The US Space Shuttle Legacy and IR: A Realist Perspective

https://www.e-ir.info/2011/07/13/the-us-space-shuttle-legacy-and-ir-a-realist-perspective/

GUILHEM PENENT, JUL 13 2011

This year, the US space program celebrates at least two anniversaries. The first is the 50th anniversary of Kennedy's speech, "We choose to go to the *Moon.*" The other, celebrates thirty years from the beginning of the American *Space Transportation System* (STS), also known as the Space Shuttle program. Except, there will be no true enjoyment. Indeed, 2011 is a special year of remembrance some 25 years after the *Challenger* tragedy [1].

Above all, this is the end of the Space Shuttle orbiter, or to put it simply, the end of an era [2]. Meanwhile, the world moves on apparently unconcerned; Russia is celebrating, in spectacular fashion, the 50th anniversary of their national hero, Yuri Gagarin, going into orbit, and China is planning ambitious space programs, including a multi-module station. Or, is it? What is the true legacy of the Space Shuttle?

Conventional Wisdom

For many, the Space Shuttle program was a disaster. Its reputation as a mistake, which resulted from a policy failure that had multi-billion dollar consequences, is well known and well documented [3]. Admittedly, grappling with the "Apollo hangover", NASA compromised its original ambitious plans in the face of weak political commitment and inadequate funding. In this regard, however, alongside NASA, the US Congress, the White House, and the military all played a role.

On the face of it, the Space Shuttle seems to be about only domestic issues. That is the way one will expect historians to explain Nixon's Decision in 1972. Notably, bureaucratic politics within NASA, then between NASA, the military, and the budget, and finally, negotiations with the Nixon administration until the final presidential order came. In a way, that was what happened. Without this "pulling and hauling", the result might have been very different. One needs only to think about the original project drawn up by NASA engineers [4].

Though, the international dimension, as for everything in regard to manned space programs all around the world, is equally important. As a result, this article offers a critique of conventional wisdom. As for the legacy, the important question that should be asked may not be "how" the Space Shuttle program was implemented, but "why" the US needed it in the first place. Moreover, a supposed domestic failure can be perceived internationally as a tremendous success.

That is why international relations (IR) matter so much. Of course, IR is a rather populous domain, which contains rival theories that compete for supremacy. Both liberalism and constructivism can be successfully applied to outer space politics [5]. However, realism seems to offer a more consistent alternative to the ones described above. In terms of bureaucratic politics, as well as an approach that is often forgotten when confronted with the mysteries of US "space politics."

Surely, that is something which would have been expected from a leading realist scholar, such as Stephen Walt. However, in Stephen Walt's own words, the STS was a "foolish diversion of national resources." It was a thirty year, human, financial, and programmatic failure [6]. Can the Space Shuttle legacy be summarized *only* as a failure?

A Realist Perspective: The Space Shuttle and the "three greatest things"

Applying realism to outer space politics provides the opportunity to draw a more balanced analysis. Realism is a rather complicated paradigm, just like IR. However, according to Michael Sheehan, classical realism is "richer and more nuanced than the narrow neorealism characteristic of the 1980s and thereafter" [7].

Even more, from the classical realist perspective, the international politics of space are explained by the competition for power between great powers:

…but the 'power' in question is a multifaceted amalgam of different forces ranging from tangible military capability to unquantifiable degrees of prestige. A space programme could contribute to overall power by confirming or suggesting capabilities in a range of other areas, such as long-range missiles and technological expertise. In the classical-realist approach domestic political explanations are also significant in a way that they are not in neorealism and therefore the internal political dynamics […] are also an important part of the equation [8].

As for terrestrial life, there are many rationales in space, some inspired by profit, some by national security, and others, notably regarding the manned space program, by prestige [9]. By understanding goals, classical realism may help better comprehend what legacy the Space Shuttle is going to embody.

According to the philosophers of the past, the "three greatest things" are "fear, honor, and interest." In this perspective, no less emphasis is given to honor and glory, in comparison to security or profit [10]. However, prestige is often considered as an instrumental tool, rather than an end in itself, even as referenced by modern classical realists [11].

As a result, in order to point out what the Space Shuttle is really about, I will distinguish between material realism (security and profit) and ideational realism (prestige). The former is thought to be more rational than the latter. However, prestige is unlikely to be subordinated when it is valued. Sometimes, national glory can lead states to apply policies that have no relation to material interests, profit, or security [12].

An Ambivalent Material Legacy

After Apollo, the rationale for the new space transportation system was to make space "easily accessible for human endeavor" by focusing on more economical, secure, and routine spaceflight for a multitude of missions. The system was supposed to "shuttle repeatedly from Earth to orbit and back" serving as a commuter vehicle for people going to work in space, and as a delivery machine for satellites. It was also expected to bring "the astronomical costs out of astronautics" by being "recovered and used again and again – up to 100 times." The actual goal of the US was "to achieve a real working presence in space" [13].

