

Proposal for a regional missile limitation regime

An alternative to missile defence in Northeast Asia

Akira Kurosaki

Faculty of Law, Rikkyo University, 3-34-1 Nishi-Ikebukuro,
Toshima-ku, Tokyo, Japan 171-8501; kurosaki@rikkyo.ne.jp

Besides technological and economic problems associated with the development and deployment of missile defence systems, the US missile defence policy has significant political and strategic implications. In this article, reactions of states in Northeast Asia to this missile defence policy are outlined. Subsequently, as an alternative to missile defence, a proposal for a regional missile limitation regime is presented, which aims at co-operatively reducing the threat of missiles through missile control and disarmament and enhancing regional security and stability.

In December 2002, US President George W. Bush announced the initial deployment of missile defence systems in 2004 to protect the homeland, troops overseas, and friend and allies of the United States against the threat of ballistic missiles. Certainly, ballistic missiles, which could be used as a means to deliver Weapons of Mass Destruction (WMD), i.e., nuclear, biological and chemical weapons, are threatening to the security of any country. The United States is not an exception. The development and deployment of missile defence systems by the United States, however, is very problematic. First, the technological feasibility of effective missile defence is still deeply in doubt. Second, the cost-effectiveness of missile defence as a countermeasure to the threat of ballistic missiles and/or WMD is questionable. More importantly, whether US missile defence systems would operate as expected or not, they could have seriously negative impacts on security and stability in various parts of the world. In this article, I examine reactions of states in Northeast Asia to the development and deployment of missile defence systems by the United States and their political and strategic implications, and then present, as an alternative to missile defence, a proposal for a regional missile limitation regime, which aims at co-operatively reducing the threat of missiles through missile control and disarmament and enhancing regional security and stability.

The impacts of US missile defence on Northeast Asia

Since the late 1990s, the US government has regarded North Korea's ballistic missile capabilities as a major threat not only to US interests in Northeast Asia but also to the security of the United States itself, because North Korea has deployed short- and medium-range ballistic missiles that could be used to attack US allies as well as its troops in the region and is suspected to have been developing long-range ballistic missiles in the hope to acquire military capabilities to deter the United States. In the classified National Security Presidential Directive 23, only North Korea is specifically referred to as a state 'aggressively pursuing the development of weapons of mass destruction and long-range missiles as a means of coercing' the United States and its allies [1].

Now, it is widely known that North Korea has already deployed several different types of short-range ballistic missiles that could reach most if not all of South Korea. No Dong, which is the longest range ballistic missile that North Korea has deployed, could reach all of Japan [2]. This implies that US Forces stationed in both Japan and South Korea could be targets of those ballistic missiles from North Korea.

Although the North Korean government has conducted no ballistic missile flight test since the firing of a Taepo Dong-1 missile in August 1998, Washington believes it has not given up an ambition to develop long-range ballistic missiles that are capable to attack the US homeland. The National Intelligence Estimate (NIE) of the US government of December 2001, for example, speculates that 'the multi-stage Taepo Dong-2, which is capable of reaching parts of the United States with a nuclear weapon-sized payload, may be ready for flight-testing.' Then the analysis of the NIE continues as follows: 'The Taepo Dong-2 in a two-stage ballistic missile configuration could deliver a several-hundred-kg payload up to 10,000 km – sufficient to strike Alaska, Hawaii, and parts of the continental United States. If the North uses a third stage similar to the one used on the Taepo Dong-1 in 1998 in a ballistic missile configuration, then the Taepo Dong-2 could deliver a several-hundred-kg payload up to 15,000 km – sufficient to strike all of North America' [3].

Against this backdrop, the US rudimentary missile defence capabilities set to be fielded in 2004 and 2005 include up to 20 ground-based interceptors, 20 sea-based interceptors (Standard Missile-3 or SM-3) with three Aegis ships outfitted for their use, an undisclosed number of Patriot Advanced Capability-3 (PAC-3) missiles, and upgraded radar systems to help identify and track targets. Both the ground-based interceptors are geared to defend against long-range ballistic missiles, while the sea-based interceptors and PAC-3 missiles are designed to defend against short- and medium-range ballistic missiles [4]. In Northeast Asia, the Ministry of Defence of South Korea and US Forces South Korea announced the deployment of PAC-3 by the latter in May 2003 [5].

