larger than the Apollo program’s peerless Saturn V. Unfortunately, its estimated cost may ultimately preclude its survival, an eventuality that may not disappoint the White House entirely. In any case, the Senate, for its part, now quickly approved the NASA budget.

Overall, this has not been a propitious time for the Administration to push for cooperation with the Chinese space program. Yet, despite warnings not to do so, both John Holdren, the White House science advisor, and Charles Bolden, the NASA administrator, made separate visits to China last fall. Bolden was hosted graciously and shown key Chinese space facilities. He was informed by his hosts that, frankly, while cooperation would be welcomed, neither nation depended upon the other in order to pursue their respective programs.[[23]](#footnote-23) Otherwise, neither Holdren nor Bolden have been forthcoming with much more detail regarding their China trips, for fear of negative Congressional reaction.

Indeed, in April this year Congress enacted legislation that specifically prohibits cooperation with China’s space program. This was initially in the continuing resolution as part of the budget compromise at that time and was then included in the 2012 spending bill. This provision stated that no NASA or Office of Science and Technical Policy (OSTP) funds can be used “to develop, design, plan, promulgate, implement or execute a bilateral policy, program, order, or contract of any kind to participate, collaborate, or coordinate bilaterally in any way with China or any Chinese-owned company.”[[24]](#footnote-24) Representative Frank Wolf (R-Virginia) separately published the rationale for such a prohibition, arguing that it is based not only on the presumed threat to national security but on the many critical ways that Chinese policies and practices are at cross-purposes with those of the U.S.[[25]](#footnote-25)

However, science adviser Holdren objected to such restrictions and at a House hearing on July 7 indicated that the prohibition should not be read as prohibiting interactions that are part of the president’s authority to conduct negotiations. He said that this matter would be looked at on a case-by-case basis. In response, Congress slashed the OSTP 2012 budget. Some or all of this funding may ultimately be restored, but at the moment everything awaits the deliberations of the unprecedented legislative super committee that under much stress is currently determining serious debt reduction measures.

Space Race?

As frustrating as the situation is at present and as discouraging as American human spaceflight prospects appear to be. It is worth remembering that American achievements in space have been spectacular. The U.S. has been and remains the leader in space. Nevertheless, the authoritative Futron Corporation’s 2011 space competitiveness analysis reveals that the relative position of the U.S. “continues to decline as other countries enhance their capabilities while the U.S. undergoes major transitions, particularly in the arena of human spaceflight.”[[26]](#footnote-26) In testifying to Congress in September, Michael Griffin termed China a “near-peer competitor,” adding: “When the Chinese can reach the Moon and we cannot, I do not see why any other nation would regard us as a world leader.”[[27]](#footnote-27)

But even as other nations gain in this regard it does not mean that the U.S. is in a space race with anyone, including the Chinese. The U.S. has tremendous resourcefulness that hopefully can eventually trump the terrible fiscal mess with which it is beset, even if the solution process becomes truly painful and protracted. In any case, the U.S. can probably afford to watch Chinese achievements in space with equanimity. It can applaud Chang’e 2’s successful lunar orbiting assignment and its having subsequently reached its deep space Lagrange point (L2) destination.[[28]](#footnote-28) Similarly, China might be wished success in the effort to practice space docking, currently on an unmanned basis and then next year with astronauts. Even if the U.S. doesn’t have all the information we would like there is no indication that China’s space program is in any way threatening. Their counterspace capabilities can be seen as precautionary measures. Indeed, as their own assets in space increase and their dependence on them, the Chinese are also becoming more motivated to avoid doing anything that might disrupt the viability and performance of these important investments.

What is going on is not a race, at least not to this point. Surely, there is some competition involved, but this is from the Chinese side exclusively as they seek to achieve parity in space with the U.S. and Russia. China desires to make a mark and to do so as independently as possible. This is important for reasons of national prestige, but the Chinese also recognize the important technological and commercial benefits of excelling in this arena. It is not only in space that China seeks parity, but in overall national strength. Achievements in space facilitate that broader goal. Underscoring China’s commitment in this regard, all nine members of the Chinese Communist Party’s reigning Politburo were visibly present at the launching of Tiangong-1 on the eve of China’s October 1st national day.

Conclusion

Obviously, there remains a pressing need to clarify U.S. space policy generally and with regard to China specifically. In my paper last year, I referred to suggestions made by various specialists in this regard that I would like to reiterate here. The situation has not changed that much, except there should be more awareness of the fiscal difficulty in which the U.S. finds itself. Last year, the Aerospace Industries of America (AIA) had called on President Obama to take steps to address threats to American space leadership, including the establishment of a long-term, comprehensive national space strategy, stable and robust budgets, policies that maintain a healthy and vibrant space industrial base, and the modernization of export control policies.[[29]](#footnote-29) Actually, such steps might yet begin with the leadership initiative to bring parties together that Roger Launius suggested is needed. However difficult this would be, hopefully it would lead to a new “consensus to avoid decisions that might (otherwise) take courses unacceptable to the space community as a whole.”[[30]](#footnote-30) To this end, the establishment of a coordinating national space council might well help.[[31]](#footnote-31) Such measures would facilitate the setting out of the specific political and commercial goals we ought to have in mind as we seek cooperation with the Chinese space program. Without such goals, as knowledgeable China space specialist Dean Cheng advises, “it is not possible to negotiate successfully with Beijing.”[[32]](#footnote-32)

Finally, John Logsdon, who has favored the new space policy, made the worthwhile suggestion: “Before the United States gets totally committed to skipping the Moon on its planned journeys away from Earth, might a new attempt to create a truly global exploration effort, with interdependence among key partners and with the Moon rather than a NEO [near earth object]…be worth considering?” [[33]](#footnote-33) Why not? And, in the future, certainly any manned space expeditions to distant planets, i.e., to major destinations beyond the Earth’s moon, would do well to prudently embrace optimum international cooperation. Otherwise, such exorbitantly expensive and exceedingly dangerous expeditions, ostensibly for humankind, do not make a lot of sense.