The Space Shuttle, though, never achieved all of that. Instead of being inexpensive, a single launch required about $1B [14]. Schedules were also an issue. Delays were recurrent because of the inspections needed to verify all the complex machinery. That was even truer after two accidental explosions. Lastly, the program lead to a tragic loss of life in 1986 following *Challenger*, and again in 2003 with *Columbia*.

Economic competitiveness and commercial applications are some of the main dimensions channeled by spaceflight. It seems that the argument that the Shuttle would be cheap and routine was very important in NASA's public justification. It did not work, but it is true that space technologies, and above all, the complex human spaceflight components, demand the larger technological and economic base of a nation. As such, space provides a central engine that fuels the global economic strength of the US.

More generally, the Space Shuttle's flexibility, its ability to carry a diversity of payloads, its ability to accomplish many tasks in orbit, and its ability to deploy and retrieve satellites, must also be considered. As for national defense and military activity, space has always proved useful [15]. The Air Force was very important for the development of the Shuttle project, though, its support was more ambivalent [16]. That said, even human spaceflight can translate into

military applications, as shown during the 1980s when astronauts from the military deployed satellites into orbit from the Space Shuttle.

The Prestige Motive: The Space Shuttle Main's Success?

Speaking of strength, however, the US space program was best served by the Space Shuttle as a symbol of American technological prowess. According to Michael Sheehan, space is "also a battle of images and perceptions, confirming the centrality of the ideational dimension of international politics" [17].

National prestige and concern for geopolitical relations has dominated many spaceflight decisions. All recognize, for example, that prestige sustained the space race of the 1960s. However, as noticed by Roger Launius:

…we too often fail to recognize that it continues to motivate support for NASA's programs […]. Prestige should ensure that no matter how difficult the challenges and overbearing the obstacles, the United States will continue to fly in space indefinitely [18].

Surely, the Space Shuttle has been an important symbol of US technological capability that has been recognized by the American people, and also the entire world. One may even say that it has been the most visible, positive, and non-military symbol of American technological superiority [19]. The STS is indeed a superb space vehicle, and its sophisticated machinery is beyond the power of many nations.

For Nixon in 1972, "the single key factor was the leadership aspect of maintaining a vigorous US manned space flight programme." The President was pleased by the assurance from NASA that the Shuttle was a good investment, but "he indicated that even if it were not a good investment, we would have to do it anyway, because space flight is here to stay. Men are flying in space now and will continue to fly in space, and we'd best be part of it" [20].

What was true about Nixon was even truer for his successors. For example, Reagan perceived the Shuttle as a symbol of American leadership. After the *Challenger* tragedy, restoring the fleet size to four was, for him, a sign of strength. The Shuttle was too valuable an instrument of national and international policy to be just shut down [21]. Even President George W. Bush, who had previously been silent on spaceflight, chose to support the program, which was being questioned after the *Columbia* accident [22].

The Future of the US Space Program

As such, the end of the Space Shuttle can strike one as a paradox and a possible anomaly. The prestige motive seems to be stronger than ever with regard to the looming Asian space race. Surely, it is a bad time for NASA to put an end to its most important and still unequalled program. However, in the long term, it is certainly the only solution for the US because of the costs associated with conducting these kinds of policies.

The Space Shuttle was a complex process, but the motive of prestige can provide some of the main reasons why the Space Shuttle program endured such a long time, despite all the technical flaws. As a consequence, the apparent US retrenchment from space certainly shows some courage and wisdom. It is now time to focus on the future in a more sustainable way, and win back the command of the edge of space. That is the path chosen by President Obama [23]. Though, one must not forget the Space Shuttle legacy in regard to the world.

Guilhem Penent *holds a Master's degree in international politics from the Institute of Political Studies, Bordeaux, France. His final dissertation focuses on IR, outer space politics, and American space policy after the Cold War. For the latter, he was granted a prize by the French Air Force* (Prix René Mouchotte 2011).

References

[1] NASA's day of remembrance pays tribute every year to the fallen crews of Apollo 1, Space Shuttles *Challenger* and *Columbia*, and all others who have given their lives in the cause of exploration. *See*

<http://www.nasa.gov/externalflash/dor11/>

[2] *Atlantis* (1985-2011) and four astronauts rocketed into orbit on July 8 on NASA's last Space Shuttle voyage (STS-135). *Discovery* (1984-2011) accomplished its last mission (STS-133) in February of 2011. *Endeavour* (1992-2011) was the second operational Shuttle to be retired after it flew its last mission (STS-134) in May. It will be three years at least, but possibly more, before astronauts launch again from the US.

[3] *See* for example John M. Logsdon, "The decision to develop the Space Shuttle," *Space Policy*, 1986, pp. 103-119, Roger D. Launius, "After *Columbia*: The Space Shuttle Program and the Crisis in Space Access," *Astropolitik*, 2 (3), 2004, p. 277-322, Joseph N. Pelton, "The Space Shuttle – Evaluating an American icon,"*Space Policy*, 26, 2010, pp. 246-248.

