Learning Internationalism:
NASA's Switch from National Defense to International Cooperation on the Space Station, 1980-1994

by

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Abstract

In 1980, the National Aeronautics and Space Administration (NASA) made its first serious pitch to Congress in support of a permanently manned outpost in low earth orbit. Their initial case for the program's necessity heavily relied on Cold War logics and military thinking, with international participation functioning as a mere afterthought. Although NASA and its foreign partners now flaunt the evidence of their successful cooperation, the internationalism inherent in the station's current name and form was the *result* of station development, not the initial goal of NASA officials. Two major shifts defined NASA's treatment of the space station over the course of its development. The first was a turn away from collaboration with the military. For previous projects, such as the space shuttle program, NASA had depended on military backing to justify the expense of human spaceflight to Congress. This military backing ensured that NASA's interactions with international agencies remained shallow. The shift away from the military which occurred with the space station revealed the tension between NASA's civilian nature and its military ties, and proved the turning point in NASA's evolution into a truly civilian agency. Of all the international partners, Japan's involvement was crucial to the changes which took place at NASA through the space station program as, in the moment of truth, Japan's strident objections to the possibility of Pentagon contributions made military and international involvements incompatible. The second change was a transition towards more substantial international collaborations with foreign space agencies, which NASA increasingly saw as crucial to the success of the project and as a replacement for military backing before Congress. This paper argues that this increasing focus on the international aspects of the space station was driven by the cooling of the relationship between NASA and the military, which left NASA scrambling for funding and supporters for the space station. It was the domestic political situation, not a sense of internationalism, which compelled the internationalization of both the station and the agency.

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Introduction

In 2011, the last space shuttle flights brought to an end the construction of the International Space Station (ISS), thirty years after the National Aeronautics and Space Administration (NASA) first pitched to Congress the idea of a permanently manned outpost in low earth orbit. Since completion, NASA and its partners have touted the international aspects of the station, arguing that the cooperation of the partners is the program's "greatest achievement."[1] Despite this enthusiasm, the internationalism inherent in the station's current name and form was the *result* of station development, not the initial goal of NASA officials. Two major shifts defined NASA's treatment of the space station over the course of its development. The first was a turn away from collaboration with the military, with which NASA had a close relationship on previous projects; this shift revealed the tension between NASA's civilian nature and its military ties, and proved the turning point in NASA's evolution into a truly civilian agency. Of all the international partners, Japan's involvement was crucial to the changes which took place at NASA through the space station program as, in the moment of truth, Japan's strident objections made military and international involvements incompatible. The second change was a transition towards more substantial international collaborations with foreign space agencies. This paper will argue that this increasing focus on the international aspects of the space station was driven by the cooling of the relationship between NASA and the military, which left NASA scrambling for funding and supporters for the space station. It was the domestic political situation, not a sense of internationalism, which compelled the internationalization of both the station and the agency.

[1] "International Cooperation," NASA website, http://www.nasa.gov/mission_pages/station/cooperation/index.html, accessed March 18, 2013.

Historiography

Those historians who have examined space history have been drawn to the drama of human spaceflight. Given that the American and Russian space programs were the first and largest, and the competition between them had definite historical ramifications, works that focus on the glory days of the Apollo era and the political implications of the Space Race on both the United States and the USSR dominate the field.[2] Even works which consider more recent aspects of space history, such as the development of space stations, focus on one of these two nations' programs.[3] The field remains preoccupied with the ramifications of the Cold War. However, beginning in the 1970s, space exploration became an increasingly worldwide endeavor. In recent years, a preponderance of space projects has involved international cooperation. In an age where Argentina is doing space science and China is inviting India to collaborate on space projects, not to mention the existence of a multinational space station which has been continuously inhabited since 2000, the time has come for more historians to examine other aspects of space history. This will allow historians to gain understandings of the impacts of development of space technology and economics on other countries, while also helping to place the American and Russian space programs in their international context. Furthermore, dominance in space is a part of America's cultural mythos, one that is particularly near and dear to the American heart. As more and more nations join the elite ranks of the space farers, historians may discover a corresponding growth in

[2] Walter A. McDougall, *The Heavens and the Earth: A Political History of the Space Age*, (Baltimore, MD: Johns Hopkins University Press, 1985); W. Henry Lambright, *Powering Apollo: James E. Webb of NASA*, (Baltimore, MD: Johns Hopkins University Press, 1995); Donald A. Beattie, *Taking science to the moon: lunar experiments and the Apollo Program* (Baltimore, MD: Johns Hopkins University Press, 2001); Asif A. Siddiqi, *Sputnik and the Soviet Space Challenge* (Gainesville, FL: University Press of Florida, 2003); Brian Harvey, *The New Russian Space Programme: from Competition to Collaboration* (Chichester, UK: Wiley-Praxis, 1996).

[3] Robert Zimmerman, *Leaving Earth: Space Stations, Rival Superpowers, and the Quest for the Interplanetary*, (Washington DC: John Henry Press, 2003); Howard E. McCurdy, *The Space Station Decision: Incremental Politics and Technological Choice* (Baltimore: Johns Hopkins University Press, 1990); Brian, Harvey, *The Rebirth of the Russian Space Programme: 50 Years After Sputnik, New Frontiers* (Chichester, UK: Praxis Publishing, 2007).

the number of countries that can challenge the United States, economically, scientifically, and militarily.

This paper examines NASA's relationship to the idea of internationalization in the context of the early years of the space station project, as well as Japan's relationship to that project. Only a few historical works deal with the space station in detail. Howard E. McCurdy's *The Space Station Decision: Incremental Politics and Technological Choice* focuses on the process leading up to the American decision to go ahead with a space station. While describing the motivations of government officials in detail, he convincingly argues that NASA officials' switch in the difficult years post-Apollo from trying to get comprehensive projects approved to gaining acceptance for separate pieces allowed politicians too much leeway to delay, modify, and cancel programs.[4] Published in 1990, his account ends with Reagan's announcement of support for the station in 1984. He also spends very little time on the international aspects of the station; he devotes a single section to the partners' decision to participate, and otherwise mentions them only in passing.[5] This paper's argument that international support of the program was crucial to the station's survival, as well as the source of a fundamental change in NASA's outlook, thus represents a distinct split from his work.

The only other historical work to focus on the international character of the space station was John Logsdon's monograph *Together in Orbit: The Origins of International Participation in the Space Station*.[6] His work covers the period leading up to Reagan's invitation to space agencies in Canada, Europe, and Japan to participate in 1984 and their acceptance of that

[4] McCurdy, op. cit., 224-5.
[5] Ibid, 99-107.
[6] John M. Logsdon, *Together in Orbit: Origins of International Participation in the Space Station,* (Washington, D.C.: NASA History Division, 1998). John Logsdon has long been the expert of note in space politics, writing numerous articles for newspapers, serving on government boards, and writing a number of historical monographs. He also founded and ran for many years George Washington University's Space Policy Institute.

invitation the next year. Logsdon finished the article in 1991, though it was not published until 1998, and he admitted that this temporal proximity limited his ability to draw conclusions about the impacts of the station.[7] He emphasized the continuities in the international aspects of the station, glossing over the changes that took place in the partners' relations, as well as the issues between NASA and the Department of Defense (DOD). This paper maintains that, while NASA engaged in international cooperation from the time of its founding in 1958, the scope of that cooperation changed dramatically over time. During the portion of station development covered by this paper, it shifted from limited cooperation dominated by American requirements to a situation where the partners delivered real value to the program; these changes mean that investigators cannot treat early discussions of possible international involvement in the station as leading inevitably to the station's eventual more egalitarian format.

Though initially limited in extent, the possible involvement of space agencies abroad regarding the space station meant that from the beginning NASA's plans involved considerations of America's international relationships. Many historians have written about the United States and its international relations. The conflict between different interpretations of American goals regarding involvement in multilateral organizations and projects makes the question of the goals and extent of American involvement in multilateral agreements and international issues contentious. Where some authors contend that the American government has avoided such engagements, others argue that America has used them out as a method of control. A number of authors, such as Gary Ostrower, trace a perception amongst Americans that an adverse relationship exists between America's strategic interests and internationalism, which would require that the United States relinquish some of its autonomy and power and allow other nations

[7] Ibid, 42.

to restrict its actions.[8] These authors focus on a reluctance of the United States to entangle itself with any multilateral organizations which might circumscribe its prerogatives. 'Internationalism' holds that international involvement has value in and of itself, as it brings people of many nations together, inspiring them to better understandings of each other through direct contact. At the level of government, internationalism manifests in arguments that in order to foster more cordial and peaceful relations, nations should accede to multilateral agreements and projects. These authors' works imply that internationalization's attraction lies in the way it leads to less dominance of world systems by individual nations, and thus a more equal and peaceful world. To these authors, the United States was not internationalist *enough*, held back by an overwhelming concern with maintaining its hold on power.[9]

Other authors contend that to the extent that the United States participates in international forums, self-interest forms its central motivation. They argue that international participation, far from requiring that the US relinquish sovereignty, instead allows the US to gain prestige and spread its hegemony.[10] American involvement with international bodies such as the United Nations and the World Bank is driven not by an idealistic concern with creating a better world, but by the very concern with American power which Ostrower and others understand to restrict American involvement in international agreements. Some, such as Phyllis Bennis, go so far as to argue that the United States uses *all* multilateral organizations for its own ends, undercutting

[8] Gary Ostrower, *The United Nations and the United States: 1945-1995* (New York, NY: Twayne Publishers, 1998).
[9] Akira Iriye, *Global Community: The Role of International Organizations in the Making of the Contemporary World* (Los Angeles, CA: University of California Press, 2002); Jessica Wang, "The United States, the United Nations, and the Other Post-War Cold War World Order: Internationalism and Unilateralism in the American Century," in *Cold War Triumphalism: The Misuse of History After the Fall of Communism*, Ed. Ellen Schrecker (New York, NY: The New Press, 2004), 201-234.
[10] Elizabeth Borgwardt, *A New Deal for the World: America's Vision for Human Rights* (Cambridge, MA: Harvard University Press, 2005) and John Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe* (Cambridge, MA: MIT Press, 2006). While both of these authors allow for more complicated views of the creation of American influence and power, the basic point that American international involvement helped to maintain American power remains.

their internationalist purpose. In *Calling the Shots: How Washington Dominates Today's UN*, Bennis contends that the United States managed to influence the founding conference such that it "effectively guaranteed Washington's domination of the UN for years to come."[11]

Bennis' insistence that the US turned to the UN only when it was "deemed useful to help finance U.S. operations, or when the U.S. needed the UN's international credential to legitimize its own engagements," ignores the fact that the very act of turning to the UN at all reflects a restraint in US exercise of power.[12] As G. John Ikenberry argues in his essay, "Multilateralism and US Grand Strategy," the basis of multilateral agreements such as those which created the UN functioned not as a one-way expression of US power and hegemony, but a bargain in which the US gained a stable world scene, and other countries acquired mechanisms to ensure the US "will be more manageable as a dominant power."[13] Authors such as Ikenberry and Stewart Patrick hold that in some instances relinquishing some sovereignty in the short term may serve long-term strategic goals, particularly in regards to prestige and world stability, whereas acting alone can undermine them.[14]

This paper aligns most clearly with this third line of thought, insofar as the development of the space station as an international entity served goals within both the United States and the nations of its foreign partners. The space station serves as an example of two things that are unusual in the study of internationalism. First, this is a case wherein a single agency within the United States government drove international engagement, to the point of conflict with other

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[11] Phyllis Bennis, *Calling the Shots: How Washington Dominates Today's UN* (New York, NY: Olive Branch Press, 1996), 4.
[12] Ibid, 97.
[13] G. John Ikenberry, "Multilateralism and U.S. Grand Strategy," in *Multilateralism & US Foreign Policy: Ambivalent Engagement*, ed. Stewart Patrick, et al. (Boulder, CO: Lynne Rienner Publishers, Inc., 2002), 122-3, 136-8.
[14] Stewart Patrick, "Multilateralism and Its Discontents: The Causes and Consequences of US Ambivalence," in *Multilateralism & US Foreign Policy: Ambivalent Engagement*, ed. Stewart Patrick, et al. (Boulder, CO: Lynne Rienner Publishers, Inc., 2002), 23-27.

aspects of the government. Thus there was no simple conception of the national interest and no single 'nation' acting as a united entity in regards to foreign affairs. Second, while NASA's actions in this time period were driven largely by pragmatic concerns, these actions nonetheless led to a growth in internationalist feeling within the agency. Pragmatic decisions made based on financial needs had the unintended consequence of increasing idealism.

The original space station program was based on a series of multilateral agreements, most importantly the InterGovernmental Agreement (IGA) between the United States, Canada, Japan, and the governments involved in European Space Agency (ESA). There were also Memoranda of Understanding (MOUs) between NASA, the Canadian Space Agency (CSA), ESA, and the Government of Japan.[15] As both the leading Western space nation and the dominant power among the Western nations of the Cold War more generally, the United States could expect to play a dominant role in the creation of a space station. In the case of the International Space Station, however, NASA ultimately relinquished some of its control and standing vis-à-vis its international partners for exactly the long-term strategic reasons that Ikenberry and others indicated. NASA officials made a series of trade-offs that created an increasingly more open and egalitarian program. Doing so enabled NASA to get the space station project approved and protected from the vagaries of domestic politics and budget cuts when all other methods had failed. As this paper will demonstrate below, the move towards a more international space station did not come from an internationalist movement within the agency; within NASA, much of the staff at the field campuses outside of Washington, DC initially saw the idea of incorporating

[15] After Russia accepted the partners' invitation to join the program in 1994, the partners negotiated a new IGA, signed in 1998, as well as new MOUs. Also, as Japan was the only nation which did not have a single space agency in charge of the station, NASA signed its agreements, not with any particular bureau, but with the Government of Japan itself.

foreign space agencies into the structure of the station as a foolish idea.[16] The skeptics within NASA were ultimately convinced, both by the fact that international endorsement won them support in Congress and by the everyday lived experience of interacting with their counterparts abroad. Examining concrete ways in which international cooperation can be advantageous may in the future help convince naysayers within governments that collaboration abroad and multinational projects can serve strategic purposes.

