North Korea nuclear tensions

North Korea: ‘Kim doesn’t just want more missiles, he wants better ones’

New generation of manoeuvrable weapons is raising alarm over an accelerated arms race

Christian Davies in Seoul FEBRUARY 5 2022

North Korea last month fired a ballistic missile capable of hitting the US territory of Guam, the latest in a record flurry of tests that demonstrated the unrelenting progress of the country’s illicit nuclear weapons programme.

But of all the missile systems tested in recent weeks, it is the development of a new generation of manoeuvrable weapons designed to evade missile defence systems that has most intrigued defence experts.

“Kim Jong Un [the North Korean leader] doesn’t just want more missiles, he wants better missiles,” said Ankit Panda, a nuclear weapons expert at the Carnegie Endowment for International Peace.

“The qualitative arms race has kicked off in a very big way.”

Unlike a ballistic missile, which follows a predictable parabolic trajectory affected only by gravity and atmospheric drag, a manoeuvrable missile’s path can be changed mid-flight through the manipulation of fins or winglets and, in some cases, propulsion systems such as air-breathing engines.

Jan 5: Missile fitted with aerodynamic glide vehicle

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New missile, fitted with conical glider - appears to be based on the Hwasong-8 missile, also fitted with a wedge-shaped glider, that was tested in September. 38 North says the booster appears to be a shortened version of the Hwasong-12 intermediate range ballistic missile

- NK claim of distance travelled: 700km
- NK claim of lateral manoeuvre: 120km

FINANCIAL TIMES Source: FT research Cartography: Steven Bernard

On January 5, North Korea’s Academy of National Defense Science oversaw the launch of a rocket fitted with a conical “manoeuvring re-entry vehicle” (MaRV).

According to North Korean state media, the vehicle made a “120km lateral movement in the flight path” before hitting its target in waters 700km from the launch site in the northern Chagang province.

Six days later, a leather-clad Kim attended the test of a rocket fitted with a “hypersonic gliding warhead” that made a “gliding re-leap” and 240km lateral manoeuvre before hitting its target.

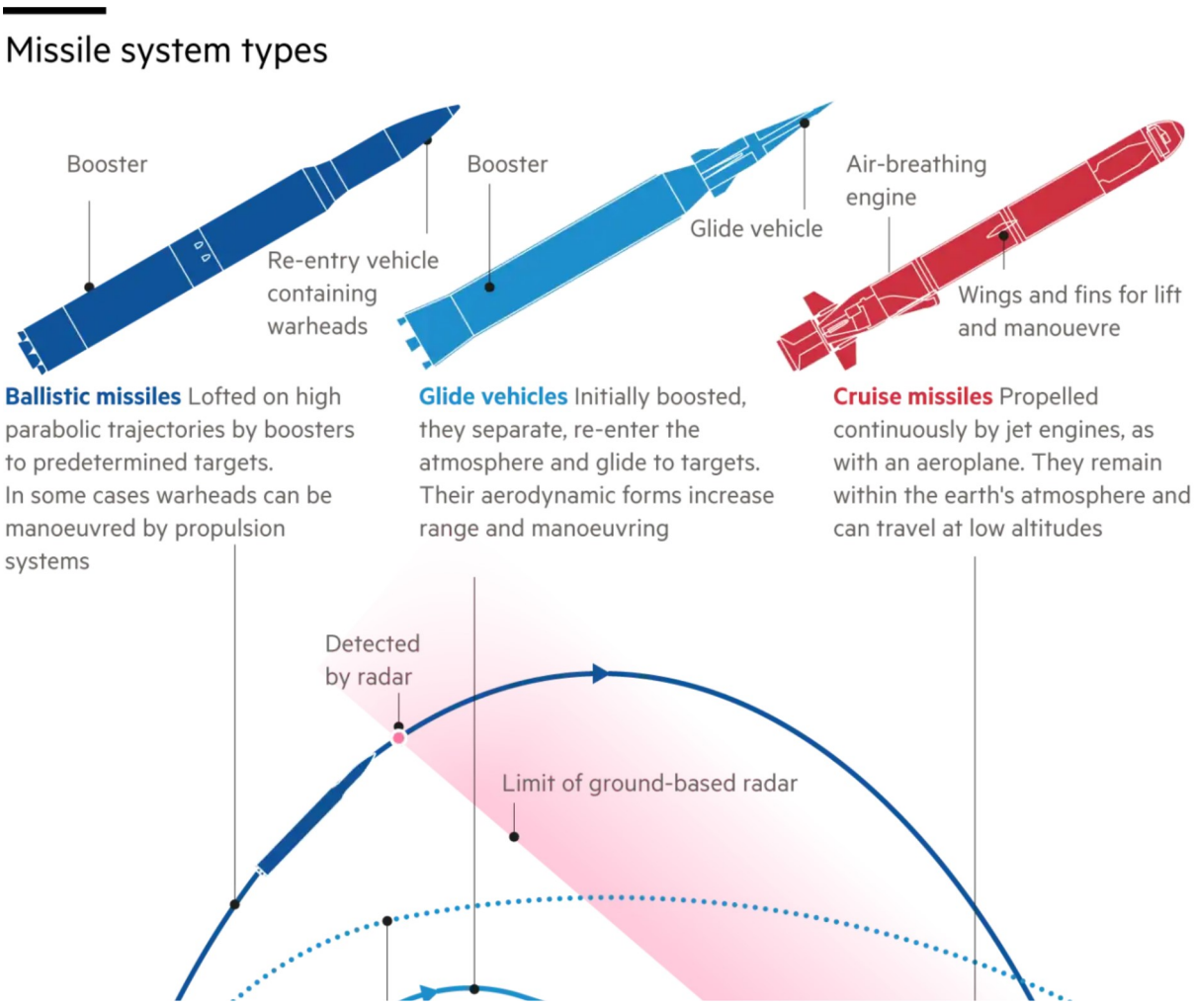
that it was the weapons' manoeuvrability, not their speed, that distinguished them from other types of missiles.