[4] "…the decision to develop the Shuttle was the result of bargaining among multiple participants in the policy-making process, and the compromises, negotiations, and coalition-building that accompanies such bargaining," *in* Logsdon, "The decision to develop the Space Shuttle." Originally, the Shuttle was part of a bigger plan, including a Space Station. NASA was extraordinarily optimistic about the future after a decade of spectacular US achievement in space.

[5] *See* Michael Sheehan, *The International Politics of Space*, New York, Routledge, 2007, pp. 12-16 and pp. 16-18.

[6] Stephen M. Walt, "The space shuttle program: stunning success or dismal failure?",*Stephen Walt's Foreign Policy Blog*, March 22, 2011 < http://walt.foreignpolicy.com/posts/2011/03/21/the_space_shuttle_program_stunning_success_or_dismal_failure>

[7] Sheehan, *The International Politics of Space*, p. 7.

[8] *Ibid*, p. 8.

[9] It is of course a simplification. One may add science as an inspiration for space exploration, as well as human destiny, or survival of the species. However, it is a credible assumption as regards to the history of the Space Age. *See* Sheehan, *The International Politics of Space*, pp. 5-19.

[10] Thucydides, *History of the Peloponnesian War*, I. 76. The same can be found in Machiavelli's work, as well as in Hobbes' and Rousseau's. *See* Jack Donnelly, *Realism and International Relations*, Cambridge, Cambridge University Press, 2004, p. 43-44.

[11] *See* Hans J. Morgenthau, *Politics Among Nations. The Struggle for Power and Peace* , New York, McGraw-Hill, 2006, p. 84.

[12] *See* Donnelly, *Realism and International Relations*, pp. 68-70. *See also* Daniel Markey, "Prestige and the origins of war: Returning to realism's roots", *Security Studies*, 8 (4), 1999, pp. 126-172.

[13] Statement by President Richard M. Nixon, 5 January 1972 < http://history.nasa.gov/printFriendly/stsnixon.htm>

[14] "…the average cost per flight has been about $1.3 billion over the life of the program and about $750 million over its most recent five years of operations," *in* Leonard David, "Total Tally of Shuttle Fleet Costs Exceed Initial Estimates," *Space.com*, February 11, 2005 < http://www.space.com/791-total-tally-shuttle-fleet-costs-exceed-initial-estimates.html>

[15] From the beginning, outer space was synonymous with security from nuclear apocalypse thanks to observation and reconnaissance satellites.

[16] The USAF wanted NASA to be able to launch the Shuttle into orbit from Vandenberg Air Force Base in

California, have its rendezvous in space, and return after only one revolution to Vandenberg. In order to meet these specifics, NASA had to develop another design. However, "[e]ven though DOD requirements drove important aspects of the Shuttle design, it was not clear how strong military interest in the Shuttle was or how real were the future military and intelligence missions on which the requirements were based," *in* Logsdon, "The decision to develop the Space Shuttle."

[17] Sheehan, *The International Politics of Space*, p. 21.

[18] Launius, "After Columbia: The Space Shuttle Program and the Crisis in Space Access."

[19] "Space Shuttle remain[ed] […] one of the most highly visible symbols of American excellence worldwide, and a positive one, unlike the nation's enormous military might," *in* Roger D. Launius, "Assessing the legacy of the Space Shuttle," *Space Policy*, 22, 2006, pp. 226-234. The United States has many proofs of its technological superiority, but the Space Shuttle seems to replace all of them in the eyes of the world. As a striking example, anecdotal as it may seem, some may recall the game of tennis which was disrupted in 1983 by the flight of *Enterprise* atop its shuttle carrier aircraft coming from the Bourget, France. The American John McEnroe was certainly too respectful, and maybe surprised by the public reaction too, to trouble himself with the vehement behavior he was famously known for. <http://www.ina.fr/sport/tennis/video/I09124127/navette-spatiale-au-dessus-du-stade-roland-garros.fr.html>

[20] Logsdon, "The decision to develop the Space Shuttle."

[21] Valerie Neal, "Space policy and the size of the space shuttle fleet," *Space Policy*, 20, 2004, pp. 157-169.

[22] Launius, "After Columbia: The Space Shuttle Program and the Crisis in Space Access."

[23] The abandonment of the Space Shuttle will force the United States space program to become totally reliant on Russia for human access to the International Space Station (ISS) in low-earth orbit (LEO). This option may be quite unattractive. Actually, America is making a bet. By focusing on the private and commercial sector, Obama's current plan for space is trying to make American access to LEO sustainable and profitable in the future. Prestige will come in time, and already, that strategy is getting some results as shown by *SpaceX*'s Falcon rocket. That is also the way for NASA to focus on deep space exploration (asteroids, the Moon, Mars, etc.).