

MONTHLY REPORT Nuclear Risk Assessment

Korean Peninsula 2023/07



Open Nuclear Network

One Earth Future's Open Nuclear Network programme is a non-aligned, non-governmental entity that seeks to increase security for all States by ensuring that nuclear decision makers have access to high quality, shareable open source information which enables them to make the best decisions in the face of escalating conflict.

Nuclear Risk Assessment Report

Nuclear risk can emanate from various factors. These range from the more obvious military developments and incidents that could lead to increased tensions and possibly even nuclear misuse, to the often overlooked domestic and external contexts in which a country perceives its circumstances and, based on those perceptions, makes decisions that have direct or indirect implications for nuclear risk.

In an attempt to more comprehensively assess nuclear risks on and around the Korean Peninsula, this monthly Report examines the DPRK's and the ROK's nuclear and military spheres, as well as activities and policy decisions across main domestic and foreign policy spheres that could impact nuclear risks.

Methodology & Scope

The "ONN Nuclear Risk Assessment Report" strives for objectivity and accuracy through collection, research and analysis of open source information.

The Report focuses on the DPRK and the ROK; other key regional State actors – namely China, Japan, Russia, and the United States – are covered as part of the context in which Pyongyang and Seoul act and make their decisions, but they themselves are not the main objects of this Report's analysis.

The Report consists of three sections: Nuclear, Military and Political.

The **Nuclear section** covers notable developments with direct implications for nuclear capabilities and dynamics on and around the Korean Peninsula. These include the DPRK's nuclear and missile development and tests; military activities related to US extended deterrence to the ROK and in the region; as well as major nuclear policy changes.

The **Military section** covers key military-related developments that may not have direct implications for nuclear capabilities and postures but could lead to heightened nuclear risks. These include the two Koreas' conventional military build-ups or military exercises, or unusual moves by the DPRK's Korean People's Army (KPA) or inter-Korean military conflicts.

The **Political section** addresses key domestic and external factors that could impact Pyongyang's decisions on its nuclear posture. Examples include notable domestic political, economic and social developments, as well as its ROK and foreign policy trends. This section may also address domestic pressures in the ROK or changes in Seoul's foreign policy that could have repercussions for nuclear risk, such as the public discourse in the ROK on acquiring its own nuclear capabilities or significant policy changes related to the ROK-US alliance or inter-Korean relations.

For busy readers, these three sections are preceded by key takeaways from each chapter.

To produce this monthly Report, ONN regularly monitors, collects and analyzes text, satellite imagery and ground photos and videos in publicly and commercially available sources from China, the DPRK, Japan, the ROK, Russia and the United States. Secondary and tertiary sources are used only if primary sources are unavailable. ONN observes a <u>Code of Ethics</u> for collection, research and analysis.

Nuclear Risk Takeaways

Nuclear. Military. Political.



The DPRK conducted its second test-launch of the new solid-fuel Hwasong-18 in July. The launch footage, as well as the language DPRK media used to describe the Hwasong-18, suggests the missile may be one step closer to deployment. The DPRK also held a military parade showcasing major components of its strategic arsenal in the presence of Russian and Chinese delegations. These developments reflect the DPRK's intention to further solidify its status as a full-fledged nuclear-armed state. They also show Pyongyang's increasingly clear intention to develop capabilities for both nuclear warfighting and strategic deterrence vis-à-vis the United States and the ROK. In an apparent response to the inaugural meeting of the US-ROK Nuclear Consultative Group and a US nuclear-armed ballistic missile submarine visit to the ROK, the DPRK launched several missiles and warned that the increased presence of US strategic assets in the region may fall under the use conditions of its new nuclear law. The reference to the nuclear law, however, appears to be a warning rather than signaling an immediate kinetic action.



The DPRK issued a series of statements condemning what appeared to be normal US reconnaissance aircraft activities. The statements might have been triggered by US-ROK efforts to strengthen extended deterrence. The DPRK also featured two large drones in its "Weaponry Exhibition-2023" and the 27 July military parade commemorating the Korean War armistice. The drones could in theory observe all of the ROK territory when flying within the DPRK's own airspace, providing support to the operations of the Strategic Rocket Force.



