Chinese and US Kinetic Energy Space Weapons and Arms Control

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A number of gaps divide reality from perception concerning the kinetic energy ballistic missile defense and antisatellite (ASAT) weapons developed, tested, and possessed by the United States and China. This article explains the equivalence of these supposedly distinct classes of weaponry, and reviews the diplomatic history surrounding recent Chinese and US tests of them, particularly in the light of recent WikiLeaks revelations. The inadequacy of arms-control proposals that would address only the testing or use of these weapons as ASATs is discussed, and a more substantive proposal is offered that emerged in a recent meeting between Chinese and US arms-control analysts. Keywords: antisatellite weapons, arms control, ballistic missile defense, Chinese military, WikiLeaks.

When China caused the intentional collision of two objects in outer space on January 11, 2007, its “experiment”—unambiguously a test of an antisatellite (ASAT) weapon—was widely condemned as provocative and irresponsible. The target, the seven-year-old weather satellite FY-1C, had been stationed in a nearly circular orbit at an altitude of 860 km, and most of the debris from the collision continued along trajectories near that of the satellite. This debris remained in low-Earth orbit (LEO) at altitudes concentrated between 500 and 1,500 km but ranging as low as 200 and as high as 4,000 km. It spread out to fill, and to pose a threat to satellites orbiting anywhere within the entire LEO sphere.¹ By 2010 NASA reported that 2,841 pieces of this debris had been cataloged, 97 percent of which remained in orbit. As many as 35,000 more pieces were too small to be observed from Earth. The FY-1C debris accounted for “about 18% of the entire population of cataloged man-made objects in orbit” and was “the greatest amount of orbital debris” ever produced in a single event, more than twice that left by the accidental Cosmos-Iridium satellite collision two years later (NASA 2010).
The test was not announced by China, and news of it only surfaced a week later, leaked from US sources (Covault 2007). The information was confirmed by a US spokesman the next day, and the following day “protests and expressions of concern were lodged over the test by the United States, Japan, Canada, South Korea and Australia,” later joined by Britain, Taiwan, India, South Korea, and the European Union (Elegant and Thompson 2007; Hitchens 2007). The United States had in fact protested to China in Beijing and Washington on January 15 (WikiLeaks 2011d). However, the Chinese ministry of foreign affairs did not acknowledge that the test had taken place until January 23 (Yu 2007). Earlier, its spokesman had stated that the ministry “had not been informed” (DPA 2007). As Gregory Kulacki and Jeffrey Lewis comment, “China’s failure to present a timely, cogent explanation to the world magnified the test’s negative consequences by making the Chinese government appear careless, indifferent, and disorganized” (2008, 338).

Exactly three years later, China conducted a second collision test of a similar, identical, or improved version of the same weapon. Much of what we know about this is contained in a January 12, 2010, US State Department cable released by WikiLeaks (WikiLeaks 2011b). According to that document, the target was a CSS-X-11 ballistic missile (BM) launched from the Shuangchengzi Space and Missile Center. The interceptor was carried by an SC-19 rocket launched from the Korla Missile Test Complex, two minutes and forty-two seconds later. The collision took place at an altitude of 250 km, about five minutes after the launch of the interceptor. In the second test, both objects were traveling on BM-like trajectories, and would have fallen to Earth soon in the absence of a collision. After the impact, which also took place at a relatively low altitude, debris pieces followed trajectories close to those of the objects from which they were created, and therefore quickly reentered Earth’s atmosphere. As the State Department cable noted (one day later), “No debris from this test remains on-orbit.”

This time, China was much better prepared for any foreign reaction, and instead of taking two weeks to acknowledge the test, announced it promptly through the official news agency Xinhua, reporting that “the test has achieved the expected objective” (Xinhua 2010). Given the lack of hazardous debris created by the second collision test, international reaction was comparatively muted. But there