The Japanese government, which has conducted technological research on missile defence with the US government but has taken a rather prudent attitude to its development and deployment, now seems increasingly interested in developing and acquiring its own systems. As the concern about a nuclear weapons programme in North Korea has mounted, the fear of its ballistic missile capability has been intensified recently in Japan. Under such circumstances, the Japanese government is considering the purchase of SM-3 and PAC-3 from the United States [6]. In the meantime, Tokyo is determined to continue the joint technological research

with the US government on a sea-based missile defence system (formally known as Navy Theater Wide Missile Defence, but now renamed as Aegis Ballistic Missile Defence), which started in 1999 in the aftermath of the launching of a Taepo Dong-1 missile [7]. It is reported that the Japanese government is planning to conduct flight tests of interceptors with the US government in 2005 and 2006 for the first time after the beginning of the bilateral technological co-operation [8].

Taiwan has been showing a keen interest in developing and acquiring missile defence systems as well. Undoubtedly, its interest in missile defence is rooted in its concern over Chinese short-range ballistic missile forces deployed across the Taiwan Strait. Reportedly, the Taiwanese defence officials have been in consultation with the American counterparts on that matter [9].

Russia and China, two of the most vehement opponents of US missile defence plans in past years, reacted coolly to the US announcement of the initial deployment of missile defence [10]. Apparently, Moscow, which is now seeking co-operation with the United States and NATO in the field of missile defence [11], accepted the US withdrawal from the Anti-Ballistic Missile Treaty (ABM Treaty, 1972), which had been an obstacle to the US missile defence plan, and the following decision by the US government to go ahead with the deployment of missile defence as unalterable realities in which it is compelled to seek its national interests and security.

In contrast, Beijing has not softened its hostile attitude to missile defence, probably for fear that US missile defence systems are designed to counter China's strategic deterrent against the United States, which is now made up mainly with around 20 single warhead inter-continental ballistic missiles (ICBMs). In this sense, it is noteworthy that, according to a recent press report, China succeeded in the flight-testing of a medium-range ballistic missile carrying multiple warheads [12]. Although this doesn't mean that China could deploy operational ballistic missiles with multiple warheads in the near future, such a testing could be interpreted as a Chinese effort to counter the development and deployment of missile defence systems by the United States. Beijing is also critical to US co-operation on missile defence with regional actors such as Japan and Taiwan.

North Korea has also opposed to the US missile defence programme as well as the joint Japan-US co-operation on missile defence. It is not difficult to assume that North Korea, which has already been exposed to overwhelming military pressures from Japan, South Korea and the United States, views missile defence as an offensive rather than defensive weapon system since it can be regarded as being intended to neutralise North Korea's missile forces by conducting military operations against it. Now that the doctrine of pre-emption has been not only espoused but also actually practiced by the Bush administration in Iraq, the US missile defence systems may appear more threatening than ever before to the North Korean government. Nevertheless, it has not taken any concrete countermeasures against the US decision to deploy missile defence systems. Actually, it remains committed to its voluntary flight test moratorium of long-range missiles, which has been in effect since 1999 and was extended indefinitely in September 2002 [13].

Thus, fortunately, the development and deployment of missile defence systems by the United States has not stimulated other states to build up their missile forces in Northeast Asia. This, however, does not mean that the danger of igniting a regional missile arms race has been completely eliminated. Besides, such a unilateral approach to mitigate the ballistic missile threat

could only nurture distrust among major regional actors, destructing co-operative efforts to reduce the missile threat in the region.

Furthermore, the development and deployment of missile defence systems by the United States has not been helpful to reduce the missile threat to its allies and to remove their interest in expanding their missile arsenals. Currently, Japan does not have military capabilities to attack ground targets in other countries, in line with the doctrine of 'Senshu Boei' (defensive defence posture). Japan's Defence Agency, however, is exploring to acquire such capabilities to prevent a missile attack against Japan, for example from North Korea. Proposed capabilities include air-to-surface missiles [14]. Besides, it is reported that the Japanese government is considering even the purchase of Tomahawk cruise missile from the United States [15].

