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# North Korea's rocket tech blitz stokes concern in Tokyo

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North Korea's rocket launch Sunday has raised concerns among Japanese officials and experts that its grasp of missile technology is advancing at a worrying clip.

The latest rocket, which Seoul said flew about 5,500 km from the Dongchang-ri launchpad in North Korea before crashing into the Pacific Ocean, is believed to be significantly larger than the one test-fired in December 2012 and would require a more powerful propulsion system.

The test appeared to be largely successful, demonstrating Pyongyang's considerable progress in its quest to master missile technology, experts interviewed by The Japan Times said.

"(The test-firing) could further advance the development of ballistic missiles," Defense Minister Gen Nakatani told a session of the Lower House on Monday.

From the launch, the North may have learned more about multi-stage rocket technology, such as how to separate propulsion units and control the projectile's

bearing, Nakatani said.

Last year, South Korea's Dong-a Ilbo newspaper reported that the launch tower in Dongchang-ri had been modified to be more than 10 meters higher than it was in December 2012, when a variant of the Taepodong-2 ballistic missile was launched for the last time.

Such a tower could accommodate a larger rocket at the site, which has been regularly monitored by U.S. spy satellites. Indeed, experts said Sunday's rocket was likely bigger than those of previous tests.

Akira Sawaoka, president of Daido University in Nagoya and an expert on rocket technology, pointed out that the latest rocket's first stage separated several minutes earlier than that of the December 2012 launch.

This means the engine power was bolstered and the rocket flew faster than the previous one, Sawaoka told The Japan Times. It also means the rocket is able to carry a heavier payload.

"This is technological progress. Eventually a rocket would be able to carry something like a nuclear warhead" if the North

## Rocket's flight path

Feb. 7, 9:31 a.m.

Launches from Dongchang-ri

9:37 a.m.

First part falls about 150 km west of the Korean Peninsula in the Yellow Sea

9:39 a.m.

Second and third parts fall about 250 km southwest of the peninsula in the East China Sea

9:39 a.m.

Rocket crosses Okinawa

9:41 a.m.

Fourth part crosses Okinawa

9:45 a.m.

Fourth part falls in the Pacific Ocean about 2,000 km south of Japan



KYODO GRAPHIC

succeeds in further improving the technology, Sawaoka said.

According to the South Korean Defense Ministry, the first stage exploded into more than 270 pieces after separating from the rocket at around 9:37 a.m. Sunday over the Yellow Sea west of the Korean Peninsula.

But the North may have intentionally destroyed the section because Seoul retrieved the 2012 rocket's first stage from the sea for analysis, said Hideshi Takesada, a professor and noted Korean affairs expert at Takush-

oku University's graduate school in Tokyo.

"You can't say (the test-firing) was a failure just because the first stage exploded," Takesada said.

The test-firing was "largely successful" because the rocket was reportedly able to send an object into Earth orbit, he said.

The developments came as Pyongyang works to eventually develop an intercontinental ballistic missile that can strike Washington or New York on the U.S. East Coast, Takesada said. (Feb. 9, 2016)

# App could help people navigate metro stations

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The land ministry on Thursday started testing a smartphone app that provides detailed navigation services in underground areas around Tokyo Station.

Any Android smartphone user can download the free app, named Japan Smart Navi, during a pilot study, which runs through March 6. The app will be in Japanese only.

Currently, finding directions on smartphones is difficult in underground areas where there is no GPS signal.

Commercial navigation apps are not

good enough, with indoor maps provided as a pay service or provided free of charge only for crowded areas, according to the ministry.

The government wants to change this ahead of the 2020 Tokyo Olympics, aiming to remove "information barriers" for anyone visiting the metropolis.

The ministry's test covers areas surrounding Tokyo Station, including the Marunouchi, Yurakucho, Ginza and Yaesu districts. It has set up 300 "beacons" — devices that enable the positioning and mapping of indoor facilities.

The app, downloadable through the

Google Play store, provides such information as the positions of restaurants and other destinations close to the user. It also shows the best routes and distances, as well as the locations of ticket gates and coin lockers.

After collecting feedback from users, the ministry will expand the areas for similar services to cover major Olympic venues. In the coming fiscal year starting April 1, an English-language app will also be tested, a ministry official said.

A panel of experts under the ministry is



A land ministry official demonstrates a navigation app. KYODO

discussing opening the network to commercial operators in the future, the official added.

The ministry aims to officially launch the services in 2018. (Feb. 5, 2016)

# Nakano 'otaku' warren a must-see

YOSHIAKI MIURA  
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Nakano Broadway turns 50 this year. The shopping complex in Tokyo's busy Nakano district remains popular with enthusiasts of pop culture, boasting dozens of manga, anime and collectors' shops.

The scruffy but vibrant building, housing some 300 shops and restaurants across its five floors, sits at the end of the Nakano Sun Mall shopping street, which is adjacent the north exit of JR Nakano Station.

Since the opening of Mandarake Inc.

stores at the center in 1980, Nakano Broadway has evolved into a center for enthusiasts of pop subculture, offering everything from cosplay items and old movie posters to figurines, plastic models, toys and used books. There is, of course, a good dosing also of manga publications and anime goods.

The Mandarake chain boasts 27 outlets in Nakano Broadway alone. It has a dominant presence in the complex, occupying almost all of the four floor and much of the second and the third floors.

As many as 16 non-Japanese staffers are working at Mandarake stores in the complex, offering services in Japanese, English, Chinese and other languages. Zhan-saya Baigazyeva, an employee from Kazakhstan, dresses up in cosplay and offers guided tours of Mandarake stores on Saturdays.

These days, however, a surge in the number of foreign tourists has turned the complex into not just a place to go for pop culture goods but also for watches, jewelry and other expensive items sold at duty-free shops.

Nakano Broadway's official website is at [www.nbw.jp](http://www.nbw.jp). (Feb. 3, 2016)



Vintage toys are among items sold at Mandarake stores in Nakano Broadway complex. YOSHIAKI MIURA