The Japanese government's decision to participate in the station fit in with broader trends of national development, in which it supported investments in science and technology in order to increase Japan's economic might and international standing. As Japan's fiscal power swelled during the postwar period, particularly the 1980s, the Japanese government took an increasingly self-assured stance in international affairs, particularly in its relationship to the United States.[17] Over the course of station development, Japan became more assertive in regards to NASA and the space station program. While this trend fit in with the larger development of Japanese foreign policy, in this instance it also grew out of both NASA's increasing vulnerability and out of domestic resistance to participation in any program with possible military ties.

The space station marked Japan's first involvement with a major NASA program, as Japan did not participate in space shuttle development. This meant that changes within the Japanese program and the new conversations they sparked within Japan resulted directly from its involvement in space station activities. For Canada and Europe, the impacts of the space station program were muffled by their participation in the space shuttle program; they had strengthened their ties to NASA and increased investments in their own agencies, all before the advent of the

[16] Logsdon, op. cit., 7.
[17] Kazuhiko Togo, *Japan's Foreign Policy 1945-2009: The Quest for a Proactive Policy*, 3rd Extended Edition, (Boston, MA: Brill, 2010), 69-70; Murata Koji, "The Mission and Trials of an Emerging International State: Japanese Diplomacy in the 1980s," in *The Diplomatic History of Postwar Japan*, ed. Makoto Iokibe, trans. Robert D. Eldridge, (New York, NY: Routledge, 2011), 143, 154-7, 160-3.

station program.[18] The space station project had significant impacts on the Japanese space program, leading the government to invest in advanced technology and increasing access to science, while also spurring new conversations within Japan about space development and the government's relationship with the United States.

For the American perspective, this paper draws mainly from sources such as speeches, briefing packets, fact sheets, presentations to congressional committees, and the like. It also makes use of newspaper articles and correspondence between NASA officials and outsiders. During the period of station development covered by this paper, limited numbers of NASA officials were involved in the station- most of those involved were either at headquarters or very high level field campus officials, such as directors. A few of the sources, such as meeting minutes and internal correspondence, allow glimpses into the true feelings of NASA employees, but on the whole these sources were created for public consumption. Similarly, the paper makes use of Japanese government reports and studies, as well as articles in the technical and mainstream media. It also, however, makes some use of records of monthly reports and some meeting minutes, and these materials give some access to the top concerns of government officials. [19] Thus this paper concentrates on the ways in which NASA sold the space station project to those outside the agency, including those abroad, and what that sales-pitch reveals about NASA's understanding of the most valuable aspects of the project. As NASA's understanding changed over time, so did its language. What began as lip service paid to ideas of free world cooperation eventually became the core element of the space station program.

[18] Logsdon, op. cit., 3-6. For example, it was the shuttle program which prompted the creation of ESA.
[19] Except for secondary sources published in English, Japanese names are given in the Japanese manner, ie, family name first, followed by the personal name. Due to the many possible romanizations of Japanese names, names whose reading could not be confirmed are followed by the original Japanese. Translations of Japanese materials are my own, as are all mistakes therein.

Space Shuttle Development, and the US-Japan relationship

Although construction on a permanent station did not begin until 1998, NASA had seen the creation of a space station as an important aspect of its long-term plans to explore the solar system since the 1960s. Scientists reasoned that a space station in low-earth orbit would provide an excellent way-station, one which could lessen the amount of supplies (and thus weight) that must be launched on any individual mission away from earth by allowing astronauts to pick up portions of their baggage in orbit. NASA's original plan for the Apollo program actually involved using a space station as a midway point on the journey to the moon, though engineers ultimately decided it was unfeasible due to the short timeline called for by Kennedy.[20] When NASA engineers began studies on what types of programs should follow Apollo and lunar exploration, space stations stood at the top of the list.[21] Engineers planned for a fully reusable spacecraft to be a part of the space station program, which would act as a cargo shuttle between the earth and low earth orbit where the station resided, bringing up the supplies for longer journeys and vastly reducing the cost of spaceflight.

The Nixon administration approved the development of this space shuttle in 1972. NASA's shrinking budget after the end of the Apollo program meant that the administration approved the shuttle alone, which put NASA in the odd position of creating a short-range space vehicle with nowhere for it to go.[22] NASA managed to get the space shuttle up and running, by concocting other uses for a vehicle which provided access to low-earth orbit. Shuttle astronauts carried out missions in which they launched or repaired satellites, most notably the Hubble Space

[20] McCurdy, op. cit., 14-17.
[21] Ibid, 23.
[22] James M. Beggs, NASA Administrator, "Why the United States Needs a Space Station," remarks prepared for delivery at Detroit Economic Club and Detroit Engineering Society, June 23, 1982, 9. Folder: 009375, "Space Station (1982)," National Aeronautics and Space Administration Headquarters Historical Reference Collection (NASA HQ HRC), 300 E Street Southwest, Washington DC, 20024.

Telescope. They also made use of Spacelab, a pressurized module built by the ESA, which could be placed in the shuttle's unpressurized cargo bay in order to extend the shuttle's habitable space and allow for intensive scientific missions. The Department of Defense, also made use of the shuttle for secret missions, which often included launching surveillance satellites. DOD involvement limited the openness of NASA's relationships with possible international partners.[23] Even free world allies could not be trusted with American military secrets or technology. Any nation with the ability to launch satellites into orbit also had the ability to send missiles on sub-orbital flights to other continents, meaning they would have the basic technology to develop intercontinental ballistic missiles (ICBMs). Furthermore, space development formed an important part of America's high technology sector, which many Americans perceived to be at risk from international competitors, particularly in the 1980s. Thus, quite apart from the secret missions that DOD might run on the station, the basic connections between civilian and military space technologies, as well as their commercial applications, meant that even many NASA officials were skeptical of the most basic cooperation in space, as it required that foreign agents be given at least limited access to NASA's know-how.[24]

During the 1980s, Americans particularly feared economic and technological competition from the Japanese. Throughout the Cold War, the American military depended on its bases in Japan for easy access to the Asian theater and to guard the Pacific from Soviet incursions, while Japan took advantage of the presence of American military might to avoid the cost of building up its army to the extent necessary to defend itself from possible communist incursions.[25] During the 1950s and 1960s, the United States had the clear upper hand in this relationship, based on

[23] Logsdon, op. cit., 4.
[24] McCurdy, op. cit., 99-102.
[25] Tomohito Shinoda, "Costs and Benefits of the U.S.-Japan Alliance from the Japanese Perspective," in *The U.S.-Japan Security Alliance: Regional Multilateralism*, eds. Takashi Inoguchi, et. al., (New York, NY: Palgrave MacMillan, 2011), 14-5.

both its military dominance of Japan, and its booming economy following the war.[26] This connection became contentious during the 1970s and 1980s, as Japan's rise to economic prominence unsettled American dominance in trading and military relationships.[27] Japan at the time was in the midst of the 'Japanese miracle,' through which the Japanese rose from the devastation at the end of World War II to become the second most powerful economy in the world, while also establishing dominance in traditionally American fields such as automobile manufacturing.[28] During the 1980s, Japan was America's largest overseas trading partner.[29] The ease of trading with America and the barriers to trading in Japan, though often cultural, resulted in an enormous imbalance of trade between the two countries. When the sudden influx of Japanese goods at home was coupled with the apparent inability of American-made goods to enter the Japanese market, Americans became increasingly resentful of Japanese.[30] The sudden advent of staunch competition from a country previously in need of American assistance took many Americans by surprise, and destabilized the U.S.-Japan relationship more generally.[31] In this context of American anxieties regarding Japanese competition, Japanese involvement in the station ran the risk of inciting public outcry over Japanese access to the America's most advanced technologies.

When government officials first conceived of the idea of a space agency, the question of whether the US needed a civilian program at all was disputed, as Pentagon officials argued that it

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[26] Roger Buckley, *US-Japan Alliance Diplomacy, 1945-1990*, (Cambridge, UK: Cambridge University Press, 1992), 42-3, 48, 101.
[27] Stephen D. Cohen, *Uneasy Partnership: Competition and Conflict in U.S.-Japanese Trade Relations*, (Cambridge, MA: Ballinger Publishing Company, 1985), 24-5.
[28] Bai Gao, *Japan's Economic Dilemma: The Institutional Origins of Prosperity and Stagnation*, (Cambridge, U.K.: Cambridge University Press, 2001), 206-7.
[29] Michael H. Armacost, "A View from Washington," in *Destinies Shared: U.S.-Japanese Relations*, eds. Paul Gordon Lauren and Raymond F. Wylie, (Boulder, CO: Westview Press, Inc., 1989), 42.
[30] Gao, op. cit., 206.
[31] P.G. Lauren and R. F. Wylie, "U.S.-Japanese Relations: From the Past to the Present," in *Destinies Shared: U.S.-Japanese Relations*, eds. Paul Gordon Lauren and Raymond F. Wylie, (Boulder, CO: Westview Press, Inc., 1989), 23-4.

would compete with the military space program for funding while duplicating its efforts.[32] Though Congress established NASA as a civilian agency, it was impossible to entirely separate its research and existence from the military establishment; NASA's accomplishments and their importance as weapons of the Cold War were widely accepted by lawmakers after the media storm that followed the USSR's launch of the first satellite and first manned orbital flights.[33] Furthermore, essentially all space technologies had both civilian and military applications.[34] As McCurdy puts it, "Astronauts were placed on the tips of rockets originally designed to launch bombs."[35] NASA and the Department of Defense even worked together directly on certain projects, particularly satellites.[36] During Apollo and the early years of the shuttle program, relatively few signs arose of the tension created by a purportedly civilian agency having such close ties to the military establishment.[37] Eventually, however, as NASA began to plan missions with less relevance to earthly conflicts, the overlap between their missions became more and more limited, and cracks began to show. The Department of Defense was not entirely satisfied by the process of developing the shuttle, which ended far over budget, behind schedule, and with fewer capabilities than NASA had initially proposed.[38] Despite the DOD's displeasure, when it came time to develop the next major project after the shuttle, NASA turned to the military establishment for support.

Despite this military connection and the suspicion about foreigner involvement that accompanied it, international cooperation formed a part of NASA's job description. The founding charter from 1958 stated that NASA should pursue "[c]ooperation by the United States

[32] McDougall, op. cit., 195.
[33] Ibid, 119, 139, 141-155.
[34] Ibid, 174, 343.
[35] McCurdy, op. cit, 3.
[36] McDougall, op. cit., 336-7.
[37] For example, Marshall Space Flight Center in Alabama was created when the Army Ballistic Missile Agency, headed by Wernher von Braun, was transferred to NASA's control in 1960. McDougall, op. cit., 198.
[38] McCurdy, op. cit., 37-8, 150; McDougall, op. cit., 423.

with other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results, thereof."[39] Congress mandated this international involvement as a part of a deliberate contrast between the open society of the United States and the closed nature of the Soviet Union.[40] However, due to security concerns and the comparatively limited abilities of space programs outside of the US and USSR before the late 1970s, the amount of cooperation between NASA and other agencies remained limited prior to the 1980s.[41] The shuttle, for example, included fairly sizable investments from both the Canadians and the European nations which would later form the European Space Agency. Their contributions, however, were neither as technical as those agencies wanted nor integrated into the design of the vehicle.[42] Instead of creating a cooperative project, NASA essentially gave foreign agencies a few limited options through which to participate in an American program.[43] Thus NASA ensured that it engaged in international cooperation without actually depending on its partners for success.

ESA chose to go forward with the Spacelab module for the shuttle, giving NASA the first one for free with the understanding that NASA would need several more when the shuttle was up and running at full capacity.[44] Due to the unexpected expense of launches, however, the shuttle made many fewer flights than originally promised, and NASA ended up buying only one other Spacelab habitat.[45] NASA officials later declared that both sides of the agreement "felt a great

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[39] National Aeronautics and Space Act of 1958 (Unamended), Public Law 85–568, Sec. 102(c)(7). http://history.nasa.gov/spaceact.html, accessed November 11, 2012.
[40] Logsdon, op. cit., 1.
[41] McCurdy, op. cit., 105; McDougall, op. cit, 194, 423-9.
[42] McCurdy, op. cit., 99-101.
[43] Logsdon, op. cit., 2.
[44] Spacelab was a laboratory which could be placed in the cargo bay of the shuttle, vastly expanding the scientific capabilities of a shuttle mission. Spacelab's self-contained nature, however, meant that it was not at all necessary to shuttle operations and also that the ESA built it with very limited knowledge of the technologies of the shuttle itself.
[45] Logsdon, op. cit., 6.

sense of accomplishment and satisfaction."[46] The Europeans, however, were so frustrated by the experience that they went away absolutely determined to "never again enter an agreement that left them holding the bag," a stance which they eventually made clear to NASA officials during negotiations over the space station.[47]Although NASA called Spacelab an "International Success Story," in actuality the unbalanced power dynamics in the relationship between NASA and its shuttle partners caused disgruntlement amongst those abroad.