In July, developments in both Koreas appeared to further solidify distanced inter-Korean relations, with neither side showing any indications that they expect an improvement in ties in the near term. While the willful crossing into the DPRK by a US service member may increase tensions between the DPRK and the United States, it could potentially result in direct US-DPRK communication, depending on the DPRK's handling of the case. The presence of Russian and Chinese delegations at the DPRK military parade appeared to suggest the two UNSC member states' tolerance for the DPRK's nuclear weapons program, and Russia and the DPRK expressed a clear intent to further cooperation in the field of national security.



Nuclear

DPRK Moves Closer to Deploying New ICBM; United States and ROK Further Implement Washington Declaration on Strengthening Extended Deterrence

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The DPRK on 12 July successfully test-fired its new solid-propellant ICBM, the Hwasong-18, its second launch of the missile and the DPRK's ninth successful ICBM launch (Table 1). The launch footage and language used in state media reports suggest that minor modifications and improvements have been made to the launch system, likely pushing the missile a step closer to deployment. The DPRK also displayed key components of its strategic arsenal in a military parade on 27 July, in the presence of Russian and Chinese delegations.

Possible type	Date	Apogee	Distance	Flight time
Hwasong-14	4 July 2017	2802 km	933 km	~39 minutes
Hwasong-14	28 July 2017	3725 km	998 km	~47 minutes
Hwasong-15	29 November 2017	4475 km	950 km	~53 minutes
Hwasong-15	24 March 2022	6249 km	1090 km	~68 minutes
Hwasong-17	18 November 2022	6040.9 km	999.2 km	~69 minutes
Hwasong-15	18 February 2023	5768.5 km	989 km	~67 minutes
Hwasong-17	16 March 2023	6045 km	1000.2 km	~69 minutes
Hwasong-18	13 April 2023	Below 3000 km	About 1000 km	Not available
Hwasong-18	12 July 2023	6648.4 km	1001.2 km	~75 minutes

 Table 1. ICBM tests conducted by the DPRK, excluding partial and failed tests. Data for the 13 April 2023 launch from

 Yonhap: remaining data from Korean Central News Agency (KCNA) reports.

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Nuclear (cont.) DPRK Moves Closer to Deploying New ICBM; United States and ROK Further Implement Washington Declaration on Strengthening Extended Deterrence

- In a <u>report</u> on the 12 July Hwasong-18 launch, the DPRK claimed that it was in accordance with a "strategic judgment" of the current security situation, citing recent developments in the region, such as the more frequent deployment of strategic assets to the Korean peninsula since the announcement of the <u>Washington Declaration</u> in April. Notably, DPRK media referred to its latest Hwasong-18 launch as "a strong practical warning," a term rarely used by the DPRK.
- The estimated size (Figure 1) of the Hwasong-18 suggests that it has a sufficient range and throw weight to
 deliver at least a single reentry vehicle to the US mainland. Although the DPRK missile is not known to have the
 same level of nuclear weapons miniaturization or missile efficiency (payload-to-mass ratio at a given range), for
 reference, the measured size of the Hwasong-18 is similar to the reported dimensions of the Russian <u>Yars/RS-24</u>
 <u>ICBM</u>, which has a throw weight of <u>at least 1,210 kg</u> consisting of multiple independent reentry vehicles.



Figure 1. Using an <u>estimated length</u> of the missile canister, the size of the Hwasong-18 can be deduced with launch footage and photos. Images: Korean Central Television (<u>KCTV</u>), <u>KCNA</u>

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Similar to its first test, the DPRK <u>claimed</u> that the Hwasong-18 pulled itself up after the first-stage burnout to follow a highly lofted trajectory. Despite this maneuver, the missile reached a record-high flight ceiling (Table 1). It is possible that this apogee was achieved because of a light payload. Launch footage of the Hwasong-18 launches in April and July suggests that minor modifications and improvements have been made to the support structures and the ejection systems inside the launch tube (Figures 2 and 3). Further suggesting that the Hwasong-18 may be closer to deployment, the DPRK in its July launch report described the missile as "<u>the core weapon system of the strategic force</u>." Previously, DPRK media described the missile as "<u>the future core pivotal means</u>."



