Personnel Recovery in Space

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Because of the incredible physical and ethical challenges of personnel recovery in space, the United States needs to take action now to codify recovery methods and expectations for future space travelers. Department of Defense (DOD) Directive 3002.01, *Personnel Recovery in the Department of Defense*, states that preserving military members, DOD civilians, and DOD contractors on US-sponsored missions is one of the department's highest priorities.[1] The Air Force's pararescue fact sheet elaborates by describing the nation's responsibility for personnel recovery as "a moral imperative."[2] If personnel recovery is one of the highest priorities of the DOD and a moral imperative, then what is the DOD doing to prepare for that operation in space? This article discusses the impact of terrestrial personnel recovery and the potential for recovery in space before suggesting use of a Civil Reserve Space Fleet (CRSF) and clarified codes to enable the United States to achieve its objectives.

The US "Airman's Creed" and "Soldier's Creed" assert that fallen Airmen and Soldiers will never be left behind.[3] This culture meets political reality in Department of Defense Instruction 1300.23, *Isolated Personnel Training for DoD Civilians and Contractors*, which points out that "the Department of Defense has a moral obligation to protect its personnel, prevent exploitation of its personnel by adversaries, and reduce the potential for captured personnel being used as leverage against the United States."[4] Failing to recover personnel can lead to public and political pressure to withdraw from the area of operations, as occurred during the Blackhawk Down incident in Mogadishu in 1993. Public outcry over the failure to recover US personnel led to President Clinton's decision to withdraw US forces from Somalia.[5]

In 2001 the Commission to Assess United States National Security Space Management and Organization concluded, "We know from history that every medium—air, land and sea—has seen conflict. . . . Space will be no different."[6] Accepting the idea of conflict in space, Colin Gray assumes that the strategic history of space power is likely to follow the pattern already traced by sea power and airpower.[7] He declares that "anything of great strategic importance to one belligerent, for that reason has to be worth attacking by others."[8] History has seen enemy forces seize ships and commandeer remotely piloted aircraft, and it is inevitable that such adversaries will attempt to take control of strategic vehicles in space.[9]

James Oberg writes, "At some time in the future, the physical presence of humans in space will be necessary to provide greater situational awareness."[10] Given the increased presence of humans in that medium, it is possible that a country may

"seize" low Earth orbit (LEO), as Dr. Everett Dolman posits in his book *Astropolitik*, and take US LEO occupants as space prisoners of war—"capturing" them physically by docking onto their spacecraft or electronically by taking remote control of it.[11] Alternatively, if the US military takes over LEO and holds it by emplacing outposts of astronaut-Soldiers as human trip wires, other countries could challenge this action by commandeering the outposts and taking US occupants prisoner. As odd as these scenarios sound, Thomas Schelling points out "a tendency in our planning to confuse the unfamiliar with the improbable."[12] The purpose of taking prisoners in space would be the same as doing so on Earth: to weaken national will, degrade the US image domestically and internationally, influence international partners to withdraw from US-backed coalitions or alliances, and gain concessions, all the while limiting strategic freedom of movement.[13] If the United States cannot successfully sell its strategic narrative on why it is in space, then public support for US space operations could wane.

The best solution to space personnel recovery involves the United States setting up a CRSF agreement with civilian space companies to ensure the availability of recovery space lift. Like the Civil Reserve Air Fleet (CRAF) arrangement with civilian airliners, the Personnel Recovery CRSF would prevent the wasteful redundancy of a dedicated military fleet and would align with Presidential Policy Directive 4, which authorizes the government to purchase and use commercial space capabilities where available.[14] Speaking about the Marine Small Unit Space Transport and Insertion (SUSTAIN) concept, which also explored dual-use space lift, Brig Gen Richard C. Zilmer told a Senate subcommittee that "there exists a tremendous potential synergy that will mitigate the otherwise prohibitive expense of a solo-DOD technology/capability thrust."[15] CRSF carriers must maintain federal certifications and commit to having a vehicle ready when tasked, regardless of other paying missions slated to launch. Civilian space companies like SpaceX and Orbital Sciences, which already have NASA and US Air Force contracts, could fulfill this need in addition to their commercial business at one-third the cost of a government effort.[16] In return, the government would offer CRSF companies its peacetime space-lift business. The government would need to enlist multiple companies to provide system redundancy. These companies would supply the flight crew, and the military would provide the rescue team. Training and research would mitigate rescue team difficulties with unfamiliar equipment and safety considerations regarding breaching and the use of lethal force in pressurized space containers.

The US government should implement CRSF as soon as possible because astronauts are already living aboard the International Space Station.[17] Personnel recovery was so important to senior civilian leaders that they delayed the opening of operations in Afghanistan in 2001 until sufficient rescue forces could become operational in-theater; similarly, the United States needs to have space personnel recovery capabilities in place before adversaries exploit the weakness.[18] Publicly exercising the capability for recovery in space might deter potential enemies from trying to capture US personnel there since "capabilities that are untested, unknown or unproven cannot be expected to deter."[19]

In addition to securing capabilities, it is necessary to codify current legal norms for space personnel recovery. An important question is whether the Geneva Con-

ventions apply to prisoners in space and, if so, to what degree. The United States must shape this international norm before leaning on it during a prisoner situation. According to United Nations Resolution 1721, international law—which the UN defines as treaties, agreements, conventions, and so forth—applies to outer space.[20] The 1967 Outer Space Treaty defines outer space as our solar system, encompassing its celestial bodies, orbits, and trajectories to or around them.[21] Consequently, adversaries should afford space prisoners of war their rights under the Geneva Conventions.