In the meantime, the U.S. might well consider welcoming opportunities to cooperate with China in space ventures that are purely scientific. The AMS-2 on the ISS should be no anomaly at all. It should be seen as a welcomed opportunity to cooperate scientifically. This is in keeping with the preferred stance of a free and open society; it is beneficial to both the U.S. and China, and to humanity as a whole. Similarly, any work that can be done cooperatively with all spacefaring nations to get a handle on the dangerously increasing space debris problem should welcome China’s active participation. Moreover, it would be desirable to learn more fully what China is doing in certain areas, e.g., as in their space based solar energy program. That China has such plans while the U.S. seems oblivious of them, is seen by some as indicative of China having greater vision in space than does the U.S. at present.[[34]](#footnote-34)

On the other hand and for the time being, cooperation in manned space programs must remain limited for political and security reasons, until it can be determined that American interests are safeguarded. It is likely that the Chinese, too, could usefully use an authoritative high level coordinating body that would effectively represent and explain their ongoing space programs. In any case, greater openness in the Chinese space program would encourage a positive American response.

But even with temporary limitations there is and should be friendly exchanges among astronauts of all nations. They are, after all, every one of them, courageous members of a very special fraternity/sorority, dedicated to inspirational exploration…and to the rigors of protracted elemental survival in a very hostile environment. Rex Walheim, an American astronaut aboard the final flight of the space shuttle Atlantis this July, said that “China being in space I think is a great thing. The more nations that get into space, the better cooperation we’ll have with each…Space is one of the biggest international brotherhoods we have.”[[35]](#footnote-35) American astronaut Elroy Chiao last month flat out suggested that China should be a partner in space.[[36]](#footnote-36) Astronaut Chiao had been the first person of Chinese descent to walk in space and to command a space mission. He visited space facilities in China in 2007.

1. See Dean Cheng, “America’s Muddled China Space Policy,” *Space News*, March 20, 2011, p. 19. [↑](#footnote-ref-1)
2. Kerry Sheridan, “Neil Armstrong says US space program ‘embarrassing,’” *AFP*, *Hostednews,* September 22, 2011, and Chris Bergin, “Apollo heroes support SLS, but demand inspiration and goals,” *NASA Spaceflight.com*, September 23, 2011. [↑](#footnote-ref-2)
3. Craig Covault, “AMS: Shedding light on the dark,” *Aerospace America* (June 2011): 40-44. [↑](#footnote-ref-3)
4. See, e.g., David Wise, *America’s Secret Spy War with China,* New York: Houghton Mifflin Harcourt Publishing Company, 2011. [↑](#footnote-ref-4)
5. Andrew S. Erickson and Lyle J. Goldstein, eds. *Chinese Aeroospace Power:Evolving Maritime Roles*, Annapolis, Maryland: Naval Institute Press, 2011, p. xii. [↑](#footnote-ref-5)
6. See Michael Auslin, “The Growing Threat From China’s Air Force: Two advanced Su-27 fighters recently chased an American reconnaissance plane over the Taiwan Strait,” *The Wall Street Journal online*, August 24, 2011. [↑](#footnote-ref-6)
7. Kate Brannen and Wendell Minnick, Washington and Taipei, “Pentagon Report on China Urges Closer Military-to-Military Ties,” *Space News*, September 5, 2011, p. 14. [↑](#footnote-ref-7)
8. See, e.g., Leithen, Francis, Taipei, “Mission Impossible: With China in mind, U.S. unlikely to sell new fighters to Taiwan,” *Aviation Week & Space Technology (AWST)*(August 15, 2011): 26-27 and Wendell Minnick, *DefenseNews* online (August 14, 2011). [↑](#footnote-ref-8)
9. Deputy Defense Ministr Andrew Yang has already said recently: “In the future, Taiwan will need F-35s.” Staff writers, AFP, Taipei, “Taiwan may seek US-made F-35 stealth jet,” *Sino Daily* online, September 19, 2011. [↑](#footnote-ref-9)
10. Sarah Brown, “Cirrus lands China training deal,” AOPA Online, July 27, 2011. [↑](#footnote-ref-10)
11. John Morris, “China has First Pavilion at Airventure,” [www.aviationweek.com](http://www.aviationweek.com), July 28, 2011. [↑](#footnote-ref-11)
12. Wayne Risher, “Memphis businessman Wei Chen completes round-the-world flight,” *The Commercial Appeal* (Memphis, Tennessee), July 29, 2011. The flight began and ended in Memphis. [↑](#footnote-ref-12)
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14. *AVweb*, Vol. 9, No. 37, September 28, 2011. [↑](#footnote-ref-14)
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