South Korea, in turn, has been driven to beef up its missile capabilities to counter short-range ballistic missiles deployed by North Korea in recent years. Under the Memorandum of Understanding on missiles between the governments of South Korea and the United States in 1979, the former had been prohibited to develop ballistic missiles with a range over 180 km and a payload over 500 kg without the consent of the latter [16]. However, as a result of the negotiation between the two governments, a new agreement, which allows South Korea to develop, possess and deploy ballistic missiles with a range up to 300 km, was concluded and Seoul announced a new missile policy in accordance with the bilateral agreement in January 2001 [17]. In addition, the Defence Ministry of South Korea reportedly concluded a contract with Lockheed Martin on the purchase of army tactical missile system (ATACM) surface-to-surface missiles with a range of 300 km in January 2002. These were expected to be delivered to the South Korean Army in 2004 [18].

Therefore, the development and deployment of missile defence systems by the United States has contributed neither to reducing the ballistic missile threat nor to stopping or reversing a trend towards a new missile arms race in the Northeast Asian region, in which China, Taiwan, Japan, North Korea, South Korea, Russia, and the United States have already developed, possessed and/or deployed a variety of missiles (see Appendix).

Past and existing measures for missile control and disarmament

As the report of July 2002 on 'The Issue of Missiles in All Its Aspects' by a UN expert panel points out, 'no norm, treaty or agreement governing the development, testing, producing, acquisition, transfer, deployment or use specifically of missiles exists' [19]. However, some past and existing treaties and agreements, whether bilateral, multilateral or regional, do make specific provisions on particular types or aspect of missiles. Those past and existing treaties and agreements listed in the UN expert panel report could be categorised roughly into four types by their objectives. They are:

- *Measures to limit and/or reduce the number of certain kinds of missiles used to deliver WMDs* such as the Strategic Arms Limitation Treaty 1 and 2 (SALT 1, 1972 and SALT 2, 1979), the Intermediate Nuclear Force Treaty (INF Treaty, 1987), the Strategic Arms Reduction Treaty 1 and 2 (START 1, 1991 and START 2, 1993), and the Strategic Offensive Reduction Treaty (SORT, 2002).
 - *Measures to limit the deployment of missiles to deliver WMDs* such as the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space (Outer Space
-

Treaty, 1967), the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Tlatelolco Treaty, 1967) and the Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil (Seabed Treaty, 1971).

- *Measures to control the export of missiles and missile related technologies* such as the Missile Technology Control Regime (MTCR, 1987) and the International Code of Conduct against Ballistic Missile Proliferation (ICOC, 2002).
- *Measures to implement the prior notification of missile launch* such as the Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War between the United States of America and the United Soviet Socialist Republic (1971) and the Lahore Declaration between India and Pakistan (1991) [20].

In contrast to missile defence policies intended to counter the ballistic missile threat unilaterally, missile defence policies could also be regarded as co-operative measures to reduce the threat of missiles through missile control and disarmament. As we have seen, the development and deployment of missile defence systems by the United States involves the risk to nurture distrust among major actors in Northeast Asia, igniting a regional missile arms race. This could have serious adverse effects not only on co-operative efforts to reduce the missile threat in the region but also on the security of the United States. Therefore, what is needed today in the region seems to be an initiative to pursue such co-operative measures to reduce the threat of missiles in terms of regional security and to nip a new missile arms race in the bud before it becomes uncontrollable.

Such an initiative, however, should go beyond the past and existing agreements and treaties for missile control and disarmament, because they are not necessarily effective to cope with current missile issues in Northeast Asia. To illustrate this point, I examine the effectiveness of the MTCR and the regionalisation of the INF Treaty.

The MTCR was established by the United States and its six allies in April 1987 in order to prevent the proliferation of missiles and related missile technologies. Initially, the guidelines of the MTCR ban the transfer of missiles with a payload over 500 kg and a range over 300 km, but today it prohibits the transfer of all missiles that could deliver weapons of mass destruction regardless their payload and range. Some missile programmes have been stopped or delayed by this suppliers' export control measure [21].

However, the effectiveness of the regime has been limited in Northeast Asia as well as in the rest of the world. First, North Korea and China have not joined the regime and their missile export practices have been a matter of a great concern in terms of preventing missile proliferation. Second, the MTCR is not a legally binding agreement and there are no specific verification or enforcement mechanisms. Thus, the implementation of its guideline differs from one country to the other. Third, the MTCR does not address the issue of existing ballistic missile arsenals, ignoring the asymmetry between 'haves' and 'have-nots'. In addition, the fact that various shorter-range missiles are not regulated under the regime leaves room for a missile arms race in the region as we have seen above. Lastly, the MTCR cannot deal with political problems such as a regional conflict and arms race that create demand for missiles. This flaw is critical especially in Northeast Asia, in which the issues of two Koreas and Taiwan have been the major sources of political and military tension.