Members of the Japanese Science and Technology Agency (STA) kept close track of NASA's human spaceflight program, particularly after the Apollo moon landings which raised the profile of spaceflight within Japan as a whole, as the foundation of Japan's National Space Development Agency (NASDA) in 1969 showed. [48] The Japanese were well aware of NASA's hopes regarding the post-Apollo program, i.e., that the Americans hoped to build both a short-range shuttle vehicle and a space station as its destination.[49] They followed developments with interest, but though NASA invited the Japanese to participate in shuttle development, they did not yet possess the necessary technical capability to join in.[50] Thus, as the 1980s began, the Japanese lagged behind both Europe and the USA in their ability to access to space. NASA had the space shuttle, and the ESA had a powerful launch vehicle in the Ariane rocket, which had

[46] Douglas R. Lord, *Spacelab: An International Success Story* (Washington, D.C.: NASA Scientific and Technical Information Division, 1987), xi.
[47] "Thoughts on the Central Role of Space Station," n.d. [1992], Folder: "SSF Benefits Data, Vol. 1, Part 1," Box #18329, *Space Station Freedom Congressional Files 1989-94* (Box 3 of 6), NASA HQ HRC.
[48] "NASDA History," Japan Aerospace Exploration Agency (JAXA) website, http://www.jaxa.jp/about/history/nasda/index_e.html, accessed February 21, 2013.
[49] "Study Related to Participation in the American Space Station Program: Interim Report," (*Beikokuuchuukichi keikakuhenosankani kansurukentou: Chuukanhoukoku),* Space Activities Commission, June 1983, Space Activities Commission Space Station Program Focus Group (*Uchuukaihatsuiinkai uchuukichi keikakutokubetsubukai),* 1. Japanese National Diet Library Collections, Tokyo Main Library, (NDL Collections), 1-10-1, Nagatacho, Chiyoda-ku, Tokyo, 100-8924, Japan.
[50] Logsdon, John M. Logsdon, *Together in Orbit: Origins of International Participation in the Space Station,* (Washington, D.C.: NASA History Division, 1998), 36.

allowed them to wean themselves off of American launch services.[51] While Japan had several years of experience in rocketry at this point, when compared to the shuttle, its rockets had very small uplift capacity, and could not push large payloads to orbit.[52]

At the beginning of discussions regarding a space station, Japan had much more to gain from cooperation than NASA. Japan had a number of different space agencies until 2003, when the three most important merged to form the Japan Aerospace and Exploration Agency (JAXA).[53] Of the many space agencies in Japan at the time, NASDA was the closest in function to NASA, and handled most of the human space-flight related programs. Although NASDA routinely launched scientific and communications satellites on small rockets, its rocket development program remained focused on improving basic robotic access to space, not human spaceflight.[54] Collaboration with NASA would give the Japanese ready access to a successful human spaceflight program much more cheaply and easily than developing one from scratch. In the absence of a strong military, the Japanese government turned to the economy as a means to assert their power in the world.[55] Officials believed that government investment helped to spur the economy.[56] Thus, investment in human spaceflight meant a chance to catch up to other space-faring nations in terms of space science and technology, while boosting their economy and international prestige.

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[51] The European addition to the space station plan, the Columbus module, was originally intended as an independent European space laboratory to be launched by the Ariane based on their experience building the Spacelab modules, although attaching it to a larger station expanded its utility and long-term habitability. M.H. Harrison, "Decisions Draw Near," *Space*, vol. 3, no. 4, 1987, 48-9 (48-52).
[52] "Basic Concepts Related to Participating in the Space Station Plan: Report," (*Uchuukichi keikakusanka nikansuru kihonkousou: houkoku)*, Space Activities Commission Space Station Program Focus Group (*Uchuukaihatsuiinkai uchuukichi keikakutokubetsubukai)*, April 1985, 10. NDL Collections.
[53] "JAXA History," JAXA website, http://www.jaxa.jp/about/history/index_e.html, accessed February 21, 2013.
[54] Miura Akira, "Our Country's Participation in the US Space Station Plan," (*Beikoku uchuukichikeikakuheno wagakuninosanka), Economic Man (Keizaijin)*, November 1984, Vol. 38, No. 11, 81. NDL Collections.
[55] Murata, op. cit., 160-1, 169-70.
[56] Gao, op. cit., 152.

Early Station Discussions and Military Rejection

Although NASA prioritized the shuttle development program during the 1970s, agency officials never gave up on the idea of a space station. The planning department conducted basic studies during the 1970s, and as the shuttle's test phase neared completion in 1981, the newly appointed Administrator, James Beggs, made a space station NASA's next top priority.[57] Beggs established a Space Station Task Force in 1982 to conduct station studies and establish what exactly NASA needed to do in order to get the project approved by the Reagan administration and Congress. The Task Force was based at NASA headquarters in Washington, DC.[58] Within the Task Force, the Space Station Public Affairs Steering Committee, headed by Terence Finn, organized NASA's interactions with the public, bureaucrats, and politicians, regarding the space station project. Although each of NASA's campuses put together a working group which considered station issues, these issues usually functioned as only a part-time focus of the workers involved, and most attempts to advertise the potential station occurred in Washington, DC.[59]

Naturally, given the ongoing close relationship between the Department of Defense and NASA through to the space shuttle program, the committee turned to the DOD for support on the space station project as well. NASA officials believed that "space gives to the national security community what it gives to others: a unique vantage point from which essential activities can be conducted."[60] NASA made sure to emphasize the possible military applications of a space station.

[57] McCurdy, op. cit., 40.
[58] Ibid, 50-1.
[59] Ibid, 94-5.
[60] Philip E. Culbertson, NASA Headquarters, "Current NASA Space Station Planning," *Astronautics and Aeronautics*, September 1982, 43.

Members of the committee pointed out that it would "secure the ultimate high ground."[61] They consistently referred to the needs of the military in considering early station designs. Even "lukewarm" DOD support was important enough that they considered proposing a "minimum station" just to get their "foot-in-the-door."[62] In meetings with the Secretary of Defense, NASA officials emphasized that they wanted "early DOD-input to space station planning," because "DOD requirements were met in the Shuttle … and contributed to Shuttle being a truly useful, national space program."[63] In planning out its strategy for getting the station project support on the Hill from 1981 to 1983, NASA assumed that the DOD would be an interested user and strong ally.

In the eyes of NASA officials, nothing had changed since they managed to get the shuttle program approved, except that they now had a longer history of working with the Defense Department. The Cold War remained a concern, and the Soviet space program persisted, engaged as it was in the creation of its own space stations, Salyut and Mir. In talks between Administrator Beggs and Secretary of Defense Caspar Weinberger, while Beggs made sure to bring up "the DOD role in the shuttle," his aides also made sure to brief the top brass on the "anticipated soviet program."[64] NASA consistently reminded possible supporters that the "Russians already have demonstrated an impressive operational space station capability."[65] Station studies in the 1960s

[61] Terence T. Finn, Co-Chairman, Space Station Public Affairs Steering Committee, "Space Station Fact Sheet," NASA Press release, April 28, 1982, 5. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.
[62] Terence T. Finn, Note to Culbertson: "Thoughts on space station in preparation for a meeting December 22," December 21, 1981. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.
[63] Terence T. Finn, Letter to Bill Anders prior to a meeting with Weinberger, April 28, 1982. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.
[64] Note to John Hodge on necessary files for Admin. Begg's meeting with Weinberger, April 26, 1982. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.
[65] James M. Beggs, NASA Administrator, "Why the United States Needs a Space Station." at Detroit Economic Club and Detroit Engineering Society, 14. Folder: 009375, "Space Station (1982)," NASA HQ HRC.

had turned up a number of uses, particularly surveillance.[66] The agency attempted to make use of the strong past relationship between itself and the Defense Department as well as the continuing pressures of the Cold War to gain support for its new space project, a strategy that had been the deciding factor in past projects, particularly Apollo. Based on this old strategy, that tied space projects explicitly to national prestige and security, NASA asked the military to conduct studies on possible uses for a space station in 1981.[67]

Initial signs from the military were quite favorable: Beggs reported after his meeting that Secretary of Defense Caspar Weinberger was "positive on the Space Station."[68] The Defense Department also helped fund some of the preliminary space station studies conducted by industry.[69] Terence Finn said in early 1983 that the space station effort had "successfully ginned up the user groups to examine space station," a list which included the Air Force and "intelligence."[70] Contrary to these positive early signals, however, the military ultimately informed NASA officials that it had "concluded they had no requirements for a manned Space Station."[71] Part of the basis for this conclusion lay in simple technological advancements: when NASA engineers first began studies on space stations, it seemed feasible to use them for surveillance. By the 1980s, however, advanced satellite technology had become more practical and cost-effective than manned spying missions. Furthermore, many of these early positive signs depended on a few enthusiastic supporters of the station within the military, while the defense establishment as a whole was not enthused by the idea, arguing that the station would divert

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[66] McDougall, op. cit. 340-41.
[67] "Air Force Looking at Military Station Needs at NASA's Request," *Defense Daily*, December 16, 1981, 233.
[68] Meeting Minutes of the NASA Space Station Strategy Group, May 13, 1982. Folder 17008, "Space Station Strategy Session 5/13/82," NASA HQ HRC.
[69] "NASA Gets Space Station Proposals," *Aerospace Daily*, July 29, 1982, 153.
[70] Terence T. Finn, *Report for the Space Station Strategy Group*, February 18, 1983, 2. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.
[71] James Beggs, NASA Administrator, Letter to Donald Johnston, Minister of State for Science and Technology, Canada, April 6, 1984, 3, Folder: 009609, "Space Station International Cooperation (II)," NASA HQ HRC; Arlen J. Large, "Will U.S. Space Station's Crew Ever Find Happiness?" *The Wall Street Journal*, October 27, 1983.

money from military projects, such as the modernization of satellite systems.[72] This was a blow to NASA. Funding for the Department of Defense dwarfed NASA's budget; in fact, in 1981, the funding for military space surpassed NASA's entire budget. Furthermore, tying projects to issues of national defense and prestige had always offered an excellent way to gain support in Congress, one which had never failed NASA before. The loss of DOD support left NASA with the question of what to do in the absence of "outside champions" for pushing the station project on the Hill.[73]

[72] McCurdy, op. cit., 162-5.
[73] Terence T. Finn, *Report for the Space Station Strategy Group*, February 18, 1983, 3. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.

Initial Forays into International Participation

Despite the lingering dissatisfaction with the process of creating the shuttle among NASA's international partners, the agency's initial approach to the space station commenced in essentially the same manner. During those same early meetings which so stressed the importance of the DOD, Space Station Strategy Group members debated "the question of international participation in the space station program," but remained unsure "whether such participation [was] valuable."[74] Their conviction that the military would support the project made them decidedly lukewarm towards the idea of international cooperation. At the same time, they hedged their bets and asked the technical designers "what aspects of a station" would be "possibly suitable for foreign participation," and tasked them with developing "some criteria and ground-rules for international participation."[75] NASA officials invited members of the CSA, ESA, and Japan's space agencies to conduct studies on whether they would like to be involved in a space station project in 1982.[76] These studies began before the station had the support of the American administration, much less the approval of Congress, so NASA emphasized that the station was an unapproved project.[77] The lack of official approval meant that NASA made early overtures to international agencies on its own, without the support of the State Department.[78]

The Science and Technology Agency (科学技術庁: STA), which ran NASDA and the other government space agencies, coordinated with the Space Activities Commission (宇宙開発委員会: SAC), whose job was to develop national level plans and recommendations for space development in Japan. Thus NASA held discussions regarding the station with officials from

[74] Terence T. Finn, Note to Mr. Culbertson, "Thoughts on space station in preparation for a meeting on December 22," December 21, 1981. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.
[75] Ibid.
[76] "NASA Gets Space Station Proposals," *Aerospace Daily*, July 29, 1982, 154.
[77] "Foreign Use of Space Station Addressed," *Space Business News,* August 15, 1983.
[78] McCurdy, op. cit., 100.

both the STA and the SAC. Following NASA's initial query in 1982 to all possible user-groups asking for usage studies on a station, the SAC founded the Space Station Program Focus Group (宇宙基計画地特別部会) to "carry out investigations and discussions" regarding Japan's possible participation in the station program.[79]

From the first days of its consideration in 1982, NASA's space station project sparked a huge amount of activity in the Japanese program, which technology limitations previously restricted to rocket development and basic space science. The length and flexibility of the planned manned missions allowed scientists and engineers to develop micro-gravity technology and experiments, while giving them the chance to dream of participating in the continued exploration of space. One engineer called the station a "step towards the age of space colonies and space cities."[80] Others brought up the possibility of Japanese participation in manned bases on the moon and Mars.[81] The new association with America's manned space program allowed them to conduct experiments in microgravity that were impossible on satellites.[82] Participation in the station and the access to NASA's space programs pushed Japanese space development from basic rocket launches to the development of human space habitats and astronaut training. Japan took advantage of American expertise in manned flight by sending astronauts to train at NASA.[83] The Japanese could not have pursued a space station project independently, and the expansion of their space capabilities depended on their involvement with the American program. This

[79] "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 34.
[80] Oshima Tairo, "Space Station Biochemistry," (*Supeesu suteeshonno seikagaku), Chemical Education (Kagaku Kyouiku),* February 1984, Vol. 32, No. 1, 30. NDL Collections.
[81] Nitta Keiji, "Space Station Uses and Space Colonies," (*Supeesu suteeshonno riyouto supeesukoronii), Japan Aviation and Space (Scholarly) Publications* (*Nihonkoukuuuchuugakkaishi),* January 1986, Vol. 34, No. 384, 47. NDL Collections.
[82] Oshima, "Space Station Biochemistry," 29.
[83]"Space Development Activities," (*Uchuu kaihatsu no doukou),* Space Activities Commission (SAC) Monthly Reports (*Uchuukaihatsuiinkaigeppou),* published by Science & Technology Agency, Tokyo, 1991, (Oct. ~ Dec.), No. 75, 9. NDL Collections.

tremendous short-term acceleration in development put them far ahead of nations around the world in terms of access to space, and ultimately allowed Japan to catch up somewhat to NASA and other space agencies such as ESA.

After the SAC received NASA's call for station studies, its newly-founded Space Station Program Focus Group began conducting surveys of interested communities in universities, companies, and the government.[84] In the absence of approval for NASA's next big project, much less a formal invitation to Japan to participate, the possibility that Japan would be limited to payload space within an American lab module persisted.[85] Nevertheless, the Focus Group received a large number of suggestions for possible experiments that could be conducted on a space station, with particular concentrations in the life sciences, materials research, and space manufacturing.[86] Their 1983 interim report concluded that enough potential demand existed for the Council should to "provide strong support for our country's participation."[87] Their focus lay with the practical suggestions given to them by the scientists and engineers who responded to the Focus Group's survey; similar to NASA's internal discussions at this time, the Focus Group treated possible benefits of international cooperation as an afterthought. Even in the single paragraph dedicated to discussing international cooperation, the report focused on the possible benefits to Japanese technological knowledge that could be gained through cooperation with other nations.[88] The advantages the Focus Group foresaw lay not in the vague benefits of internationalism, but in concrete advances that would benefit domestic industries. Even after NASA officially invited Japan to partner in an international program, Japanese officials

[84] "Study Related to Participation in the American Space Station Program: Interim Report," Space Activities Commission Space Station Program Focus Group, (1983), 8-11, 18.
[85] Miura Akira, "Our Country's Participation in the US Space Station Plan," 78.
[86] "Study Related to Participation in the American Space Station Program: Interim Report," Space Activities Commission Space Station Program Focus Group, (1983), 9.
[87] Ibid, 7.
[88] Ibid.

remained largely concerned with the practical benefits of the experience. For example, the Focus Group's second report, published in 1985, briefly mentioned that the station would be "a gigantic international project," but went on to argue that "if we participate/cooperate in this, we can preserve the friendly US-Japan relationship… and while planning to expand world harmony in space development activities, we can raise our nation's technological abilities."[89] While Japanese officials were willing to consider benefits from international projects, they remained preoccupied with promoting Japan's technological capabilities, and thus its economic strength.