Figure 2. Although there are few visual differences between the Hwasong-18s launched in April and July, different positions of the markings suggest that supporting structures inside the launch tube might have been adjusted. Images: <u>KCNA</u>, <u>KCNA</u>



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Figure 3. Left: Flame and smoke produced by a gas generator, designed to eject the missile out of its tube, emanated from the bottom of the launch tube, suggesting a possible leakage during the first test on 13 April 2023. Right: No indication of leakage during the 12 July 2023 test. Images: <u>KCTV</u>, <u>KCTV</u>

- The DPRK also held a <u>military parade</u> on 27 July to mark the 70th anniversary of the Korean War armistice. The parade, attended by Chinese and Russian delegations, showcased nuclear-capable weapons, ranging from short-range ballistic missiles, underwater attack drones to ICBMs. Most of the nuclear weapon systems shown at the parade have either finished testing or are in an advanced phase of testing, demonstrating the maturity of existing nuclear weapon systems. (For more information, click <u>here</u> for ONN's latest brief on the parade.)
- These developments reflect the DPRK's intention to further solidify its status as a full-fledged nuclear-armed state. This was further underscored in a press statement by Kim Yo Jong, in which she reiterated Kim Jong Un's position on the "irreversible" nature of its nuclear programme. With an increasingly more diverse, more survivable and less detectable set of capabilities, Pyongyang continues to demonstrate its efforts to develop capabilities for both nuclear warfighting and strategic deterrence vis-à-vis the United States and the ROK.



Nuclear (cont.) DPRK Moves Closer to Deploying New ICBM; United States and ROK Further Implement Washington Declaration on Strengthening Extended Deterrence

The United States and the ROK held the first meeting of the newly established Nuclear Consultative Group (NCG), which was timed with the first port visit of a US nuclear-armed ballistic missile submarine to the ROK since 1981. In an apparent response to these developments, the DPRK launched several missiles and stated that the increased presence of US strategic assets in the region may meet the use conditions of its new nuclear law. Although Pyongyang's first warning referencing the new nuclear law raised the stakes, it likely does not reflect imminent plans to escalate to the nuclear domain.

- The United States and the ROK met for their <u>inaugural meeting of the NCG</u>, in which they agreed to further implement the <u>Washington Declaration</u> and develop specific processes for information sharing and contingency planning and operations. They also discussed ROK conventional support to US nuclear operations and ways to further enhance the visibility of US strategic asset deployments. The meeting coincided with the <u>USS Kentucky</u>'s visit to the port of Busan from <u>18 to 21 July</u>, a first for a nuclear-capable submarine since 1981, as well as a <u>visit</u> of the USS Annapolis, a nuclear-powered submarine, to Jeju on 24 July. The day after the DPRK's 12 July ICBM launch, the two sides conducted joint air drills, which included B-52H strategic bombers.
- In what appeared to be a response to the first NCG meeting and the US submarines' presence in the region, the DPRK on 19 July launched two short-range ballistic missiles off its east coast. The <u>reported flight distance of approximately 550 km</u> matched the distance between their <u>launch location in Pyongyang</u> and Busan, where the US strategic submarine stayed for its port visit. On 22 July, the DPRK launched <u>several cruise missiles</u> into the Yellow Sea. On 24 July, the DPRK again launched two short-range ballistic missiles, which flew approximately <u>350 km</u> to 400 km before landing in the East Sea/Sea of Japan.
- In addition, DPRK Minister of National Defence Kang Sun Nam on 20 July issued a press statement noting that the "ever-increasing visibility of the deployment of the strategic nuclear submarine and other strategic assets may fall under the conditions of the use of nuclear weapons" of its <u>new nuclear law</u>. He further stated that the law "allows the execution of necessary action procedures."
- Kang's statement, however, may be read as a warning rather than signaling an immediate kinetic action. First, the DPRK issued the press statement in Kang's name, rather than in the name of the Defence Ministry. DPRK statements issued in individuals' names are generally considered less authoritative than those released by institutions. Second, the purpose of Kang's statement was to "remind the U.S. military" of the nuclear law permitting the execution of "necessary action," rather than announcing the intent to actually execute it. Kang further caveated his statement by saying the deployment of US strategic assets "may" fall under the conditions of the DPRK's nuclear use. Kang's press statement nonetheless lays the groundwork for the DPRK to conduct unspecified "action procedures" if it wishes, as the United States and the ROK continue to enhance their cooperation on extended deterrence measures.