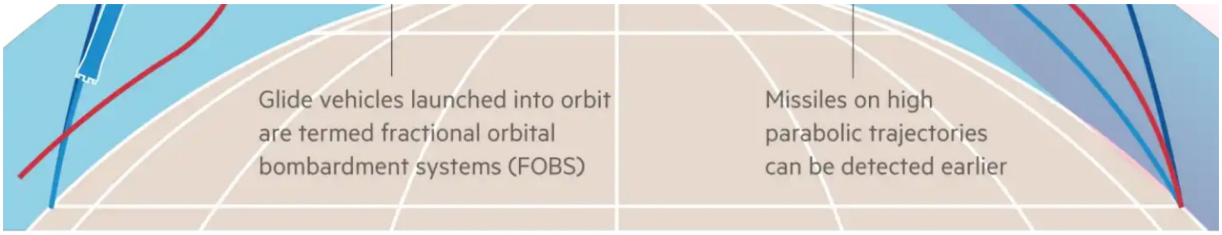
"There are really three motivations for developing manoeuvrable missiles," said Steven Dunham, a launch systems analyst at The Aerospace Corporation, a US federally funded research and development centre in Los Angeles.

"First, you've got to hit the target you want to destroy with the accuracy that's required. Second, in order to do that, you need to be able to evade or avoid the missile defences that surround the target. And third, you need to have the range in order to be able to reach that target," he said.

Missiles able to change their trajectory can be both more precise and much harder to intercept and destroy.

Delivery vehicles that glide at low altitudes are also more likely to evade the attention of radar systems — such as South Korea's Terminal High Altitude Area Defense system — that are designed to detect ballistic missiles travelling at much higher altitudes.





Sources: Federation of American Scientists; The Aerospace Corporation; FT research
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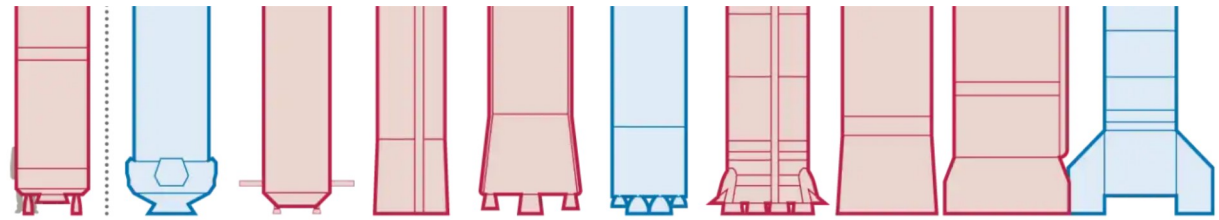
The US, China, Russia, Iran and South Korea, among others, have been developing manoeuvrable missiles, in some cases for decades. Last year, the Financial Times revealed that China had tested a hypersonic glide vehicle capable of orbiting the globe before re-entering the earth's atmosphere.

"There is a misapprehension that manoeuvrable weapons are some kind of new, niche threat," said Sam Wilson, senior policy analyst at The Aerospace Corporation. "In fact, most missiles being developed around the world are manoeuvrable to some degree."

But analysts worry that North Korea's manoeuvrable weapons, in addition to the progress it has made developing "solid-fuel" missiles that can be deployed with less warning, raise the risk of a disastrous miscalculation on the Korean peninsula.



Estimated maximum range (km)

1,200	2,000	4,000	4,500	4,500	10,000+	11,500	8,500–13,000	13,000	10,000+

*The Taepodong-2’s technology has been used as the basis for North Korea’s Unha space launch vehicle, which has put two satellites into orbit. There is no consensus on whether it can function as an ICBM

Sources: CSIS; Missile Defense Advocacy Alliance; Korea Risk Group; IISS; FT research

South Korea’s defence strategy envisages “kill chain” pre-emptive strikes against North Korean missile systems in the face of an imminent attack.

Last month, Yoon Seok-youl, the conservative candidate in March’s South Korean presidential election, said a pre-emptive strike was the “only method” of preventing an attack from a nuclear missile capable of travelling at hypersonic speeds.

“What’s concerning is that if you look at North Korea’s plans to shoot first, and you look at how South Korea plans to react to North Korea’s plan to shoot first, you realise that both their policies are to shoot first,” said Carnegie Endowment’s Panda. “It’s the classic reciprocal fear of surprise attack scenario.”

A railway-borne missile is launched during firing drills last month at an undisclosed location in North Korea © KCNA/Reuters

A **missile system** consists of a rocket — or booster — and a weaponised payload that delivers a warhead to its target. Some are non-separating or “unitary” missiles, while others have detachable payloads.

Ballistic warheads follow a predictable parabolic trajectory — akin to a cannonball