The Focus Group's study was one of several that went back to NASA showing a number of possible uses and interested parties related to a manned space station.When the agencies of Europe, Canada, and Japan all responded favorably to the idea, NASA included them in its planning, though the U.S. space agency was less willing to cater to the needs of foreign agencies than those of the Defense Department. At least one NASA official specified that talks with other agencies concerned international *use* of a station, not international participation in its construction.[90] Thus far, the creation of the station looked remarkably similar to the space shuttle's development as an entirely American program with a few non-essential elements let out to foreign agencies for development. The space station was shaping up to be a program in which NASA kept firm control of the design and decision-making, but allowed foreign participation as a good-will gesture, as opposed to a more substantial collaboration between different agencies.

While NASA's priorities were clear, the inclusion of both possible international partners and the DOD in early discussions still revealed the inherent tension between the idea of building

[89] "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 12.
[90] McCurdy, op. cit., 100.

a station for national security reasons, and one built for the sake of cooperation and sharing.[91] NASA's own fact sheets admitted that international participation could "complicate any DOD involvement in a space station program."[92] NASA officials moved ahead with the international aspects of the project with the assertion that they could control the interactions between themselves, the DOD, and any international participants well enough to prevent any trouble, as they had with the shuttle program.[93] NASA administrators clearly felt that they had ultimate control over the direction of the project, and at this point allowed international agencies to participate on sufferance. As NASA operated the shuttle, its position was somewhat justified; the plans for the station depended on the shuttle's ability to lift huge cargoes to orbit.[94] This position began to change when, lacking Defense Department support, NASA's ability to get the project off the ground at all came into question.

Although the Defense Department saw no reason to support a space station, it remained "the largest single user of the space shuttle, with a space budget already larger than NASA's and still growing" and was thus able to heavily influence "NASA's fiscal health."[95] Although in 1981 the military space budget surpassed NASA's for the first time, the DOD did not want to invest in more programs like the shuttle, which failed to live up to the originally promised capability.[96] Thus, the seemingly invulnerable supply of defense spending was increasingly off limits to NASA, as the Reagan administration and DOD refused to help fund the construction of the fifth

[91] "NASA Mulls International Effort," *Aviation Week & Space Technology*, March 1, 1982, 20; Dava Sobel, "The Birth of a Space Station," *Omni*, July 1983.
[92] Terence T. Finn, Co-Chairman, Space Station Public Affairs Steering Committee, "Space Station Fact Sheet," NASA Press release, April 28, 1982, 5. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.
[93] McCurdy, op. cit., 99.
[94] Though the ESA had just created Arianespace and the Ariane rocket, breaking their dependence on NASA for commercial and scientific launches, they did not have a manned capability. The shuttle's uplift capacity also far outstripped Ariane's. Japan's attempts to build an indigenous rocket were just getting off the ground, and were as-yet unreliable. Canada and Japan also lacked manned spaceflight.
[95] Daniel Deudney, "Space Station Dreams Still Flying," *Chicago Tribune*, August 17, 1983.
[96] McDougall, op. cit., 429.

shuttle vehicle on which NASA had planned.[97] At best, the DOD was entirely disinterested: one Pentagon official told Beggs that "We will hold your coat" as NASA officials did the work.[98] At worst, Pentagon officials actively opposed the space station program as a waste of money.[99] The press increasingly portrayed NASA and the Pentagon portrayed as enemies. As early as 1983, the New York Times listed among NASA's "[f]ormidable foes" the Central Intelligence Agency, the Joint Chiefs of Staff, and the Defense Department.[100] Although NASA and the DOD continued to work together, the Defense Department's lack of support for NASA's next big project revealed a cooling in its relationship to the civilian space program. The tension between military and civilian goals began to make itself known as NASA's assumption that its primary mission required the continued exploration of the solar system, beginning with low earth orbit, diverged from the military's focus on Earth-focused missions such as reconnaissance.

[97] "Schmitt: White House Balks at New Space Initiatives," *Aerospace Daily,* August 24, 1982, 30*;* "Volkmer Praises Station/Hits Failure to Fund Fifth Orbiter," *Defense Daily*, February 3, 1984, 189; A fifth orbiter, Endeavor, was eventually built, but only as a replacement for Challenger. To save money, it was built out of spare parts.
[98] Arlen J. Large, "Will U.S. Space Station's Crew Ever Find Happiness?" *The Wall Street Journal*, October 27, 1983.
[99] John Noble Wilford, "Political Aides Urge Reagan to Back Space Station," *New York Times*, September 21, 1983. "CREEP from Outer Space," *The Boston Globe*, September 24, 1983.
[100] John Noble Wilford, "Will NASA's Pet Project Fizzle or Fly?" *New York Times*, October 2, 1983.

Official Invitations and Reactions

Under the Reagan Administration, the United States Congress had an eye out for cost-cutting measures. The cost overruns and delays in shuttle development tarnished the reputation for efficiency and excellent management that NASA had gained during the run-up to Apollo and the moon landings.[101] This black mark on its record made it difficult for NASA to get a new and expensive project through the budget process in a time of overall budget reductions.[102] While NASA's aims had a number of supporters in Congress, most notably astronauts such as John Glenn who converted their astronaut fame into political careers, the sense of national crisis which ensued after Sputnik and Gagarin's orbital flight and created support for the Apollo program was long past.[103] Following the lead of many planetary scientists, politicians such as George Keyworth, the president's advisor on science, even questioned whether the United States should fund expensive human spaceflight missions at all in a time of ever more capable satellites and robotic explorers.[104] NASA desperately needed supporters who could show that the expense was worth it.

Despite the Department of Defense's refusal to legitimize the space station project under the almost infallible umbrella of national security, NASA did not give up on the idea of using Cold War tensions to make its case. Early descriptions of the station project argued for international participation as a kind of Cold War strategy, one which would "cement free world ties."[105] The lack of support from the DOD, however, meant that NASA had to open its search for supporters to other possible users. Industry offered one possible alternative, and NASA

[101] McCurdy, op. cit., 84.
[102] Ibid, 66.
[103] McDougall, op. cit., 420-22, 429.
[104] McCurdy, op. cit., 130.
[105] James M. Beggs, NASA Administrator, "Why the United States Needs a Space Station," at Detroit Economic Club and Detroit Engineering Society, 12. Folder: 009375, "Space Station (1982)," NASA HQ HRC

promoted the space station as the "centerpiece" of its efforts to encourage manufacturing and other commercial applications of space.[106] NASA also argued that the investments of foreign agencies would lower the overall expense to the United States.[107] For reasons of cost and political necessity, NASA officials began to emphasize their already extant international connections.

On January 25, 1984, NASA's strategies paid off when President Reagan gave his support to a space station project during his State of the Union address:

> A space station will permit quantum leaps in our research in science, communications, in metals, and in lifesaving medicines which could be manufactured only in space. We want our friends to help us meet these challenges and share in their benefits. NASA will invite other countries to participate so we can strengthen peace, build prosperity, and expand freedom for all who share our goals.[108]

This speech required that NASA officials place more value on the international aspects of the station. In light of the Reagan administration's more commonly conservative stance regarding international cooperation, Reagan's strong endorsement of international cooperation on the station came as a surprise to many observers, even top NASA officials such as Robert Freitag, who had seen earlier drafts of the speech.[109] A month after Reagan publically approved the project, the White House directed NASA Administrator Beggs to make a trip to "appropriate foreign capitals" and formally extend the president's invitation to them.[110] Beggs had to ascertain the amount of real interest amongst space agencies abroad, now that NASA had leave to treat the

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[106] "NASA Seeks $3-4 Billion Foreign Funding for Space Station," *Defense Daily*, March 17, 1984, 146.
[107] Terence T. Finn, Co-Chairman, Space Station Public Affairs Steering Committee, "Space Station Fact Sheet," NASA Press Release, April 28, 1982, 5. Folder: 17229, "Hodge/Finn Political Strategy File April 1982-1983," NASA HQ HRC.
[108] Ronald Reagan, *State of the Union Address*, January 25, 1984, http://www.presidency.ucsb.edu/ws/index.php?pid=40205, accessed November 7, 2012.
[109] Logsdon, op. cit, 3; McCurdy, op. cit., 191. Beggs was probably the only NASA official aware of this international emphasis ahead of time. Logsdon, op. cit., 20.
[110] Robert McFarlane, National Security Advisor, Letter to James Beggs, NASA Administrator, February 25, 1984. Folder: 009603, "European/Japanese Cooperation Space Station," NASA HQ HRC.

space station as an actual project. Beggs soon took to the road. He visited Japan in March, meeting with the Space Activities Commission, as well as members of the STA at large and other Japanese officials, on March 12, 1984, and officially invited the Japanese to participate in the station project.[111]

At this meeting, Beggs presented the space station explicitly as a civilian project, explaining to the Council members that "the president's opinion was that the station should advance as a civilian program."[112] Beggs admitted that this emphasis resulted partially because the defense community "showed no interest in the plan." However, he went on to state that "if in the future the United States or another allied partner with security ties showed interest, he imagin[ed] that [NASA] would develop a station separate from the one" that he was introducing to the Japanese officials.[113] Japanese participation depended on this distinction, due to both the anti-militaristic trend in Japanese society and the 1965 Japanese National Diet's definition of "peace" in regards to space as not just "non-aggressive" but "non-military" uses.[114] Most Japanese commentators interpreted this directive to forbid not just weapons in space, but research which could be applied to military technology or military uses of space resources, such as reconnaissance. Beggs sold the station project to international users by emphasizing its civilian nature, although back in Washington, Congress and NASA made sure to leave the door open to non-aggressive military uses of the station. The mismatch between the definition of "peaceful uses" in the United States and Japan caused considerable conflict in later stages of program development.

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[111] "On the Opening of the Japan-US Space Station Planning Meeting," *(Nichibei uchuukichikeikaku kaigounokaisai),* SAC Monthly Reports (*Uchuukaihatsuiinkaigeppou),* published by Science & Technology Agency, Tokyo, 1983-4, Oct. ~ Jun., No. 49, 22. NDL Collections.
[112] Ibid, 23.
[113] Ibid.
[114] Tomari Jirou, "The Space Station Wavering Due to US Defense Department Participation," *(Beikokubousoushousankadeyureruuchuukichi), Science Morning (Kagaku Asahi),* Asahi Shinbun Co., March 1987, Vol. 47, No. 3, 74. NDL Collections.

After his return, Beggs characterized international interest as "high." For example, he reported to the State Department that, while Prime Minister Yasuhiro Nakasone was "cautious" in public, in private he enthusiastically endorsed the station project and the Japanese were "determined not to be left behind again," as they had been on shuttle.[115] Beggs was not shy about using foreign interest to push for approval with members of Congress. In a letter to the chairman of the House Science and Technology Committee, he proclaimed that "potential partners are now awaiting signals that we will indeed proceed with the station before committing themselves to a cooperative venture."[116] Characterizing the United States as a kind of Scrooge in comparison to its allies became a common tactic in NASA's attempts to get the station approved, and to protect it from cancellation. Within the year, NASA signed preliminary agreements with the CSA, ESA, and Japan's STA that solidified the international aspect of the space station plan.

These preliminary agreements did not mean that each member of the space station program had equal rights and responsibilities. Even as NASA began serious studies and negotiations with foreign agencies regarding the space station, it assumed, in the words of one journalist, "that the United States should lead and shape [station] cooperation and that this would be a good thing for all mankind."[117] In a letter from Administrator Beggs to the director of Johnson Space Center in Houston, which was the main NASA center for human spaceflight, Beggs reassured the director that international cooperation would only involve "elements which are additive to the core capability of the… fully functional U.S. Space Station."[118] As late as 1986, in testimony before the House Subcommittee on Space Science and Applications, John

[115] James M. Beggs, NASA Administrator, Letter to George P. Shultz, Secretary of State, March 16, 1984. Folder: 009603, "European/Japanese Cooperation Space Station," NASA HQ HRC.
[116] James M. Beggs, NASA Administrator, Letter to Larry Winn, Jr., Committee on Science and Technology, House of Representatives, March 19, 1984. Folder: 009391, "Space Station 1984 (II)," NASA HQ HRC.
[117] Robert C. Cowen, "NASA's grand space-station program- is it too chauvinistic?" *Christian Science Monitor*, December 6, 1984.
[118] James M. Beggs, NASA Administrator, Letter to Gerald D. Griffin, Director, Johnson Space Center, April 12, 1984. Folder: 009391, "Space Station 1984 (II)," NASA HQ HRC.

Hodge emphasized that "the international dimension of the Space Station Program is extremely important," but also reassured representatives that NASA was in control of it and had ensured that "the proposed elements complement our plans."[119] Ambivalence about the value of international cooperation remained strong within NASA. Officials were willing to engage, not least because of the station's propaganda value, but only on their own terms.

Japanese officials plainly came away from early meetings with Beggs and other NASA officials with an understanding of NASA's control over the program. Beggs introduced the station plan to Japanese officials with a basic launch schedule already in place, and he emphasized that Reagan wanted a response by the London Economic Summit that summer.[120] Although Beggs couched his requirements as hopes or wishes, his understanding that the station was NASA's project translated to the Japanese. In these early days, the Japanese too considered the platform an "American station," in which the Americans were allowing them to engage.[121] For example, the station was to be "customer-friendly" so that other nations and agencies could conduct research there, but the Japanese were also to be treated not as partners, but as guests or customers.[122] In 1984, Americans and Japanese alike considered the Japanese junior partners in the program, particularly when compared to the Americans and their decades-long experience of manned spaceflight.

