SECURE WORLD FOUNDATION

Promoting Cooperative Solutions for Space Security

April 30, 2009

Thoughts on North Korea's Recent Launch

By Victoria Samson, SWF Washington Office Director (edited from original version).

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. The U.S. Space Surveillance Network reported that the North Koreans failed to place a satellite on orbit. However, 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 U.S. and other countries respond.

North Korea's Unha-2, launched on April 5, 2009. **Courtesy: Korean Central News Agency.**

April 5 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. 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. North Korean officials also 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, thought to be a reworked version of the Taepo Dong-2, was able to operate its first stage apparently without incident, which 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.

North Korea did achieve a few accomplishments with this flight test. It was able to fly a multi-stage ballistic missile just around 3,800 kilometers (2,400 miles), which was roughly in line with what it did in 1998; furthermore, from photos released of the 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 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 April 9 meeting of the North Korean parliament, where he was 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).

News Bits

► **Dr. Marshall Kaplan** of Johns Hopkins University Applied Physics Laboratory (APL) was the featured speaker on April 2 for the Space Security Lunch Series co-sponsored by SWF and the University of Colorado Aerospace Law and Policy Association (ALPA). His talk, held at the University of Colorado Law School, was titled "Space Debris: A Growth Industry." Before an audience which included interested parties, students and a Constituent Advocate for Congressman Jared Polis, Dr. Kaplan introduced the problem of orbital debris from a historical perspective. He discussed how he proposed a method for extracting *Sputnik 1* from orbit shortly after its launch and described how he participated in studies to deorbit Skylab safely, since the space station did not have the propulsive means to maneuver. Dr. Kaplan also talked about current affairs, focusing on the increasing number of incidents ranging from the Chinese anti-satellite (ASAT) test of January 2007 to the collision of Iridium 33 and Cosmos 2251 in February of this year.

► SWF Communications Director **Phil Smith** (left) and Federal Aviation Administration (FAA) Associate Administrator for Commercial Space Transportation **George Nield** (right) participated in a panel discussion entitled "Regulating the Next Space Age" on March 31 during the National Space Symposium in Colorado Springs. Subjects discussed included licensing of suborbital

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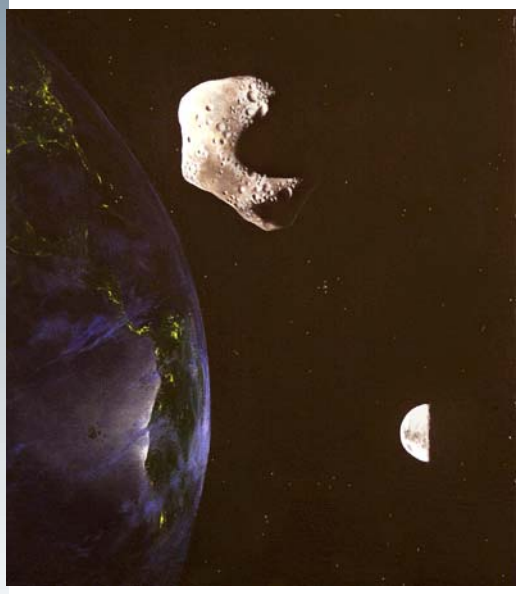
The North Korean launch highlighted the often contradictory nature of international agreements and United Nations (UN) resolutions, which was roiled further in this case by the ambiguous wording regarding whether North Korea would be allowed to attempt space launches. For example, Pyongyang made at least 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 UN 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 UN, 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 (ITU), which would have added weight to its assertion that a satellite was indeed being launched, not a ballistic missile.

While North Korea should not be allowed to disregard international measures of censure like UN 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 U.S. 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.



"Final Hour," by Phil Smith.
Courtesy: SpaceWorks Engineering, Inc.

Experts to Discuss Dangers, Legal Issues of Thwarting Threatening Near-Earth Objects

A unique forum of experts from around the world is set to examine the dangers, prospects and legal issues of dealing with menacing Near-Earth objects (NEOs). The meeting, "Near-Earth Objects: Risks, Responses and Opportunities," will take place April 23 and 24 at The University of Nebraska in Lincoln, Nebraska.

The university's College of Law is hosting the conference that will examine the legal and institutional challenges of international protocols if large asteroids or other interplanetary objects come too close to Earth for comfort. SWF is a co-vehicles, space traffic management and mitigation of orbital debris. The panel was moderated by **Rachel Yates**, an attorney at Holland & Hart and SWF Advisory Committee member.

► A report was released this month by the United Nations on a conference conducted last year and features an article co-authored by SWF Executive Director **Dr. Ray Williamson** and SWF President **Cynda Collins Arsenault**. The article, entitled "Achieving a Sustainable Space Environment" was part of the *Security in Space: The Next Generation Conference* organized by the United Nations Institute for Disarmament Research (UNIDIR). The conference, held from March 31 to April 1, 2008 was co-sponsored by SWF and The Simons Foundation.

► SWF consultant **Barb David** supported Astronomy Day at the University of Colorado Boulder on April 11 and SWF co-sponsored a Yuri's Night celebration at a local establishment that evening. Following Astronomy Day events, **Kenji Williams** of *Bella Gaia* performed a dazzling musical production at the Fiske Planetarium featuring motion graphics of the Earth in space. Over 1,000 vistiors enjoyed these events.