The INF Treaty was signed by the United States and the former Soviet Union in December 1987 and entered in effect in June 1988. Under the treaty, the two countries agreed to abolish all land-based ballistic and cruise missiles with a range between 500 and 5,500 km and this agreement was carried out within three years. This treaty is a remarkable achievement in missile disarmament, because it for the first time banned all the missiles in a certain category between the agreed parties [22].

The regionalisation of the INF treaty, however, would not be an effective missile disarmament measure in Northeast Asia. First, it could not regulate various short-range missiles possessed by Japan, North Korea and South Korea. In the Korean peninsula, even 300 km range ballistic missiles or other guided missiles delivering a conventional warhead could constitute a grave military threat to both North and South Korea. A more serious problem, however, is that China, which has deployed a large number of land-based medium range ballistic missiles and regards them as its major deterrent against third country's intervention into a China-Taiwan conflict, would not agree to renounce them. It is not difficult to imagine that China may think it unfair and unacceptable to do so considering the fact that the United States is deploying an overwhelmingly large number of 1,700 km range Tomahawk ship launched cruise missiles (SLCMs) on naval warships that are assigned to the Seventh Fleet in the Asian-Pacific area.

Of course, the foregoing analysis is by no means intended to show the ineffectiveness of the past and existing agreements and treaties on missile issues. They have surely contributed to the reduction of the missile threat through missile control and disarmament. Nevertheless, it is also true that they are not necessarily attuned to address current missile concerns in Northeast Asia. Thus, a new design for co-operative missile control and disarmament in Northeast Asia seems to be needed today as an alternative to missile defence.

Towards a regional missile limitation regime in Northeast Asia

Here, I propose a plan to build a regional missile limitation regime in Northeast Asia. Currently, Japan, North Korea, South Korea, China, Taiwan, Russia, and the United States are developing, possessing and/or deploying a variety of missiles in Northeast Asia and all of them are expected to be the member of the regime, except Taiwan, which would be given a semi-member or an observer status. The objective of such a regional missile limitation regime should be to reduce the threat of missiles in Northeast Asia through co-operative missile control and disarmament. Designing such a regime, however, is not simple and easy, requiring careful considerations on a variety of concerns related to missiles specifically in the Northeast Asian settings. In the following part, I focus on four major issues, which seem especially important in doing so. They include (1) the diversity of missile capabilities among those states, (2) the limitations of missile defence, (3) dual-use technologies (missiles and space launch vehicles) and (4) the issues of two Koreas and Taiwan.

First, the diversity of missile capabilities that major actors are developing, possessing and/or deploying in Northeast Asia makes it difficult to find the intersections of their strategic interests and consequently complicates the work to design a regional regime for missile control and disarmament. For example, North Korea may not agree to the ban on medium-range missiles, which Japan and South Korea do not possess but North Korea has already deployed, without some forms of compensation. China would resist limiting or reducing land-based me-

dium-range ballistic missile forces which the United States and Russia have already renounced under the INF treaty. The United States, in turn, would refuse the ban of SLCMs such as Tomahawk, while North Korea and China may see US SLCM forces as a threat to their security [23]. Thus, the diversity of missile capabilities of the states concerned should be taken into account thoroughly in identifying a combination of merits and obligations for each major actor, which is acceptable to them all, so as to design a regional missile limitation regime.

Second, such a regional regime should regulate the development and deployment of missile defence in Northeast Asia. As we have seen before, the development and deployment of missile defence systems by the United States could become a major obstacle to achieve a regional agreement on missile control and disarmament in Northeast Asia. Thus, some forms of limitation of missile defence should be invented in creating a regional missile limitation regime. They could be both regional and global in scope, because the Bush administration has integrated two different missile defence systems known as the Theater Missile Defence (TMD) and the National Missile Defence (NMD) under the Clinton administration, pursuing the construction of a global missile defence architecture in co-operation with its friends and allies. The development and deployment of missile defence systems by other major actors in the region such as Japan and Taiwan should be regulated under the regime as well.