Despite the conflict between international cooperation and military involvement, in the first few years of the station program NASA retained the option of future Defense Department

[119] John D. Hodge, Acting Associate Administrator for Space Station, Statement before the Subcommittee on Space Science and Applications, Committee on Science and Technology, House of Representatives, April 10, 1986, 16. Folder: 009450, "Space Station 1986," NASA HQ HRC.
[120] "On the Opening of the Japan-US Space Station Planning Meeting," SAC Monthly Reports, 1983-4, Oct. ~ Jun., No. 49, 23.
[121] Miura Akira, "Our Country's Participation in the US Space Station Plan," 78.
[122] Ibid.

involvement.[123] The Congress at the time likewise remained unwilling to close the possibility entirely. Even though the NASA authorization bill for fiscal year 1985 stated that "[f]rom the beginning, the space station has been characterized as a facility that would be used only for peaceful purposes," it continued by noting that "during the Committee's hearings, DOD stated that it had not yet identified any military requirements for military space station operations and that it had no desire to take any kind of preemptive rights on a civilian space station."[124] The bill made it clear that Congress saw no barriers to DOD participation other than the military's own lack of interest, regardless of the possible impact of military involvement on NASA's relationship to foreign agencies. In the early 1980s, Congress and NASA both placed the value of national security above any possible benefits of international cooperation.

At the same time, however, NASA worked ever more closely with international agencies in designing the space station and devising the procedures for managing it.[125] Despite their unequal relationship, cultural exchange between American and Japanese officials began at their very first meeting. During his invitation, Beggs explained a few "characteristic points" of the station.[126] He used a number of English terms, including "customer-friendly," "evolutionary," and "next frontiers."[127] In his coverage of this meeting in *Keizaijin Magazine*, Miura Akira, a top-ranking STA official, gave each of these terms in English, and then explained their meaning and impact in Japanese. He wrote that "for Americans, frontier is a much loved word, and when President Reagan said that 'space is the next frontier,' it gave them a stirring feeling."[128] Miura

[123] Leonard David, "Conference Produces Divergent Views on Space Station," *Space World*, January 1984, 8-9.
[124] National Aeronautics and Space Administration Authorization Act, U.S. Congress, Ordered to be printed May 17, 1982, to accompany H.R. 5154. Folder: 009392, "Space Station 1984," NASA HQ HRC.
[125] John D. Hodge, Acting Associate Administrator for Space Station, Statement before the Subcommittee on Space Science and Applications, Committee on Science and Technology, House of Representatives, April 10, 1986, 16-17. Folder: 009450, "Space Station 1986," NASA HQ HRC.
[126] Miura Akira, "Our Country's Participation in the US Space Station Plan," 77.
[127] Ibid, 77-8.
[128] Ibid, 77. Italics indicate words that were printed in English in the original.

explained the context of the word in terms of the European exploration of the Americas, saying that space was the "*next frontier*" because "new things might occur" which could create "new aspects of human culture and thinking," and that the space station was the "first step in developing such a new age."[129] The concepts which Beggs introduced to Miura and his colleagues subsequently made their way into the minds of not just STA members, but many other Japanese. The word frontier, written as the loanword フロンティア("fu-ron-tee-ah"), made steady appearances in later government and media reports, unaccompanied by any further explanation of its meaning.[130] That such an American metaphor managed such a swift transition into Japanese pointed to the possible influence of the relationships being created between American and Japanese officials, even if not all changes were so immediately visible.

The Japanese government, along with Canada and the members of the ESA, gave its preliminary agreement to participate in a space station program at the London Economic Summit in June of 1984.[131] Later that same month, the partners held the first of a series of meetings through which they would hash out their joint plans for the station.[132] The partners on the space station proceeded to meet as a complete group in Washington at least once a year, ensuring that their plans matched up in everything from the division of overall responsibilities and budget to

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[129] Ibid.
[130] Yamasaki Shizuo, "The Dangers of the Space Station Cooperative Agreement tied to US Strategy (The World & Japan)," *Beisenryakutomusubu uchuukichikyouryokukyouteinokiken (sekaitonihon),* 1989-09, *Vanguard: Japan Communist Party Central Committee Theoretical Government Magazine, (Zenei: Nihonkyousantouchuuouiinkairironseijishi),* Vol. 576, 22. National Diet Collections; Tomari Jirou, "The Space Station Wavering Due to US Defense Department Participation," 74; "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 73; "Interim Report of the Space Station Special Committee," *(Uchuukichitokubetsubukaichuukanhoukoku),* July 1986, Space Activities Commission Space Station Program Focus Group, 1, 4. NDL Collections; Tamura Masaaki, "Trends Surrounding the Space Station," 55. A number of other less consistent language changes also occurred; for example, the general trend over the course of the station program has shifted usage from the Japanese term 宇宙基地(uchuu-kichi, space-base) to the English loanword スペースステーション(space station).
[131] "Regarding the Announcement at the London Economic Summit (Related to the Space Station)," *(Rondonsamitto keizaisengen [uchuukichikankei] nitsuite),* SAC Monthly Reports, 1983-4, Oct. ~ Jun., No. 49, 24. NDL Collections.
[132] Ibid, 25.

the power supply allowances for equipment on the station, with lower-level boards meeting at other times as well.[133] NASA officials set the agenda of these early stages of development. For instance, they informed attendees of the first meeting that NASA "hoped to have some kind of formal agreement with all foreign countries that hoped to participate" during 1984. [134] Although it was couched in polite terms, this mandate set a deadline for other participants. NASA officials also "presented" the other space agencies with the "Space Station Guidelines for International Cooperation," the applications of which Culbertson explained at the third workshop in December of that year.[135] Yet despite occurring under NASA's control, the proliferation of meetings also required that engineers, scientists, and managers meet up and have conversations with their counterparts in other nations, which created relationships and understandings that would be essential for actual work on the station. NASA's expanded association with other agencies required some changes from NASA as well. For example, as a consequence of their augmented communications with the Japanese, NASA created a branch office in Tokyo for the first time.[136]

The Space Station Guidelines for International Cooperation provided a short list of basic principles around which the partners could shape their cooperation going forward. Many of them, such as the stipulation that "cooperation must be mutually beneficial to the U.S. and the International Partners," benefited all members. Others, however, such as the stipulations that "clean managerial and technical interfaces will… be maintained between the various portions" and that the program should "avoid the unwarranted transfer of technology among the partners,"

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[133] Second meeting on September 20, 1984, 47, 9; "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 9.
[134] "Regarding the Results of the First International Space Station Workshop," *(Daiikkaikokusaiuchuukichiwaakushoppunokekkanitsuite),* SAC Monthly Reports, 1983-4, Oct. ~ Jun., No. 49, 26. NDL Collections.
[135] "Results of the Third International Space Station Workshop," *(Daisankaikokusai uchuukichiwaakushoppuno kekkanitsuite),* SAC Monthly Reports, 1984, Oct. ~ Dec., 51, 12. NDL Collections.
[136] The office was originally established in 1985, though NASA expanded it again as the start of construction approached. John D. Schumacher, Memo re: "Possible Permanent Staffing of a NASA Liaison Position in Tokyo, Japan," August 8, 1996. Folder: 014674, "Japan-US #2," NASA HQ HRC.

pandered to American fears that foreign competitors would take advantage of their access to NASA's technology.[137] NASA's insistence on clean interfaces stemmed from American concerns over inadvertently allowing competitors abroad access to American goods, which would then provide competitors abroad with a chance to compete with Americans in areas of American expertise. After Japanese companies made extensive inroads in American markets during the 1970s, Americans were particularly concerned about Japanese competition.

The depth of the US-Japan trade imbalance prompted a number of Congressional studies on how to solve the problem of Japanese competition, beginning in the late 1970s and continuing through the next decade. Most of these efforts determined that the fault lay with the Japanese and suggested numerous actions the Japanese should take to lower trade barriers.[138] Japanese in turn felt that Americans' demands were unreasonable, since the Japanese already had very few legal restrictions on international trade by the 1980s.[139] Americans felt particular concern over Japan's increasing technical abilities, and some politicians went so far as paint the trade conflict between the two as a new cold war. A 1980 House of Representatives report stated that, "*We believe that Japan's rate of industrial progress and stated economic goals should be as shocking to Americans as was Sputnik. And like Sputnik, we should be shocked into responding to the challenge*."[140] The representatives compared Japan to enemy number one, Soviet Russia, while also alluding to the space program's role in establishing American technological might.

Concerns over the possible economic ramifications of inviting foreigners to participate in that space program soon surfaced within Congress. Not long after Reagan issued his invitation to

[137] Results of the Third International Space Station Workshop," SAC Monthly Reports, 1984, Oct. ~ Dec., 51, 14-5.
[138] C. Fred Bergstein and William R. Cline, *The United States-Japan Economic Problem, revised edition*, (Washington, DC: Institute for International Economics, 1987), 13-20.
[139]Buckley, op. cit., 146-7. Cohen, op. cit, 39.
[140] Subcommittee on Trade of the Committee on Ways and Means, U.S. House of Representatives, *United States-Japan Trade Report*, September 5, 1980, 39. The entire quote was emphasized in the original.

foreign agencies, Representative Robert Torricelli (D-NJ) sounded a warning about the "economic dangers" of "letting other nations participate" in space station development, arguing that "in previous joint ventures overseas, U.S. companies were 'devoured' by the use of the advanced technology obtained by foreign companies, who turned it into products used to compete against U.S. companies."[141] Similarly, in 1986 Representatives Bill Green (R-NY) and Edward Boland (D-MA) wrote to NASA's Acting Administrator, William Graham, to express their concern over "whether the United States will truly be the principal benefactor of the space station program." They were worried that "NASA could be tempted to make compromises with potential foreign participants in order to gain a short-range financial benefit that may have a negative long-range impact on U.S. high technology development."[142] Members of Congress were convinced both of NASA's importance as a driver of technological and economic development, and of the dangers to that function that might arise from giving competitors any access to NASA's development processes. In light of American concerns over competition from the Japanese, particularly in areas of cutting edge technology, statements such as Torricelli's constituted thinly veiled references to the dangers of allowing the Japanese a chance to take over yet another American industry. Their concerns led them to argue that international cooperation harmed the United States. NASA ultimately insisted on international involvement, not because inviting foreign participation necessarily served the same long-term goals as a completely American station might, but because cooperation served the agency's own needs.

The Japanese recognized their country's fantastic economic growth, and sought to encourage it through government investment in projects such as the space station. Throughout

[141] "Congressman Cites Danger of Space Station Technology Transfer," *Defense Daily*, February 8, 1984.
[142] Bill Green, Ranking Minority member and Edward P. Boland, Chairman, HUD-Independent Agencies Subcommittee, Letter to NASA Acting Administrator, William R. Graham, January 14, 1986, 2. Folder: 009603, "European/Japanese Cooperation Space Station," NASA HQ HRC. Emphasis original.

the reports and proposals regarding the project, the Space Station Program Focus Group and the Space Activities Commission centered their arguments on the utility of these new arenas to the overall Japanese economy and advancement. Focus Group reports touted participation in the station as a chance to develop unimagined possibilities and abilities in a wide range of fields.[143] Japanese scientists wanted to participate because the program would build their expertise in robotics and electronics, as well as opening whole new areas of technical experience in creating livable space habitats and experiment hardware.[144] They were also excited about the possibilities related to developing new scientific fields, particularly in such areas as biotechnology and materials processing.[145] Many Japanese directly linked the technological and scientific advances that would result from the station to the overall economic competition between Japan and America. One author, for example, linked America's "decline in influence" to Japan's chance, through the station, to take the lead in fields such as computers.[146] When writing in the Japanese-language version of the Economist, Nashiro Tetsuo went so far as to proclaim that, although America led the world in technology during the 1950s and 1960s, "right now, the only people in the world who can understand what technological innovation is could in fact be the Japanese."[147]

Even members of the Space Activities Commission made this argument. While discussing the station in Nikkei Aerospace, Saitou Shigefumi wrote, "In this time, America is not only stagnating economically, but is beginning to lose its world technological leadership to the

[143] "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 28.
[144] Nashiro Tetsuo, "Important Aspects of Commercial Space Station Use- a Proposal Regarding Science Based on the Japanese Temperament," *(Uchuukichihashougyouwojuutenni- kagakunitaisurunihontekitaishitsukaranoteigen), Economist*, Mainichi Shinbun Co. September 17, 1985, Vol. 63, No. 40 77-9. NDL Collections; "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 22-5.
[145] "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 11-12, 20-2.
[146] Nitta Keiji, "Space Station Uses and Space Colonies," 46.
[147] Nashiro Tetsuo, "Important Aspects of Commercial Space Station Use" 80.

hot pursuit of Europe and Japan," and he went on to argue that Japan should make use of the station in this pursuit.[148] Miura Akira pointed out that "[people] are saying that Japanese advanced technology should continue its advance until it does not lose even to America" and contended that this was one of the many reasons Japan should participate in the space station.[149] The Japanese were riding high on the economic bubble that at the time seemed to be a mere continuation of their post-war 'miracle.'[150] In the eyes of government officials and some regular citizens, the advances in technology that would result from participating in the station would contribute to Japan's economic competitiveness, feeding into the increasing confidence of many Japanese in their country's ability to stand as a world power, based on economic might.

[148] Saitou Shigefumi(?) (斎藤成文), "The Space Station Plan is an International Project that has Genuinely Begun the Work of Investing in the Future," *(Uchuukichikeikakuha miraihenotoushihatarakihajimeta honkakutekina kokusaipurojekuto)*, in *Space Station and Space Use (Uchuukichito uchuuryou)*, 1984, Nikkei McGraw-Hill, Tokyo, Japan., 12. NDL Collections.
[149] Miura Akira, "Our Country's Participation in the US Space Station Plan," 78.
[150] Gao, op. cit., 5.

Crisis Points: Controversy & Conflict over Military Involvement

NASA's increased contacts with its international partners led to a decreased emphasis on national security uses for the station. NASA press releases from as early as 1986 no longer listed national security as one of the reasons to go ahead with the program.[151] At the heart of NASA's increasing international involvement lay negotiations for the Memoranda of Understanding (MOUs) and the InterGovernmental Agreement (IGA).[152] Memoranda of Understanding are documents signed between a government agency and whatever entity with which it is partnering. They frame the responsibilities of each group and lay out the rules of cooperation. The InterGovernmental Agreement outlined arrangements regarding legal, monetary, territorial, and other issues around the space station. It required years of negotiation between the governments and agencies of the United States, Canada, Japan, and Europe. In the United States, the 1988 IGA was an executive agreement, which meant that NASA only needed President Reagan's approval and could avoid wrangling two-thirds approval from the Senate. The other signatories, however, regarded the IGA as an international treaty, a fact which would later play out to NASA's advantage by allowing NASA to push the station out of the bounds of budget disputes and into the realm of foreign affairs.

