Key points on North Korea's launch of a satellite

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North Korea's successful launch of a satellite into space after several failures, including one in April. was met with cheers in Pyongyang and trepidation almost everywhere else.

Here are some key points about Wednesday's launch:

GETTING INTO ORBIT

The Unha-3 is a three-stage "carrier rocket" with an estimated range of 10,000 kilometers (6,300 miles).

That was enough to get the Kwangmyongsong-3 satellite into orbit — a historic victory for North Korean scientists who had four failures since 1998, including April's first-stage flameout 90 seconds after launch.

Getting a satellite into orbit is an extremely tricky undertaking, requiring all of a rocket's complex systems to operate at peak efficiency. On Monday, North Korea had extended its window for liftoff by a week, until Dec. 29, citing an unidentified technical problem with the first stage of the rocket.

Winter is also a complicating factor. Weather hazards such as lightning, strong winds and freezing temperatures could have stalled a liftoff because they can interfere with the rocket's trajectory and its sensitive electronic components. But North Korea overcame all those potential pitfalls.

ROCKET OR MISSILE?

North Korea calls it a satellite launch, but others see it as a covert test of missile technology.

The same launching mechanism used to send a satellite into space could be employed to send a long-range missile tipped with a nuclear warhead to targets as far away as Los Angeles.

North Korea has tested two nuclear devices since 2006, and is likely trying to find a way to mount an atomic warhead on a long-range missile. That requires miniaturization technology that experts say North Korea has yet to master.

The United States, South Korea and Japan deployed naval destroyers equipped with missile-defense systems around the Korean Peninsula. Japan and South Korea also prepared, but did not use, Patriot missiles to intercept any debris that may have fallen on their territories.

CONSEQUENCES

The United States, South Korea and Japan are expected to seek tougher U.N. Security Council sanctions against North Korea for its launch. The U.N. Security Council condemned North Korea's rocket launch and said it will urgently consider "an appropriate response."

Existing sanctions ban North Korea from buying or selling materials used for nuclear and missile development. They also include a freeze on the assets of individuals and organizations involved in such development.

Japan has banned North Koreans from entering the country and stopped bilateral trade.

Six-nation negotiations on dismantling North Korea's nuclear program in exchange for aid fell apart in early 2009. A deal for the United States to provide food aid in exchange for a freeze in nuclear and missile activities collapsed after the April launch.

TIMING

The launch helped North Koreans mark the first anniversary of the death of leader Kim Jong Il on Dec. 17, the end of a year celebrating the centenary of the birth of national founder Kim Il Sung, and the rise of young leader Kim Jong Un.

It also comes soon before President Barack Obama begins a second term, soon after

China's once-a-decade change in leadership and just before South Koreans and Japanese chose new leaders.

South Korea's presidential elections are Wednesday. The launch could boost the chances of Park Geun-hye of the ruling Saenuri Party over Democratic United Party rival Moon Jae-in, because Park is seen as taking a harder line toward the North. However, both Park and Moon have promised to soften the hardline approach of departing President Lee Myung-bak. Lee's get-tough approach on Pyongyang over the past five years has been widely regarded as a failure.

Japan's parliamentary elections will be held Sunday. The launch could provide an opportunity for Prime Minister Yoshihiko Noda of the Democratic Party of Japan to flex his muscles as a vigilant defender of Japanese interests, but polls show that the DPJ is highly unpopular and likely to lose to the rival Liberal Democratic Party.

In China, the launch puts pressure on newly installed leader Xi Jinping, who must tread a fine line between defending the interests of longtime ally North Korea and showing the United States and others that Beijing can help restrain what many see as a rogue state.

QUICK REBOUND

When it became known that North Korea was planning a launch attempt just eight months after a spectacular failure, some experts were skeptical. Something went spectacularly wrong in the April launch — perhaps a problem in the rocket's fuel system — and eight months is not much time to make repairs in the world of rocket science.

Pyongyang also seemed challenged by its own history. Before Wednesday, every time it tried to launch a multi-stage rocket, something different went awry. Sometimes the issue was in the first stage; sometimes it came later. That inconsistency led to doubts among outside observers over whether North Korea was learning enough from its mistakes to be successful.

Wednesday's launch went as planned. The first stage burned out and fell in waters off the west coast of South Korea in about 2 minutes. The second separated 4 to 6 minutes after the launch, then splashed down in the Pacific off the northern Philippines. The third traversed the atmosphere after boosting the satellite into orbit, some 10-11 minutes after liftoff.

EASILY THE MOST SUCCESSFUL

Even getting two stages of the rocket to work would have marked a clear improvement from April. Wednesday's launch also well exceeded North Korea's third launch effort in 2009, which experts say had been the country's most successful attempt.

Two of the three stages pushed the 2009 rocket over the Pacific. The third stage failed, and, despite North Korea's claims of success, no satellite was put into orbit,

the U.S. North American Aerospace Defense Command said.

North Koreans say they expect the satellite, dubbed the "Lode Star," will collect and send data on things like weather and crop conditions around their country.

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