DPRK Warns Against US Reconnaissance Aircraft; Exhibition Features Large Drones, Showcases Weapons to Russian Defence Minister

The DPRK issued a series of statements condemning what appeared to be normal US reconnaissance aircraft activities. The statements might have been triggered by US-ROK efforts to strengthen extended deterrence. The DPRK also featured two large drones in its "Weaponry Exhibition-2023" and the 27 July military parade commemorating the Korean War armistice. The drones could in theory observe all of the ROK territory when flying within the DPRK's own airspace, providing support to the operations of the Strategic Rocket Force.

The DPRK released three consecutive statements condemning what appeared to be normal US reconnaissance aircraft activities. These statements might have been triggered by the first ROK-US Nuclear Consultative Group (NCG) meeting and the US strategic submarine visit, or they may be a sign that the DPRK is concerned by US reconnaissance activities, especially those targeting its ICBM flight tests, given the proximity of the DPRK statements to these events. It is also possible that the DPRK is building a pretext for future escalatory actions.

- On 10 July, a spokesperson for the DPRK Ministry of National Defence <u>accused</u> US intelligence aircraft of conducting "provocative aerial espionage on the DPRK's strategic interior" and cited the <u>1969 EC-121 shootdown</u> <u>incident</u> that killed 31 US servicemen. Following the Defence Ministry statement, Kim Yo Jong, the DPRK leader's sister, issued two statements on <u>10 July</u> and <u>11 July</u>. These statements described the "incursion" of a US reconnaissance plane into the airspace over the DPRK's Exclusive Economic Zone (EEZ) and warned that the United States will "experience a very critical flight" in case of a "repeated illegal intrusion."
- According to Kim Yo Jong's statements and <u>available flight records</u> (Figure 4), the US plane in question operated in international airspace, far from the airspace over the DPRK's territorial waters and contiguous waters. It briefly entered the airspace over the DPRK's EEZ between June 1 and July 10 (the date of the alleged intrusion), which is considered a <u>legitimate use of the sea under international law</u> by most states.



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Figure 4: Left: Flights of the US RC-135 reconnaissance aircraft in the region from 1 June to 10 July. Right: Flight routes of the RC-135 are in accordance with the flight route described by Kim Yo Jong. Images: Google Earth, ADS-B exchange

- Due to the limited availability of flight tracking data, as military aircraft do not always turn their transponders on, it is impossible to comprehensively map out the flight routes of all US reconnaissance plane activities in the region over the years. However, it is known that the US RC-135 had ventured much further into the DPRK's EEZ before, for instance, in a 2003 mission.
- It thus remains unclear what exactly triggered the strong reaction from the DPRK to what appears to be normal operations of US reconnaissance aircraft. Possible interpretations may include: (1) the statements were in reaction to the first NCG meeting and the US strategic submarine visit to the ROK; (2) the DPRK is increasingly concerned by the United States collecting information on its nuclear and missile programmes, including on the Hwasong-18 ICBM launch that took place on 12 July; and (3) the DPRK is building a pretext for future escalatory actions.