Given the door which NASA and Congress had deliberately left open to the DOD, many observers feared that given any sign of interest from the Pentagon, NASA's station would turn into a military project. Congressman Norman Mineta (D-CA) went so far as to propose a bill in early 1987 to make military involvement in the station illegal, though the bill was killed in

[151] NASA Press Release, "The Space Station," June 27, 1986. Folder: 009640, "1986 Political Strategy for Station," NASA HQ HRC.
[152] Logsdon, op. cit., 42.

committee.[153] Fear of military involvement in the station was particularly prevalent in Japan, where most of the population regarded military involvement in government with intense suspicion. Many Japanese already resented the necessity of the American military presence in their country.[154] Much of this resentment stemmed from genuine pacifism, which grew out of the Japanese experience of World War II, especially the Japanese military's dominance of the government and violence at the hands of the Allies. In Article 9, Japan's post-WWII constitution stated that "land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized."[155]

Although the post-war US administration compelled the Japanese to accept the constitution and the anti-military article in particular, many citizens took Article 9 to heart, and became truly pacifist. It was, however, what Togo Kazuhiko called "a pacifism that was very passive in nature," and led Japanese pacifists to espouse a policy of staunch anti-militarism at home and non-interference in military affairs abroad.[156] The anti-militarist and anti-American strand within Japanese society grew in strength as Japan recovered from the war. The extension of the US-Japan defense relationship in 1961 was surrounded by vociferous protests within Japan, and the US military returned Okinawa to Japanese control in 1972 to appease Japanese protests.[157] The US-Japan military relationship was an often contentious issue, one that kept Japanese citizens on the watch for American military influence over their government. Their fear and anger regarding the United States military often caused tension in the US-Japan relationship,

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[153] H.R. 1733, *A Bill to Make it Clear that the Space Station Being Planned and Developed by NASA is to be Used for Civilian Purposes Only*, 100th Congress, 1st Session, March 19, 1987. Folder: 009604, "Space Station/Int'l Coop. (1987-1994)," NASA HQ HRC.
[154] Togo, op. cit., 60-1, 72-3.
[155] Constitution of Japan, Chapter II, Article 9, Promulgated on November 3, 1946, Came into effect on May 3, 1947. http://www.kantei.go.jp/foreign/constitution_and_government_of_japan/constitution_e.html, accessed February 28, 2013. Article 9 was reinterpreted by the government in the 1950s to allow Japan to have some armed forces as long as they were solely for self-defense and emergency relief operations.
[156] Togo, op. cit., 33.
[157] Buckley, op. cit., 118-9.

and eventually made Japan's involvement in the station program incompatible with that of the Defense Department.

On January 28, 1986, the space shuttle Challenger exploded during take-off. All seven astronauts on board were killed, and NASA's manned spaceflight program went on hold for almost three years. The Challenger accident drew little official comment from the Space Activities Commission or the Space Station Program Focus Group, warranting little more than a mention in the 1986 Focus Group report that the accident would delay the initial launch date of the station.[158] On top of the fact that the partners depended on the shuttle's massive uplift capacity to launch their modules into orbit in the first place, they had planned a number of preliminary cooperative activities on the shuttle which were also delayed. For example, Japan's first shuttle experiment, the First Materials Processing Test, was originally scheduled for 1988, but actually occurred in 1992.[159] Beyond these scheduling concerns, however, Japanese space station officials showed little concern over the accident.

While the government officials busily avoided commenting on the incident, the Japanese media latched onto the connections between NASA, the shuttle program, and the military space complex, particularly Reagan's Strategic Defense Initiative (SDI), more popularly known as the 'Star Wars' program. Japanese commentators argued that "the space shuttle carrie[d] a pronounced military tint," due to the billions of dollars of research funds devoted to SDI and DOD research.[160] NASA officials admitted in presentations to STA officials that the shuttle program's official priorities put "National Security" first, followed by "Science," and, last and

[158] "Interim Report of the Space Station Special Committee," Space Activities Commission Space Station Program Focus Group, (1986), 6.
[159] "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 29.
[160] Amagasa Keisuke, "The Great Challenger Explosion," *(Charenjaadaibakuhatsu)*, April 1986, *Technology & People (Gijutsutoningen)*, Vol. 15, No. 4, 81. NDL Collections.

least, "International [and] Commercial" uses.[161] One journalist even accused Reagan of letting Christa McAuliffe, the teacher who was one of the casualties of the accident, ride the shuttle as a "people's representative" in order to promote the SDI program.[162] The Challenger explosion brought Japanese attention to the American manned space program and its connections to the military, just as their own government was becoming more closely involved with NASA. Their new awareness led to domestic resistance to the extent of Japan's intended involvement in the US space program and put pressure on Japanese officials to avoid any entanglements with military space.

Even outside of the context of the shuttle program, after 1986 Japanese journalists increasingly linked NASA in general, and the space station in particular, to the Defense Department and military research.[163] They made direct connections between the Challenger incident and possible military use of the station, arguing that "the American Defense Department's development of uses for the station" was sparked by "the drastic decrease in the forecast frequency of military research/experiments on the shuttle, due to the influence of last January's Challenger explosion."[164] Commentators focused much of their attention on this connection and worried that Japan's involvement in the space station program would lead their government to find increasing loopholes in the laws forbidding military actions and research in space, as they had when allowing Japanese companies to participate in SDI development.[165] At

[161] "Regarding the Plan for Resumption of Space Shuttle Flights (Presented by a NASA Official)," *(Supeesushatoru hikousaikaiyotei nitsuite [NASAkoushikihappyou])* SAC Monthly Reports, Tokyo, 1986 (Jul. ~ Dec.)/1987 (Jan. ~ Sep.), No. 58, 79. NDL Collections.
[162] Amagasa Keisuke, "The Great Challenger Explosion," 70.
[163] Fujishima Udai, "The Present US-Japan Security in light of the FSX Negotiations -12- The Space Station that is Opening the Way for Military Research," *(FSXkoushounimirunihonanponogenzai- 12- Gunjikenkyuunimichihirakuuchuukichi), Cultural Critical Essays (Bunkahyouran),* New Japan Publishing Company, May 1990, NDL Collections; Tomari Jirou, "The Space Station Wavering Due to US Defense Department Participation"; Amagasa Keisuke, "The Great Challenger Explosion."
[164] Tomari Jirou, "The Space Station Wavering Due to US Defense Department Participation," 74.
[165] Ibid, 75.

the same time, in his attempts to promote Japan as a world power and improve the US-Japan relationship, Prime Minister Nakasone pushed the 1987 appropriation for the military above 1% of GDP for the first time in Japan's post-war history, adding to the sense that American influence inevitably drove the Japanese government towards military ideals.[166] Many commentators began to regard all of NASA's programs as possible military influences on Japan's government. Their understanding of the space program as inherently military led many of them to oppose the space station, due to the possibility that the Pentagon might someday exercise its influence over NASA to get as involved with station as it was with the shuttle.

During this increasingly anxious period within Japan, the US Defense Department began to make noise about wanting to use the station. In early 1987, Director Fletcher confirmed before the House Special Committee on Science and Technology that, while "weapons research was not approved," multi-purpose research was permissible, even when it might have military applications.[167] Japan and Europe immediately expressed their concern in response to Fletcher's assertion, as they both had programs which forbade military involvement in space. Thus at the Space Station Multilateral Negotiations held in Washington in February 1987, "Washington was forced to reaffirm that the space station should only be used for peaceful research and development."[168]The definition of peaceful research and the question of whether the Americans would be able to conduct research applicable to national security uses became a major source of conflict for negotiators, as the divide between "non-aggressive" and "non-military" uses started to become clear.

[166] Buckley, op. cit., 148.
[167] Tamura Masaaki, "Trends Surrounding the Space Station," *(Uchuukichiwomegurudoukou),* October 1987, *Reference*, Vol. 37, No. 10, 59. NDL Collections.
[168] Ibid.

In April, just as the partners were making progress on the negotiations, NASA's old friends at the DOD threw up a sudden stumbling block. Secretary of Defense Caspar Weinberger, whose department had so recently led attacks on the space station, suddenly demanded that "negotiations… be put on ice" until he was certain that they would ensure the military's right to "conduct national security activities… without the approval or review of other nations."[169] Foreign space agencies reacted to Weinberger's demands with dismay.[170] Weinberger, however, insisted that the US should not proceed if "the price of cooperation is too high," something which he believed would be true if the U.S. "accede[d] to multilateral decision-making on matters of… management, utilization or operation."[171] He specifically feared that NASA would give in to "the temptation to elevate the concept of equal partnership' to the point at which it might dilute the symbol of US leadership in the space station."[172] NASA and the DOD had clearly parted ways in their understanding of what was appropriate in terms of international cooperation, with NASA moving towards "multilateral decision-making" in a way that the military found unacceptable. Weinberger's opposition to international cooperation illustrated the contradictions between the military and civilian space programs; he believed that America's strategic needs required maintaining untrammeled US sovereignty in all areas, whereas NASA had begun to see compromise and cooperation as essential to its goals.

Despite all fears to the contrary, NASA and the State Department, which was overseeing the negotiations regarding the IGA, entirely rebuffed Weinberger's advances. *Aviation Week & Space Technology* characterized the incident as an "eyeball-to-eyeball confrontation… won by

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[169] Joseph Palca, "Pentagon shoots across space station's bows," *Nature*, April 16, 1987, 628.
[170] "NASA Asserts Control of Station," *New York Times*, April 13, 1987; David E. Sanger, "Weinberger Letter on Allies' Role in Space Station Stirs Furor," *New York Times*, April 10, 1987; Joseph Palca, "Pentagon shoots across space station's bows."
[171] United Press International, "Pentagon: Warning Shot on Space Base," *Washington Post*, April 10, 1987.
[172] Joseph Palca, "Pentagon shoots across space station's bows."

NASA and the State Dept."[173] NASA officials in fact suggested that the DOD should build its own station, which "would inevitably help reduce complaints that the NASA space station was in danger of being dominated by the Defense Department." One engineer even went so far as to say that "[i]f they had their own space station they wouldn't mess ours up."[174] NASA's Deputy Administrator Dale Myers, in the same speech where he suggested that the DOD should create its own station if it wanted to use one, also remarked:

> What many people don't realize about the station is the extent of the international cooperation and involvement. It is, in fact, by far the most complex international project we have ever undertaken. Under the agreements now in final stages of negotiation, other nations and groups of nations will be very real partners, developing critical pieces of the station that provide it with significant added capabilities. Altogether, the cost of hardware programs they plan to contribute adds up to about $5 billion.[175]

This attitude was a far cry from the days when NASA considered creating even a completely stripped down station worth it to obtain "lukewarm" DOD support. Although NASA continued to work with DOD on projects such as the shuttle, this confrontation finally broke the tension as the split between the civilian and military space programs became clear. In this moment, NASA clearly placed the value of its international partners, and their five billion dollars, above the value of possible support from the military.

In hindsight, this decision would be the beginning of a profound shift away from the military within NASA. However, just because NASA asserted its control over the station and sided with its international partners did not mean that the basic issue of whether national security-funded research would be allowed on the station had been solved. The Japanese

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[173] Donald E. Fink, "Space Station- Round 2," *Aviation Week & Space Technology*, April 27, 1987, 25. NASA largely continued the negotiations it began prior to space station approval, though now with State Department assistance.
[174] Phillip M. Boffey, "NASA Urges Space Station for the Pentagon," *New York Times*, May 22, 1987.
[175] Dale Myers, Deputy Administrator, Excerpts from Remarks Prepared for Delivery: Air Force Association National Symposium, May 21, 1987. Folder: 009449, "Space Station 1987 (General)," NASA HQ HRC.

government took the strongest stance of the non-US partners on the military space issue. In September 1988, the Chief U.S. Negotiator, Richard Smith of the State Department, sent a letter to all of the partner states which stated that although the InterGovernmental Agreement would require that "all utilization" of the space station would be "for peaceful purposes," the United States had "the right to use its elements, *as well as allocations of resources derived from the Space Station infrastructure*, for national security purposes."[176] This clause troubled the Japanese because like the Europeans, they had granted the United States rights to a certain amount of research time in their module. In lieu of making cash payments to the American government, the Japanese reserved 51% of the time and space in their experiment module for Japanese experiments, with 46% set aside for NASA.[177] Thus, this letter asserted that the United States had the right to conduct 'national security' related research on segments of the station belonging to other partners, despite the fact that the Japanese Diet had specifically defined peaceful uses of space as forbidding such military-related uses.

All of the partners received the same letter, but the three agencies' responses differed. Canada essentially went along with the Americans' assertion, agreeing that though Canada determined whether a "use of its elements is for peaceful purposes," the United States could decide if "its allocations of resources… may be carried out under the agreement."[178] The European response noted that the "European Partner will be guided by Article II of the Convention establishing the European Space Agency," but they also agreed that the letter "correctly state[d] U.S. rights under the Agreement." [179] Article II of the ESA Convention stated

[176] Fujishima Udai, "The Present US-Japan Security in light of the FSX Negotiations," 75-76. Emphasis added.
[177] The remaining 3% was reserved for the Canadians. Sakuragawa Akiyoshi, "The Opening of the Space Station Age- The Civilian (Space) Station Cooperative Agreement," *(Uchuusuteeshonjidainomakuake—Minseiuchuukichikyouryokukyoutei),* Lawmaking & Surveys *(Rippoutochousa),* April 1989, Vol. 151, 22. NDL Collections.
[178] Fujishima Udai, "The Present US-Japan Security in light of the FSX Negotiations," 78-79.
[179]Ibid, 77.

that the ESA was to use space "for exclusively peaceful purposes."[180] Thus the Europeans attempted to sound a note of caution regarding military purposes, but did not push back strongly on the possibility of national security research.

Although the Europeans occupied almost exactly the same position as the Japanese regarding NASA's use of their module, the Japanese took a stronger tone in their response. While Kusumoto Yuichi, the STA Director, affirmed that the American letter "correctly state[d] U.S. rights under the Agreement," he continued, "I should also like to confirm that when Japan determines… that a contemplated use of its elements is not for peaceful purposes, *such use will not take place*."[181] Here Kusumoto asserted Japan's right to control all activities within its portion of the station, even those activities conducted by the United States. This relatively strong stance on Kusumoto's part fit in with a sense of confidence in regards to the United States that was growing amongst the Japanese population more broadly during the 1980s.[182] Like Nashiro Tetsuo above, many Japanese felt that they should push back against American influence over Japanese affairs. The space station, and the question of whether it would involve military research, became another place where the Japanese government could test its newfound strength.