Third, since it is difficult, if not impossible, to distinguish the development of ballistic missiles from that of space launch vehicles (SLV) from a technological point of view, the issue of peaceful uses of outer space should be considered in designing a regional missile limitation regime in Northeast Asia. According to an expert analysis, Japan, which has an advanced space programme, is technologically capable to develop ICBMs independently [24]. Therefore, national space programmes of each actor should be discontinued or severely restricted to prevent ballistic missile proliferation. In fact, the development of non-military SLV launch capabilities of South Korea has lagged far behind Japan and North Korea, mainly because of the Memorandum of Understanding of 1979 on missiles between Seoul and Washington. Nevertheless, there is no legal foundation to deny the right for a country to pursue the peaceful uses of outer space. Acknowledging that, North Korea, for instance, alleged that the purpose of launching a Taepo Dong-1 missile in 1998 was placing a satellite into orbit [25]. Thus, a regional regime for missile control and disarmament would need to incorporate measures such as regional co-operation in the peaceful uses of outer space and the regionalisation of national space programmes, in order to satisfy interests of each actor in peaceful use of outer space while preventing the proliferation of ballistic missiles.

Finally, the issues of two Koreas and Taiwan cannot be ignored in designing a regional missile limitation regime in Northeast Asia, because they have been political hindrances against regional co-operation especially in political and military fields. Besides, there is no regional framework for political and security talks involving all of China, Taiwan, Japan, North Korea, South Korea, Russia and the United States today, except the ASEAN Regional Forum (ARF). This, however, should not mean that a proposal for such a regime is totally meaningless. Starting a process to pursue its establishment could have positive effects on efforts towards the peaceful solutions of the issues of two Koreas and Taiwan. Moreover, the thaw of political and military tension surrounding those issues, in turn, could improve political environments to form a regional missile limitation regime. Confidence-building and threat-reduction measures built in a regional missile limitation regime such as security assurances and the notification of missile flight-testing could help create this circle of positive feedbacks.

On the basis of the foregoing observations and analyses, I present a model road map for the formation of a regional missile limitation regime in Northeast Asia. The purpose of the regime is to comprehensively regulate missile armaments and missile related activities in the region. China, Japan, North Korea, Russia, South Korea and the United States are expected to participate in the regime. The regime would consist of multilateral agreements on missile control, peaceful uses of outer space, threat-reduction and confidence-building measures, and verification systems. Each one of them could be negotiated separately or combined with others. The proposed plan then aims at creating a 'non-offensive' missile posture zone covering the territories of Japan, North Korea and South Korea. Within the zone, each of the three countries would be prohibited to have military capabilities to attack ground targets in the others' territories by missiles of any kind directly from its own territories. This is designed to be a regionalised solution to the North Korean ballistic missile problem. In order to achieve this goal, the process of setting up the regime would be gradual and incremental in view of the current political and military conditions in Northeast Asia. More specifically, the regime would be established step-by-step through three negotiation stages.

Stage 1

- Japan, North Korea and South Korea agree to prohibit the development, acquisition, transfer and deployment of any missiles with a range over 300 km.
- Japan, North Korea and South Korea agree to prohibit the development, acquisition and deployment of any missile defence systems.
- China, Russia and the United States, individually or multilaterally, provide security assurances to Japan, North Korea, and South Korea.
- The six states agree to establish a regional organisation for missile technology control, the prior notice of missile flight test, the exchange of data on missile armaments, and inspection and verification.
- The six states declare the principles on regional co-operation on peaceful use of outer space.

Stage 2

- Japan, North Korea and South Korea agree to prohibit the development, acquisition, transfer and deployment of any missiles with a range over 180 km.
- China, Russia and the United States start negotiations on the limitation of the development, transfer and deployment of missile defence systems and the ban on multiple war-head missiles.

Stage 3

- Japan, North Korea and South Korea agree to prohibit the development, acquisition, transfer and deployment of any surface-to-surface and air-to-surface missiles that are designed to attack targets on the ground.
 - China, Russia and the United States start negotiations on the limitation of short- and medium-range ballistic missiles and cruise missiles deployed in Northeast Asia.
-

Conclusion

This article focused on proposing an idea of a regional regime for missile control and disarmament in Northeast Asia and intended to avoid going much deeper into a discussion on the feasibility of such a regime. With regard to the feasibility, it is fair to say that the present political environment in the region is by no means apt to conclude any agreement on proposed measures for missile control and disarmament. The point, however, is to present a viable alternative to missile defence in light of a very dangerous trend towards a new missile arms race in the region. Therefore, this proposal is intended only to become a starting point for a future policy discussion on co-operative missile control and disarmament in Northeast Asia. The feasibility of a proposed regional missile limitation regime is uncertain. However, at least, it seems unquestionable that an initiative to start such a discussion is very much needed today.