DPRK Warns Against US Reconnaissance Aircraft; Exhibition Features Large Drones, Showcases Weapons to Russian Defence Minister

On July 26, Kim Jong Un and a Russian military delegation led by Defence Minister Sergei Shoigu attended the <u>"Weaponry Exhibition-2023" in Pyongyang</u>. According to a KCTV report, most of the exhibited items had already been displayed in the <u>"Self-Defence-2021" exhibition</u>. Notably, new drones displayed at the event could potentially support the operations of the Strategic Rocket Force in the region.

In a <u>previous report</u>, ONN assessed early information on the existence of both drones as suggesting they were of the medium-altitude long-endurance (MALE) type. However, a KCTV report of the exhibition identified one of the drones as "<u>Morning Star-4</u>," which closely resembles the US <u>RQ-4 Global Hawk</u> high-altitude reconnaissance drone. The other drone, referred to by KCTV as "<u>Morning Star-9</u>," does belong to the MALE category, and has a similar appearance to the US <u>MQ-9 drone</u> (Figure 5). According to the information boards at the exhibition, the DPRK has conducted some flight tests of both drones.



Figure 5. Two large drones on display at the "Weaponry Exhibition-2023." The "Morning Star-9" drone is seen armed with guided airto-ground weapons. While they are similar to US drones in appearance, key systems, such as sensors, are more difficult to copy. Image: <u>KCTV</u>

- If the "Morning Star-4" and "Morning Star-9" could reach a similar flight ceiling of <u>~18 km</u> and <u>~15 km</u> as the US RQ-4 and RQ-9, respectively, they would have a <u>radar horizon of roughly 500 to 600 km</u>, enough to cover all of the ROK territory when cruising within the DPRK's own airspace.
- The DPRK referred to the "Morning Star-9" as a "<u>multi-purpose combat drone</u>" and also released footage of the drone firing guided weapons. Given the highly developed air force and air-defence network of the ROK, combat sorties into the ROK airspace would likely suffer a high attrition rate. Nonetheless, a weapon-carrying capability could still be useful in some other scenarios such as border policing patrols.



Further Alienation in Inter-Korean Relations but Potential for DPRK-US Communication; Strong Indication of Strengthening DPRK-Russia Security Cooperation

In July, developments in both Koreas appeared to further solidify distanced inter-Korean relations, with neither side showing any indications that they expect an improvement in ties in the near term. While the willful crossing into the DPRK by a US service member may increase tensions between the DPRK and the United States, it could potentially result in direct US-DPRK communication, depending on the DPRK's handling of the case. The presence of Russian and Chinese delegations at the DPRK military parade appeared to suggest the two UNSC member states' tolerance for the DPRK's nuclear weapons program, and Russia and the DPRK expressed a clear intent to further cooperation in the field of national security.

In a departure from the norm, the DPRK Ministry of Foreign Affairs addressed an exclusively inter-Korean matter, and senior officials used the term the "Republic of Korea" in multiple statements. These unusual moves appeared to be in line with Pyongyang's hardening stance on the ROK. This, coupled with a significant reorganization of the ROK's Ministry of Unification, seems to indicate that neither side expects any substantial inter-Korean exchange to take place in the near term.

- The DPRK Ministry of Foreign Affairs <u>rejected</u> a request by the chairwoman of the ROK's Hyundai Group to visit Mt Kumgang. Although DPRK Foreign Ministry officials in the past have <u>commented</u> on South Korea in statements on the United States, it is unusual for the Foreign Ministry to comment on an exclusively inter-Korean matter. The reasons for the DPRK's use of the Foreign Ministry to comment on this issue are unclear, but one possible explanation is that Pyongyang may view the ROK as another foreign state rather than an entity with which it should reunify at some point. Alternatively, it may have decided to subjugate South Korean affairs under US-DPRK relations.
- The Committee for the Peaceful Reunification of the Fatherland (CPRF), the DPRK institution in charge of inter-Korean dialogue, which typically comments on South Korea and inter-Korean issues, has not issued any statements since <u>August 2019</u>. Since <u>March 2020</u>, Kim Yo Jong, Kim Jong Un's sister, has served as the primary outlet for the DPRK's statements on South Korea and inter-Korean affairs.
- The ROK's Ministry of Unification is <u>merging</u> four departments engaged in inter-Korean dialogue, exchange, economic cooperation and transit and reducing staff by 15% while dedicating greater resources to human rights and DPRK information analysis. According to the ministry, the reorganization aims to <u>"reflect the reality"</u> of inter-Korean relations, with a senior official stating that the government does not believe in the possibility of a sudden reversal of the current state of relations.