The Japanese sense of influence over the space station also grew out of an awareness of their own importance to the survival of the space station effort. The Japanese knew of NASA's financial difficulties and pointed out several times during internal meetings that the amount of money NASA requested each year for station development exceeded the amount which the US

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[180] *Convention for the Establishment of a European Space Agency & ESA Council*, European Space Agency, ESA SP-1271 (E), March 2003, entered into force October 30, 1980, http://esamultimedia.esa.int/docs/SP1271En_final.pdf, accessed February 24, 2013.
[181] Fujishima Udai, "The Present US-Japan Security in light of the FSX Negotiations," 76. Emphasis added.
[182] Tsuneo Akaha, "Trade Friction, Security Cooperation, and the Soviet Presence in Asia," in *US-Japan Trade Friction: Its Impact on Security Cooperation in the Pacific Basin*, eds. T. David Mason and Abdul M. Turay, (Basingstoke, Hampshire, UK: MacMillan Academic and Professional Ltd., 1991), 127, 151-3.

Congress granted.[183] Meanwhile, the actual costs of developing a station were higher than NASA originally estimated. The high costs and low appropriations forced NASA to cut back on its planned contribution to the station as early as 1987, particularly on unmanned elements on the outside of the station.[184] The Japanese worked up basic plans for their contribution, the Japanese Experiment Module (JEM), by 1985, and made only minor modifications to its design after that time.[185] The Japanese also kept up to date on the delays in the projected launch schedule, which grew out of NASA's money woes and worsened due to other factors, including the Challenger explosion.[186] NASA's lack of support in Congress, and thus lack of budget, remained public knowledge, and gave foreign partners such as Japan a sense of leverage over NASA's decisions.

Many Japanese journalists, however, doubted that the situation over the military use of the station had been adequately resolved. They pointed out that since NASA remained adamant that any possible national security users would be allowed to use the station as long as they paid "the same user fees as internal and international users," the problem of military use of the station would likely be "dragged up" again.[187] They placed little trust in the assurances of American government officials. Japanese writers continued to bring up the possible dangers of the space station program until 1989, when Japan's National Diet ratified the IGA.[188] These writers

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[183] "Interim Report of the Space Station Special Committee," Space Activities Commission Space Station Program Focus Group, (1986), 11.
[184] "Regarding a Presentation Related to the Space Station Plan," *(Uchuusuteeshonkeikakunikansuruhappyounitsuite),* SAC Monthly Reports, Tokyo, 1986 (Jul. ~ Dec.)/1987 (Jan. ~ Sep.), No. 58, 76-7. NDL Collections. Although the number of inhabited components stayed largely the same, NASA shrank their size, while also reducing its original plan for unpressurized structures by approximately half.
[185] "Basic Concepts Related to Participating in the Space Station Plan: Report," Space Activities Commission Space Station Program Focus Group, (1985), 22-6; Tamura Masaaki, "Trends Surrounding the Space Station," 58.
[186] Sasaki Shin, "Primer to Cutting Edge Technology-8- Space Station," *(Sentangijutsunyuumon- 8- supeesusuteeshon), Plastic and Manufacturing (Soseitokakou),* May 1990, Vol. 31, No. 352, 592, NDL Collections; Sakuragawa Akiyoshi, "The Opening of the Space Station Age," 21.
[187] Tamura Masaaki, "Trends Surrounding the Space Station," 59.
[188] Fujishima Udai, "The Dangers of Japanese Technological (International) Cooperation- From FSX to the Establishment of the Space Station," *(Nihongijutsukyouryokunokikennakouzu—FSX karauchuukichikensetsumade), Economist,* Mainichi Shinbun Co., Nov. 22, 1988, Vol. 66, Number 51, 60. NDL Collections; Sakuragawa Akiyoshi, "The Opening of the Space Station Age," 22-3; Tomari Jirou, "The Space Station Wavering Due to US Defense

remained concerned about the wording of the IGA, which specified that "The Space Station shall be developed, operated, and utilized in accordance with international law," emphasized peaceful and cooperative uses of space, and outright forbade most possible military uses.[189] The final version of the clause regarding station use read:

> the Partner providing an element shall determine whether a contemplated use of that element is for peaceful purposes, except that this subparagraph shall not be invoked to prevent any Partner from using resources derived from the Space Station infrastructure.[190]

Although Japan and the other partners had successfully gotten NASA to refuse the possibility of the kind of close arrangement with the Pentagon which lay at the center of NASA's plans in 1981, Japan lost its bid to prevent the United States from conducting defense-related research on the Japanese module. [191]

Writing in April 1989, Sakurakawa Akiyoshi discussed the exchange of letters between STA Chief Kusumoto and the US State Department's Richard Smith. He argued that "the implication of the American side's letter is that, in the future, if a situation arises where the Defense Department wants to participate in the space station program, they do not at the present point want to forbid that." He did admit, however, that "presently the Defense Department has no concrete plans to use it, and according to NASA's budget, the program will continue to be for commercial and civilian use."[192] Some observers within Japan worried that even if it had the

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Department Participation"; Yamasaki Shizuo, "The Dangers of the Space Station Cooperative Agreement tied to US Strategy"; Tamura Masaaki, "Trends Surrounding the Space Station," 59.

[189] "Agreement Among the Government of the United States of America, Governments of Member States of the European Space Agency, the Government of Japan, and the Government of Canada on Cooperation in the Detailed Design, Development, Operation, and Utilization of the Permanently Manned Civil Space Station," Article 2, Paragraph 1, signed September 29, 1988. The Outer Space Treaty of 1967, for example, forbade weapons of mass destruction and military bases in space or on celestial bodies.

[190] IGA, Article 9, Paragraph 8b.

[191] "NSC Reportedly Settles Space Station Dispute," *Washington Post*, April 23, 1987.

[192] Sakuragawa Akiyoshi, "The Opening of the Space Station Age- The Civilian (Space) Station Cooperative Agreement," 23.

ability to say no, their government would not actually take a stand against NASA.[193] At least one author linked his distrust of his government directly to Japan's dependence on the U.S. in their broader relationship, writing that "the Japanese government which is [always] strengthening the US-Japan security alliance by saying that America's military strength acts as a deterrence for the sake of Japan's safety, could never restrain America's military use [of the station]."[194] Observers generally agreed that the Japanese government, despite being the most aggressive of the three partner entities regarding the military issue, had not been aggressive enough.

Even the station's most outspoken supporters, who were mainly scientists and engineers, could not mount very strong counter-arguments regarding the possible military uses of space. The best Sasaki Shin could do in his article about the technological possibilities of the station was to argue half-heartedly that "In regards to participation, there are a few political problems, such as conforming to the principle of peaceful uses of space… but after all, our country has a progressive plan for our single module."[195] He did not expand on that plan, or provide strong evidence to counter the fear that the Japanese module would be used to promote military space activities. The widespread disapproval of the Japanese government's lack of aggression on the issue of military use created an atmosphere which encouraged government officials to be more assertive in the future.

Despite the fears of many Japanese, NASA officials increasingly placed themselves in direct contrast to the military in later budget battles. Particularly after the fall of the Soviet Union, they emphasized NASA's civilian nature, insisting that "from the very beginning, Space Station was designed and directed by our Congress one after another, to be for peaceful civilian

[193] Fujishima Udai, "The Dangers of Japanese Technological (International) Cooperation- From FSX to the Establishment of the Space Station," 65.
[194] Yamasaki Shizuo, "The Dangers of the Space Station Cooperative Agreement tied to US Strategy," 25.
[195] Sasaki Shin, "Primer to Cutting Edge Technology-8- Space Station," 593.

purposes," and ignoring their concerted attempts to find military applications during the early planning phases.[196] The turn towards internationalism which NASA began in search of outside allies fit with the vast upwelling of international good feeling that followed the end of the Cold War. Charles Richard Chappell, Associate Director for Science at the Marshall Space Flight Center, observed in the early 1990s:

> The cold war may be over, but the economic war is in full swing even though Americans might not realize it. In 1992, the U.S. is spending $290 billion on the military. This is ten times more than the $25 billion we will spend on the civilian research and development that can lead to new technology. […] We can win by further reducing our military spending and increasing our investment in science, exploration, and technology development.[197]

Although Chappell made this speech in the context of short-lived hopes that the end of military build-up for the Cold War would lead to a surge of spending on civilian projects, the rhetoric that civilian spending on projects such as the space station made a better investment than military spending did not disappear. Far from trying to take advantage of the Defense Department's massive budget, NASA reached a point of directly competing with it and the split between NASA and the military that was catalyzed by NASA's choice to make the space station an avowedly civilian project became naturalized over time within the agency's own culture.

[196] NASA, form speeches for Congressmembers, n.d. [1992], Folder: "SSF Benefits Data, Vol. 1, Part 1," Box #18329, *Space Station Freedom Congressional Files 1989-94* (Box 3 of 6), NASA HQ HRC.
[197] Charles Richard Chappell, NASA Associate Director for Science, "America: Its Technology and Its Future," Marshall Space Flight Center, n.d. [1992], 1-2. Folder: "SSF Benefits Data, Volume 2, Part 2," Box #18330, *Space Station Freedom Congressional Files 1989-94* (Box 4 of 6), NASA HQ HRC.

Congressional Support and the Beginnings of Internationalism

Despite this decisive shift away from the military in favor of transnational commitments, at this point NASA still considered itself in a privileged position vis-à-vis its international partners. NASA was the only one of the partners that secured the right to a veto "over all decisions" in the IGA.[198] The media and the public still considered the newly-named Freedom Space Station to be an American station. NASA felt free to make unilateral changes in the station design such as reworking the launch schedule or redesigning the entire configuration when called upon by Congress or the State Department to do so. Although partners' responses were muted at first, they grew more strident over time, as NASA redesigned the station seven times before 1994 in response to budget reductions.[199] NASA had set the initial cost of a space station at $8 billion, lower than many officials honestly thought it could be, in order to get it approved by the 1984 Congress. Just a few years later, it was already obvious that the space station would be nowhere near as cheap as NASA had initially intimated.[200] In early 1987, the White House, the National Security Council and NASA jointly commissioned a National Research Council (NRC) study on NASA's plans for the space station.[201] Four months later, the NRC released a report which, while it did not call for the station's cancellation, emphasized that the station could not be built "on the cheap."[202] William Proxmire, (D-WI) the station's staunchest opponent in Congress in 1987, felt that the station lacked a clear mission. He argued that the space station "[had] not been strongly

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[198] "U.S. Wins Veto Right over International Station Partners," *Defense Daily*, September 12, 1988, 54.
[199] Kathy Sawyer, "Congress Returning to Space Station Debate: Administration Pushes Partnership with Russia; Opponents Fear 'Financial Black Hole,'" *Washington Post*, June 27, 1994.
[200] See McCurdy, 169-176.
[201] "Nickels and dimes won't build NASA's orbiting space station," *Washington Times*, September 15, 1987. Since 1958, the National Research Council Space Studies Board has provided "external and independent scientific and programmatic guidance to NASA and other government agencies in the basic sub-disciplines of space research." The NRC thus routinely checks NASA's plans. "National Academies Advisory Boards and Reports," NASA website, http://www.nasa.gov/exploration/about/academy.html, accessed March 17, 2013.
[202] Robert Seamans Jr. and John McLucas, National Research Council Committee on Space Station, "Space Station Visions… and Realities," *Washington Times*, October 6, 1987.

endorsed by the bulk of the science community, the Defense establishment or the nonaerospace industry."[203] NASA Administrator James C. Fletcher responded without referencing the support of the international community, arguing instead that the station stood "on its merits," and was essential to America's "role as a world leader in space."[204] In October, Proxmire gave up his attempts to cancel space station funding in committee, lamenting that he "did not have the votes to shoot it down," as senators such as Jake Garn (R-UT) and Bennet Johnson (D-LA), both from states with strong aerospace ties, worked to ensure that the station received funding.[205]

In response to the NRC report, other budget-conscious members of Congress began to question whether the station was worth its ever growing costs. The NRC board argued that even NASA's revised station cost estimate of $13 billion was unrealistically low, and estimated that the station would cost between $21.5 and $30 billion in actuality.[206] Representative Fortney Stark (D-CA) summed up the objections to the station in his remarks to the House: "The space station seems destined to be NASA's biggest boondoggle. It has all the qualifications: The necessity for it has yet to be established; at an estimated cost of $32 billion, it is fabulously expensive; and it is likely to devour NASA's budget for years to come."[207] Representatives such as Buddy McKay (D-FL) and Robert Walker (R-PA) expressed their concerns that the station's costs would take too much money out of NASA's budget, leaving none for basic science, and even that NASA's technique of lowballing costs in order to get programs approved might lead Congress to cancel the station while it was half-built, resulting in a tremendous waste of

[203] "Fiscal 1988 Station Funding Faces Battle in Senate," *Aviation Week & Space Technology*, August 31, 1987, 2.
[204] Ibid.
[205] Juan R. Palomo, "Proxmire gives up fighting space station," *Houston Post*, October 2, 1987.
[206] James Fisher, "NASA bets a bundle on station: Costs, risks cloud quest for manned space base," *Orlando Sentinel*, October 25, 1987
[207] Fortney H. Stark, California Representative, "The Space Station Boondoggle," *The Congressional Record-Extensions of Remarks*, Attachment C, September 30, 1987, 5.

resources.[208] Supporters such as Representative Bill Nelson (D-FL) evoked both the economic and the wider political benefits of the program. Nelson argued that the station was essential to America's "competitiveness in science and technology," as well as the "foundation of the U.S. civil space program and the centerpiece of the entire free world's future in space."[209] He further emphasized the Cold War argument by invoking the Soviet specter of the Mir space station, which was launched in 1986. Although the space station's supporters succeeded in retaining funding for it in the 1988 fiscal year, members of Congress increasingly demanded that NASA bring the station's price tag under control.