Notes

1. Bill Gertz, Bush case on Defense Plan Cites N. Korea, *The Washington Times*, May 27, 2003; National Security Presidential Directive 23, National Policy on Ballistic Missile Defense, December 16, 2002 (see the Federation of American Scientists website, <http://www.fas.org/irp/offdocs/nspd-23.htm>).
 2. David C. Wright, Assessment of North Korean Missile Threat, Nautilus Institute for Security and Sustainable Development. (http://www.nautilus.org/fora/security/0320A_%20Wright.html).
 3. National Intelligence Council (NIC), Foreign Missile Development and the Ballistic Missile Threat Through 2015 (Unclassified Summary of a National Intelligence Estimate), December 2001, p. 9. (NIC website: <http://www.cia.gov/nic/pubs/index.htm>).
 4. Wade Boese, Bush to deploy 'modest' missile defense in 2004, *Arms Control Today*, January/February 2003, pp. 18, 29.
 5. *Asahi Shinbun*, June 1, 2003.
 6. *Asahi Shinbun*, March 12, 2003.
 7. US, Japan extended missile defense co-operation, *Arms Control Today*, March 2003, p. 37.
 8. *Nihon Keizai Shinbun*, February 17, 2003.
 9. Taiwan plans low-altitude TMD system: defense minister, February 27, 2003, Taiwan Headlines website (<http://www.taiwanheadlines.gov.tw/20030227/20030227p3.html>).
 10. Wade Boese, Bush to deploy 'modest' missile defense in 2004, *Arms Control Today*, January/February 2003, p. 29.
 11. Wade Boese, Russia considers missile defense, *Arms Control Today*, March 2003, p. 31.
 12. *Yomiuri Shinbun*, February 8, 2003.
 13. Paul Kerr, North Korea extends missile test moratorium; US to send Kelly, *Arms Control Today*, October 2002, p. 25.
 14. *Asahi Shinbun*, March 27, 2003 (evening edition).
 15. *Mainichi Shinbun*, March 28, 2003.
 16. System Planning Corporation, Non-Proliferation Issues, South Korea, Appendix, Unclassified Working Paper, Report of Commission to Assess the Ballistic Missile Threat to the United States, July 15, 1998. (http://www.fas.org/irp/threat/missile/rumsfeld/pt3_skorea.htm).
 17. *Yomiuri Shinbun*, January 18, 2001.
 18. *Sankei Shinbun*, January 5, 2002.
-

19. Report of the Secretary-General, The Issue of Missiles in All Its Aspects, A/57/229, July 23, (<http://ods-dds-ny.un.org/doc/UNDOC/GEN/N02/493/38/PDF/N0249338.pdf>).
 20. Ibid., pp. 13-18.
 21. Ibid., pp. 14-15.
 22. Ibid., p. 15.
 23. In Yokohama, Japan, as many as 500 vertical launchers of the Tomahawk cruise missile are aboard six US naval warships homeported at Yokoshuka US Naval Base. It is assumed that about half of those launchers are fitted with cruise missiles, ready to fly with pinpoint accuracy. Hiromich Umabayashi, Theater missile defense: A confidence destructive measure in East Asia, in: David Krieger and Carah Ong (Eds.), *A Maginot Line in the Sky: International Perspectives on Ballistic Missile Defense*, Nuclear Age Peace Foundation, Santa Barbara, CA, 2001, p. 26.
 24. System Planning Corporation, Non-Proliferation Issues, Japan, Appendix, Unclassified Working Paper, Report of Commission to Assess the Ballistic Missile Threat to the United States, July 15, 1998., (http://www.fas.org/irp/threat/missile/rumsfeld/pt3_japan.htm).
 25. N. Korea launches staged rocket that overflies Japanese territory, *Arms Control Today*, August/September 1998, pp. 28-29
 26. Sources: The International Institute for Strategic Studies, *Military Balance 2002-2003*, London, 2002. Federation of American Scientists website, <http://www.fas.org/main/home.jsp>, Global Security Org website, <http://www.globalsecurity.org>.
-