The Month Ahead

April 28 to May 1
(Boulder, Colorado)
Space Weather Workshop. **Dr. Suzanne Metlay** will present, **Phil Smith** will be attending.

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May 4-5
(Berlin, Germany)
Agnieszka Lukaszczyk, SWF Space Policy Consultant, will present at the 7th IAA Symposium on Small Satellites for Earth Observation. She will present during "Regulatory Aspects of Small Satellite Missions" and topic is "Safeguarding the Space Environment."

sponsor of the event, in conjunction with the Association of Space Explorers (ASE) and in partnership with the American Branch of the International Law Association. "Examining how we, as an international community, develop a mechanism to make decisions on courses of action is a crucial building block in putting together an effective response to future NEO threats," said Ben Baseley-Walker, SWF's Legal and Policy Consultant. "As a fundamentally global problem with profound potential geo-political implications should mitigation measures fail," Baseley-Walker added, "it is essential to find a consensus on an international decision-making forum and mechanism well in advance of a crisis situation involving a NEO threat."

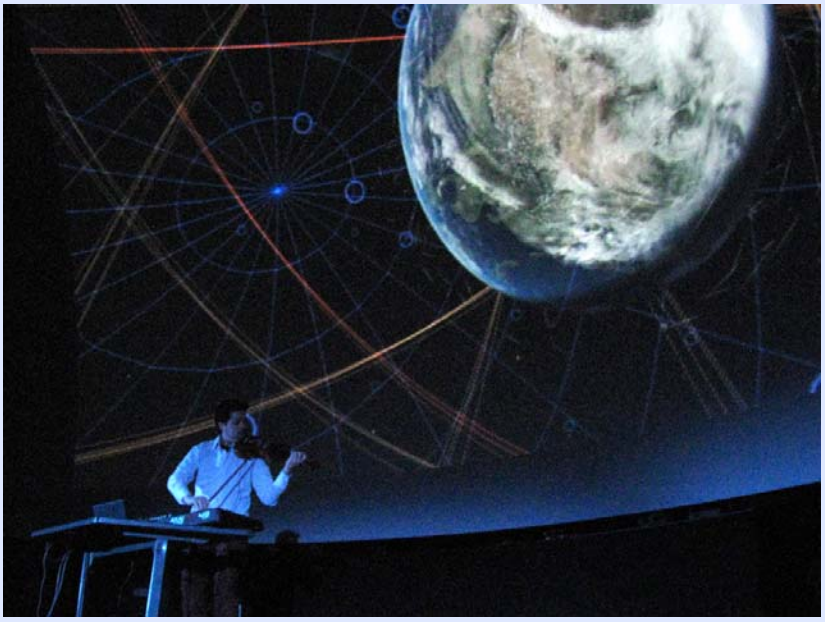
Global framework

NEOs are an increasing area of concern among the world's space scientists. Experts believe that over the next 15 years, advances in technology will lead to the detection of more than 500,000 NEOs – and of those, several dozen will likely pose an uncomfortably high risk of striking Earth and inflicting local or regional damage.

Taking part in the two-day program are members of a multinational committee who made recommendations last fall to the United Nations on establishing global framework to respond to NEO threats. That committee was commissioned by the ASE and chaired by former Apollo astronaut, Rusty Schweickart. Schweickart will also hold a public discussion about protecting the Earth from future asteroid impacts April 22 at the University of Nebraska-Lincoln. Frans von der Dunk, a leading academic in space law and professor of law at the University of Nebraska-Lincoln, serves on the international NEO committee. He said that existing space technology could deflect the vast majority of threatening asteroids.

But even after a threatening object may be discovered, no mechanism exists for effective international decision-making on how to deal with a threat, Von der Dunk added. "It's so important we establish an international framework to make decisions as early and as quickly as possible," Von der Dunk said. "It's essential so that we can take effective action [to deal with a future threat]."

Snapshots



Kenji Williams performs a segment of *Bella Gaia* at the University of Colorado Boulder Fiske Planetarium on April 11. **Photo courtesy Barb David.**

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May 5
(Boulder, Colorado)
Space Security Lunch Series with **Michael Krepon** of the Henry L. Stimson Center.

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May 5-6
(Montreal, Canada)
Space Security Working Group (SSWG) meeting at McGill University. Meeting is designed to finalize content for the Space Security Index (SSI). **Dr. Ray Williamson** will be attending and **Brian Weeden** will be presenting as one of the authors of SSI.

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May 6
(Montreal, Canada)
Roundtable on Space Governance. **Dr. Ray Williamson** will be presenting and **Brian Weeden** will attend.

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May 7-9
(Montreal, Canada)
World Space Debris Congress meeting to develop possible implementation methods at the national, regional, and international level of the Inter-Agency Space Debris Coordination Committee (IADC) debris mitigation guidelines which could serve as examples for emerging, developing and established space States. **Dr. Ray Williamson** will be attending and **Brian Weeden** will be presenting

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May 18-22
(Maxwell AFB, Alabama)
National Security Forum meeting to discuss options for space security. **Dr. Ray Williamson** will be attending.

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