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An active US service member awaiting disciplinary action in the United States <u>willfully crossed</u> the inter-Korean border into the DPRK on 18 July without authorization and remains in DPRK custody. The DPRK authorities reportedly have not yet responded to US requests for dialogue. The DPRK's response could either lower or further escalate existing tensions, depending on whether the DPRK decides to use this case for direct DPRK-US engagement.

- Travis King, a US Army private who crossed the border through the Joint Security Area during a tour of the DMZ, is the first US service member to cross the inter-Korean border in <u>over four decades</u>.
- The <u>United Nations Command</u> and the <u>Pentagon</u> confirmed that the Korean People's Army had acknowledged a request for dialogue through the mechanisms of the Armistice Agreement, but it remains <u>unclear</u> whether further contact has been made. Additional points of contact could include the DPRK permanent mission to the UN in New York, or the Swedish embassy in Pyongyang.
- The DPRK may decide to treat the matter as a border issue, as it did in 2018, and return the US service member, which could potentially lower existing tensions. Conversely, the DPRK may decide to utilize it as a bargaining chip vis-à-vis the United States or for internal propaganda purposes, which may translate into a further escalation of tensions. The United States has previously sent high-level delegations to negotiate the release of its citizens, but their ability to do so may be hindered by the DPRK's COVID-19 policy and current hostile relations.

In a major break with COVID-19 border restrictions in place since January 2020, the DPRK invited high-level Chinese and Russian delegations to observe a military parade featuring nuclear-capable missiles, creating the perception that the Chinese and Russian governments tolerate the DPRK's nuclear program. DPRK media's coverage of the Russian military delegation's visit was notably greater in volume and more positive in tone than that afforded to the Chinese delegation's Pyongyang visit, with state media hinting that Pyongyang and Moscow are headed toward strengthened cooperation in the national security field.

- Chinese and Russian delegates attended Victory Day celebrations, constituting the first foreign visitors to the DPRK since the outbreak of the COVID-19 pandemic. This marked the second major shift in the DPRK's COVID-19 border policy following the <u>arrival</u> of the new Chinese ambassador in March. Earlier in July, DPRK state media <u>began</u> sharing images of people without masks, indicating that the mask policy had been lifted.
- On 27 July, both delegation heads standing alongside Kim Jong Un <u>observed</u> the military parade, in which the DPRK showcased flight-tested nuclear-capable ICBMs. This may be interpreted as a tacit show of their tolerance of the DPRK's nuclear weapons program.

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- The Chinese delegation, headed by Li Hongzhong, a member of the Political Bureau of the Central Committee of
 the Communist Party of China, was lower-level than the ones sent to the 2015 and 2018 party and state
 anniversary parades but was comparable to the level of the delegation Beijing sent to the DPRK armistice
 anniversary parade in 2013. DPRK media reporting of three meetings that took place between Kim Jong Un and Li
 expressed friendly ties and included a letter from Xi Jinping, but did not suggest any new breakthroughs in
 bilateral relations.
- In contrast, the <u>visit</u> by Russian Minister of Defence, Sergei Shoigu, constitutes the first visit of a top defence official since Soviet times and points to the DPRK's increased importance to the Russian leadership in the military realm. Russian President Putin <u>expressed</u> in a letter to Kim Jong Un a willingness to "further develop [...] security ties." Furthermore, Shoigu, in a meeting with his DPRK counterpart, <u>expressed</u> a desire to expand bilateral cooperation to include the respective national defence departments, expressions that were <u>mirrored</u> by Kim Jong Un. Given Russia's materiel needs for its invasion of Ukraine, future cooperation in the defence sector could conceivably include arms deals between the two countries.





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