Appendix: Missiles in Northeast Asia

China			
System	Status	Service Branch	Range/Payload
Range 50~100 km			
HY-1 (Ship to Ship)	Operational	Navy	80 km
SY-1 (Ship to Ship)	Operational	Navy	80 km
HY-2 (Surface to Ship)	Operational	Navy	95~100 km
YJ-6 (ALCM, Air to Ship)	Operational	Navy/Air Force	90~100 km
YJ-81K (Air to Ship)	Operational	Air Force	50 km
AA-12 (Air to Air)	Operational	Air Force	50 km
Range 100~500 km			
HY-4 (Surface to Ship)	Operational	Navy	150 km
SS-N-22 Sunburn (Ship to Ship)	Operational	Navy	250 km
YJ8-2 (ALCM, Air to Ship)	Operational	Navy	120 km
YJ-61 (ALCM, Air to Ship)	Operational	Navy/Air Force	185~200 km
AA-10 (Air to Air)	Operational	Air Force	70~170 km
M-7 (SRBM)	Operational	*1	150 km/190 kg
DF-11 (SRBM)	Operational	*1	300 km/800 kg
Range 500~1000 km			
DF-15 (SRBM)	Operational	*1	600 km/500 kg
Range 1000~5500 km			
Xia/JL-1 (SLBM)	Operational	*1	1000 km/600 kg
DF-21 (MRBM)	Operational	*1	2500 km/600 kg
DF-21A (MRBM)	Operational	*1	1800 km/2000 kg
DF-3A (MRBM)	Operational	*1	2800 km/2150 kg
DF-4 (IRBM)	Operational	*1	5500 km/2200 kg
Range 5500 km~			
DF-5A (ICBM)	Operational	*1	13000 km/3200 kg
DF-31 (ICBM)	Tested/Development		8000 km/700 kg
JL-2 (SLBM)	Tested/Development		8000 km/700 kg

*1 Second Artillery Corps

Japan			
System	Status	Service Branch	Range/Payload
Range 50~100 km			
ASM-1 (Air to Ship)	Operational	Air Force	50 km
AGN-84 Harpoon (ASCM, Ship to Ship)	Operational	Navy	90 km
Range over 100 km			
MIM-104 Patriot-2 (Surface to Air)	Operational	Air Force	70~160 km
ASM-2 (Air to Ship)	Operational	Air Force	100 km
SSM-1 (ASCM, Surface to Ship)	Operational	Army	180 km
SSM-1B (ASCM, Ship to Ship)	Operational	Navy	150 km

North Korea			
System	Status	Service Branch	Range/Payload
Range 50~100 km			
CSS-C-2 (ASCM, Surface to Ship)	Operational	Navy	80 km
SS-N-2 Styx (Ship to Ship)	Operational	Navy	80 km
FROG-7 (Surface to Surface)	Operational	Army	70 km
Range 100~500 km			
Scud-B (SRBM)	Operational	Army	300 km
Hwasong-5 (a variant of Scud-B, SRBM)	Operational	Army	330 km/1000 kg
Range 500~1000 km			
Hwasong-6 (Scud-C, SRBM)	Operational	Army	500 km/700 kg
Range 1000~5500km			
No Dong-1 (MRBM)	Operational	Army	1300 km/750 kg
No Dong-2 (MRBM)	Development		1500 km/770 kg
Taepo Dong-1 (MRBM)	Tested/Development		2000 km/1000 kg
Range 5500 km~			
Taepo Dong-2 (ICBM)	Development		5000~6000 km/ 1000kg
Russia			
System	Status	Service Branch	Range/Payload
Range 50~100 km			
SA-4A/B (Surface to Air)	Operational	Army (a)	50 km, 55 km
SA-12A, B (Surface to Air)	Operational	Army (a)	6~75 km, 13~100 km
SA-N-6 (Ship to Air)	Operational	Navy (b)	km
SS-N-2C (Ship to Ship)	Operational	Navy (b)	45~90 km
SS-N-14 (SUGW)	Operational	Navy (b)	80 km 55 km
Range 100~500 km			
SS-21 (SRBM, Surface to Surface)	Operational	Army (a)	120 km
SS-N-22 (Ship to Ship)	Operational	Navy (b)	250 km
AS-4 (Air to Surface)	Operational	Navy (b)	460~500 km*1
AS-11 (Air to Surface)	Operational	Air Force (a)	120 km
AS-17 (Air to Surface)	Operational	Air Force (a)	50~200 km
AS-18 (Air to Surface)	Operational	Air Force (a)	115 km
AA-10 (Air to Air)	Operational	Air Force (a)	70~130 km
Range 500~1000 km			
SS-N-19 (USGW/Ship to Ship)	Operational	Navy (b)	625 km*1
Range 1000~5500 km			
SS-N-21 (SLCM)	Operational	Navy (b)	3000 km/150 kg*2
Range 5500 km~			
SS-N-18 (SLBM)	Operational	Navy (b)	5600 km/1650 kg*2