The US Air Force's *Operational Concept for Personnel Recovery* states that the service should provide rescue options for "anyone, anywhere, anytime."[22] To whom should the space rescue policy apply? The 1967 Outer Space Treaty asserts that states shall "regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance" and that "in carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties."[23] The current DOD personnel recovery obligation applies only to US government missions, but does the treaty obligate the United States to use its CRSF capability for all astronauts—civilian, military, foreign, and US? The United States should also clarify how far into space the assistance obligation applies—LEO, the moon, and Mars are economically and technologically different levels of commitment to space rescue. The United States should resolve these issues before human life is at stake.

Personnel recovery will be just as strategically important in space as it is in terrestrial conflicts. Therefore, the United States must establish a Personnel Recovery CRSF that uses private space-lift carriers similar to the airlift CRAF currently in place. It must also clarify personnel recovery material to delineate which recovery norms hold in space, for whom, and how far. Although the idea of personnel recovery in space is unfamiliar, now is the time to take these measures before an incident occurs. ✪

Notes

1. Department of Defense Directive 3002.01, *Personnel Recovery in the Department of Defense*, 16 April 2009 (incorporating change 1, 4 April 2013), 2, par. 41, http://www.dtic.mil/whs/directives/corres/pdf/300201p.pdf.

2. "Pararescue - 1T2X1," fact sheet, United States Air Force, 28 August 2006, http://www.af.mil/AboutUs/FactSheets/Display/tabid/224/Article/104514/pararescue-1t2x1.aspx.

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4. Department of Defense Instruction 1300.23, *Isolated Personnel Training for DoD Civilians and Contractors*, 20 August 2003, 2, par. 4.1, http://www.dtic.mil/whs/directives/corres/pdf/130023p.pdf.

5. Mark Bowden, *Black Hawk Down: A Story of Modern War* (New York: Atlantic Monthly Press, 1999), 331.

6. Commission to Assess United States National Security Space Management and Organization, *Report of the Commission to Assess United States National Security Space Management and Organization* (Washington, DC: The Commission, 11 January 2001), x, http://www.dod.gov/pubs/space20010111.pdf.

7. Colin S. Gray, *Modern Strategy* (Oxford: Oxford University Press, 1999), 258.

8. Cited in M. V. Smith, "Spacepower and Warfare," *Joint Force Quarterly* issue 60 (1st Quarter 2011): 42, http://www.dtic.mil/doctrine/jfq/jfq-60.pdf.

9. Scott Peterson, "Exclusive: Iran Hijacked US Drone, Says Iranian Engineer (Video)," *Christian Science Monitor*, 15 December 2011, http://www.csmonitor.com/World/Middle-East/2011/1215/Exclusive-Iran-hijacked-US-drone-says-Iranian-engineer-Video.

10. James E. Oberg, *Space Power Theory* (Washington, DC: US Government Printing Office, March 1999), 129, http://www.au.af.mil/au/awc/space/books/oberg/ch05.pdf.

11. Everett C. Dolman, *Astropolitik: Classical Geopolitics in the Space Age* (London: Frank Cass Publishers, 2002), 157.

12. Commission to Assess United States National Security Space Management and Organization, *Report of the Commission*, xv.

13. Col Lee Pera, Paul D. Miller, and Darrel Whitcomb, "Personnel Recovery: Strategic Importance and Impact," *Air and Space Power Journal* 26, no. 6 (November–December 2012): 88–89, http://www.airpower.maxwell.af.mil/digital/pdf/articles/2012-Nov-Dec/F-Pera-Miller-Whitcomb.pdf.

14. "Fact Sheet: The National Space Policy" (Washington, DC: White House, Office of the Press Secretary, 28 June 2010), http://www.whitehouse.gov/the-press-office/fact-sheet-national-space-policy.

15. Jeff Wright, "Why We Must SUSTAIN Human Spaceflight," *Space Daily*, 13 October 2003, http://www.spacedaily.com/news/oped-03zzj.htmlhttp://www.spacedaily.com/news/oped-03zzj.html.

16. "Launch Manifest," SpaceX, accessed 19 February 2014, http://www.spacex.com/missions; Orbital ATK, accessed 19 February 2014, http://www.orbital.com/HumanSpaceExplorationSystems/COTS/; and "Falcon 9 Launch Vehicle NAFCOM Cost Estimates," NASA Associate Deputy Administrator for Policy, August 2011, http://www.nasa.gov/pdf/586023main_8-3-11_NAFCOM.pdf.

17. Maj M. V. Smith, *Ten Propositions Regarding Spacepower*, Fairchild Paper (Maxwell AFB, AL: Air University Press, 2002), 37, http://aupress.maxwell.af.mil/digital/pdf/paper/fp_0009_smith_propositions_regarding_spacepower.pdf.

18. Bob Woodward, *Bush at War* (New York: Simon & Schuster, 2002), 150–52.

19. Commission to Assess United States National Security Space Management and Organization, *Report of the Commission*, xvi.

20. "Definition of Key Terms Used in the UN Treaty Collection," United Nations Treaty Collection, accessed 10 February 2014, https://treaties.un.org/Pages/Overview.aspx?path=overview/definition/page1_en.xml.

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22. Gen Norton A. Schwartz, *Operational Concept for Personnel Recovery* (Washington, DC: Headquarters US Air Force, 3 September 2009), 20.

23. Outer Space Treaty.

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