

North Korea's launch

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On April 5, North Korea launched what it claimed was a rocket bearing a satellite. Much of the rest of the world suspected that it was a ballistic missile test in disguise. While the U.S. Space Surveillance Network has reported that the North Koreans failed to place a satellite on orbit, because detailed information about the launch is not available, there is much debate over what ended up taking place. Given the technical limitations of this test and North Korea's ballistic missile program, there is strong evidence that its primary purpose likely was to send a political message, which must be factored in when the United States and other countries respond to this test.

Last Sunday was the third time that North Korea had attempted to launch a long-range rocket, and the third time that it had failed to do so. The first was in August 1998, when the multi-stage Taepo Dong-1 was supposed to place a satellite in orbit. In shades of this week's events, it failed in what seems to be a very similar manner: the ignition and separation of the first two stages went smoothly, but the third stage failed. Also echoing events of this week, North Korean officials claimed in 1998 that the satellite payload made it into orbit and broadcast patriotic paeans to North Korea. The second flight test and failure came in July 2006, when the first Taepo Dong-2 blew up less than a minute after it left the launch pad.

In the most recent test, the Unha-2, which is thought to be a reworked version of the Taepo Dong-2, the first stage operated apparently without incident, and fell into the Sea of Japan as planned. However, the rest of flight unraveled fairly quickly. According to publicly available data, the payload failed to separate properly from the launch vehicle, and the entire rocket ended up in the Pacific Ocean (according to Gen. James Cartwright, vice chairman of the Joint Chiefs of Staff, the second and third stages plummeted into the ocean very near each other: "We can't tell how much, but they are very close together").

It should be noted that the space launch vehicles and ballistic missiles are derived from the same basic rocket technologies: in fact, many U.S. launchers were originally developed from missiles. But the differences between them arise from the goal of placing a nuclear weapons payload in a ballistic (i.e., reentering) trajectory, versus the need to place a satellite payload in orbit. Launch trajectory, size, and number of stages all play a part in distinguishing the two different uses.

North Korea did achieve a few accomplishments with this flight test. It was able to fly a multi-stage ballistic missile just around 3800 kilometers (2400 miles), which was roughly in line with what it did in 1998; furthermore, from photos released of the rocket and its launch, the Unha-2 was bigger and more powerful than the Taepo Dong-1, and potentially used more complex engine technology. This test also garnered global attention away from the G-20 summit, and gave a not-too-subtle reminder to the new Barack Obama Administration that Afghanistan, Pakistan and Iraq are not the United States' only security concerns. Finally, it solidified Kim Jong Il's standing prior to Thursday's meeting of the North Korean parliament, where he evidently plans to have himself reappointed as head of the National Defense Commission, and reasserted his authority despite rumors that he had a stroke last August.

From a technical perspective, however, this test did not prove a good advertisement for North Korea's long-range ballistic missile capabilities, given that all three tests have ended in failure with apparently different root causes. It also raises the question of how North Korea intended to collect critical telemetry data on the rocket performance, since it is unlikely that North Korea had ships collecting data or radar stations tracking it once it went over the horizon from the launch pad. And if North Korea had no way to monitor its missile in-flight, it implies that they are not serious about building an operational long-range ballistic missile weapon system, but instead are using their scattershot approach to ballistic missile development as way in which to garner leverage needed for international fora like the Six Party Talks (which have been stalled since last December).

Japan and the United States did the majority of the outside tracking of the launch. Two Japanese Aegis ships, the *Kongo* and the *Chokai*, were fielded in the Sea of Japan to monitor the launch. (Both of those ships were also involved in Japan's two attempts to shoot down a target with its ship-based missile defense system: the *Kongo* made an intercept in December 2007, but the *Chokai* missed in November 2008. Still, it indicates that Japan was at least thinking about the possibility that it might have to shoot something down from the North Korean launch.) The SPY-1 radar on the *Kongo* detected the launch, and several U.S. Defense System Program (DSP) satellites confirmed that it had occurred. Another Japanese ship, the *Kirishima*, was able to track the North Korean launch from a position about 1,000 kilometers (621 miles) east of Japan in the Pacific Ocean. The Japanese were reported to have been able to track the launch until it had reached about 3,000 kilometers (1,864 miles) east of the Musudan-ri launch pad. It is unclear whether the Japanese forces were able to track the North Korea missile into the Pacific; it appears this was done by U.S. Aegis ships and satellites. The Sea-Based X-band radar, which has been built specifically to track North Korean missiles for the U.S. missile defense system but has only played limited roles in missile defense tests to date, was not used to follow this week's launch; instead, it was undergoing yet more repairs.

The North Korean launch highlighted the often contradictory nature of international agreements and United Nations resolutions, which was roiled further in this case by the ambiguous wording regarding whether North Korea would be allowed to attempt space launches. For example, Pyongyang made at least a desultory effort to acknowledge existing international space law when planning this launch. It alerted the International Maritime Organization and the International Civil Aviation Authority so that alerts could go out to mariners and aircraft to avoid the project splash-down areas for the first two stages and projected flight path. North Korea also officially became party to the Outer Space Treaty and Registration Convention, two important cornerstones of the peaceful uses of outer space. It reportedly even alerted Chinese, Russian and U.S. officials an hour prior to the launch. With these steps, North Korea at least paid face value to the international community before holding its launch. This acknowledgement indicates that North Korea does realize that there are international rules and regulations that must be followed and thus might be receptive to pressure in the future to be more open in meeting those rules.

Yet United Nations Security Council Resolution 1718 explicitly forbids the work on ballistic missile and associated technology by North Korea. According to Susan Rice, U.S. Ambassador to the United Nations, the missile launch thus "was in violation of international law." Much of this haze exists because of the similar (but not identical) nature of ballistic missile and space launch technologies. If North Korea truly had been working on a satellite launch vehicle, it

could have avoided much of this suspicion by having international observers there to gather data, monitor the launch, and overall increase transparency on the issue. North Korea did not report its impending satellite launch and the broadcast frequencies it would be using to the International Telecommunication Union, which would have added weight to its assertion that a satellite was indeed being launched, not a ballistic missile.

The United Nations Security Council has taken up North Korea's launch and is reported to be close to releasing a statement that condemns it and pushes for sanctions, but nothing more than that - China and Russia are reluctant to go further.

While North Korea should not be allowed to disregard international measures of censure like United Nations Security Council statements, individual nations must not overreact to this latest launch. With a track record of zero for three spread out over a decade, and lacking serious re-entry vehicle and warhead testing, North Korea's long-range ballistic missile program does not present an immediate threat. Nevertheless, it should certainly be closely monitored, and policy-makers should take that into consideration when deciding funding priorities during the upcoming budget debates. The United States and other countries should use this as an opportunity to put the Six Party Talks back on track, not as justification for increased spending on weapon systems that are of little use in strengthening overall national security.