(a) Far Eastern Military Command (b) The Pacific Fleet

*1 Nuclear/Conventional *2 Nuclear

South Korea			
System	Status	Service Branch	Range/Payload
Range 50~100 km			
AGN-84 Harpoon (Ship to Ship)	Operational	Navy	90 km
AIM-7 Sparrow (Air to Air)	Operational	Air Force	54 km~
AGM-88A/B HARM (Air to Surface)	Operational	Air Force	48 km~
AGM-142 (Air to Surface)	Operational	Air Force	75 km
Range 100 km~			
NHK-1 (SRBM, Surface to Surface)	Operational	Army	180 km/500 kg
NHK-2 (SRBM, Surface to Surface)	Operational	Army	260 km/450 kg
Hyunmoo (SRBM, Surface to Surface)	Operational	Army	180 km/300 kg
ATACM (SRBM, Surface to Surface)	Operational	Army	165 km/560 kg
ATACMS Block 1A (SRBM, Sfc. to Sfc.)	Operational	Army	300 km/560 kg
Nike Hercules (Surface to Air)	Operational	Army/Navy	180 km
Taiwan			
System	Status	Service Branch	Range/Payload
Range 50~100 km			
Hsiung Feng 2 (Ship to Ship)	Operational	Navy	80 km
AGN-84 Harpoon (Ship to Ship)	Operational	Navy	90 km
Range 100~500 km			
Nike Hercules (Surface to Air)	Operational	Army	135 km~
Tien Kung (Sky Bow)-1 (Surface to Air)	Operational	Army	100 km
Tien Kung-2 (Surface to Air)	Operational	Army	200 km
MIM-104 Patriot-2 (Surface to Air)	Operational	Army	100 km~
Ching Feng (Green Bee) (SRBM)	Operational	Army	130 km/270 kg
Tien Chi (Sky Spear) (SRBM)	Development		300 km/500 kg
The United States			
System	Status	Service Branch	Range/Payload
Range 50~100 km			
RIM-7 Sea Sparrow (Ship to Air)	Operational	Navy (c)	50 km
AGM-88A/B HARM (Air to Surface)	Operational	Air Force (a, b)	48 km~
AIM-7 Sparrow (Air to Air)	Operational	Air Force (a, b)	55 km~
Range 100~500 km			
AGN-84 Harpoon (Ship to Ship)	Operational	Navy (c)	110 km
SM-2 MR (Ship to Air/ASROC)	Operational	Navy (c)	45~110 km
SM-2 ER (Ship to Air)	Operational	Navy (c)	75~115 km
MIM-104 Patriot-2 (Surface to Air)	Operational	Army (b)	70~160? km
AGN-84 Harpoon (Air to Surface)	Operational	Navy (c)	110 km
AGM-154 (Air to Surface)	Operational	Air Force (a, b)	24~200 km
AIM-54A/C (Air to Air)	Operational	Navy (c)	184 km
Range 1000~5500 km			
BGM-109 Tomahawk (SLCM, Ship to Surface)	Operational	Navy (c)	1350 km non nuclear

(a) US Forces Japan (b) US Forces South Korea (c) The Seventh Fleet

SRBM: short-range ballistic missile (<1000 km); MRBM: medium-range ballistic missile (1000~3000 km); IRBM: intermediate-range ballistic missile (3000~5500 km); ICBM: intercontinental ballistic missile (>5500 km); SLBM: submarine-launched ballistic missile; ASCM: anti-ship cruise missile; SLCM: sea-launched cruise missile; SUGW: surface to underwater guided weapon; USGW: underwater to surface guided weapon