As the above debate shows, NASA's importance to the American self-image as technological leaders and explorers meant that very few members of Congress took a wholly negative stance against the entire Agency. Specific programs, however, were fair game, and representatives often targeted expensive programs for cost-cutting, which made manned programs such as the station particularly vulnerable. While supporters of NASA programs came most often from states which held a NASA center or a major aerospace industrial base, location proved no guarantee of good relations with a representative. NASA also had detractors and promoters in both parties. The calculating support for the station thus held more difficulties than other more party-line issues. Representatives could, for example, support NASA while arguing against the station by valuing planetary science (conducted by robots) over the manned exploration of the solar system.

In its attempts to appease Congress, the agency redesigned and rephased the station several times, much to the frustration of its partners, who were generally not consulted before

[208] Fisher, "NASA bets a bundle on station."
[209] William Nelson, "The Importance of the Civil Space Program," *The Congressional Record - House*, Attachment B, December 15, 1987, 4.

NASA reworked its plans.[210] NASA's unilateral decision to rework the station's launch schedule in 1989 particularly vexed its international collaborators.[211] As *Defense Daily* reported, during a review of the rephasing process ordered by Congress in 1990, ESA and Japanese officials "complained over their exclusion from a review… which determined the primary scope of the rephrased program, and on subsequent impacts of the rephasing on schedules and costs." NASA's partners also suggested that the IGA "had been violated by the rephasing itself and the manner in which it was conducted."[212] Although NASA had publicized the international aspects of the station, officials still felt they could make changes with impunity to a program which they saw as inherently American. Although it rested on a legally binding agreement and was stronger than NASA officials initially planned, at this point the international character of the station project was still limited due to NASA's sense of control over its development. NASA had chosen its civilian goals above military concerns, but it still did not accord much weight to the desires of its foreign partners.

The situation shifted radically just a few years later, when over the course of budget debates for the 1992 and 1993 fiscal years, members of Congress made five attempts to cancel the space station.[213] Although Reagan had originally directed **"**NASA to develop a permanently manned space station and to do it within a decade," only the "earliest" flight hardware was under construction at this point, and the best-case scenario lay in the partners beginning construction in

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[210] James R. Asker, "NASA to Propose Scaled-Back Station With Simpler Assembly in Space," *Aviation Week & Space Technology*, February 25, 1991, 60. In the context of space flight, "rephase" is used by space agencies to mean a reworking of the schedule for launches on a project like space station which requires multiple components. Rephasing can cause a number of issues in production; for example, moving the launch of the Japanese module ahead of the European module would require that the Japanese finish their module more quickly than planned.
[211] James R. Asker, "Japanese and Europeans Irked by Latest Space Station Changes," *Aviation Week & Space Technology*, November 6, 1989; Andrew Lawler, "Europe, Japan, Canada Upset at Possible Space Station Changes," *Space News*, September 18, 1989; "Station Descoping Plan Puts Burden on International Partners," *Aerospace Daily*, September 11, 1989.
[212] "Early ESA Launch to Impact U.S. Users of Station," *Defense Daily*, February 2, 1990, 178.
[213] Marcia S. Smith, "CRS Issue Brief: Space Stations," *Congressional Research Service*, September, 13, 1993, 8. Folder: 009581, "1993 (Mar-Jun) Space Station Redesign," NASA HQ HRC.

1996.[214] With the station's budget estimates reaching a high of $40 billion over its lifetime, detractors such as Representative Tim Roemer, (D-IN) took up the fight. In both 1992 and 1993 Roemer offered an amendment to eliminate funding for the space station, arguing that the station program wasted money which could be better spent on other scientific programs or to reduce the deficit.[215] NASA's attempts to convince skeptics that the station remained on track, the necessary next step in the exploration of space, and thus worth the money regardless had fallen on deaf ears.

Where in previous budget battles NASA had argued that the station was the necessary next step to manned exploration or emphasized the possible commercial applications, this time NASA made use of its international relationships as both sword and shield. The international partners' participation became integral parts of NASA's rationale for the station program, as officials realized that Congress would not support the project on its own merits. Far from merely "additive," the international partners were now "providing essential elements to the Space Station."[216] NASA officials argued to Congress and others that if the United States pulled out of the space station project it would deal "a catastrophic blow to US international relations and cooperation- not just in space, but in other world affairs."[217] They emphasized that the IGA, while only an executive agreement in the United States, had "treaty status in the eyes of [their]

[214] Ronald Reagan, *State of the Union Address*, January 25, 1984, http://www.presidency.ucsb.edu/ws/index.php?pid=40205, Accessed November 7, 2012. Kathy Sawyer, "NASA Shows Off Its Progress on Space Station: Troubled $40 Billion Project Now Appears to be Back on Track," *Washington Post*, December 6, 1991.

[215] *Democratic Study Group Legislative Report*, Week of April 27, 1992, 8; Kenneth J. Cooper, "House Approves $2.1 Billion for Space Station," *Washington Post*, June 29, 1993. Rep. Roemer would go on to offer an amendment to kill the station every year, though he met with decreasing support. (Cassandra Burrell, "House rejects effort to kill space station," *Associated Press*, April 24, 1997.)

[216] NASA, "International Cooperation," n.d. [1993], Folder: "Space Station White Papers," Box #18330, *Space Station Freedom Congressional Files 1989-94* (Box 4 of 6), NASA HQ HRC.

[217] JSC Director of Public Affairs, *Arguments for Station: International Affairs*, June 10, 1991. Folder: "SSF Benefits Data Volume 1, Part 3," Box #18330, *Space Station Freedom Congressional Files 1989-94* (Box 4 of 6), NASA HQ HRC.

partners."[218] Canceling the station and withdrawing from those agreements would therefore have meant that the United States faced "major discreditation [sic]" in regards to *all* international projects.[219] These arguments ultimately proved convincing, not least because they were backed up by the actions of NASA's partners.

Japan again took the most aggressive stance. Going even further than they had over the military issue, Japanese officials threatened to pull out of other US-led international scientific projects, such as the planned supercollider, if Freedom was canceled.[220] Japanese officials were more confident of their leverage over the success of the station, and more willing to throw their weight around to ensure that they realized their goals regarding the station program. Station defenders pointed out that the Canadian, European, and Japanese space agencies had all "made Space Station a critical element of their space policy plans and budget," committing billions of dollars to station development.[221] Far from having "no outside allies," members of NASA's Space Station Taskforce now found that they could count on partners abroad in order to fight their internal battles. In doing so, NASA ensured that the space station could no longer be considered an internal project to be modified or canceled at will by the Congress. This defense became extremely successful, and grew more potent over time, as the station came closer to reality. While the station project survived one of the votes in 1993 by a single vote, by 1994 it passed with a solid majority of 278 to 155, a majority which became stronger in later battles.[222]

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[218] NASA Press Release, "Space Station Freedom," n.d. [1991] Folder: "Space Station White Papers," Box #18330, *Space Station Freedom Congressional Files 1989-94* (Box 4 of 6), NASA HQ HRC; Donald R. Puddy, *The Case for the Space Station*, July 9, 1991. Folder: "Space Station White Papers," Box #18330, *Space Station Freedom Congressional Files 1989-94* (Box 4 of 6), NASA HQ HRC.
[219] JSC Director of Public Affairs, *Arguments for Station: International Affairs.*
[220] David E. Sanger, "Japan Ties Joint Projects to Space Station Plans," *New York Times*, May 28, 1991.
[221] John Glenn, Speech to the Senate Floor, September 9, 1992. Folder: "Space Station White Papers," Box #18330, *Space Station Freedom Congressional Files 1989-94* (Box 4 of 6), NASA HQ HRC.
[222] "House OKs funding for space station," *Washington Times*, June 30, 1994. By 2000, when the station was under construction, the House voted 325 to 98 not to kill the station. (Larry Wheeler, "House votes down measure to cut space station," *Gannett News Service*, June 22, 2000.**)**

Furthermore, when the Clinton administration ordered a reconsideration of Freedom in 1993, members of Congress actually used NASA's own arguments about the importance of the international agreements to protest against NASA's actions. For example, the chairman of the House Committee on Science, Space and Technology, George E. Brown Jr. contended that the redesign "may end up not only killing the centerpiece of the U.S. manned space flight program, but also dooming prospects for the nation to lead other international 'big science' projects."[223] He not only made use of the same logic that NASA officials had used in earlier defenses of the station, he also attempted to defend the station program from NASA itself, "cautioning" NASA Administrator Daniel S. Goldin on the possibility that NASA would throw away too much of the old design and alienate its partners. By connecting their projects with international supporters, and thus America's international reputation, NASA hit upon a profoundly persuasive strategy.

This emphasis on international cooperation might have been mere lip service, much like the "international success story" of the Spacelab program or the early stages of station design, which had left the Europeans and Japanese so frustrated over NASA's disregard for their concerns. In actuality, however, NASA gave up some of its privileged position in regards to space station design and management. During the redesign of Freedom directed by the Clinton administration, NASA made sure to involve the international partners by requiring that one-fourth of those on the redesign team be representatives of the other space agencies.[224] Being involved every step of the way meant that Canada, Europe, and Japan experienced the 1993 review entirely differently than the earlier frustrating redesigns, budget cuts, and rephases. The NASA administrator received letters of praise for the newly egalitarian treatment of the partners from Charles Vest of the Massachusetts Institute of Technology, the head of a NRC committee

[223] Kathy Sawyer, "Administration Warned on Space Station Redesign," *Washington Post*, March 16, 1993.
[224] Daniel S. Goldin, Memo to Field Directors and Officials-in-Charge, on Redesign Process, March 9, 1993. Folder: 009581, "1993 (Mar-Jun) Space Station Redesign," NASA HQ HRC.

which had been charged with evaluating NASA's station plans and "making recommendations to the president." [225] Vest's panel had been very critical in the past of NASA's resistance to international engagement. The other agencies also felt that they were now in a position to make demands.

The partners insisted that a redesigned station –unlike the stripped-down station some in NASA proposed- would have to include their components, and that any changes be "subject to agreement by the partners."[226] They outright "rejected" a plan suggested within NASA to start a new program largely from scratch" and demanded "that the international team begin by considering revisions to the current plan." [227] Thus they took advantage of the improvements NASA made to the review process just a few years before. Making the international aspect of the project such an important part of their sales pitch to Congress required that NASA actually act in such a way as to acknowledge the importance it claimed for these relationships. In order to gain the protection afforded to international projects, NASA had to treat the space station as a truly international project. Changes in the station's name reflected this change in attitude, as it transitioned from Freedom to Alpha to International Space Station Alpha and then, after the Russian Space Agency accepted the partners' invitation to participate, simply the International Space Station. Thus what began as mere lip service became the defining aspect of the program.

The turn towards international cooperation that began with the space station effort spread outwards and changed the way NASA developed almost all of its programs. Astronaut John Grunsfeld recently remarked that "It will be an international mission as all our missions are,"

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[225] NASA Press Release, "Fact Sheet: Space Station Redesign," NASA, June 17, 1993. Folder: 009581, "1993 (Mar-Jun) Space Station Redesign," NASA HQ HRC; Charles M. Vest, Head of National Research Council Investigatory Committee, Letter to John H. Gibbons, Office of Science and Technology Policy, Executive Office of the President, April 4, 1994, 2. Folder: 009581, "1993 (Mar-Jun) Space Station Redesign," NASA HQ HRC.
[226] "Station options to include present-design 'derivative,' foreign modules," *Aerospace Daily*, March 25, 1993, 473.
[227] Andrew Lawler, "Redesign May Put Station Partnership on Shaky Ground," *Space News*, March 15-21, 1993.

when commenting on a probe NASA currently plans to send to Mars in the 2020s.[228] The culture of the agency moved from the patronizing position of the 1980s to arguing that "[c]ooperation among international teams of humans and robots" is "a mainstay of space exploration."[229] NASA recently invited the ESA to build the space propulsion system for its new crew vehicle; this shift marks quite a difference from the development of the space shuttle, when NASA restricted the ESA to building Spacelab.[230] Furthermore, NASA has continued to use international cooperation as a shield for its projects. For example, the James Webb Space Telescope, which is a joint project between NASA, the ESA, and CSA, was several years behind schedule and billions of dollars over budget, but it survived a strong cancellation attempt in Congress during 2011 due to arguments that cancelling it would violate international agreements.[231]

[228] Jonathan Amos, "NASA to Send New Rover to Mars in 2020," BBC News, December 4, 2012, http://www.bbc.co.uk/news/science-environment-20603689, accessed December 18, 2012.
[229] "Nations Around the World Mark 10th Anniversary of International Space Station," November 17, 2008, http://www.nasa.gov/mission_pages/station/main/10th_anniversary.html, accessed October 11, 2012.
[230] Jonathan Amos, "European Agency defines Ariane and Space Station Plans," BBC News, November 21, 2012, http://www.bbc.co.uk/news/science-environment-20424858, accessed December 18, 2012.
[231] Irene Klotz, "NASA Budget Plan Saves Telescope, Cuts Space Taxis," November 16, 2011, Reuters, http://www.reuters.com/article/2011/11/16/us-usa-space-budget-idUSTRE7AF06320111116, accessed December 18, 2012.

Conclusion

The complicated nature of the space station meant that it inherently functioned as a long-term project, which had to weather changes in national priority over the course of decades, as presidential administrations and congressional sessions came and went. This long process made it particularly vulnerable to cost-cutting and changes in national direction. In these circumstances, NASA needed strong outside allies. In its early days, NASA linked itself closely to the Department of Defense and the national interests of the United States. The development of the space station provided a decisive moment of change which pushed NASA towards a stronger commitment to international cooperation. At the moment of truth, Japan's own domestic politic situation pushed Japanese officials to take a strong position, one which required NASA to choose between military and international support once and for all. NASA originally chose its international partners not out of a sense of the inherent value of internationalism, but due to domestic politics. As NASA searched for strategies to use on the Hill, however, it discovered that international partners provided extremely strong protection against cost-cutting congress members. The limited practicalities at the root of NASA's acceptance of international collaboration in the station did not prevent the involvement of agencies abroad from having unintended consequences, which transformed power relationships amongst the partners. NASA committed itself to a more equal partnership with its fellow agencies in return for their protection, leading to a station that is bilingual in Russian and English, managed by a partnership of fifteen countries, all running experiments and providing supplies and astronauts, instead of the American space station with some small international sections which NASA originally envisioned. Officials exposure to the power of international cooperation, grounded though it was in internal concerns, led to a wider acceptance of internationalist ideals.

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